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Executive Summary

Qualified secondary school teachers are becoming a precious commodity in many developed and developing countries. They tend to be the hardest segment for the teaching profession to attract, the most expensive to educate and the most difficult to retain in schools. The numbers of unqualified teachers tend to be much higher for secondary than for primary education in almost every developing country. And the attrition rates of secondary education teachers are the highest in the teaching profession, especially for male teachers and for those in high-demand areas, such as mathematics, science and technology (OECD, 2004).

Furthermore, since pre-service teacher education for secondary school tends to be consecutive in virtually every country (i.e., they are educated first in a curriculum area or specialized discipline, and then go on to receive some pedagogical training), the professional identity of secondary teachers is not constructed around teaching but rather around their discipline of specialization. In a context of mass secondary education, increasingly more teachers who thought of themselves as pre-tertiary teachers at the start of their careers are faced now with the hard fact that they are rather post-primary teachers. Contrary to what it was during the times when secondary education had elite status, student motivation can no longer be taken for granted. This fact entirely changes the conditions of daily teaching for secondary school teachers. Instead of being trained to develop new competencies required to deal with today’s students, secondary teachers see their professional identity questioned, and experience a loss of control over their own professional practice. And, insofar as training needs are concerned, secondary teachers seem to be increasingly tempted to trade off the opportunities for learning to innovate for survival toolkits.

Profound changes in the structure, the curriculum and, most of all, the student population of secondary education, are leading to a crisis of professional identity of teachers. The lack of the relevant competencies to deal with the new situation leads many teachers to perceive that their professional identity is under siege. Moreover, external pressure for them to assume “new responsibilities” may be seen as a rupture with their previous know-how, which deepens the identity crisis even further. Therefore, there is an urgent need to reconstruct the professional identity of secondary school teachers. If they are to be in control of their own professional practice, they can no longer be trained solely as a subject specialist at the university.

The school curriculum, particularly at the secondary level, has traditionally been a political battlefield, where different and opposing interests clash with each other, often turning curriculum reform efforts into political nightmares for Ministers of Education. It is therefore quite remarkable that our knowledge society – or late modernity, in Giddens’ vocabulary – has produced such a wide consensus on a number of new skills and competencies which are said to be crucial for individual socialization and national competitiveness in the 21st century. All over the world, government reports and white papers cluster around the need to implement a competency-based curriculum in secondary education, where emphasis is made on problem solving, teamwork, peaceful conflict resolution, dealing with complexity and living with ambiguity, thrive with change, be life-long learners, etc. Nevertheless, it has to be recognized that, while there seems to be consensus around the competencies, there is still profound disagreement as to which is the right balance of disciplines and pedagogical approaches for students to acquire such competencies. Be it as it may, the fundamental issue – and corresponding hypothesis – suggested and dealt with by this research project is that, particularly in developing countries, secondary students can hardly be expected to acquire these 21st Century competencies if the teachers in charge of their education simply do not have them.

The issue of teaching competencies beyond or across different knowledge areas and disciplines becomes a critical one in the context of the overall consensus around the 21st century competencies. At the macro level, what teachers should know and be able to do continue to be country-specific, although it appears to be increasingly shaped by world trends. The six national studies carried out by this project show quite a remarkable convergence in terms of the stakeholders’ views as to the teaching competencies that teachers should
acquire and display in the classroom. However, the institutional arrangements for both pre-service and in-service training of secondary school teachers are still anchored in the past; and this includes, in all countries studied, the curriculum of teacher training programs.

The debate about the curriculum of teacher education programs has taken place around two fundamental and conflicting stands: First that the emphasis should be on subject-related or so-called content knowledge. Second, that the most pertinent knowledge for teaching is obviously teaching and learning-related knowledge: professional knowledge about pupils themselves, classroom management, pedagogy and evaluation, and the school as knowledge and learning producing institution. Contrary to common wisdom in education, there is strong research evidence that knowledge about teaching and learning processes is more related to student achievement than content knowledge of the discipline. Educational research in several related fields has pointed out that there is a third category of knowledge which would be at least as relevant for teacher education as the previous two: Pedagogical content knowledge is the specific and specialized knowledge about teaching and learning processes of a particular discipline. According to some recent reviews (Darling-Hammond, 2002, Marcelo, 2002), pedagogical content knowledge is the type most clearly linked to student achievement, and the one with the strongest potential vis-à-vis the professional development of teachers.

**Overview of Project activities and products**

This project on Learning to Teach in the Knowledge Society started with a rigorous literature review aimed at providing the research context and evidence concerning the emerging set of teaching skills and competencies in line with the 21" century key competencies emphasized by secondary school curricula all over the world.

Then, six countries were selected for analytical work: Two countries from LAC (Mexico and Chile); two countries from Africa (Senegal and Ghana); and two countries from East Asia (Vietnam and Cambodia). Countries selected share a common current interest on teacher education reform and are involved nowadays in major reform projects, some of them financed through WB loans. Key informants in each country were identified, and at least four different “categories” of them: Ministry of Education staff in charge of teacher training policies; Heads of Teacher training colleges; representatives from Teacher unions, Academics and/or consultants based in the country who are carrying out research about teacher issues. Questionnaires and interview guides were developed and adapted to each national context. Six national case studies were therefore carried out on teacher education and teachers’ professional development in the light of the teaching skills perceived to be necessary by different stakeholders in each of the countries. Emphasis was made on reform alternatives for the pre-service and in-service training of secondary school teachers.

In June 2004, a major Conference was organized in Seville (Spain) to share and disseminate the outcomes of the study. Representatives from all six Ministries of Education were invited, together with relevant staff from the World Bank, OECD, ILO, InterAmerican Development Bank, Bilateral development agencies, NGOs, and Universities. Specific objectives of the Conference were to shared those experiences identified as “good practices” as well as the existing gaps between desired teaching competences and current teacher education programs and institutions; promote and enrich policy dialogue among relevant stakeholders about teacher education institutions and teachers’ professional development alternatives in secondary education; present a framework to enable teacher education policy analysis in selected countries from the standpoint of the relationship between teaching skills and desired competences in learners; and, discuss viable strategies in selected countries to create a system for building a knowledge base for the teaching profession through its institutions and programs of pre-service and in-service teacher education.
1. Introduction: Rationale And Background Of The Project

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Teacher training, professional development of teachers, and education reform have traditionally been quite divorced processes. All the way from the times of “teacher-proof” curriculum design and educational materials to contemporary politics and discourses of educational reform, teachers and teacher education have occupied a marginal role. In recent times, with reform agendas emphasizing decentralization, restructuring of school systems and external evaluation and quality assurance systems, one could even argue that teachers have been implicitly seen more as a liability than as an asset for reform efforts.

Pre-service teacher education is, almost everywhere, one of the most obsolete pieces of education systems. This is even more so as far as the training of secondary school teachers is concerned, since it relies almost exclusively on specialized knowledge training at universities, with very little, if any, practical training on teaching and learning processes. This results in secondary teachers having to be responsible for their own training and professional development once they start teaching in schools.

In such context, it becomes an extraordinary challenge to design policies which enable developing countries to select and train teachers to help students acquire the new competencies that are now demanded by society and required by labor markets. These new competencies overtly require for teachers to behave in classrooms in very different ways as the ones they were taught to. The central answer to the challenge lies in the system of teacher education and professional development. Conservative and strongly academically oriented systems of teacher training are unable to facilitate such a shift; but less spending in pre-service teacher training on the grounds of its inefficiency and high cost does not seem to be a good path to follow either.

The overall lack of political and public confidence in teacher training systems can hardly be denied. On average, countries spend around one percent of their annual education expenditure on the continuing professional development of teachers (business and industry typically spend six percent on staff development) (UNESCO, 2001). Yet, the teaching profession is now charged with the immense task of creating the conditions and pushing up the processes for the building of the human skills and capacities that are considered to be critically indispensable for economic growth and prosperity, social well-being and individual development. The starting assumption of our study is that there is a profound mismatch between the radically new key competencies demanded from students in the knowledge society and the teaching skills that teachers are equipped with after their passage through teacher training colleges and in-service training programs.

Teaching Professional Knowledge: Peculiarities and challenges of learning how to teach

Despite the lack of confidence referred to above, effective teacher education programs can make a difference to student achievement. Research evidence points to a very strong link between teacher preparation and student learning outcomes. Notwithstanding the fact that this evidence is indeed the subject of a long-standing academic debate, it is suggested that measures of teacher preparation are by far the strongest correlates of student achievement in reading and mathematics, both before and after controlling for student poverty and language status (Darling-Hammond, 2000). Teachers’ effects on student achievement appear to be additive and cumulative, and generally not compensatory. This means that individual teacher effectiveness in a given school is actually weighed with the aggregate effectiveness of the sequence of teachers that any student gets during his school years. Thus, overall school effectiveness and staff development have a crucial importance for quality of teaching and individual teachers’ effectiveness (Darling-Hammond, 2000). (This also has strong implications for equity of educational provision).
The debate about the professional, non-professional or semi-professional nature of school teaching has been going on for decades. The issue is now more controversial and crucial than ever before. In contemporary knowledge economy, knowledge management is seen as the key for the flexibility of operations, the training and professional development of employees, and even the overall productivity of the organization. The peculiarity of knowledge about teaching is that most of it is tacit, difficult to articulate and systematize, and strictly practical and context-based in nature. However, the goal of knowledge management is precisely to help the organization to collect, build and use its own intellectual and knowledge capital. To put it bluntly, teacher education institutions, schools as organizations, and education systems at large, are still very far from attaining such a goal. And this is why the curriculum of teacher training, especially pre-service, remains such an open, controversial and puzzling issue (with contradicting evaluation results and research evidence).

Teachers’ professional knowledge should shape the curriculum of teacher training programs, both pre-service and in-service. Other professions have constructed a knowledge capital which is so highly specialized that it has been possible to establish a considerable distance from the customer (and this is the key to the classic sociological category of professional prestige). Professional knowledge of teaching cannot be constructed that way. Teachers and teaching are also about being close and caring about students’ lives, and building up learning communities which are capable of responding to the needs of students as citizens who have the right to learn. A totally new approach to professional knowledge needs to be developed for the teaching profession (Hiebert & Gallimore, 2001), one which allows for the conceptualization of teacher education and teacher professional development in terms of lifelong learning.

**Teaching competences and quality teaching**

The debate about the curriculum of teacher education programs has taken place around two fundamental and conflicting stands: First that the emphasis should be on subject-related or so-called *content knowledge*. Second, that the most pertinent knowledge for teaching is obviously *teaching and learning-related knowledge*: professional knowledge about pupils themselves, classroom management, pedagogy and evaluation, and the school as a learning and knowledge producing institution. Contrary to common wisdom in education, there is strong research evidence that knowledge about teaching and learning processes is more related to student achievement than content knowledge of the discipline. Educational research in several related fields has pointed out that there is a third category of knowledge which would be at least as relevant for teacher education as the previous two: *Pedagogical content knowledge* is the specific and specialized knowledge about teaching and learning processes of a particular discipline. According to some recent reviews (Darling-Hammond, 2002, Marcelo, 2002), pedagogical content knowledge is the type most clearly linked to student achievement, and the one with the strongest potential vis-à-vis the professional development of teachers.

In light of these research findings, the proposed study will rely on the definition of teaching competences - teaching skills (Perrenoud, 1999) with a strong emphasis on those derived from pedagogical content knowledge and from teaching and learning content knowledge. A teaching competency alludes to the capacity to mobilize a variety of cognitive resources to face and deal with a specific type of teaching situation. Rather than a particular content or type of knowledge, teaching competencies and skills integrate and articulate cognitive resources which are relevant to a given situation, and are constructed both through training and daily practice in the classroom. Teaching competencies are common to every curriculum area and school level, as they cut across subjects and disciplines in primary, secondary or tertiary education.

In short, the study attempts to increase our understanding of the following research questions:

- How should a map of teaching competencies and skills be drawn to match and respond to the new key competencies that every student needs to acquire?
Which are the teaching competencies and skills that should be incorporated into the curriculum of Teacher training Colleges, and which are those that should become the preferred focus of teachers’ professional development activities and policies?

Is there a gap between what the research literature about teacher training and teaching skills is saying, what developing countries are actually doing in terms of teacher education policies, and what policy makers and other key stakeholders think is important for their countries?

Which are the reform choices and alternatives in national teacher training systems which would allow to achieve a better match between teaching knowledge and skills and desired key competencies in student learning?

How can professional knowledge and skills be efficiently transferred and shared within and among educational institutions and individual teachers?

**Goals and Objectives of the Project**

The goal of the study was to assess what developing countries are doing – and which are the teacher training needs and major skill gaps – to equip teachers with the competencies and skills which facilitate student acquisition of the key competencies required in the knowledge society.

1. Identify a key set of teaching competencies and skills that teachers should be equipped with in order to function effectively with secondary school students and curricula.

2. Review countries’ experience with teacher training to identify both good practices and existing gaps between desired teaching competencies and current teacher education programs and institutions.

3. Promote and enrich country policy dialogue among relevant stakeholders about teacher education institutions and teachers’ professional development alternatives and choices in the light of the new key competencies demanded by the knowledge society.

4. Construct a framework to enable teacher education policy analysis from the standpoint of the relationship between teaching skills and desired competencies in learners.

5. Explore viable strategies in each country to create a system for building a knowledge base for the teaching profession through its institutions and programs of pre-service and in-service teacher education.
2. Teachers Learning For A Learning Society – Literature Review

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INTRODUCTION

Our societies are engaged in a complicated, and unplanned, process of transformation that is affecting the way we work, relate, live and learn. Such change has a discernible effect on the school as an institution charged with educating new citizens. Students today have many more sources of information than even ten years ago, thanks to the new technologies of information and communication. As a result, it is necessary to reconsider the functions traditionally assigned to the school, and to the professionals working in it: the teachers.

A characteristic of the society in which we live is that knowledge is one of the main values of its members. The importance of present-day societies is directly related with the educational level of their citizens, and of their capacity for innovation and enterprise. However, in this age, knowledge has an expiry date, and we must ensure by formal and informal means that citizens and professionals constantly update their competence. Today’s society demands of its professionals a permanent activity of training and learning.

How do these changes affect teachers? How should we reward the work of the teacher in these new circumstances? How should new teachers be trained? How can we adapt teachers’ knowledge and attitudes to respond to and take advantage of the new opportunities offered by the information society? What new educational and school scenarios are possible/desirable?

These questions form a catalogue of concerns leading numerous academics, professionals, researchers, parents, and teachers, etc. to ponder the school’s ability to give a prompt response to the looming challenges. A response directly related with the capacity to offer the best education to which all students have the right. We have to look at the teachers, working side by side with our students. How are they trained? What knowledge do they really need? What changes must be made in their training so that they will again be the leaders in satisfying society’s demands? How do teachers learn? What new strategies and commitments are needed? How does a teaching profession fit into a society of knowledge where anyone can gain access to information and — perhaps — become an educator?

Changes in the way of learning, affecting working teachers, are stressing the idea that the responsibility for training falls increasingly on the professionals themselves. Making our schools into areas only for teaching but in which the teachers learn, is the radical shift needed. The guiding principle of training must be to understand that our students have the right to learn. Training has to be directed towards ensuring quality learning in our students, and committed to innovation and up-to-dateness. It must overcome the traditional isolation of the teaching profession, and at the same time consolidate a professional grid via the use of networks of teachers and schools to facilitate flexible and informal learning. In short, training that contributes to re-professionalizing teaching against those who want to simplify the complexity of the act of teaching.
II. TEACHING PROFESSION IN THE KNOWLEDGE SOCIETY

The changes and new realities lead the gaze inexorably towards the teachers. Day states that "teachers are potentially the most important asset in the notion of a learning society" (Day, 2001:495). This is true; we must pay very specific attention to teachers, their initial training, the period of their professional induction, and their professional development. Life-long learning is not only a good axiom. It represents an urgent need to revitalize a profession too punished and professionally demotivated. Craston (1998) asked whether teachers are educated to teach in the new millennium, and answered that if we look at the work of the students in their classes and schools; the model we find speaks more of the 20th century. A change is required in the way the profession teaching is seen: a professional who does not spend his or her whole professional life in just one educational system or even in a single country, a worker in knowledge. Furthermore, in the same way as the students, teachers must be prepared to work in a changing and unpredictable environment, in which knowledge is constructed from different sources and viewpoints.

Hargreaves refers to teaching as a paradoxical profession. Of all the jobs that are or aspire to be professions, only teaching is expected to create the human skills and capacities that will enable individuals and organizations to survive and succeed in today’s knowledge society. Teachers, more than anyone, are expected to build learning communities, create the knowledge society, and develop the capacities for innovation, flexibility and commitment to change that are essential to economic prosperity. At the same time, teachers are also expected to mitigate and counteract many of the immense problems that knowledge societies create, such as excessive consumerism, loss of community, and widening gaps between rich and poor. Somehow, teachers must try to achieve these seemingly contradictory goals at the same time. This is their professional paradox (Hargreaves, 2003:9).

The teaching profession is a key mediating agency for society as it endeavours to cope with social change and upheaval. But the teaching profession must be trained and equipped so that it will have the capacity to cope with the many changes and challenges which lie ahead. If it is to retain the confidence of society, the teaching profession must adapt a great deal so that it can act in a constructive manner within a fast-changing society (Coolahan, 2002).

For this to be possible, certain changes must be made. We will discuss these in some detail next. Thus, if schools are to educate virtually all students for “knowledge work” and for complex roles as citizens in a technological world, teachers will need to know how to design curriculum and adapt their teaching so that it responds to student understandings, experiences, and needs, as well as to family and community contexts. This task cannot be pre-packaged or “teacher proofed.” It stands to reason that teaching challenging content to learners who bring very different experiences and conceptions would depend on the capacity of practitioners to create powerful and diverse learning experiences that connect to what students know and how they most effectively learn (Darling-Hammond & McLaughlin, 1999).

However, teachers generally face the task of teaching alone. The only witnesses of the teacher’s professional activity are the students. Few professions are characterized by greater solitariness and isolation. In contrast to other professions or jobs, teaching is an activity conducted alone. As Bullough succinctly observes, the classroom is the teacher’s sanctuary. This sanctuary is central to the culture of teaching — preserved and protected by isolation, and which parents, principals, and other teachers hesitate to violate (Bullough, 1998). This most common scenario remains one in which teachers hesitate to violate (Little, 1999). Further, they do so in the crowded interstices of the day and week. Huberman elaborates: “It is probable that this version of private, is the modal one across most school settings and at most points of the career. Both the architectural and social organization of schooling make it difficult to work otherwise” (Huberman, 1995:207).
Isolation is a real barrier to the possibilities of training and improvement. The changes taking place in society affect the demand for a redefinition of the teacher’s work and probably that of the teaching profession, of its training, and of its professional development. The roles traditionally assumed by teachers, conservatively teaching an academic curriculum, today seem totally inappropriate. Information gets to the students in various ways: television, radio, computers, Internet, cultural resources of the city, etc., and teachers cannot opt out of their part in this. Salomon offers a metaphor regarding the teacher’s changing role from transmitter of information: a flautist before a not very respectful audience, a designer, a tourist guide, the conductor of an orchestra (Salomon, 1992:42). Thus, the teacher’s role has to change from that of an authority who distributes knowledge to that of a subject who creates and directs complex environments of learning, involving the students in activities allowing them to build their own understanding of the subject matter, and working with them as colleagues in the learning process.

The changes affecting teachers cannot take place without an awareness of how the teachers themselves understand the learning process. How does one learn to teach? How does one generate, transform, and transmit knowledge in the teaching profession? These changes are particularized in different ways of understanding learning, teaching, tasks, and the media and evaluation (Blumenfeld, 1998).

Such changes mean redefining the work of the teacher in the classroom and in the school, resulting in a school structure that is more flexible and adapted to the individual possibilities and needs of the students. This requires a rethink in primary and secondary education, in both content and form of teaching. With regard to the academic content, there is a tendency to expand the subject matter and the syllabus, increasing the number of hours given to school exercises. Thus, if what is wanted is not the storage of information and the routine repetition of tasks, but the understanding of what is learned, the principle quoted by Gardner and Boix will have to be assumed: less is more. They confirm that the main enemy of comprehension is the need to complete the syllabus, the compulsion to go through the entire textbook, rather than give time to presenting the subject-matter from multiple viewpoints (Gardner & Boix-Mansilla, 1994). However, ensuring that students understand — and not merely remember — is not easy for the teacher. It requires learning the way to involve students so that they build knowledge more actively, participating and cooperating with colleagues; it also requires a deeper knowledge of the subject matter to be taught, and how to present it to make it understandable to the children.

Understanding what is learned, and learning to learn, are two essential demands of today’s school. This is applicable to both teachers and students. We have remarked earlier that the economic globalization of today’s society is having a great effect on the forms of work and on the skills and attitudes that companies demand of workers. The capacity and mood to survive (in all meanings of the word) are now more than ever associated to the capacity and motivation to learn. In this, the schools — primary and (particularly) secondary — are failing. The high dropout levels are of course affected by factors associated to poverty, but perhaps also by a curriculum that is fossilized and not very well-adapted to the needs and possibilities of the students.

The demand, therefore, is for a teacher who is a "worker knowledge", a designer of learning environments, with the ability to profit from the different areas in which knowledge is produced, and for a teaching profession characterized by what Shulman (1998) has termed a community of practice through which the "individual experience can be converted into a group one" (p.521); a profession that needs to change its professional culture, branded by isolation and obstacles to learning from others and with others, in which it is frowned on to ask for help or recognize difficulties.
III. THE DEMAND OF LIFELONG LEARNING FOR TEACHING

We have already mentioned the difficulties encountered by teachers in adapting to the changes taking place in our societies. But perhaps the greatest change today’s teachers have to make is to reconsider their commitment to learning and training. While it is true that teachers have carried on with their continued training, it is equally true that these efforts cannot continue being individual and exclusively formal initiatives — we must try to achieve the principle, goal, or orientation that is lifelong learning.

In the introduction to their *International Handbook of Lifelong Learning*, the editors (Aspin, Chapman, Hatton, & Sawano, 2001) remark that lifelong learning has arrived. The idea has long been accepted that education and learning are activities and processes that do not begin and end with the start and finish of the individual’s attendance at formal institutions of education. However, there are some phenomena that have made learning not a choice but an obligation. As those authors state, "We are living in a new era in which the demands are so complex, so multivariate, and so changing that the only way we will be able to survive is by the commitment to a process of individual, group, and global learning throughout our life and for everyone" (xix). A process of open learning, combining formal, non-formal and informal training, and individual and group training.

A characteristic of lifelong learning that I consider extremely interesting is the understanding that EVERYONE can learn, and that learning does not have to be limited to formal institutions and traditional training. In other words, the learning considered of value is not only formal learning, but that non-formal and informal learning take on the importance that they have always had, although unrecognized. Aspin and Chapman (2001) state that objective knowledge is not only stored in libraries and watched over by authorities belonging to formal institutions situated in schools and universities. It can also be found in places where people are creative and develop imaginative responses to questions, and solutions to problems, that can be proposed as hypotheses to be debased in public discussion.

The development and generalization of teacher networks, the possibility of distance learning with others, the creation of open, distributed scenarios currently possible thanks to the new technologies of information and communication, are facilitating the visibility of this form of learning that we have termed informal. This is shifting the sedate foundations of the formal institutions of accreditation. The words of U indicate the change that lifelong learning is bringing about in institutionalized education and training. That author says “Educational institutions increasingly find it difficult to claim a monopoly in the generation and dissemination of knowledge. When knowledge takes the form of information, it circulates through networks that evade the control of educational institutions. Moreover, educational institutions become part of the market, in the business of selling knowledge as a commodity and therefore reconstructing themselves as enter prises dedicated to marketing this commodity and to competing in the knowledge ‘business’. Not only do they become geared to producing the personnel of post Fordism, they are themselves expected to behave in post-Fordist ways.”(Usher, 2001:175).

IV. WHAT DO WE KNOW ABOUT HOW TEACHERS LEARN? THE REVIEW OF RESEARCH LITERATURE

Learning to teach has been a constant concern of educational researchers in recent decades. Hundreds of studies and dozens of reviews have attempted to understand this process. In both the third and the recently published fourth *Handbook of Research on Teaching* (Richardson, 2001; Wittrock, 1986) we find chapters that review and blend knowledge about teachers and their training and development. Similarly, the *Handbooks of Research on Teacher Education* (Houston, 1990; Sikula, Buttery, & Guyton, 1996), the recent *International Handbook of Teachers and Teaching* (Biddle, Good, & Gooson, 1998), the *International Handbook of Educational Change* (Hargreaves, Lieberman, Goodson, & Hopkins, 1998), and the *Handbook of Educational Psychology* (Berliner & Calfee, 1996) cover more or less broadly the research on teachers’
learning. These books, and more-recent reviews appearing in specialist journals, such as those of Wilson & Berne (1999), Cochran-Smith & S. Lytle, (1999), Feiman-Nemser (2001), Putnam & Borko (2000), Wideen, Mayer-Smith, & Moon (1998), and Zeichner (1999), allow a reasonably up-to-date perception of the accumulated knowledge about the process (and nuances) of learning to teach. It is not our intention to summarize the hundreds of pages of other researchers’ reviews. But nor will we pass up the opportunity to put back together the pieces of this big puzzle of what makes a good teacher.

I believe this purpose could be served by providing some conceptual scheme enabling us to understand the breadth, complexity, and prospects of the research on learning to teach. The cube presented below is an attempt to sum up in three dimensions the studies that have been carried out. The first dimension differentiates the phases by which the process of learning to teach takes place. The first phase is initial training — the teacher’s progress along a training path designed specifically to provide the knowledge, skills, and aptitude needed for the task of teaching. The second phase comprises the first years of teaching, denominated years of professional initiation, induction, or insertion. The last phase analyzed in the process of learning to teach refers to those teachers who have generated their own professional repertoire and who progress by experiences of professional development.

The second dimension should be included in any review of research into the process of learning to teach concerns topics. Using the work carried out some years ago by (Katz & Raths, 1985), we have striven to reduce the possible topics to eight. These pertain to the teachers; their knowledge, beliefs, aptitudes, attitudes, perceived self-effectiveness, etc.; training content; training methods and strategies; the educators of the teachers; teaching practice; the environment; and evaluation. In many studies, these topics are obviously jumbled, but they can act as a framework of reference to classify research.

The third dimension concerns the approach adopted by researchers to cover the chosen topics. Although at the risk of oversimplifying, we think it appropriate to differentiate between quantitative and qualitative approaches. This option was also used by Richardson and Placier (2001) in their review of research related with teachers’ change. Those authors, basing their work on that of Chin and Benne, distinguish two main approaches to change, learning, development, and socialization of teachers. One is an empirical-analytical approach, considering teachers as receptors and consumers of proposals of change posed by assessors, politicians, educators, and researchers. This is a linear process of change originating outside the classroom and contributing a new idea, way of thinking, or teaching programme — usually based on research or theory. Teachers are told what the change is about, it is demonstrated, and they are expected to put it into practice. From this standpoint, the change is complex. The second approach, termed normative/re-educational, starts from a broader movement of phenomenological study on the way that people accept and contribute to their work circumstances. This approach to change assumes the need for deep reflection on beliefs and practices, and that dialogue becomes habitual.

Sykes (1999) identified three models of current research into the process of learning to teach: a) the teacher as consumer within a quasi-regulated market structured by bureaucratically provided services. In this case, the training is planned, and regulated by hierarchically organized structures; b) the teacher as independent craftsman, building knowledge, skills, and materials in an ex oficio approach. This model has the teacher working alone in class, accumulating wisdom and experience, and analyzing how to acquire and renew knowledge; c) the teacher as a professional, setting his/her work according to common norms.

This difference in the approaches to research, used by (Fenstermacher, 1994) as a grouping procedure to review and critique research on teachers’ knowledge, has been used recently by Cochran-Smith and Lytle (1999). Fenstermacher posed the questions What is known about effective teaching? What do teachers know? What knowledge is essential in teaching? and Who produces knowledge on teaching? as a way of distinguishing and classifying different approaches to research on learning to teach. Obviously, behind these questions are quantitative approaches (portent-product and process-product) and qualitative approaches
(cognitive intervention, ecological). Cochran-Smith and Lytle (1999), following the idea of Fenstermacher, have classified research into learning to teach on the basis of the relationships between the knowledge produced and its application in the practice of teaching. Thus, they distinguish between

- **Knowledge for the practice**: In this first notion, the relationship between knowledge and practice is that in which knowledge serves to organize practice, so that greater knowledge (subject matter, educational theory, instructional strategies) leads more or less directly to increased effectiveness in practice. Knowledge for teaching is formal knowledge, derived from university research, and is what theoreticians refer to when they say that teaching has generated a body of knowledge different to common knowledge. Practice, from this standpoint, is about the application of formal knowledge to practical situations.

- **Knowledge in the practice**: The emphasis in research on learning to teach has been the search for knowledge in action. It has been estimated that what teachers know is implicit in practice, in the reflection on practice, in the investigation of practice, and in the narrative of that practice. This assumes that teaching is an erratic and spontaneous activity, contextualized and built as a response to the particularities of everyday life in the school and classroom. Knowledge is located in the actions, decisions, and judgments of the teachers. It is acquired by experience and deliberation, and teachers learn when they have the opportunity to reflect on what they do.

- **Knowledge of the practice**: This last trend is included in the qualitative research line, but close to what is termed **teacher as researcher**. The root idea is that in teaching it is nonsense to speak of one knowledge that is formal and another that is practical, rather that knowledge is built collectively within local communities, formed by teachers working in school development projects, training, or co-operative research (Cochran-Smith and Lytle, 1999).

Because the competence is based on knowledge (being propositional or procedural knowledge), it is fundamental that the teachers know the main object of its task: the content that they teach and the people that have to learn that content: the students.

Since the contributions of Shulman (1986) and Schön (1983) pointing out that teaching was not a technical activity, but was governed by a type of knowledge linked to action and practice, thousands of studies on teacher training have attempted to discover what teachers know, how they got to know it, and — more importantly — how teachers’ knowledge can be improved. We have already referred to the different modalities of knowledge established when distinguishing between knowledge for, in and of the practice (Cochran-Smith & Lytle, 1999). Different forms of knowledge have led to different ways of understanding research on learning to teach. Earlier, we referred to the works carried out within the process-product pattern, which enabled identifying a relationship linking teaching competence to student performance (Brophy, 1999), (Shuell, 1996).

The recent OECD report (Knowledge Management in the Learning Society) (OECD, 2000) refers to four types of knowledge that could be object of attention for professional training. We will use this reference to describe the different types of knowledge that have been developed in research on learning to teach:

- **Know-what**: refers to knowledge about “facts”

- **Know-why**: refers to knowledge about principles and laws of motion in nature, in the human mind, and in society.

- **Know-how**: refers to skills — the ability to do something. It may be related to the skills of production workers, but it plays a key role in all important economic activities

- **Know-who**: involves information about who knows what and who knows what to do. But it also involves the social ability to co-operate and communicate with different kinds of people and experts.
Teacher training programmes have generally been centred on the first two types of knowledge, whereas know-how has been of recent investigation. This is because know-how is primarily tacit knowledge; that is, knowledge that has not been documented and made explicit by whoever uses and controls it. There is much tacitness in teachers’ know-how. Teachers often have their own ideas about how to teach, and they seldom write them down in a form that is accessible to others.

Now we will mention the studies into what types of knowledge are used and generated by teachers in their professional practice. One of the contributions most widely accepted for its synthesizing labour was that of Grossman (1990). Morine-Dershimer and Todd (2003) have reworked the model from that study, incorporating later research findings. In this reworked model, teachers’ knowledge comprises the following elements:

**The Teacher Subject Matter Knowledge**

Teachers must have a knowledge of the subject they teach. This has been traditional in teaching. A popular belief says that to teach, it is enough to know the content of what is taught. Buchmann states that "Knowing something enables us to teach it; and knowing a subject deeply means being mentally organized and well prepared to teach it generally" (Buchmann, 1984:37). When the teacher does not have an adequate knowledge of the structure of the discipline being taught, the teaching can impart the content inaccurately to the students. The knowledge that teachers have of the subject to be taught also affects what and how they teach. At the
same time, a lack of knowledge on the part of the teacher can affect the level of discourse in class, the type of questions teachers frame (Carlsen, 1987), and the way teachers critique and use textbooks (Hashweh, 1987).

**Content knowledge** includes various components. Two of these are the most distinguishing: syntactic knowledge and substantive knowledge. **Substantive knowledge** includes the information, ideas, and topic to know; that is, the body of general knowledge on a subject, the specific concepts, definitions, conventions, and procedures (Ball & McDiarmid, 1989). This knowledge is important as far as it determines what the teachers are going to teach, and from what standpoint. For example, in the case of history, the framework of cultural, political, or ideological analysis chosen can determine what is taught, and how it is taught.

**Syntactic knowledge** of the content completes the former, and concerns the mastery the teacher has of the patterns of research in each discipline, knowledge regarding questions such as validity, trends, and perspectives in the specialist field, and research. In mathematics, it would be the distinction between convention and logical construction; in history, it would include the different points of view for interpreting a single phenomenon; in science, it would include knowledge of empiricism and method in scientific research, etc. (Ball and McDiarmid, 1989).

There appears to be general agreement regarding the need for teachers to have an adequate knowledge of the subject they have to teach. However, as Kennedy (1990a) states, there is open debate about what type of subject knowledge teachers must have. In first place, it has been argued that teachers need to know less about the subject content than other specialists in the same field do: they need to know what is required by the curriculum and textbooks.

Secondly, the opposite has been posited: that teachers need to know more than others about their subject matter, above all in aspects concerning social norms (of what social use is knowledge, what values are cultivated — minorities, discoveries, wars...) and the usefulness and relevance for everyday life. Lastly, it is argued that teachers’ knowledge has to be different, because it must be explicit and self-conscious. Those who share this opinion state that the subject knowledge of teachers is different in that it is knowledge to be taught, meaning that it must be organized not only according to the structure of the subject itself, but considering the students to whom it will be directed. In short, and as an introduction to the next section, it deals with training teachers so that they have a didactic knowledge of the subject matter to be taught.

In a recent work on this topic, Gess-Newsome (2003a) indicates that the subject matter knowledge of most novices is fragmented, compartmentalized, and poorly organized, making it difficult to access this knowledge efficiently when teaching. As a result, many novice teachers are forced to rely on teaching the algorithms and facts that they remember from their own school days. Low levels of poorly organized subject matter knowledge impact instruction in a number of ways. When planning instruction, novice teachers overly rely on the textbook — as opposed to students’ understanding — as an appropriate point of departure for the lesson. Learning is equated with remembering information, and thus reinforcing the belief in and use of algorithmic and fact-based knowledge. Such superficial content coverage hurts students by limiting conceptual understanding, misrepresenting the structure of the discipline, and preventing the construction of a strong conceptual knowledge base, thus limiting future learning opportunities. In order to keep the content within the expertise level of the teacher, lower-level questions predominate, and activities are constrained by strict procedural rules. The novice teacher is unable spontaneously to connect student comments and questions back to the formal lesson, and often rejects alternative student answers. The result is the management of student work rather than the monitoring of student understanding. Teachers with strong conceptual knowledge have a more-detailed knowledge of the topic, more connections and relationships to other topics, and can easily draw upon this knowledge in teaching and problem-solving situations. Lesson planning begins with knowledge of the student, and draws upon teaching activities and content representations previously found to be effective in achieving lesson goals.
Knowledge of the subject matter to be taught is an important factor in quality of teaching. If teachers do not master the content, it is difficult for their teaching to be understood. So, How much content is necessary? In a recent review of 300 studies on learning to teach, Wilson, Floden and Ferrini-Mundy (2001), it was recognized that research shows a positive connection between teachers’ preparation in their subject matter and their performance and impact in the classroom. But, contrary to the popular belief that “more subject matter study is always better,” there is some indication from research that teachers can acquire subject matter knowledge from various sources, including subject-specific academic coursework and study in an academic field. However, there is little definitive research on the kinds or amount of subject matter preparation; much more research needs to be done before strong conclusions can be drawn. Some researchers have found serious problems with the typical subject matter knowledge of pre-service teachers, even of those who have graduated in academic disciplines (Wilson et al., 2001).

Teacher Pedagogical Content Knowledge. A Special Mention to Math and Science

Pedagogical Content Knowledge is a central element of the teacher’s knowledge in the model of Morine-Dershimer and Todd (2003). It is the correct combination between knowledge of the content to be taught and the pedagogical and didactic knowledge of how to teach it. In recent years, work has been done in various educational contexts to elucidate what are the components and elements of this type of professional knowledge for teaching.

Pedagogical Content Knowledge, as a line of research, is the confluence of the work of didactic researchers with that of researchers in specific subjects concerned with teacher training. Pedagogical Content Knowledge leads to a debate regarding the form of organization, of representation, and of knowledge via analogies and metaphors. It raises the need for pre-service teachers to acquire an expert knowledge of the subject matter to be taught, so that they can develop a teaching that is comprehensible to the students.

Shulman (1992), showed the need for teachers to build bridges between the meaning of the curricular content and the construction students make of that meaning. As that eminent researcher states, "teachers perform this deed of intellectual honesty through a deep, flexible, and open understanding of the subject matter; understanding the most-probable difficulties that students will have with these ideas...; understanding variations in the teaching methods and models in order to help students build their knowledge; and being ready to review their goals, plans, and procedures in so far as interaction with the students is developed. This type of understanding is not exclusively technical, nor simply reflexive. It is not just content knowledge, nor the generic mastery of teaching methods. It is a mixture of all these, and is mainly pedagogical" (Shulman, 1992:12).

Pedagogical content knowledge is a teacher’s understanding of how to help students understand a specific subject matter. It includes the ways of representing and formulating the subject to make it comprehensible to others, and an understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of the most-frequently taught topics and lessons (Borko & Putnam, 1996). According to Magnusson, Krajcik & Borko (2003), pedagogical content knowledge includes knowledge of how particular subject matter topics, problems, and issues can be organized, represented, and adapted to the diverse interests and abilities of learners, and then presented for instruction.

Those authors conceptualize pedagogical content knowledge for science teaching as consisting of five components:

1. Orientations toward Teaching Science: teachers’ knowledge and beliefs about the purposes and goals for teaching science at a particular grade level.

2. Knowledge and beliefs of the Science Curriculum:
Knowledge of Goals and Objectives: includes teachers’ knowledge of the goals and objectives for students in the subject(s) they are teaching, as well as the articulation of those guidelines across topics addressed during the school year.

Knowledge of Specific Curricular Programme: knowledge of the programmes and materials that are relevant to teaching a particular domain of science and specific topics within that domain.

3. Knowledge and beliefs of Students' Understanding of Science:

Knowledge of Requirements for Learning: teachers’ knowledge and beliefs about prerequisite knowledge for learning specific scientific knowledge, as well as their understanding of variations in students’ approaches to learning as they relate to the development of knowledge within specific topic areas.

Knowledge of Areas of Student Difficulty: teachers’ knowledge of the science concepts or topics that students find difficult to learn.

4. Knowledge and beliefs of Assessment in Science:

Knowledge of Dimensions of Science Learning to Assess, and Knowledge of Methods of Assessment

5. Knowledge and beliefs of Instructional Strategies:

Knowledge of Subject-specific Strategies: Teachers’ knowledge related to the “orientations to teaching science” component of pedagogical content knowledge in that there are general approaches to science instruction consistent with the goals of particular orientations.

Knowledge of Topic-specific Strategies: teachers’ knowledge of specific strategies that are useful for helping students comprehend specific science concepts.

It is important to highlight that the proposal carried out by Magnusson, Krajcik and Borko (2003) makes stress in differing among knowledge and belief. This is not casual. Beliefs are understood to be like propositions: assumptions that people make about what they consider real. Beliefs, unlike propositional knowledge, do not need a condition of proven truth. They fulfill two functions in the process of learning to teach. First, beliefs affect the way teachers learn; and second, beliefs affect the processes of change that teachers may attempt (Richardson, 1996).

Although sometimes confused in the literature, belief and knowledge should be distinguished. Knowledge is most often described as evidential, dynamic, emotionally-neutral, internally structured, and develops with age and experience. Conceptual knowledge, or knowledge that is rich in relationships, is used in problem-solving situations. The amount, organization and accessibility of conceptual knowledge has been shown to distinguish experts from novices. Beliefs, in contrast, are described as both evidential and non-evidential, static, emotionally-bound, organized into systems, and develop episodically. Beliefs have both affective and evaluative functions, acting as information filters and impacting how knowledge is used, organized and retrieved. Beliefs are also powerful predictors of behaviour, in some cases reinforcing actions that are consistent with beliefs and in other cases allowing for belief compartmentalization, allowing for inconsistent behaviours to occur in different contexts (Gess-Newsome, 2003a:55).

Reference must be made to Pajares (1992), one of the researchers contributing most to the analysis of beliefs. That author drew attention to the diverse semantics characterizing this line of research, in which have been used terms such as belief, attitude, values, judgement, axioms, opinions, ideology, perceptions, conceptions, conceptual system, preconceptions, aptitude, implicit theories, explicit theories, personal theories,
internal mental processes, rules of practice, practical principles, etc. This semantic dispersion means that research results cannot be compared because they do not share the same conceptual framework.

From such differentiation, research has shown that pre-service teachers bring to the training programme personal beliefs about teaching, with an image of the good teacher, an image of themselves as teachers, and the memory of themselves as students. These personal beliefs and images generally remain unchanged throughout training, and persist during teaching practice (Feiman-Nemser, 2001; Kagan, 1992; Wideen, Mayer-Smith, & Moon, 1998). Along these lines, Feiman states that the images and beliefs that prospective teachers bring to their pre-service preparation serve as filters for making sense of the knowledge and experiences they encounter. They may also function as barriers to change by limiting the ideas that teacher education students are able and willing to entertain. The paradoxical role of prior beliefs in learning takes on special significance in teacher preparation ((Feiman-Nemser, 2001:1016).

Pajares (1992) summed up the results of research into teachers’ beliefs as the following principles:

1. Beliefs are formed early in life, and tend to remain, overcoming contradictions arising from reason, time, school, or experience.
2. Individuals develop a system that structures all the beliefs acquired throughout the process of cultural transmission.
3. The systems of beliefs have an adaptive function, helping individuals to define and understand the world and themselves.
4. Knowledge and beliefs are interrelated, but the affective, evaluative, and episodic nature of beliefs makes them a filter for the interpretation of all new phenomena.
5. Substructures of beliefs, such as educational beliefs, have to be understood in terms of their connections with other beliefs of the system.
6. Because of their nature and origin, some beliefs are more indisputable than others.
7. The older a belief is, the more difficult it is to change. New beliefs are more vulnerable to change.
8. A changed belief in adults is very rare. Individuals tend to maintain beliefs based on incomplete or incorrect knowledge.
9. Beliefs are instrumental in defining tasks and in choosing the cognitive tools with which to interpret, plan, and take decisions related to these tasks; as such, they play a crucial role in defining conduct and organizing knowledge and information.

In the same way that we develop knowledge and general beliefs about teaching, the students, the school, or the teacher, the material we teach (or endeavour to teach) does not remain outside our conception. The way we know a particular subject or curricular area affects the way we teach. There is much evidence showing the pre-service teachers follow certain “archetypes” in the subject they are studying, whether it be mathematics, language, or physical education. Questions such as What are mathematics, language, physical education, etc., and what are they for? need to be raised when we attempt to "start out from what the student already knows".

The elements that we have described reveal the crucial role of pedagogical content knowledge in the training of a teaching professional. Research shows the failure of training programmes to ensure that teachers begin teaching with a knowledge that is well structured and linked to practice. Borko and Putnam (1996) conclude their review of studies on this topic by establishing that the pedagogical content knowledge of novice teachers is often insufficient for thoughtful and powerful teaching of subject matter content. And although experienced teachers have generally acquired a good deal of pedagogical content knowledge, their knowledge often is not sufficient or appropriate for supporting teaching that emphasizes student understanding and
flexible use of knowledge. Teachers’ overarching conceptions of teaching a subject can limit their efforts to learn to teach in new ways, and they can be resistant to change through pre-service courses or in-service workshops. Novices have limited knowledge of subject-specific instructional strategies and representations, and of the understanding and thinking of their students about particular subject matter content. Experienced teachers typically have more knowledge of instructional strategies and of their students, but they often do not have appropriate knowledge and beliefs in the areas to support successful teaching for understanding.

In relation with the **mathematics**, teachers has to become aware of the specific epistemological status of the students’ mathematical knowledge (Steinbring, 1998). The teacher has to be able to diagnose and analyze students constructions of mathematical knowledge and has to compare those constructions to what intended to be learned in order to vary the learning offers accordingly. One endemic problem arises in the course of trying to figure out what students understand as they work on mathematical problems, do written work and offer their methods and solutions (Ball, 2001). Children represent their ideas in ways often unfamiliar to adults, with idiosyncratic language and unusual syntax. Another problem, according to Ball (2001) are problems of managing and using multiple representations and solutions generated in the course of work. These multiple representations arise from both mathematics and from students. Students because they think differently from one to another, see problems in a range of ways, and represent and solve them in multiple ways.

One of the demands that are making in connection with the teaching of the mathematics-also referred to other disciplines - has to do with what has been denominated **learning with understanding**. Carpenter and Lehrer (1999) affirm that “In order to prepare mathematically literate citizens for the 21st century, classroom need to be restructured so mathematics can be learned with understanding. Teaching for understanding is not a new goal of instruction: school reform efforts since the turn of the 20th century have focused on ways to create learning environments so that students learn with understanding” (9).

According with these authors, **learning with understanding** is central for reforming mathematics education because it provides a basis for students to apply their knowledge to learn new ideas and to solve new and unfamiliar problems. When students do not understand, they perceive each topic as an isolated skill, and they cannot apply their skills to solve problems not explicitly covered by instruction. As a consequence, unless students learn with understanding, whatever knowledge they acquire is likely to be of little use to them outside of school. So, the teachers has to be able to build classroom activities that promote:

- **Constructing relationships**: People construct meaning for a new idea or process by relating it to ideas or processes that they already understand. Unless instruction helps children build on their knowledge and relate the mathematics they learn in school to it, they are likely to develop two separate systems of mathematical knowledge: one they use in school and one they use outside school.

- **Extending and applying Mathematical Knowledge**: Developing understanding involves more than simply connecting new knowledge to prior knowledge; it also involves the creation of rich, integrated knowledge structures.

- **Reflecting about experiences**: reflection involve the conscious examination of one’ own actions and thoughts. To be reflective in their learning means that students consciously examine the knowledge they are acquiring and the way it is related both to what they already know and to whatever other knowledge they are acquiring.

- **Articulating what one knows**: articulation involves the communication of one’s knowledge, either verbally, in writing, or through some other means like pictures, diagrams or models. Articulation requires reflection in that it involves lifting out the critical ideas of an activity so that the essence of the activity can be communicated.
• **Making Mathematical Knowledge One’s Own:** understanding involve the construction of knowledge by individuals through their own activities so that they develop a personal investment in building knowledge (Carpenter & Lehrer, 1999).

To achieve these changes there are several changes in mathematical teacher education. Cuevas (1998) propose a methodological change related with pedagogical content knowledge in mathematics:

• Model a **problem-oriented classroom environment:** in teacher education, complex tasks can be integrated into classroom activities to begin to study particular mathematics topics.

• Provide experiences with tasks at all levels of **mathematical complexity:** some students have difficulties with some tasks demands. Teachers should develop strategies to identify tasks that provide a challenge to students without being impossible to complete.

• Promote **discussion of mathematical tasks**, their content and solutions: several approaches: small-group exploration and discussion of a given task, individual or group presentation of solutions to tasks, and class discussion

• Emphasize development of **communication skills**: communication skills and the promotion of classroom discourse should be approached developmentally

• Provide **opportunities of reflection** about the tasks and their implementation with students

**Teacher Knowledge of the context and of the students.**

Another component of the knowledge that teachers must acquire concerns where and whom they teach. Teachers have to adapt their general knowledge of the subject to the particular conditions of the school and the students who attend it. Yinger has posed the ecological dimension of knowledge, understanding that knowledge exists not in individuals but in the relationships produced between them and their environment. Classroom life, in this sense "comprises the cultural, physical, social, historical, and personal systems that exist both within and outside the class... The teacher’s responsibility in the class is to understand the dialogues taking place within and between all the systems, and to recognize which are appropriate for class activity. The teacher acts as guide and subject, translating the structure, action, and information contained in each system" (Yinger, 1991:31).

This makes it necessary for teachers to be sensitized to the socio-economic and cultural nature of the neighbourhood, the opportunities for integrating it into the curriculum, students’ expectations, etc. This type of knowledge also includes knowledge of the school, its culture, the teachers, and the working norms. If all children are to be effectively taught, teachers must be prepared to address the substantial diversity in experiences that children bring with them to school; that is, the range of languages, cultures, exceptionalities, learning styles, talents, and intelligences that require, in turn, an equally rich and varied repertoire of teaching strategies (Darling-Hammond & Sclan, 1996).

With regard to teachers’ knowledge about the students, (Ladson-Billing, 1998; Ladson-Billings, 1999; McIntyre & Byrd, 1998) announce the limited amount of research that has been completed on the important topic of preparing teachers to work with diverse populations. Some important findings, however, do emerge:

• Significant numbers of student teachers lack knowledge and empathy about the effects of institutional racism; they do not perceive that education has the power to change peoples’ thoughts and actions, and they view diversity as a problem, not as a resource.
• Student teachers lack empathy in regard to the effects of institutional racism, and they show a lack of confidence in the ability of education to change the ways people think and act.

• Pre-service programmes in multiculturalism teach students to have greater awareness and understanding of multicultural concepts; however, there tends to be little implementation of these concepts during field experiences.

• Trainee and experienced teachers often have low expectations of poor non-white students, and trainee teachers are often reticent about working in diverse settings and interacting with students and parents from such settings.

• Pre-service teachers need encouragement and the opportunity to use a rich range of teacher strategies, experience the maintaining of high expectations, and reflect on the outcomes of their efforts.

• Community field experiences for pre-service teachers can help them to develop cultural sensitivity and intercultural teaching competence.

• Student teachers are likely to be apprehensive and have misconceptions about working in diverse settings.

• Teacher educators are reluctant to address their own culpability in reproducing teachers who cannot (and will not) effectively teach diverse learners. Teacher educators are overwhelmingly white and male, and their own experience with diversity is limited.

• Even when teacher educators who want to teach students about inequity teach against the grain, their work runs counter to the beliefs, attitudes, perceptions, and perspectives of most of their students.

Proposal of a Map of Teacher Competencies:

The literature revised previously comes to highlight the necessity that the teachers possess knowledge and abilities in relation to the matter that they teach, as well as to the way to teach it. Recently the movement in favour of the standards has highlighted the necessity to assist to the domain of educational competence. Martinet, Raymond and Gauthier (2001) have developed in Canada a work that we find interesting for highlighting in this report. For these authors, a competence is always a competence for action. Its characteristics are the following:

• Competence is developed in real, rather than simulated, professional contexts
• Competence is situated on a continuum that ranges from the simple to the complex
• Competence is based on a set of resources: a competent person makes use of resources mustered in contexts of activity
• Competence concerns the capacity to mobilize in a context of professional activity
• Competence, like know-how, is intentional
• Competence is effective, efficient, and immediate know-how that is demonstrated continually
• Competence constitutes a project, an endless goal.

They have developed a listing of competencies that can be very useful to guide the development of programs of the teacher education. This listing is extremely coherent with the results of the research on learning to teach that we have revised previously. Basing us on this work, we have supplemented the proposal of Martinet, Raymond and Gauthier (2001) with the results of the research that we have revised in the previous chapters. The competencies are the following:
Professional Domain

1. **Acting critically as a professional, interpreting the objects of knowledge or culture in performing one’s functions**: Situating the basic points and the axes (concepts, postulates, and methods) of knowledge in the subject in order to make possible a significant learning for the students; Critically distancing oneself from the subject taught; Establishing relationships between the culture prescribed in the teaching programme and that of the students; Making the class a place open to multiple viewpoints in a common living space; Taking a critical look at one’s own origins and cultural practices, and at one’s social role; Establishing relationships among different fields of the subject matter knowledge.

2. **Becoming involved in an individual and collective project of professional development**: Evaluating one’s own competencies and adopting the means to develop them using available resources; Interchanging ideas with colleagues about the suitability of pedagogical and didactic options; Reflecting on one’s practice (reflective analysis), and putting the results into practice; Developing pedagogical projects to resolve problems in teaching; Encouraging colleagues to participate in research aimed at the acquisition of competencies set out in the training plan and educational targets of the school.

3. **Acting ethically and responsibly in the performance of functions**: Being aware of the values at stake in one’s performance; Encouraging democratic conduct in class; Giving students due attention and support; Keeping high expectations: believing that the students are capable of learning and that they are capable of and responsible for teaching them successfully; Explaining, in function of the public interest, the decisions taken concerning students’ learning and education; Respecting confidential aspects of the profession; Avoiding all forms of discrimination by students, parents, and colleagues; Situating the moral problems presented in class within the great currents of thought; Making judicious use of the legal and authorized framework governing the profession.

Teaching Domain

4. **Designing teaching-learning situations for the subject matter to be learned, and doing so in function of the students and of the development of the competencies included in the teaching programme**: Basing decisions and performance on recent data from didactic and pedagogical research; Knowing the ways of representing and formulating the subject to make it comprehensible to others; Understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of the most-frequently taught topics and lessons; Analyzing the students’ misconceptions in connection with the subject matter taught; Selecting and interpreting subject knowledge with regard to the aims, competences, and elements of the teaching programme content; Planning sequences of teaching and evaluation bearing in mind the logic of the content and progress of the learning; Bearing in mind representations, social differences (sex, ethnic origin, socio-economic, and cultural), needs, and special interests of the students when preparing teaching-learning situations; Choosing varied and appropriate didactic approaches when developing the competencies included in the teaching programme; Anticipating obstacles to learning the subject matter to be taught; Foreseeing situations of learning that enable integration of competencies in varied contexts.

5. **Directing teaching-learning situations for the content to be learned, and doing so in function of the students and of the development of the competencies included in the teaching programme**: Creating the conditions for students to become involved in situations-problems and in significant topics or projects, bearing in mind their cognitive, affective, and social characteristics; Establishing a learning orientation by beginning lessons and activities with advance organizers or
1. Previews; Presenting the subject matter in networks of connected knowledge structured around powerful ideas; Provide experiences with tasks at all levels of subject matter complexity Making available to the students the resources necessary in the learning situations proposed; Giving the students with opportunity to learn, dedicating most of the available time to curriculum-activities; Questioning to engage students in sustained discourse structured around powerful ideas; Guiding the students in selecting, interpreting, and understanding the information available in the different resources, and in understanding the aspects of the situations-problems or in the requirements of a topic or project; Shaping students’ learning by means of frequent and pertinent strategies, steps, questions, and feedback, so as to help the integration and transfer of learning; Helping students to work in co-operation; Giving the students sufficient opportunities to practice and apply what they are learning and to receive improvement-oriented feedback.

6. **Evaluating the progress of learning and the degree of acquisition of the students’ competencies in the subject matter to be learned:** In a learning situation, managing information in order to overcome students’ problems and difficulties, and to modify and adapt the teaching to aid students’ progress; Monitoring students’ progress using both formal tests and performance evaluations and informal assessments of students’ contributions to lessons and work on assignments; Establishing an evaluation of the students’ acquisitions in order to judge the degree of acquisition of competence; Constructing or employing instruments to enable evaluation of progress and acquisition of competence; Communicating to students and parents, clearly and explicitly, the results achieved and the feedback concerning progress in learning and acquisition of competence; Co-operating with the pedagogical team to determine the desirable rhythm and stages of progress in the training cycle.

7. **Planning, organizing, and supervising the way the group-class works, in order to help students’ learning and socialization:** Defining and applying an effective working system for normal class activities; Communicating clearly to students the requirements of correct school and social behaviour, ensuring that they adopt them; Fomenting the students’ participation — as a group and as individuals — in establishing the norms of class function; Adopting strategies to prevent incorrect behaviour cropping up, and to intervene effectively when it does; Maintaining a suitable learning environment.

8. **Adapting teaching to the student diversity:** Designing learning tasks adapted to the students' possibilities and characteristics; to Organizing different learning rhythms in function of the possibilities of the students; to Organizing heterogeneous groups for the work of the students; Developing experiences of cooperative learning Helping the pedagogical and social integration of students who present difficulties in learning or behaviour, or are handicapped; Seeking pertinent information from human resources, including parents, regarding students’ needs; Suggesting to the students learning tasks, challenges, and roles in the group-class enabling their developmental progress; Participating in the preparation and putting into practice of a plan of adapted performance.

9. **Integrating the technologies of information and communication into the preparation and development of teaching-learning activities, classroom management, and professional development:** Adopting a critical and well-founded attitude to the advantages and limitations of the TIC as medium for teaching and learning, and for society; Evaluating the didactic potential of IT and computer networks in the development of competence in the teaching programme; Using a variety of multimedia tools for communicating; Using the TIC effectively to investigate, interpret, and communicate information, and to resolve problems; Using the TIC effectively to set up networks of interchange and of continuous training related with the subject taught and its pedagogical practice; Helping the students use the TIC in their learning activities, to evaluate such use, and to analyze critically the data gathered by these networks.
10. Communicating clearly and correctly in the teaching language, both oral and written, in the different contexts related with the teaching profession: Using a variety of appropriate oral language when addressing students, parents, or colleagues; Respecting the rules of written language in documents aimed at students, parents, and colleagues; Knowing how to take a position, and maintain one’s ideas and discuss coherently, effectively, constructively, and respectfully; Using questions to stimulate students to process and reflect on content, recognize relationships among and implications of its key ideas, think critically about it, and use it in problem solving, decision making or other higher-order applications; Communicating ideas rigorously, using precise vocabulary and correct syntax; Correcting errors made by students in their oral and written work; Constantly seeking to improve oral and written expression.

School Domain

11. Co-operating with the school staff, with parents, and with the various social agents to achieve the school’s educational targets: Co-operating with the other members of the school staff in defining targets, and in the preparation and putting into effect of projects on educational services, in the ambit of the responsibilities assigned to the school centres; Fomenting participation and information flow with respect to parents; Co-ordinating performance with that of the various school agents; Encouraging student participation in the management of the school and in its activities and projects.

12. Working in co-operation with the other members of the pedagogical team in tasks enabling the development and evaluation of the explicit competencies of the training plan, and doing so in function of the students: Knowing what are the situations requiring collaboration with other members of the pedagogical team for the design and adaptation of teaching-learning situations, the evaluation of learning, and mastery of the competencies at the end of the period; Defining and organizing a project in function of the targets of the pedagogical team; Participating actively and continuously with the pedagogical teams that handle the students; Working to achieve the required consensus among the members of the pedagogical team.

Mapping the Proposal of Teacher Competencies

Trying to give answer to the question to this epigraph: How should to map of teaching competencies and skills be drawn to match and respond to the new key competences that every student needs to acquire? Which are the teaching competencies and skills that should be incorporated into the curriculum of Teacher training Colleges, and which are those that should become the preferred focus of teachers’ professional development activities and policies?, we have designed the following graph that next explain:
The twelve basic competencies that previously we have described, based on the work of Martinet, Raymond and Gauthier (2001) can be grouped in three big domains:

- Competencies related with the teacher as professional
- Competencies related with the teaching and the classroom work
- Competencies related with the school work.

We consider that these three domains should be approached with different grade of intensity depending on the moment or formation level in which we are. This way, we have differentiated three levels:

- Initial Teacher Education
- Beginning Teacher Induction
- Continuous Professional Development

We consider that the list of 12 basic competencies should be part of any program of teacher education, being this in initial teacher education, induction or continuous professional development, but not with the same intensity.

We consider that are the competencies related with the work of the teachers in the classroom those that should be constituted in the axis of the initial teacher education, and this is why we have marked in our graphic with a wider circle in this area. We justify this option considering that the research shows the im-
portance for the beginning teachers of a repertoire of abilities and basic knowledge that allow him or her to begin their professional itinerary.

This research aims to establish differences between teachers depending on age and what has been termed “expertise”. Except in special cases, such evolution has begun to be analyzed from the first year of teaching experience. On one hand, we have those studies that attempt to understand the process of becoming an expert, and on the other, those that analyze what expert teachers do and what characterizes them. These studies have classically shown the contrast between expert teachers and novices.

Why to consider the induction period?

One of the stages clearly identified in the various studies concerns the first years of teaching, denominated period of initiation or professional induction. This period has received much attention from researchers.

Professional induction into teaching is, as we have said, the period covering the first years, when teachers have to make the transition from student to teacher. It is a period of tension and intensive learning in contexts often unknown, during which the novice teachers must acquire professional knowledge besides achieving a certain personal equilibrium. This is the concept of induction assumed by Vonk, a Dutch author with a decade of research centred on this situation: “we define induction as the transition from pre-service teacher to autonomous professional. ... Induction can be best understood as one part of a continuum in the process of teachers’ professional development” (Vonk, 1996:115).

According to Feiman (2001), novice teachers have two tasks: they must teach and learn to teach. Independently of the quality of the initial training programme they have followed, there are certain things that can be learned only during practice, and this makes the first year one of survival, discovery, adaptation, learning, and transition. Novice teachers face various prime tasks: to acquire knowledge about the students, the curriculum and the school context; to design the curriculum and the teaching appropriately; to begin to develop a repertoire of teaching enabling them to survive as a teacher; to create a community of learning in the classroom; and to continue developing a professional identity. The problem is that they must do all this burdened with the same responsibilities as the more-experienced teachers (Marcelo, 1999).

Ray Bolam, an English author who has also dedicated years to studying the period of induction, defines it as “the process of support and training that is increasingly deemed necessary for success in the first year of teaching. Politicians tend to be more interested in induction when there are problems of teacher recruitment, seeing it as the means to improve retention, encouraging novice teachers to remain in education. The professional tends to consider induction a bridging period between initial and permanent training, and therefore a period serving as basis of continuous professional development” (Bolam, 1995:613).

The period of professional induction is one of importance in the trajectory of the future teachers. Important because they have to make the transition from student to teacher, causing doubts and tensions, and must acquire an adequate knowledge and professional competence in a short period. In this first year, the teachers are novices, and in many cases even in their second and third year may still be struggling to establish their own personal and professional identity (Esteve Zaragaza, 1997).

The changes undergone by the teacher on passing from student to novice teacher, and from there to being expert or experienced, take place via a series of states “that are normally seen as in some way irreversible” (Burder, 1990:311). The factors leading to the change are, essentially, maturative ones in the individual, and of interaction between personal characteristics and the stimulation received from the environment.

Simon Veenman (1984) has popularized the concept of "shock of reality" to refer to the situation encountered by many teachers in their first year of practice. According to this Dutch author, the first year is charac-
terized as, in general, a period of intense learning — mostly by trial-and-error — and by a principle of survival and a predominance of the value of what is practical. Initiation programmes aim to establish strategies to reduce or redirect the so-called "crash with reality". Novice teachers face certain specific problems of their professional status. Valli (1992) suggested that the most-threatening problems for novices are the uncritical imitation of behaviour observed in other teachers; isolation from colleagues; difficulty in transferring the knowledge acquired in the training stage; and the development of a technical conception of teaching.

The process teachers follow for learning to teach, that is to acquire competence and skill as teachers, has been explained from various theoretical standpoints. One case may stress teachers’ concerns as indicators of different stages of professional development. Another may conceive the teacher from an essentially cognitive standpoint, and learning to teach as a process of intellectual maturity. A final framework for analysis of the initiation process puts greater stress on the social and cultural elements of the teaching profession and on their assumption by the novice teacher.

This last approach treats the initiation period as a process by which new teachers learn and adopt the norms, values, behaviour, etc. that characterize the school culture into which they are integrating. Socialization is understood as "the process by which an individual acquires the knowledge and social skills necessary for taking up a role in the organization" (Van Maanen & Schein, 1979:211).

The period of initiation for teaching is the ritual that has to enable transmission of the teaching culture (knowledge, models, values, and symbols of the profession) to the novice teacher, the integration of the culture into the teacher’s personality, and the adaptation of the novice teacher to the social environment in which teaching activity takes place. This adaptation can be easy when the nature of the socio-cultural environment coincides with that of the novice. However, it can be more strained when the novice has to integrate into cultures that are unknown prior to beginning to teach. Such is the case of novice teachers teaching in multicultural classrooms, about which they have had little information up to the moment of being sent to one.

What about teacher professional development?

What conclusions can we draw from the reviews of programmes of professional development? One obvious result is that the traditional pattern in which continuous training is organized around discrete units of knowledge or skills, is given by experts, takes place outside the schools, and has a limited duration, with little follow-up and practical application, has no chance of changing teachers’ beliefs or teaching habits. Joyce found that the probability of implanting changes following this model was 15% (Richardson and Placier, 2001). Shallow and fragmented are terms that critics commonly use to describe conventional approaches to professional development (Fenstermacher & Berliner, 1985). Ball and Cohen, referring to their own country, state that “although a good deal of money is spent on staff development in the United States, most is spent on sessions and workshops that are often intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative. Rarely do inservices seem based on a curricular view of teacher learning” (Ball & Cohen, 1999:4-5). In the Latin American context, Messina observes a few attention to the content in continuous teacher training, and authoritarian relationships in the classroom, citing the case of teachers who do not participate in either the design or the choice of such courses. She states that the course of improvement is a mechanism of pedagogical and social control that ignores the teacher’s prior experience (Messina, 1999).

How then can we develop programmes that affect teachers by improving their teaching habits? Feiman (2001) summed up an idea that had already been taking shape in the work of other researchers and educators: the fact that teachers’ learning has to come from practice. Teachers need to learn how to learn from practice, given that teaching requires improvisation, conjecture, experimentation, and evaluation. However,
learning by practice is not a casual process. Ball and Cohen (1999) established three conditions for expecting to learn from practical experience: a) teachers have to learn to fit their knowledge to the situation—which means investigating what students do and think, and how they understand what they have been taught; b) teachers must learn to use their knowledge to improve their practice; and c) teachers need to learn how to frame, guide, and review students’ tasks. They say that “the key to our response is that being focused on practice does not necessarily involve real-time classroom situations” (14). That is, in order to learn, teachers need to use practical examples, materials such as case reports, multimedia cases, observations of teaching, teachers’ diaries, and examples of students’ tasks. These materials could enable teachers to investigate practice and analyze teaching.

Other researchers have attempted to summarize the features of those continuous training programmes that have been shown to be effective. Abdal-Haq (1995) identified them as being progressive; they include training, practice, feedback—giving opportunities for individual reflection and group investigation on practice—and follow-up; they are school-based and involve the work of the teacher; they are co-operative, providing opportunities for teachers to interact with each other; they are focused on student learning, which should serve to evaluate the effectiveness of training; they stimulate and support teachers’ initiative in the schools; they are based on the essential knowledge to be taught; they incorporate constructivist approaches to learning and teaching; they recognize teachers as professionals and adults who learn; and they provide adequate time and follow-up (Wilson & Berne, 1999).

There seems to be agreement on the need to realize that teachers have a great responsibility in responding to the new social demands generated by the changes mentioned in the first part of this report. Teachers are expected to respond to the need for changes in knowledge and learning; the need to develop skill in using the new technologies; the need to redirect their pedagogical approaches towards more-personalized teaching and learning; the need to adjust to the presence in class of students of different ages and level of cognitive development; the need to develop a different concept of authority and styles of classroom management; the need to contact other agencies and institutions that promote formal or informal learning (Chapman, 1996). Faced with these needs, it is necessary to seek new formulas more in accord with learning for change.

An outstanding contribution to professional development is that made by (Hawley & Valli, 1999). They have systematized the following set of six principles that should guide the practice of professional development:

- **Principle One: Goals and Student Performance:** Professional development should be driven by analyses of the differences between goals and standards for student learning and student performance. Such analyses will define what educators need—rather than want—to learn, make professional development student centred, and increase public confidence in the use of resources for professional development. This idea is also highlighted by (Sykes, 1999): “First and most obvious, the teacher-student learning connection should serve as a criterion for selection of professional and school development activity” (Sykes, 1999).

- **Principle Two: Teacher Involvement:** Professional development should involve learners (such as teachers) in the identification of what they need to learn and, when possible, in the development of the learning opportunity and the process to be used. This engagement increases educators’ motivation and commitment to learn; affirms their strengths and enhances their sense of efficacy; empowers them to take instructional risks and assume new roles and responsibilities; increases the likelihood that what is learned will be meaningful and relevant to particular contexts and problems; improves instruction; and makes the school culture more collaborative and improvement oriented. If teachers are denied input in their own professional development, they are likely to become cynical and detached from school improvement efforts and to reject what they experience as imposition.
• **Principle Three: School Based:** Professional development should be primarily school based and integral to school operations. This does not mean denying teachers access to out-of-school learning experiences through professional associations or networks, graduate study, or teacher centers. However, opportunities to learn in powerful ways are most often connected with the recognition of and solution to authentic and immediate problems.

• **Principle Four: Collaborative Problem Solving:** Professional development should provide learning opportunities that relate to individual needs but for the most part are organized around collaborative problem solving. Activities can vary from interdisciplinary teaming to curriculum development and critique to collaborative action research to study groups. In each case, educators working together to address issues of common concern facilitates the identification of both the causes and potential solutions to problems.

• **Principle Five: Continuous and Supported:** Professional development should be continuous and ongoing, involving follow up and support for further learning, including support from sources external to the school that can provide necessary resources and an outside perspective.

• **Principle Six: Information Rich:** Professional development should incorporate evaluation of multiple sources of information on outcomes for students and processes that are involved in implementing the lessons learned through professional development. Teachers’ knowledge and experience, as well as research studies and outside consultants, should be valued sources of information.

• **Principle Seven: Theoretical Understanding:** Professional development should provide opportunities to engage in developing a theoretical understanding of the knowledge and skills to be learned. Results of research, in comprehensible forms, need to be made accessible to teachers, who cite lack of understanding and limited access as reasons that they do not put theory into practice. New knowledge in itself does not effect change. Professional development must engage teachers’ beliefs, experiences, and habits. Creating effective professional development opportunities means helping teachers (re)consider both their formal and their practical teaching knowledge. Such beliefs are difficult to change. Teachers must experience different types of learning themselves, spend time adapting their instruction, and see positive results in their students. However, since beliefs filter knowledge and guide behaviour, significant transformations of teaching practice are unlikely to occur if they are ignored.

• **Principle Eight: Part of a Comprehensive Change Process:** Professional development should be integrated with a comprehensive change process that deals with impediments to and facilitators of student learning.

Some of the foregoing principles have also been highlighted and qualified by other researchers in the field of teachers’ professional development. One of the aspects stressed is the importance of co-operative work among teachers. Thus, Hargreaves (2003) calls for teachers to offer a new professionalism in order to be the catalysts of the knowledge society. This new professionalism would be typified by, among other aspects, working and learning in collegial teams. (Little, 2002) demonstrated that research spanning more than two decades points consistently to the potential educational benefit of vigorous collegial communities. Despite some caveats, that research has steadily converged on claims that professional community is an important contributor to instructional improvement and school reform. Researchers posit that conditions for improving teaching and learning are strengthened when teachers collectively question ineffective teaching routines, examine new conceptions of teaching and learning, find generative means to acknowledge and respond to difference and conflict, and engage actively in supporting professional growth.
V. **IS THERE A GAP BETWEEN WHAT THE RESEARCH LITERATURE ABOUT TEACHER TRAINING AND TEACHING SKILLS IS SAYING, WHAT DEVELOPING COUNTRIES ARE ACTUALLY DOING IN TERMS OF TEACHER EDUCATION POLICIES, AND WHAT POLICY MAKERS AND OTHER KEY STAKEHOLDERS THINK IS IMPORTANT FOR THEIR COUNTRIES?**

The research literature that we have presented previously shows us that learning to teach is a complex process which incorporates information, knowledge, representations and beliefs that come from different sources and experiences. The research literature is consistent when affirming that the initial teacher education has many difficulties to overcome the preconceptions and beliefs that the students bring when they begin their studies to become a teacher. Those beliefs and preconceptions are generic (on the teaching in general, the students, the classroom) as specific of the contents that become trained (scientific misconceptions).

To modify those preconceptions, as well as to form the teacher in an understanding domain of the matter that they will teach (especially in secondary education) a teacher education is required that integrates appropriately different types of knowledge that are generally presented separate.

The research has demonstrated the importance of the pedagogical content knowledge like the crucial, eminently professional element that characterizes the teaching. That type of knowledge is acquired when the teachers integrate the content to teach with the form of teaching it and assisting to the characteristics of the students. It is a type of knowledge that is generally missing in the curriculum of secondary teacher education. It has been understood with too much easiness that he who masters a given content can also teach it. For that reason we find like a very common practice in the organization of the curricula of the secondary teacher education the difference among scientific contents on one hand and pedagogical for another. The subject matter knowledge have bigger prestige that the pedagogic ones, that which is reflected in the quantity of time that are dedicated.

But it is being also a practice in some developing countries the tendency to the suppression or reduction of the duration of the initial teacher education attributed to the University or to specific institutions of training. The utilized argument that the teaching is a practical profession that should be learnt in the practice has contribute that to many developing countries incorporate to its classrooms teachers with low level in subject matter contents and without pedagogic formation. Nobody would hope a student learns medicine entering directly to a surgery. However, this case is given in the teaching.

The research on learning to teach shows clearly that the initial teacher education is necessary to contribute to develop in the future teacher a deep knowledge of the subject matter that they teach, as well as the conceptual tools for the transformation of that knowledge in pedagogical content knowledge to diverse students. But that initial teacher education should incorporate pedagogic components that contribute to an appropriate integration among the theoretical and applied knowledge.

To transfer the initial teacher education from the university to the schools supposes to increase the demands that these already have, as well as to reduce the learning to teach process to an outline of routine occupation that is learnt only through the observation and imitation of the master teacher.

The new competencies that we have identified previously require an appropriate integration among the teacher education institutions (being university or not) and the schools. Equally, the investigations have shown that a contextualized (situated) knowledge requires training scenarios around cases, simulations and problems that can be derived of the practical experiences of classroom.

But a change in the initial teacher education needs a special attention to the teacher trainers. What research has come showing is that the change toward a model according with the challenges of the knowledge soci-
ety requires of some teacher trainers committed with the enunciated competencies. The research has shown the persistence of the preservice teacher beliefs. But it has also shown the importance of the learning by observation and experience. In this sense the teacher trainers are “models” that the teachers observe and imitate when their behavior is coherent with its discourse. For that reason it is important that the pedagogical content knowledge concern and practice will be present in the practices of teacher trainers.

As Feiman-Nemser (2001) found in a recent review, separate courses taught by individual faculty in different departments rarely build on or connect to one another, nor do they add up as a coherent preparation for teaching. Initial training is organized with a classic division between conceptual and practical contents. This divide between theory and practice, however has left a critical gap unattended. Student teachers are often in the end most influenced by what they see their co-operating teachers do or by their own memories from school. The effect of teacher education is often small. Although they collect ideas, learn theories, and develop some strategies, beginning teachers often report that their knowledge was of little use or practicality (Lampert, 1999). This circumstance of initial teacher training has also been identified by Messina with respect to Latin America. That author suggested that in Latin America, training has remained trapped within traditional models of teaching and learning. On one hand, the training centres (and the educators of these centres) continue reproducing the traditional school culture, while the student teachers arrive with equally traditional school case histories (Messina, 1999).

However, as Berliner has shown, initial teacher training has a positive effect on the quality of teaching developed by the teachers. In a review of research on teacher training, Darling-Hammond and McLaughlin (1999) agree, showing that there is growing evidence that demonstrate that what teachers know has substantial influence on what students learn. “Other research confirms that teacher knowledge of subject matter, student learning and development, and teaching methods, along with skills developed through expert guidance in clinical settings, are an important elements of teaching effectiveness. More than two hundred studies have found that teachers who have more background in their content areas and have greater knowledge of teaching and learning are more highly rated and more successful with students in fields ranging from early childhood and elementary education to mathematics, science, and vocational education. Not only does teacher education matter, but more teacher education appears to be better than less—particularly where it includes carefully planned, extended clinical experiences that are interwoven with course work on learning and teaching. Recent studies of redesigned teacher education programs offering a five-year course of study that includes a year-long internship find that their graduates are more successful and more likely to enter and remain in teaching than graduates of traditional undergraduate teacher education programs (Darling-Hammond & McLaughlin, 1999:377-378).

With regard to teaching practice, the results of research on the practicum suggest that we seriously need to question this notion. The main theme emerging from this research on the practicum setting is the tension between teacher educators and pre-service teachers in their attempt to bridge the cultures of the school and the university. These tensions are fuelled by failed expectations of teacher educators ad a sense among pre-service student teachers that they are poorly prepared for their work in school setting. However, some evidence suggests that certain of these problems can be alleviated when close collaboration exists between the players in student teaching (Wideen et al., 1998:152). Research documents also significant shifts in attitude among teacher candidates who work under close supervision in real classrooms with children. Whether that power enhances the quality of a teacher’s preparation seems to depend on the specific intent and characteristics of the field experience. Research shows that field experiences too often are disconnected from, or not well coordinated with, the university-based components of teacher education. Sometimes the field experiences are limited to mechanical aspects of teaching. Stereotypical views can shift when student teachers work in classrooms that enable this to happen. In field experiences with focused, well-structured activities, more significant learning can occur. And, finally, research shows that co-operating teachers have a powerful influence on the nature of the student teaching experience (McIntyre, Byrd, & Foxx, 1996; Wilson et al., 2001).
What must teachers know? Some answers have come from the research on teachers’ knowledge that we have already referred to. Nevertheless, little research has been devoted to the overall programme of teacher training. There are many studies on specific elements of the programmes, in particular on teaching practice. These studies generally do not describe and analyze the components of teaching practice in the institutions, nor the task of the trainers. It is an almost accepted fact that training programmes face difficulty in altering the beliefs that students bring with them when joining a training programme (Richardson and Placier, 2001). Feiman, who has spent a whole lifetime studying teacher training, concludes a review with the following words: “traditional programmes of initial teacher training and of professional development are not designed to promote complex learning in either the teachers or the students. The typical initial training programme is very weak compared with the influence on pre-service teachers of their schooling and of practical experiences” (2001:1014).

Darling-Hammond and MacDonald (2000) have analyzed seven North American teacher-training programmes considered to be effective. Their comparative analysis revealed certain identifying elements:

- **Conceptual coherence**: conceptual coherence is the most important element in an initial teacher training programme. It provides a guiding view about the type of teacher being trained, a view of learning, of the role of the teacher and the school, and includes the values and beliefs that later will later be seen in the curriculum and in the learning opportunities for the students during practice.

- **Integrated teaching practice with a purpose**: Coherence in the segment of teaching practice is essential: observations, orientation, guided practice, application of knowledge and investigation are important elements. In the programmes studied by Darling-Hammond and MacDonald, the practice is organized to promote reflection and theoretical learning, using diaries, tasks, weekly seminars, etc. Care is taken for multiple localizations of students during practice. All students work with supervising teachers who have completed special university courses, including mentoring and evaluation.

- **Attention to teachers as subjects who learn**: The goal of the teacher-training programme is that teachers learn. The teachers exert themselves because the students continue learning through support given to their new ideas, and the sharing of ideas and knowledge. Recognition of the student as a subject who learns begins with the recognition that pre-service teachers arrive with beliefs and images that have to be transformed.

How can we make initial teacher training a good launching pad for lifelong learning? This is one of the concerns of educators and researchers who continue believing in the importance of training. We could ask ourselves, as does Gess-Newton: so what types of content courses should teachers take in order to gain such knowledge? As echoed by many of the authors included in this review, the issue in not the number of courses or their titles, but the manner in which these courses are taught. Most university courses can be characterized as factually-based, an instructional emphasis that has been shown to decrease attempts to gain more conceptual understandings. In addition, seat time in any classroom fosters the explicit learning of content as well as implicit information about the nature of the discipline, and assumptions about the teaching and learning of that discipline. Therefore, what is needed is a change in the nature of the teaching of content courses (Gess-Newsome, 2003a:84).

The change being demanded in the content and methods of the initial teacher training requires greater involvement of and integration between the various types of knowledge needed for learning to teach. A curriculum grounded in the tasks, questions and problems of practice, collecting concrete records and artifacts of teaching and learning that teachers could use; promoting collective professional inquiry (Ball & Cohen, 1999). It is therefore about guiding teacher education around the investigation of the practices of teaching and learning, rather than to centre it solely on the provision of knowledge and skills to be applied in practice.
(Lampert, 1999). These are proposals that incorporate a constructivist conception on the part of the teacher. For example, Borko and Putnam (1996) proposed:

1. Addressing teachers’ pre-existing knowledge and beliefs about teaching, learning, and subject matter: because the knowledge and beliefs that prospective teachers bring to their teacher education programs exert such a powerful influence on what and how they learn about teaching, programs that hope to help novice think and teach in new ways must challenge participants’ pre-existing beliefs about teaching, learning, subject matter, self as teacher, and learning to teach.

2. Providing teachers with sustained opportunities to deepen and expand their knowledge of subject matter: novice must have the opportunity to strengthen their subject matter knowledge and pedagogical content knowledge throughout the teacher education experience. Learning to teach a subject well entails learning the discipline’s different ways of knowing, as well as integrating new information into one’s existing knowledge systems.

3. Treating teachers as learners in a manner consistent with the program’s vision of how teachers should treat students as learners

4. Grounding teachers’ learning and reflection in classroom practice

5. Offering ample time and support for reflection, collaboration, and continued learning.

However, as demonstrated by Windschitl (2002), “implementing constructivist instruction has proved even more difficult than many in education realize. The most profound challenges for teachers are not associated merely with acquiring new skills but making personal sense of constructivism as a basis for instruction, reorientating the cultures of classroom to be consonant with the constructivist philosophy, and dealing with the pervasive educational conservatism that works against efforts to teach for understanding” (131). Profound changes are therefore needed in the methods, in the processes of teaching and of acquisition of knowledge by the trainee teachers.
REFERENCES


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Sandra S. Huang
### ABBREVIATIONS AND ACRONYMS

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<tr>
<th>Abbreviation</th>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<td>CDSP</td>
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<td>Comprehensive Poverty Reduction and Growth Strategy</td>
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<td>DHSP</td>
<td>Dai Hoc Su Pham (University Teacher Training College)</td>
</tr>
<tr>
<td>DOET</td>
<td>Department of Education and Training (Province)</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>EDS 2010</td>
<td>Education Development Strategy to the year 2010</td>
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<tr>
<td>EFA</td>
<td>Education for All</td>
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<tr>
<td>ELTTP</td>
<td>English Language Teacher Training Project</td>
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<tr>
<td>EMIS</td>
<td>Education Management Information System</td>
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<tr>
<td>GVN</td>
<td>Government of Vietnam</td>
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<tr>
<td>LSEDPL</td>
<td>Lower Secondary Education Development Project</td>
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<td>LSTTP</td>
<td>Lower Secondary Teacher Training Project</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MOET</td>
<td>Ministry of Education and Training</td>
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<tr>
<td>NGO</td>
<td>Non-Government Organization</td>
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<tr>
<td>NIESCD</td>
<td>National Institute for Educational Strategies and Curriculum Development</td>
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<tr>
<td>ODA</td>
<td>Official Development Assistance</td>
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<tr>
<td>PCU</td>
<td>Project Coordination Unit</td>
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<td>PEP</td>
<td>Primary Education Project</td>
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<td>PPC</td>
<td>Provincial People’s Committee</td>
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<tr>
<td>PTDP</td>
<td>Primary Teacher Development Project</td>
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<tr>
<td>SESMP</td>
<td>Secondary Education Sector Master Plan</td>
</tr>
<tr>
<td>THSP</td>
<td>Trung Hoc Su Pham (Teacher Training School)</td>
</tr>
<tr>
<td>TTC</td>
<td>Teacher Training College</td>
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<tr>
<td>TTI</td>
<td>Teacher Training Institution</td>
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<td>ULSE</td>
<td>Universal Lower Secondary Education</td>
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<td>UPE</td>
<td>Universal Primary Education</td>
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<td>VDG</td>
<td>Vietnam Development Goals</td>
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<td>WB</td>
<td>The World Bank</td>
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Overview

Background and purpose: The Government of Vietnam has issued a new mandate to the education and training system to build the skills, attitudes and intellectual capacity of students in order to provide an adaptable and competitive workforce. After spending the 1990s focusing on expanding access to the education system and achieving universal primary education, the GVN created new national strategic education goals to replace the old system (rooted in teacher centered practice and rote memorization) with something more effective in the creation of a knowledge society.

In theory, this knowledge society puts a premium on solving problems and adding value through the fluid analysis, adaptation and evaluation of existing knowledge, and its novel application to unfamiliar problems. In reality, the development and effort to implement these new goals revealed a profound mismatch between the radically new competencies demanded of students in a knowledge society, and the knowledge, teaching skills and approach with which graduates of the current teacher training system are equipped. Efforts to align the two are incomplete, and will require a paradigm shift in beliefs and behaviors and attitudes about teaching and learning, as well as a radically new set of competencies, practices and expectations for teachers and teacher trainers alike.

Current context of teacher training: Recent priorities in teacher training have centered on the standardization and upgrading of teacher qualifications and teacher training institution capacity, and synchronizing training and support for teachers with the new primary and lower secondary curricula and textbooks. The high level of attention to renovating the primary and lower secondary education curricula, textbooks and methodologies demand a corresponding renewal of teacher knowledge and skills.

Vietnam has enacted a multitude of interventions and programs, many taking place concurrently. There is a concerted campaign to upgrade teacher, teacher trainer, and TTC capacity and qualifications, as well as in-service training to introduce the new student curricula and methodologies to teachers. In addition, there are projects piloting new training models for both the primary and lower secondary levels. Other objectives include providing supports in the form of materials and references, training of educational managers, and the beginning elements of a standards based system.

What works: Vietnam has achieved a lot in areas that critically contribute to and support teacher practice. It is presently meeting some necessary preconditions for establishing measures of current performance and identifying and making informed decisions about future needs. There are also signs of promising practice that both demonstrate the benefits of effective training and provide guidance on possible solutions for current gaps in putting theory to practice. The scale and spirit of reforms have reached widely throughout the education and training system. Most stakeholders, if they are not yet clear on how or what they should be doing differently, are aware that they should be doing something differently. At all levels there has been steady progress in the standardizing and upgrading of academic qualifications.

At the primary level, Vietnam has made two critical steps toward establishing measurable goals in both teacher and student performance and progress: drafting of a teacher professional profile; and the first systematic assessment and analysis of student achievement outcomes at the end of the primary level. At the lower secondary level, a hopeful step in addressing systemic deficiencies in the TTC pre-service curriculum is the proposal of a complete redesign, calling for increasing emphasis on practice over theory including an extended practicum, and on modernizing teaching methodologies. Innovative TTCs have also tried to be proactive in finding ways to bridge the boundaries between TTCs and the primary and lower secondary schools and practitioners.

Trouble spots: While Vietnam continues to take steps forward in improving the quality of teachers and teaching, there is still little evidence of large scale and profound change in classroom and professional prac-
Reasons for this are both practical and ideological, and are often deeply interrelated. Foremost is the lack of agreement on the problem. The lack of widespread deep understanding of the intended model of teaching and learning, results in the lack of clear common definitions for intended changes in teaching competencies and instructional practice. While progress has been made in standardizing and upgrading qualifications of teachers, these efforts are focused on degrees and certificates, and do not articulate required mastery of specific content area knowledge or pedagogical competencies. Thus, initiatives are not always aligned with common goals, and in general do not have established measures for either performance or progress. Currently there are no accountability measures in place for implementing the new teaching methodologies.

In addition to barriers caused by the confusion over the nature of instructional change desired, the current delivery of in-service and pre-service training does not employ the new methodologies. In-service training is too short and limited in practical application, and therefore, is not conducive to promoting lasting changes in practice. Pre-service training has also been slow to follow the content or methodology changes of the primary and lower secondary curricula. The Cascade model for disseminating in-service training compounds the problem by diluting the knowledge transferred to each level, and is insufficient in helping teachers relearn to teach. Furthermore, instructional support, in the form of both managerial support and professional community and dialogue among teachers, is weak. Linkages between institutions, organizations and initiatives are also weak.

The GVN’s effort to change the traditional predisposition toward prescriptive teaching suffers from fundamental contradictions. Teachers, teacher trainers, and teacher training institutions alike are asked to develop radically new ways of thinking and acting and interacting while still operating within the confines of an educational system that is rooted in the old traditions they are being asked to change. The practice of maintaining strict control over the content and pace of reform runs counter to the stated policy of decentralized implementation and the encouragement of new competencies—innovation and independent thinking, critical analysis, creative problem-solving—that Vietnam ostensibly wishes to cultivate in students and consequently requires of the teaching force. Transforming teacher education in Vietnam is more than a matter of revising content and methods—it will require a change in fundamental and deeply ingrained ideological and social norms.

Conclusion and recommendations: MOET is feeding a great deal of policy down to the provincial and district level education departments to implement, without sufficient awareness or acknowledgement of the scale of change being demanded or the lack of capacity or understanding of what is intended. Ultimately, Vietnam needs teachers to build a repertoire of teaching and learning competencies and strategies to support the development of higher order thinking skills in students.

The following recommendations approach Vietnam’s needs from both the national system level and the immediate context of developing professional practice. Efforts at both levels must act in concert to develop systemic policies that create conditions to support deep and lasting changes in practice that embody learning to teach in a knowledge society.

**Recommendations for learning to teach in a knowledge society:**

**A. Teacher and instructional development emphasizing shared and continuous learning through practice, reflection and leadership:**

- ensure an adequate knowledge base; promote pedagogy and practice
- create a culture of shared professional practice, and build both teacher expertise for examining practice and teacher voice in instruction and professional development;
- provide a vision of professional community and professional practice that takes responsibility for and develops internal expertise for learning and advancing together;
B. System level scaffolds focusing instructional goals and supporting new vision of teacher practice:
- introduce a standards based system, articulating expectations for student and teacher knowledge and competencies;
- build accountability for teaching and teacher training quality by establishing measures for performance and progress against articulated performance standards;

C. Critical contingency of State, school and teacher professional contexts: addressing social, economic, ideological inconsistencies:
- tackle inconsistencies in centralization and decentralization;
- address systemic policy issues to improve teachers’ professional outlook and environment, such as civil service employment, salary, career path, and working conditions.

D. Equity and excellence as unyielding twin goals
A final recommendation serves as a reminder that efforts to improve quality must not be made at the expense of equity, and that all children in Vietnam should have equal opportunity to have capable teachers who can help them acquire and apply knowledge, develop insights, and learn to think logically, resourcefully and imaginatively.

I. INTRODUCTION

Schooling in Vietnam is an almost perfect mirror of the society Vietnam used to be. It must become a reflection of the society it wants to be.

--Vietnam: Secondary Education Sector Master Plan, ADB, 2002

Teacher repertoires have been shaped by the crucible of experience and the culture of teaching. Policy makers need to understand that altering pedagogy requires a change in what teachers believe. Getting professionals to unlearn in order to learn, while certainly not impossible, is closer in magnitude of difficulty to performing a double bypass heart operation than to hammering a nail.

---Larry Cuban, 1986

1. Taken together, these quotes define the new direction for teaching and learning in Vietnam, and the scale of difficulty of the task. As Vietnam transitions from a command to a market based economy and a knowledge and information society, the education system has been issued a new mandate to build the skills, attitudes and intellectual capacity of students in order to provide an adaptable and competitive workforce. The immense challenge Vietnam currently faces in teacher and professional development is not merely a case of doing more or better, but one of fundamentally reconceptualizing a deeply embedded culture of instructional practice.

2. The education system in Vietnam has a long history of transferring fixed knowledge using consistent and unchanging delivery. In the past, teachers were trained in the traditional academic disciplines and are characteristically teacher-centered in their pedagogy. Students were not asked to speak or think independently but were instead expected to take notes and absorb whatever knowledge the teacher conveyed. Since Doi Moi (Vietnam’s economic renewal plan initiated in the late 1980s) the government has placed great emphasis on transitioning from an agrarian to an industrial society, and on human resource development as a means of producing a more adaptable and skilled labor force. As noted in the Secondary Education Master Plan, Vietnam’s education functioned very effectively in giving students cognitive skills they needed under the old economy. But “to deal with the uncertainties and continuous changes characteristic of market economies, students need strategic skills such as knowing-how-to-learn skills, problem-solving skills, and
evaluative skills.” (SESMP) Recognizing that the traditional approach was not effective in light of these new demands, Vietnam is trying to introducing new educational concepts such as active learning, student-centered approaches, and self-learning. To implement these new concepts will require redefining basic assumptions and roles in education and society to allow new practices and the development of new competencies in both students and teachers.

3. Vietnam is in its beginning stages of orienting its education system and the practitioners in it toward learning to teach in a knowledge society. The purpose of this study, commissioned by the World Bank and the UK Department for International Development, is to examine teacher training in Vietnam and assess what Vietnam is doing—to determine its teacher training needs, good practices and major implementation gaps—to equip teachers with the competencies and skills they need to facilitate student acquisition of the key competencies required in the knowledge society.

4. The two principal aims of the study are to support international understanding of Vietnam’s choices and experience in teacher education policy, and to inform ongoing policy dialogue among relevant stakeholders about teacher education and teachers’ professional development alternatives and choices in the light of the new key competencies demanded by the knowledge society. Because Vietnam’s current strategic education goals and reform efforts in teacher training are focused at the primary and lower secondary levels, the scope of this study will be confined to teacher development at those levels.

II. METHODOLOGY: WHAT DID WE DO?

5. This is a qualitative study with research conducted centrally and in a small group of provinces. Central level meetings were conducted in Hanoi with senior officials and key staff from MOET, from ongoing projects in the area of teacher training, and non-governmental organizations implementing teacher training projects. Field research consisted of visits to schools, teacher training institutions and Departments of Education in four provinces: Hanoi, Bac Can, Thai Nguyen, and Ho Chi Minh City. The number of provincial visits was constrained by both limited time and resources. These provinces were not chosen to be representative of the whole country, but to give some insight into teacher training issues in regions of contrasting geography, affluence and ethnic make up.

6. Information was gathered through semi-structured interviews both individually and with groups of stakeholders, using open-ended questions to generate discussion and probe for awareness and understanding. Except for interviews with NGOs, meetings were conducted through a Vietnamese interpreter. In addition to interviews with key informants, research also included an in-depth review of key education strategy documents, project documents and evaluations, and other supporting materials.

7. Before the study examines the Vietnamese context, section III presents a conceptual definition of a knowledge society and discusses some critical implications for an education system, and section IV briefly introduces the broad domains of teaching knowledge and competencies. Section V presents the status of Vietnam’s teacher preparation and training, presenting current training programs and institutions, the entities responsible for teacher training, and a snapshot of the teacher force. What follows is a development of the government’s new strategic education goals, and the programs and reforms in place to enact those goals (Section VI and VII). Sections VIII and IX analyze the promising results and stumbling blocks of current practice, while section X raises a fundamental contradiction in Vietnam’s espoused educational goals. Finally, section XI closes with a set of recommendations Vietnam may choose to consider as it continues its efforts at learning to teach in a knowledge society.
III. KNOWLEDGE SOCIETY: THEORY OF ACTION AND IMPLICATIONS FOR TEACHING AND LEARNING

8. Knowledge society, knowledge economy, information society, learning society—these are among the several names used to capture the essence of the current age, characterized not merely by the flow of information and pervasiveness of technology, but by gaining value not from machine or manual labor but from mental activity and human ingenuity. An organization or nation can be information rich, but without the skills and mechanisms to analyze, apply, evaluate, and share that information, will be knowledge poor. To thrive in this context demands not just the practice of higher order cognitive skills, but exercising them fluidly and flexibly, intelligently and imaginatively to solve problems strategically across levels, divisions, and sub-sectors.

9. This new context has deep implications for education, and for the role of teachers and teaching. In order to develop deep cognitive learning in their students, and cultivate in them the competencies to succeed in and support a knowledge society, teachers must not only alter what, how and for what purpose they teach but also how they themselves interact and learn. The teacher in a knowledge society must be the consummate problem solver, using inquiry, analysis, and adaptation to maximize student understanding and insight, and cultivate continuous self-learning and improvement.

10. Moreover, in the knowledge society, the characteristics described above are not demonstrated individually, but are practiced collectively. Traditionally isolated in their practice, adapting and improving their practice in a knowledge society will require teachers to work collaboratively to make tacit knowledge explicit, and apply their shared experience and expertise to solve common problems. An effective learning organization will further link experienced practitioners with researchers and policy makers to inform strategies at the system level and create conditions for improving practice at the local level.

IV. TEACHING COMPETENCIES AND QUALITY TEACHING

11. As we change and raise expectations for student learning, we place greater importance on the role of teachers and quality teaching. Teacher training and the professional development of teachers are the primary means by which to impact the overall quality of teaching and individual teachers’ effectiveness. There are four broad domains of knowledge that comprise the curriculum of teacher education programs: general or basic knowledge of key common subjects such as mathematics, language, and history or civics; content knowledge for teaching a specific subject area; professional knowledge, including pedagogy and other teaching and learning-related knowledge; and pedagogical content knowledge, which is specialized teaching and learning knowledge of a particular discipline.

12. There exists much debate and conflicting research around the relative impact of these different domains of teacher knowledge and preparation on student achievement. Studies on teacher characteristics and student achievement, including the recent Grade 5 Performance Assessment in Vietnam examining determinants of student achievement, show that scores of teacher knowledge in reading are highly correlated with student test scores in the same subject. In other recent research, pedagogical content knowledge is the type most clearly linked to student achievement, and the one with the strongest potential vis-à-vis the professional development of teachers. (Darling-Hammond, 2002 and Marcelo, 2002 in Appendix A, TOR) As this study examines recent Vietnamese efforts to improve teacher training, it will address the relative emphasis of reforms on these different domains. The recommendations at the end of this study will also explore the necessary priorities in developing different levels of teaching knowledge and competencies as Vietnam strives to develop a quality teaching force in a knowledge society context.
V. THE CURRENT STATUS OF TEACHER PREPARATION AND TRAINING

A. Pre-service training
13. Teacher training in Vietnam is centralized in decision making but decentralized in implementation. According to Education Law, a curriculum framework dictating content and duration of required coursework for pre-service training is stipulated in regulations issued by MOET. The distribution of credit hours for general education, professional education and practice teaching are included under this framework. Practice teaching currently consists of 2 weeks of classroom observation in the second year, and 6 weeks of classroom practice in the third year. Pre-service training is delivered solely by a national network of provincial Teacher Training Colleges and a smaller network of University Teacher Training Colleges. All provincial Teacher Training Colleges and University Teacher Training Colleges must follow MOET regulations and Education Law.

B. In-service training
14. In-service training represents something very different in Vietnam than in other countries. In Vietnam, in-service training traditionally refers to long term additional training received either during the summer or of longer duration to upgrade educational qualifications after entering the teaching profession. In-service training of this nature is offered through the teacher training institutions and Provincial DOETs, and like pre-service training, is regulated by MOET.

15. MOET has recently established three new types of in-service training. The first is direct, MOET-organized trainings during the summer, for example during the implementation of the new primary and lower secondary curriculum. These are conducted at the central level and replicated in a cascade training model down to the provincial, district and school level. Trainings tend to be uniform with training content established centrally. The second is called frequent training. These are conducted at the district level and are generally monthly subject area conferences that all teachers of a particular grade or subject area attend. Guidance for these was previously provided by the Teacher Department in MOET. The final mechanism for new in-service learning is self-learning, where teachers use materials developed by MOET to acquire new practical skills.

C. Who provides what kind of training?
16. There have traditionally been three types of Teacher Training Institutions (TTIs):

- Teacher Training Schools (TTS) or Trung Hoc Su Pham (THSP),
- Teacher Training Colleges (TTC) or Cao Dang Su Pham (CDSP)—these are sometimes referred to as Teacher Training Junior Colleges), and
- University Teacher Training Colleges or Dai Hoc Su Pham (DHSP).

17. Until recently, each province had either a TTS or TTC with responsibility for delivering teacher training in its area; very few provinces have a university level DHSP. Teacher training for primary and lower secondary education has traditionally been a 2 year program after upper secondary for primary teachers (12+2), and a 3 year program after upper secondary for lower secondary teachers (12+3). In the past, because of low education levels and shortage of teachers, teachers were prepared at a number of different levels below the national standard. Vietnam has aggressively upgraded facilities and staff at remaining TTSs to TTC level, so that early this millennium, Vietnam had achieved a national network of TTCs. These TTCs now also deliver a three year program for primary education, so while the Education Law sets the minimum standard for primary teachers at 12+2, the elimination/upgrading of TTS means that the de facto training offered to new entrants is 12+3. In some cases, however, TTCs still offer 12+2 degrees for shortage areas in primary and lower secondary education.
18. The University Teacher Training Colleges (DHSP) mainly prepare pre-service teachers of upper secondary with a bachelor’s degree (12+4). These institutions also offer in-service upgrading to bring teachers at all levels to the 12+4 or MA level. Since the phasing out of TTSs, some university level DHSP have begun offering pre-service training for primary education. Teacher Training Colleges at universities do not have pre-service training for lower secondary, as that responsibility is centrally assigned to the TTCs. However, the universities will upgrade lower secondary teachers to bachelor degree qualifications.

D. What agencies/entities are responsible for teacher training?

19. The administration of education and training is complex and changing, and is ostensibly shared among the different levels of government. At the central level is the Ministry of Education and Training (MOET); each province has a Department of Education and Training (DOET); and at each district level, a Bureau of Education and Training (BOET). Primary education, including in-service training and teacher/school inspection, is administered by districts and communes, lower secondary education is managed by district, but overseen by the provincial level, and upper secondary is managed at the provincial level under the supervision of MOET and the Provincial People’s Committees (PCC). Pre-service and in-service teacher training for primary and lower secondary is primarily delivered by BOETs and the Teacher Training Colleges (CDSP) which are administered at the provincial level by the DOET and PPC, following a curriculum framework issued by MOET. In spite of the decentralized system of implementation, MOET is the ultimate decision maker and is responsible for all policy formulation, guidance and supervision for education and training.

20. Within the Ministry, responsibility for teacher training policy formation, program design, operational standards and the training of TTC administrators and teachers until recently resided with the Teacher Department. In August 2003, this department was dissolved and teacher training experts were moved within Departments of Primary and Secondary Education in order to bring training efforts more in line with the needs at each level. Subsequently, responsibility at the central level for teacher training has shifted again into the Department of Higher Education, which manages all post-secondary education.

21. The entities that supported the Teacher Department in technical areas and that are responsible for educational research on teachers, pedagogy, methodologies and instructional materials have also been reorganized. The former National Institute for Educational Sciences (NIES) and National Institute for Educational Development (NIED) and their component research centers have been merged into a new National Institute for Educational Strategies and Curriculum Development (NIESCD). This new Institute, less than 6 months old, is responsible for guiding the implementation of Vietnam’s Education and Development Strategy 2001-2010, specifically the curriculum and methods reforms for the primary and lower secondary levels.

E. Teacher force

22. Currently there are 353,137 primary teachers with about 12% below national standard (i.e., 12+2), and 238,049 lower secondary teachers with 9% below standard (i.e., 12+3). While the teacher force has grown significantly in the 1990s as Vietnam worked toward UPE and expanded participation in lower secondary education, the proportion of teachers at both the primary and lower secondary level teaching below MOET standard has steadily declined since 1997 [see Figure 1].
23. Because of the steady growth of the teacher force, especially at the lower secondary level, the teacher force is young, with 73% of teachers under 40 years old, and 40% under 30 years old. Teachers are poorly paid and most pursue secondary employment to earn supplemental income. Teacher pay averages 1.7 times of GDP per capita in Vietnam compared to an average of 2.4 times GDP per capita in Asia. (WB, 2001) Salary bands are regulated by GVN decree and are calculated from the public sector minimum salary scale. Increases are based on years of service and not by educational level, professional advancement or performance. Since 1997, public school teachers also receive salary supplements—previous to 1997, these supplements were only for extra duties or for going to difficult to staff areas. (SESMP) Professional advancement tends to be out of the teacher ranks and into administration at the school or District or Provincial Departments of Education and Training.

24. Because of the low pay and other constraints of the profession, candidates often apply to teacher training colleges as a second or third choice. There is also a tuition waiver policy for pre-service teaching programs, so others see it as a means to further their education for free. Teacher Training Colleges report that candidates often receive training for other fields simultaneously to widen their employment options. And many qualified candidates that graduate see the degree as a ticket to working in other jobs related to education and training in the private sector, but do not enter public school teaching. Those who do work in the public sector often have secondary employment. While not directly relating to the delivery of teacher training, these factors have important implications for the efficiency and effectiveness of teacher training and teaching quality.

VI. NEW ORIENTATION IN TEACHING AND LEARNING

A. Shifting gears from quantity to quality: Vietnam’s development goals
25. In the 1990s, Vietnam’s most important education priority was to achieve universal primary education (UPE). The Government of Vietnam (GVN) added resources in the education sector and redistributed them within the sector to help improve facilities, produce new teachers and assist disadvantaged areas. In August of 2000, Vietnam announced the achievement of this objective. While internal definitions for UPE in Vietnam are different from international targets (80% NER versus 99% NER), Vietnam’s expansion of the education system is still a commendable achievement. The new millennium has also brought new international development goals that have had an impact on Vietnam’s national goals.

26. Vietnam has adapted international goals to fit its own national context. The Millennium Development Goals (MDGs) and the Education For All (EFA) goals are the key international declarations proposing goals for education development which Vietnam has adapted to form the Vietnam Development Goals (VDGs). The MDGs present 2 key basic education goals which are consistent with 2 of 6 EFA goals:

- Achievement of universal primary education (UPE) by 2015
- Elimination of gender disparities in education in primary and secondary education by 2005 and achieving gender equality in education by 2015

27. The VDGs include targets for consolidating UPE, and also set more ambitious targets for achieving universal lower secondary education (ULSE) by 2010. A noteworthy distinction between MDGs for education and EFA goals is that the EFA goals include an emphasis on the quality of education and creating measurable learning outcomes. The VDGs conspicuously include this element, pronouncing a shift in national strategic education goals from quantity to include improving quality.

B. Justifying the goals and translating them into strategy
28. In addition to the VDGs, MOET in 2001 announced a national Education Development Strategy for 2001-2010 (EDS 2010). EDS 2010 identifies human resource development as a crucial factor in supporting industrialization and modernization and focuses attention on education as the basis for that support, and for accelerating Vietnam’s entry into a knowledge economy and information society. Acknowledging the success of education efforts since Doi Moi, EDS 2010 also sets a new course for education development in Vietnam, recognizing the profound mismatch between the radically new competencies demanded from students in the knowledge society, and the teaching skills and approach with which graduates of the current teacher training system are equipped.

29. A central priority in the new strategic goals is for teachers to be able to adopt methodologies to create student-centered and activity based classrooms in order to build a future workforce better equipped to negotiate the intellectual demands and changing environment of a modern knowledge-based market economy. This new orientation first formally appeared in Vietnam Education Law in 1999. Clause 2, on the nature and principles of education, states:

“Educational activities must be conducted on the principles of learning coupled with practice, education linked to productive labor, theory connected to experience, and education in school combined with education in the family and in society.”

“Education methods shall encourage initiative, self-motivation, and creative thinking of learners; foster self-taught ability, learning eagerness and will to advance forward.” (Education Law, 1999 in SESMP)

30. To operationalize its goal in improving the quality and transforming the nature of education, MOET has two main objectives driving all teacher training efforts. The first is the upgrading of qualifications for teachers, for teacher trainers, and for teacher training institutions. The second is changing teaching methodologies to match the approach of the new primary and lower secondary curricula and textbooks.

31. Vietnam has set ambitious goals for itself both in terms of teaching students and training teachers. The education system and the teacher training system in Vietnam is complex and burdened with inadequate resources and insufficient compensation for teachers. On the plus side, the relative youth of Vietnam’s teachers as a whole suggests that the radical changes mandated by the plan to “teach for a knowledge society” will be absorbed more easily by the teachers than they might be in a place where the teaching ranks were older and more entrenched. However, the change will not be an easy one, and success is not guaranteed.

C. The challenge: putting theory into action
32. How does Vietnam intend to realize these goals for renovating teaching and teacher training? With new curricula, textbooks and methods introduced at the primary and lower secondary levels, existing teachers and entering teachers alike will have to acquire a new and more sophisticated set of knowledge and teaching competencies in order to facilitate student acquisition of desired new competencies. The national Education for All Action Plan 2003-2015 addresses specific sub-sector interventions that support the implementation of EDS 2010.
33. The EFA Action Plan addresses access and management issues, and reinforces Vietnam’s shift in strategic goals from quantity to quality and relevance. It also consolidates EDS 2010 teacher training objectives, with both primary and lower secondary levels sharing the following general objectives:

- All teachers receive 30 days of in-service training per year from 2003; and all teachers meet national standards by 2010.
- All teachers will receive “teaching guides” for specific grades and subjects each year.
- Curriculum, teaching methods, and textbooks will be “continuously improved,” and a “continuous assessment” system will be established.

VII. FROM ESPOUSED TO ENACTED

34. The rules have changed dramatically for classroom teachers. The introduction of the new curricula at the primary and lower secondary levels is a significant departure from the dominant traditional teacher-centered approach. Teachers have suddenly been asked to not only demonstrate skills, competencies and ways of thinking that they were never taught themselves, but they must now master these new skills enough to be able to cultivate and develop radically new competencies in their classrooms.

35. Vietnam’s strategic goals and proposed interventions set a course for achieving this immense task. And by all accounts and reports, Vietnam is doing a lot. Taken a step further, Vietnam is doing a lot in areas that critically contribute to and support teacher practice.

A. Current initiatives in teacher training

36. In the last 10 years, there has been a high level of attention on renovating the primary and lower secondary education curriculum, textbooks and methodologies. The new teaching and learning theories introduced as a part of student curriculum reform have also demanded a renewal of teacher knowledge and skills. Interventions to support these new requirements have largely been enacted through a series of strategic planning tools and Official Development Assistance (ODA) project in the area of curriculum and materials development, and teacher training and capacity building. [see Figure 2]

37. Within these projects, major interventions to help reach national objectives include:

- Implementation of the new primary and lower secondary curriculum, with teacher training to ensure competent delivery of the curriculum
- Teacher Development and Training: upgrading of teacher qualifications, strengthening in-service and pre-service training programs for teachers and principals through intensive training programs, or through improvement of the delivery capacity of teacher trainers and TTIs, and the development of teacher professional standards.

38. Among the anticipated activities and outcomes of these projects are:

- Support for implementing new primary and lower secondary curriculum through:
  o development and distribution of instructional materials and teacher resources
  o massive in-service training and upgrading for both primary and lower secondary teachers, and for teacher trainers
  o institutionalizing regular in-service training
  o pre-service renovation including training modules at primary and a curriculum redesign at lower secondary
Figure 2: Primary and Lower Secondary Teacher Training Projects and Related Initiatives

New Goals, Strategies and Action Plans

- 2000 Millennium Development Goals/Education for All
- 2000 Vietnam announces achievement of Universal Primary Education
- 2002 National Primary Education Development Program

National Initiatives and Programs 1994-2004

1994 Primary Education Project (PEP)
- improve quality and relevance; improve infrastructure and access; strengthen management [completion 2003]

1997 Lower Secondary Education Development Project (LSEDP)
- new lower secondary curriculum development and in-service [Phase 1 completion 2004]

1998 English Language Teacher Training Project (ELTTP)
- capacity building to upgrade teachers of English in lower secondary schools and TTCs [completed August 2003]

1999 Vietnam-Belgium Teacher Training Project
- training of teacher trainers on the methodology of active teaching and learning [completed March 2003]

1999 Lower Secondary Teacher Training Project (LSTTP)
- pre-service teacher training and TTI capacity building [completion 2006]

2000 Support to the Ministry of Education and Training
- Pedagogical Component in support of new curriculum and textbook implementation.
  Management Component, including EMIS development [completion April 2004]

2001 Primary Teacher Development Project (PTDP)
- lay foundation for nationwide program to upgrade quality of primary teaching service [completion 2005]

2002 Primary and lower secondary curriculum and methodologies phase-in begins

2003 LSTTP Pilot sites for new pre-service teacher training phase-in begins

2003 Lower Secondary Education Development Project II (LSEDP Phase 2)
- materials and in-service to support active teaching/learning methods and use of materials instructional materials [completion 2010]

2003 Draft Teacher Professional Profile primary education

2004 Quality of Education at the End of Primary School in Vietnam in 2001
- Grade 5 student performance assessment

2004 Pilot Benchmark study on primary teacher skills using Draft Profile

2004 Primary Education for Disadvantaged Children
- help schools meet Fundamental School Quality Standards and address the needs of highly vulnerable children
• Proposed supports and components in strengthening teacher training:
  o at primary level, Teacher Professional Standards/Profile, defining knowledge, skills and practices expected of teachers
  o guidelines for teacher classification and teacher training program accreditation
  o options for revised terms of service and remuneration
  o training for education managers
  o establishment of quality assurance systems
  o improving pre-entrance qualifications of ethnic minorities teacher candidates

39. In addition to national or large scale MOET directed programs, there are also a number of teacher training projects and activities led by non-governmental organizations (NGOs) such as Oxfam, Save the Children, Catholic Relief Services, Volunteer Service Overseas and others, in partnership with MOET, NIESCD, Provincial DOETs, or other local education and training organizations. The scale of these projects tends to be smaller, focused in a subset of institutions within a region or province. They are concentrated at the primary education level and focus on increasing teacher skills in putting child-centered, activity-based methodologies into practice.

B. Measurement of outcomes: an ongoing problem
40. To date there have been a limited number of ways to measure outcomes of new teacher training efforts. For the most part, programs use educational system input measures such as the number of teachers upgraded, or the number of teachers and educational managers trained, or the number of teacher texts or reference book distributed as indicators of progress. Indicators like increased enrollments, retention and completion are also commonly used as proxies of increased education quality and achievement. Although there are currently poor quantitative indicators to measure the results of teacher training efforts, such as learning outcomes, there is valuable qualitative evidence that can contribute to our understanding. Through interviews, discussions and debates with decision-makers, managers, and providers and consumers of teacher training, this study gleaned insights into attitudes, ideas, concerns, criticism and understandings of teacher training and its effects from various stakeholder groups and at various levels and agencies in the education and training system.

VIII. REASONS FOR OPTIMISM: PROMISING PRACTICE FOR GETTING DESIRED OUTCOMES
41. An accurate assessment of the effectiveness of new training, materials and support mechanisms in place is difficult without a baseline or established measures of teacher learning or knowledge. However, it is clear that Vietnam is gradually building the core pieces and capacity to get a clearer picture of current performance and future needs. There are sources of optimism in the efforts to date in helping teachers meet new demands.

A. Spirit and scale of reform
42. Due to the consistent centrally issued messages and regulations discussed earlier, and the policies and programs enacted to implement improvements to teacher training and teaching quality, the spirit of teacher training reforms has reached far and wide. From ministry officials to teacher training institutions to principals, teachers and even students at the primary and lower secondary level are conscious of the desire to transform teaching and learning methodologies.

43. All provinces and districts and schools are phasing in the new student curriculum and are aware that this should require teachers to perform differently. Individuals at all levels and teachers at appropriate grades have participated in either direct or indirect training regarding the new curriculum and methodologies. For the most part, district officials and principals confirmed that although there were some issues with
timely deliver—with some materials arriving after training sessions were conducted—they had received new teaching aids, teaching guides and teacher reference materials. Since many of the teaching materials are required centrally but purchased locally, the degree to which schools had materials that met the new standard varied from schools in Hanoi and HCMC who had a set of materials for each classroom, to Bac Can in the north that was pleased to report they had one set per grade and per subject for each school.

44. Another example of the extent of new teacher expectations being reinforced were in the teacher evaluation forms from districts and provinces for both primary and lower secondary levels. The primary teacher assessment sheet has criteria for teaching strategies, attention to child development, and teacher-student relations, while the lower secondary assessment criteria include items on varied teaching methodologies, use of teaching aids and creating an active classroom. The core criteria of these assessment sheets are handed down centrally, and indicate that there is movement at least in content to bring teacher assessment and evaluation in line with new expectations in teaching practice.

45. Perhaps the clearest sign that government and MOET are committed and their activities are making an impact is that one major NGO revealed it was reconsidering its own intervention delivering teacher training in child-centered methodologies given the government was taking on responsibility in this area. As the new approach becomes a core part of government training objectives, Oxfam GB may move away from direct teacher training in Lao Cai province and toward helping officials deliver and replicate the training locally.

B. Upgrading teacher qualifications
46. A central priority of MOET for improving education quality has been the systematic upgrading and standardization of teacher education and credentials at all education levels, including the upgrading of teacher training institutions. In 1997, the government issued Regulations on National Standards for Primary Schools 1996-2000, with the goal of having all primary teachers at or above national standard by 2000. The PEDP, LSEDP, and LSTTP all have core components that support Vietnam’s efforts to upgrade teachers at all levels. Vietnam has made remarkable progress in upgrading teacher qualifications and between 1997 and 2002, reduced the proportion of primary teachers below standard by half to 12%. Similar concerted effort at the lower secondary level had reduced the percentage of non-standard teachers from 15% to 9% by 2002, even as the total teacher for at that level grew by over 30%. (EFA database, 2003) EDS 2010 refocuses the importance of this objective and sets more ambitious 12+3 targets and 12+4 targets for primary and lower secondary teachers respectively.

47. Concerns about the poor capacity of teacher training institutions underscore the same issue of academic qualifications. Teacher trainers are often recruited as recent graduates from university, so most of them teach with bachelor degrees. LSTTP therefore supports upgrading teacher trainer qualifications as a key outcome and will send a cadre of teacher trainers to receive master’s training, both through overseas study and in-country partnership programs with international universities. Another step in increasing training institution capacity was the drive to upgrade all Teacher Training Schools or Trung Hoc Su Pham, to the status of Teacher Training College. Vietnam now boasts a Teacher Training College in every province and many point to it as a strength in both meeting teacher demand—since teachers are largely supplied from within each province—and delivering continued training locally.

C. Teacher professional profile
48. A breakthrough development at the primary level is the drafting of Teacher Professional Standards or a Professional Profile for primary teachers. This Profile defines criteria—personal (personality, ideology, politics), content knowledge and pedagogical skills—required of teachers, articulating what teachers are expected to know and be able to do. These Professional Standards are intended for four critical applications: mapping and alignment of teacher training courses, assessing trainees and teachers both for performance
and to measure training effectiveness; informed decision-making on teacher training needs; and creating a benchmark profile of skills of the current teaching force. According to the PTDP project coordination unit director, the draft Profile has recently been approved by MOET and the project is in the process of conducting a pilot benchmark profile of skills for about 2,000 teachers.

49. While the criteria contained in the Professional Teacher Profile needs further examination to ensure alignment with new instructional expectations, its very existence marks an important step by attempting to establish a definition of the characteristics and competencies required of a qualified teacher. It also forms the basis for alignment and quality control measures for both teaching performance and training effectiveness.

D. **Grade 5 assessment of student achievement**

50. In an effort to better understand student learning outcomes and the factors that influence them, Vietnam conducted the first ever nationwide study of school performance and student achievement. The National Institute of Educational Science (NIES), with guidance from the Primary Education Project, assessed grade 5 reading and mathematics achievement in 2001 and administered detailed questionnaires for students, teachers, households and schools. The study has generated a rich database for the analysis of student achievement in reading and numeracy, teacher performance and the conditions that contribute to academic success. (WB, 2003) This study builds a baseline of student learning at the end of one educational level, provides a wealth of data that can inform decision-making at the central and provincial levels, and forms a foundational capacity for creating a comprehensive assessment system to track student achievement. The data can help analyze effects of teacher skills and knowledge on student achievement, and could help principals and teachers determine teaching and learning needs.

51. Like the Teacher Professional Profile, student assessment results, if properly aligned with learning standards, are another key ingredient for providing a picture of performance, identifying instructional needs, measuring progress toward achievement goals, and evaluating instruction and teacher value-added to student achievement.

E. **Lower secondary pre-service TTC curriculum redesign**

52. Another innovation among the many interventions and activities at the lower secondary level is the redesign of pre-service teacher training for lower secondary education, including a revised TTC curriculum framework. Pending approval by MOET, this framework in theory guides the pre-service program currently being phased in at pilot TTCs.

53. The key features of the proposed new curriculum framework will include: redistribution of units from content to pedagogy; increased units for subject minor; increase in practice teaching; and the integration of pedagogical instruction with practice teaching. The increase in practice teaching will also allow trainees to learn subject specific pedagogical strategies in the context of actual classroom teaching and learning, with the added benefit of giving teacher trainers experience in real lower secondary classrooms. Graduates from the new curriculum would also be better qualified to teach two subjects. Recommendations for the reform of teaching methodologies include the need to use “student-active teaching approaches, self-learning and a range of assessment approaches” to parallel new expectations of the new student curriculum.

54. Albeit late in the continuum in the implementation of the new lower secondary student curriculum and methodologies—the first graduates benefiting from the new teacher training approach and materials entering classrooms in 2006—modernizing the professional framework for pre-service training is a critical precondition for transforming classroom practice.
F. Building bridges

55. In both Hanoi and HCMC, the TTCs have been seeking ways to innovate the teacher training curriculum. While there is not a great deal of flexibility in changing the structure of the program before MOET issues new regulations, they have sought ways to operationalize the central directive to shift from theory to practice. One way both institutions have approached this is by increasing the interactions between teacher trainers and primary and lower secondary teachers. In HCMC, they have relationships with two schools in particular that serve as “labs” for teacher trainers. These are real schools with real students, but staffed with teachers which the TTC helps screen and recruit. The primary school is administered by the District, and the lower secondary school is administered directly by the TTC. Thus, teacher trainers have a ready environment to give demonstration classes, or to test out new methods and strategies. Pre-service students can observe classes more frequently without a lot of bureaucratic procedures. This increased interaction is happening on a lesser scale in Hanoi between trainees and classroom teachers, where the TTC has invited lower secondary teachers to the college to interact with trainees about classroom situations, and also has invited recent graduates back to talk to trainees about their experience entering a real classroom. These measures are an important forum for building shared professional dialogue and knowledge across institutions in the education and training system.

56. Teacher training projects implemented at the provincial level also provide opportunities to build relationships between provincial DOETs, TTCs and classroom teachers. Both the Vietnam-Belgian Teacher Training Project in the north, and DFID funded English Language Teacher Training Project (ELTTP) targeted training to multiple bodies responsible for education delivery—provincial education officials, district education officials, TTC teacher trainers, and primary and lower secondary teachers—to develop both the capacity of each institution and partnerships among them.

G. Empirical evidence and building blocks

57. A major goal of many NGOs or organizations that conduct smaller scale trainings is to experiment with training models and try to show others what can be done in a low cost, sustainable way at the district or provincial level. By demonstrating both successful models of classroom practice and school learning environments, and sharing the training tools and delivery used to achieve those results, these organizations hope to get provincial and MOET interest in replicating their innovations. While the staff and leadership at most schools visited in this study struggled to define the basic philosophy of the new student curricula and the teacher competencies required to deliver those new curricula and methodologies, our research discovered instances where effective teacher training through NGO support has helped to transform the teaching and learning environment.

58. The Dong Da Primary School in District 4 of HCMC is one of Save the Children-Sweden’s (SCS) Child Friendly Environment sites. The project introduces active teaching and learning methods through participatory learning by having teachers do activities themselves. Teachers also learn how to make durable and recyclable teaching and learning aids from low cost materials to supplement those provided through the state budget. Dong Da stood out dramatically as a school where visitors could see and hear clear evidence of the kind of teaching and learning happening. The school was not only colorful and vibrant, with examples of teacher and student work on the walls, but also showed concrete signs of group work and student expression and participation. The principal ascribed effective application of new methodologies to SCS’s direct and hands on training, emphasis on the development of adult-child relationships, and very active observation, supervision and monitoring. Dong Da Primary is a disadvantaged school in one of the poorer districts in HCMC. Yet it is an active example that with good training, commitment, and strong leadership even a school with limited resources can transform the school and instructional environment.

59. In Binh Thuan province, the Basic Education and Teacher Training Project (BETTP) conducted by Save the Children Australia (SCA), offers interesting lessons and possibilities for provincial and district teacher training delivery. BETTP uses a Training of Trainer (TOT) model of delivery that cultivates a core
local team to deliver and reinforce training. This Key Training Team consists of one member from each of the 8 districts in the province, along with one member from each of the 40 schools participating in the project. This structure both develops the knowledge and leadership capacity of the district education office (BOET), and provides for a site-based Key Trainer at each school. The site-based trainers can conduct school level follow-up trainings, observe and guide teachers directly in the classroom context, and help build a shared professional culture at the school site. BETTP training methods favor practical skills development and reinforcement over instructional theory. A manual of teacher tested activities and resources for grade one created by this project generated so much interest and demand from other areas that MOET has made arrangements for national publication and dissemination of the manual.

60. The English Language Teacher Training Project (ELTTP) was a bilateral initiative of DFID and MOET which operated more locally in 22 provinces, and offers many lessons in common with the BETTP for implementing an effective training model. Among the shared characteristics of these two projects include: developing training materials relevant to MOET programs—in both cases, providing resources and activities that engaged the new curriculum; cultivating a core of local trainers and trainer of trainers for instructional support; developing both trainer capacity and teacher instructional practice through sustained or intensive training; and using a highly practical, hands-on training approach. Both projects led with guided practice rather than theory. Teachers received intensive and sustained practical training and support, and reached an understanding of theories through the effective results of their new practice on student behavior and learning. Projects such as these offer important insights for creating sustainable change and provide valuable tools and locally trained expertise for supporting follow on activities.

IX. PUTTING THEORY INTO PRACTICE: WHERE ARE THERE GAPS? WHY?

61. The scale of interventions and teacher training inputs and the obvious strategic orientation in teaching and learning have made an impact on the consciousness of all stakeholders in teacher training, teacher training institutions and schools. All are attuned to central directives to upgrade teacher qualifications and to implement the new primary and lower secondary curricula. The rhetoric of “student centered classrooms” and “active teaching and learning” is also well established. However, research demonstrates that there is a gap in putting theory into practice. There are clearly things happening at the central level that are important preconditions to changing classroom practice. There is also increasing regulatory and procedural awareness and changed action at the lower levels, and some isolated examples of promising practice. But there remains relatively little evidence of these policies and programs leading to large scale or profound changes in the habits of mind or to the instructional core at the school and classroom level.

62. At the heart of this is the lack of widespread deep understanding of the new model of teaching and learning. The resulting lack of clear common definitions in terms of goals for improving teacher training or desired teaching competencies, compounded by the lack of institutionalized methods for measuring either student or teacher performance, means that it is hard for those enacting change to know where they are going, or to know where they are. This makes an immense task doubly hard, as it makes it very difficult indeed to know how to get where they are going. From a series of interviews in a diverse array of education settings, it was clear that the rhetoric of change and renovation had permeated throughout the education system in Vietnam. What is less clear is that the teachers, administrators, and teacher training institutions in Vietnam understand the practical impact and implementation methods of the new goals they have been given.

63. The following sections address key areas which contribute to the lack thus far of more radical or widespread changes in instructional practice at both the teacher training and primary/lower secondary levels.

- **Difficulties taking aim**: the lack of a shared vocabulary on desired changes in instructional practice results in a superficial rather than the profound understanding needed for applying theory in prac-
tice and for transferring knowledge to others; confounding factors such as infrastructure, technology, poverty and ethnic minority issues interfere with focus on instructional goals.

- **Difficulties taking measure:** without predetermined criteria for desired outcomes in teaching practice and student learning, there is little with which to measure teacher or student performance and progress, or program effectiveness.

- **The challenge of changing practice:** there is a lack of practical materials and participatory training for teachers and teacher trainers; the current cascading dissemination mechanism also allows for serious dilution of content and delivery down each organizational level. Current pre- and in-service effort fall short on continuous and practice-based training, and thus fail to create authentic and lasting changes in teaching and learning.

- **Weak instructional support:** education managers and inspectors are unaligned with espoused instructional goals, creating an environment that does not yet provide appropriate guidance and incentives for teachers and teacher trainers to strive for or demonstrate them; among teachers and teacher trainers alike there lacks a supportive community of practice to foster shared expertise and collective problem solving.

- **Organizational dissonance:** Vietnam is struggling to reconcile new goals of decentralization and increased local innovation/autonomy, with its desire to retain control over and strict uniformity of core elements of the education system such as student curriculum and the teacher training program; the nature, breadth and pace of espoused reforms perhaps outpace current ideology and technical capacity.

### A. Difficulties taking aim

#### A.1  Lack of a shared vocabulary

64. Vietnam does not yet have a common language for new teaching and learning theories. There is also a lack of experience engaging teaching and learning characteristics and performance. Principals and district officials, for example, can give you the rankings of their teachers, but have a much harder time discussing their relative strengths and weaknesses in the classroom. Prior to the introduction of the new curriculum and methods, measurement of teacher performance pretty much consisted of covering a lesson in the allotted time, and having good penmanship. Teaching was dominated by a single instructional approach—didactic, teacher centered, and based on rote memorization. The new curricula at both primary and lower secondary have introduced new concepts like “student-centered classroom” and “active learning”, but few at the lower organizational levels—and even some at the upper levels—have a sound understanding of what these mean in terms of new teacher competencies or new student learning.

65. Most persons wherever they are situated in the education and training system are still missing the vocabulary necessary to talk concretely about new methodologies and competencies. “Student centered classroom”, “active learning”, “knowledge economy”, are used in documents and by central officials as if these concepts were common knowledge. Yet while researchers or reforms at the national level may have had more exposure to these concepts, they are relatively new for Vietnam and there are few resources and still no single text or core of resources in Vietnamese that clearly define them. Thus, although personnel at all levels down to the school level are able to repeat these terms as they appear in strategic documents or regulations, there is little clear understanding what they mean for changing practice. What does a student centered classroom look like? What is active learning? What will teachers have to know and do differently? What educational strategies will they have to learn and apply, and what competencies are needed? When asked these questions, educators at all levels struggled to get past general terms.

66. Education officials at both the central and provincial levels in all locations shared concerns about the level of implementation of the new curriculum and methods. There was a distinct reluctance to acknowledge either their own or teachers’ lack of understanding, with all qualifying their responses by saying that “the theory was not difficult to absorb”, only there were challenges in understanding how to transfer or ap-
ply that knowledge. Of course, being able to explain a concept or transfer understanding requires two things: deep understanding of the subject, and practical application skills.

67. Teachers and principals also tried to emphasize that it was not difficult to “absorb new knowledge”, but acknowledged that teachers were struggling with applying the concepts in the classroom. Evidence from research showed that while application was in fact weak, there also exists a serious lack of deep knowledge about the underlying theory of action—why particular activities or techniques should be used, and how they benefited student learning and development. With little exception, interviews at the school level found few that understood or could explain that wanting students to be “active” means creating an animated learning environment and not just having students physically move around the room; or that “group work” is intended to foster collaborative learning habits; or that the new requirement of conducting “multiple activities” in class is asking teachers to select and constantly review pedagogical methods to address different student learning needs.

68. The study revealed evidence of these misconceptions or tenuous understanding across many different levels and stakeholder groups. A principal interviewed said her school knew they were supposed to give multiple choice assessments now instead of essays or writing assignments which were the old way of assessing. She did not understand that although the new reforms have encouraged the use of multiple choice questions and assignments, the problem with the former assessment approach was not that essay writing was bad, but that it expected students to memorize and regurgitate information. She had no comprehension of the concept that writing can also encourage students to analyze information and formulate arguments and conclusions. Another example of insufficient understanding of the new regulations, is when teachers were asked how much time they spent on different types of teaching strategies, some went to the extreme of saying they never lectured to students. Didactic instruction is problematic when used as the only method, but an essential part of the new methods is understanding the use of multiple strategies given appropriate learning contexts. At the central level, an official challenged the notion that implementing the new methods at the lower education levels required parallel changes in the delivery of teacher training.

69. Teachers revealed a whole range of assumptions and concerns that have implications for translating theory into practice. Some felt that organizing group activities “wasn’t teaching at all”, and questioned whether students, left to their own devices, were really able to discover knowledge on their own. At the other end of the spectrum teachers who had a better understanding of group work felt that it demanded way too much of teachers in terms of additional preparation and was too difficult to organize. Other stated reasons for reluctance to adopt the new methodologies were fear of inspectors, who still evaluated in the old style, or that the group work allowed lazy students not to do any work. One teacher said that if students are not successful in the new style, students and parents would criticize the teacher for not “teaching”. Finally, and perhaps most difficult to address, was the issue that some subjects, like history, were not subject to interpretation, so how were the new methods possible?

70. Because Vietnam has a decentralized implementation system, it is even more important that each level understand the changes that are ultimately intended in classroom practice. In the final analysis, the quality of education depends on what happens in the classroom. General goals like “improving teaching” or even “ability to apply new methodologies” are insufficient in providing a shared vision for instructional improvement. The lack of a shared understanding both of the main changes in teaching and learning strategies, as well as the failure to articulate the new competencies that these strategies demand, mean that policies and programs are initiated and administered without an understanding of the changes they are supposed to effect.

A.2 Confounding issues
71. Conversations about implementing the new curriculum and methods in the poorest provinces focused on infrastructure constraints. Although these education officials and managers were familiar with the terms
student-centered and active-learning, what held their attention in the new methods was the use of both teaching and learning aids, and of technology. Thus, equipments and facilities, rather than instructional issues/teacher competencies, were seen as central constraints to implementing the new curriculum and methods. The poorest facilities visited in the northern mountainous provinces indeed demonstrated serious infrastructural needs, with mud and bamboo walls and thatched roofs and no electricity in classrooms. But while infrastructure is a real problem for some schools, it is easy for stakeholders, from teachers and principals to DOET personnel, to focus on external/material needs, rather than to explore instructional issues. Increased physical and financial resources will undoubtedly improve the general quality of education; however, instructional improvement cannot wait for the problems of poverty to be solved.

72. Although all stakeholders at the school and teacher training institution regardless of affluence or geography pointed to inadequate facilities and preparation in the area of using technology, in the poorer provinces there was a tendency to see technology as the silver bullet for improving education quality. Given the importance of technology in the functioning of today’s modern society and economy, ICT will inevitably be an important means to accelerate learning or extend understanding. However, confusion about the new methodologies has led these administrators to think that computers alone will solve the problem. The question is how will it change instruction? Besides saying that it would be more visually interesting for students and that teachers could prepare presentations ahead of time rather than write on the chalkboard (the same can be said of overhead projectors), research revealed little understanding of the applications of technology in instruction. Moreover, this showed the lack of understanding in general of the new approach—that the methods, teaching aids and computers alike, are a means by which teachers develop student learning. There are many lower tech and lower cost instructional strategies for helping students acquire the foundational thinking skills necessary for success in the new knowledge economy.

73. Another confounding factor was the issue of ethnic minorities. In one province visited, where the population is approximately 80% ethnic minority and where teachers were almost 75% ethnic minority, stakeholders at all levels alluded to this fact to explain the poor quality of teaching or TTC candidates or student learning. Some teachers questioned whether the new methods would benefit all students. Issues that influence ethnic minority participation and performance in the current education system are certainly well explored by other donor and government studies: language acquisition, competing opportunity costs at home, or conditions of poverty or remoteness. In the past, the solution was to offer students a differentiated and less demanding curriculum. Now that Vietnam has moved to a unified curriculum at the primary level, the question is how to ensure high quality instruction to all using the best strategies available, so that those who are most disadvantaged, do not get even less. While this issue falls somewhat out of the scope of this study, it bears careful examination as Vietnam implements the new student curriculum and instructional methods.

A.3 Lack of clear, unified, instructional goals

74. However clear the desire is to change teaching and learning in Vietnam, the education system as a whole still lacks a clear understanding of what forms of new knowledge and competencies are required in the context of this knowledge economy. While central officials, researchers and experts in teaching methodology have gained a strong sense of what is desired for student learning, an articulation of standards – of what students need to know and what corresponding knowledge that requires of teachers – falls short. Provincial, district and school level stakeholders do not have the benefit of gathering together the combined knowledge of central experts. Most do their best to learn from what is found in central regulations. Thus, the absence of shared standards for teaching and learning can result in muddled priorities. As a result, interventions may not be pursued with instructional goals in mind, and thus, may not achieve their promised outcomes.

75. Since 1997 Vietnam has focused heavily on upgrading degrees and credentials of teachers to address the major skills gaps in the teaching force. The objective of upgrading and standardizing qualifications has continued to take top billing and was most recently reinforced in the EFA Action Plan. Yet, this objective
is issued without an explicit connection to developing new competencies—or even core subject knowledge standards—for teachers. While wanting to improve the academic qualifications of teachers is not misguided, one cannot assume that a diploma or certification is necessarily synonymous with desired competence. The efforts to improve teacher quality in developed countries, where 100% of the teacher force may hold university degrees, demonstrate that a high level of education attainment alone does not ensure the acquisition of the right skills or adequate content knowledge needed for high quality teaching. In Vietnam, the TTCs have been roundly criticized by education officials and in the Vietnamese press as backward and inadequate in preparing teachers with strong knowledge and teaching skills. In addition, the TTCs themselves admit that their curricula are not yet in line with new requirements. Thus, enacting this policy without first ensuring that the institutions responsible for upgrading have gained the understanding and expertise to deliver appropriate and quality training can mean an enormous wastage of resources. Teachers are likely to receive more training that is neither effective nor relevant to improving instructional practice.

76. Chronic overemphasis on obtaining degrees has eroded attention from achieving desired changes in instructional practice. Vietnam has also launched a program of teacher in-service training for 2002-2005 during the implementation phase of the new primary and lower secondary curriculum to introduce more modern methods of instruction. Yet the application of new teaching and learning theories clearly occupies a secondary position to teacher upgrading for education officials and managers. The two initiatives have not been presented as complementary strategies intended to support a single instructional goal beyond “improving education quality”. Education managers can articulate few concrete goals for increasing teacher qualifications beyond “gaining more knowledge”, but upgrading degrees and certifications is an easier, more tangible, and more quantifiable goal than giving teachers the skills to implement the new curriculum and methods. Teachers, too, without a clear understanding of how they need to do differently, mostly do more of the same. Without an explicit linking of the two objectives at the central level, stakeholders responsible for implementing reforms choose upgrading as their main priority and can safely skirt the more explicit but far more elusive instructional goal of implementing new teaching and learning methods.

77. Vietnam has confronted this problem before—of pressing for a quantifiable output without a clear focus on an instructional outcome—with troubling results. On a smaller scale, the Primary Education Project reported distributing over 400,000 student learning kits to the poorest communes, but without accompanying teacher training in how to use them. The project completion report itself suggested the dilution of benefits caused by this oversight. Another lesson perhaps still being learned is the effects of having rushed to upgrade all TTSs into a national network of TTCs, which took an enormous injection of resources to build both staffing and facilities. While the provinces that have experienced this upgrade point to it as a key strength in improving teacher quality in their province, the TTCs have been largely criticized at all levels for having low quality teacher trainers and for producing low quality graduates. A recent article in Dai Doan Ket (Solidarity) points to the huge inefficiency of the investment, especially now with shrinking pre-service recruitments meaning facilities and teaching staff are going unused.

B. Difficulties taking measure

B.1 Performance

78. Teachers and teacher trainers need more knowledge, but what kind of knowledge? Teacher training institutions are also asked to strengthen their training quality, but by what measures? What are effective practices in training teachers? How good is good enough? And what changes are anticipated in student learning due to the new curricula and methods? How do you recognize a classroom successfully applying the new teacher and learning theories? A major shortcoming of the massive efforts to improve education in general and teacher training in particular is the lack of clear performance measures.

79. Vietnam is confronted with weaknesses along a broad continuum that form the knowledge base necessary for good teaching. Current per-service curriculum frameworks allocate a substantial number of credits
for basic knowledge with the rationale that the variable quality and level of education of incoming teacher candidates necessitate such remediation. The national grade 5 assessment analyzed the levels and determinants of reading and math achievement and found wide variation in teacher knowledge in reading and mathematics with significant correlation to student achievement levels. The same study also found that there were very little differences in the kinds of teaching methods that teachers say they use. The report expressed concern over “an unquestioning conformity to the ‘rules’ for teaching that they have been given and very little initiative being taken by teachers to adapt to the different needs of pupils.” This narrow conformity in the classroom is the result of many compounding factors: an educational system that attends to compliance over instructional effectiveness; whose low pay requires teachers to take on additional employment to subsist; a tradition of teacher-centered instruction; and an emphasis of training on theoretical knowledge rather than its application in an practical classroom context.

B.2 Accountability

80. Traditionally in Vietnam, the focus of educational standards has been on the inputs into the system, and not on learning outputs. It is not surprising then, that in interviews across the education spectrum, questions about the quality of teaching or effective practice elicited few coherent answers. District or provincial officials reported that they could not talk about specific changes or improvements in teacher practice, pointing to MOET as the body responsible for conducting evaluations. Main departments of MOET suggested the project offices may have mechanisms to evaluate teacher performance. Project offices admitted that there were not yet good measures either for assessing teacher performance in the classroom, or measures established for the project to assess the effectiveness of new teacher training being delivered. Both the LSTTP and the PTDP have quality assurance components, but in neither project has it been a priority in the sequencing of activities and programs.

81. A critical problem Vietnam confronts is best by articulated by Vice Minister of Education and Training Dr. Nguyen Van Vong, “The current campaign of new teaching methods is not accompanied by any incentives, supervision or monitoring instruments. After launching, it is up to teachers to do or not.” (VM Vong’s statement was posted on MOET website) The study confirms this claim, finding that education officials and school managers were far more concerned about their targets for upgrading degrees and certifications —something that is measurable and reported. The level of attention given to the new teaching methods varied considerably depending on the relative understanding of these methods and their benefits at levels all the way down to the classroom. Beyond learning about performance to measure progress and inform policy and programs, common instructional goals and outcomes enable the mobilization of collective commitment and accountability for enacting change.

B.3 Alignment

82. Current student assessments have not been brought into line with the new curriculum, and since all but end of level exams are locally designed and administered, there are no measures consistent across classrooms and schools to help educational managers learn about relative classroom performance and identify strengths and weaknesses in teaching practice. The Grade 5 Reading and Math Assessment is an important step forward in Vietnam’s capacity to establish a student performance system. Without an institutionalized assessment system along these lines, there is little information to measure performance and progress from year to year, or value added to student learning by teachers. The lack of alignment does not just impair the ability to learn from reform efforts, but also has implications for students and teachers. Students will be assessed in ways and on content that does not reflect the new curriculum. And teachers, who have long used preparation for exams to direct their teaching, have additional disincentives to make changes in their classroom practice.
C. The challenge of changing practice

C.1 Practice makes perfect

83. Teachers are not getting the practical training and resources they need and want. Echoing many past studies and needs assessments, when asked what types of trainings they wished to receive, stakeholders from all levels, but especially the school level, consistently responded that they wanted practical training and help in how to apply the new methods. Internationally, “learning by doing” is a common maxim of a student-centered, active-learning approach. Although this terminology is not yet present in Vietnam, educators are able to say that students should learn to discover knowledge and that teachers should conduct activities that create a vivid environment for learning. It is a mistake to think that when trying to transform classroom practice, learning to teach can remain static. Yet teacher training remains highly theoretical. The LSEDP mid-term review notes that although in-service workshops are sufficiently prepared, “several trainers did not meet the requirements of implementing the new training methods to encourage the trainees to be active and produce results.” (in SESMP)

84. Reluctance to deliver practical hands-on training takes a few forms. First, there are those who don’t believe a parallel change in training methods is necessary to renovate teacher practice—a MOET official put it this way: “[the teacher trainer]’s responsibility is to give trainees updated information on the textbook reforms,” asserting that this did not require a parallel change in methods. Second are those who feel the new methods are not appropriate to their level—an NGO trainer reported that observers from a teacher training college mocked the childishness of workshop activities, demonstrating an unwillingness to participate and perhaps the intention to continue with a more academic theoretical approach in their own teaching. Finally, there are those experts who have researched the new theories extensively but have no practical classroom experience and are not themselves equipped to use “active learning” strategies. Most teacher trainers and curriculum/textbook authors have no practical classroom experience; they are victims of the old system they are supposed to be changing. Although they may have a deep theoretical understanding of modern methodologies, designing a textbook or classroom lesson or training exercise that applies these methods is another question.

85. In addition to practical training, (and despite the observed resistance to it) all stakeholders below the central level also state they need more practical resources. For example, teachers report textbook items that suggest the use of new methodologies, saying something like, “Conduct a group activity here, such as role play, discussion, or game.” These instructions assume that teachers have a repertoire of such activities and know how to select and conduct them, an assumption that is usually untrue. Teachers want instructions. For example, a textbook might say instead, “Here is a sample dialogue showing you how you might guide a student through solving an algebra problem to help the student identify and self-correct mistakes.”

86. Comparing a MOET-developed teacher self-learning manual to the Binh Thuan BETT teacher resource manual is instructive. The first is cover-to-cover of solid text developing the theoretical basis for the new methods. Although two Vietnamese university level instructors asked to review the text said the contents are informative, they both felt it would take a great deal of time and a dedicated intellect to translate the manual into practical classroom applications. The other resource book, developed using teacher tested materials, is a collection of usable games, teaching and learning aids and examples of activities that are explicitly connected to student curriculum content and that describe (and then demonstrate) different strategies. Training introducing the manual spends at least half of the time available on participatory learning, using the tools introduced and taking turns facilitating activities in small groups. Vietnam is not without clear models of practical materials and delivery mechanism. Small scale projects on child-centered learning and active learning have been in place for nearly a decade in some parts of Vietnam. Experts charged with developing new materials for these methodologies would be wise to learn from existing resources, both locally and internationally, tested through time and experience.
The practicum, or formal practice teaching component of pre-service training deserves special attention. Current regulations allot 2 weeks in year 2 for observations and 6 weeks in year 3 for classroom practice at both primary and lower secondary. Although the regulations also say that students should lead 8 classes in this 6 week period, by all accounts, 3-4 classes was closer to the norm. Every stakeholder group interviewed expressed the need to increase this requirement in the pre-service program. The same suggestion has been made as early as 1998 in the Stakeholder Analysis performed in preparation for the Primary Teacher Development Project. As discussed earlier in the report, the 2000-2001 Technical Assistance to the Lower Secondary Teacher Training Project went a step further and suggested a new curriculum framework credit distribution that would significantly increase practice teaching from 8 to 17 units, with elements of practice teaching beginning in year 1 (the final proposal does extend practice teaching, but substantially scales back the increase). TTCs are ardent in their desire for more practice teaching, but say they must wait for specific MOET guidelines. But even pilot sites for the LSTTP, which are currently implementing new teacher training curriculum to year 1 students appear unclear as to what changes are anticipated for practice teaching. PTDP staff, on the other hand, indicated that MOET had already approved an additional three weeks of practice teaching for primary level pre-service training, but still were not sure when that would be implemented.

It is not only practice teaching and pre-service training that must follow this mantra of ‘learning by doing’. In-service training provided at every level should be responsive to the need for practical training. Not only will this reinforce very new ways of thinking and doing, but it will let participants experience the new methods applied in reality. In spite of this, the research found that even in-service training delivered at the central level, which can expect the highest degree of expertise and understanding of the new methods and competencies, does not use or demonstrate the new methods. Enacted in-service teacher training delivered for updating teachers on the new curriculum and methods appears not to have changed much from the out-of-date, teacher-centered, lecture-based, approach. The consumers of in-service at the provincial, district and school level report that they “do a lot of sitting and listening”, that the trainers “talk, talk, talk”.

The theoretical, academic lecture approach in current in-service delivery is problematic for two reasons. First, it demonstrates either the inability of experts to apply theory in practice, and the lack of recognition that the old methods will be insufficient in communicating how to apply theory, or the unwillingness of those who are leaders in this new movement to change their own practices. Second, as the key source of guidance and expertise, these trainings fall short in their ability to equip others with the practical skills necessary to begin to transform classroom practice. And they provide little experiential enforcement of the benefits of these new methods. Thus, those implementing the reforms at teacher training colleges and in schools must struggle independently with this gap between theory and practice. Some genuinely attempt to apply new techniques they may understand only superficially, while others apply them formulaically in an attempt to meet new regulations, rather than with an understanding of how they are improving student learning.

C.2 False positives

With the new responsibility of teachers for creating conditions and building skills and capacities that are required in the contemporary knowledge economy, there must first be reciprocity in equipping them with the capacity to do so. Shifting from a teacher-centered, lecture based, rote memorization teaching and learning approach to one that fosters active and student centered approach requires more than new content knowledge for teachers if they are to go beyond token gestures in the new approach. Without sufficient training, practice and reinforcement, teachers may alter or adopt new surface features without changing the fundamental nature of instruction.

This study found that even in schools that felt they understood the new expectations and were proud of their renovations of teaching methods, observed practice often demonstrated only a superficial grasp of intended methodologies. NGO project officers and trainers, both international and Vietnamese, who have
conducted extensive classroom observations report seeing in general only token changes and no genuine application, even when visiting schools or observing teachers put forth for observation as a model. Common examples of such false-positives include teachers asking open-ended questions, but also providing the answers before giving students time to respond or discuss. Asking questions for rhetorical purposes and answering the question themselves, or using questioning that tries to elicit a correct answer is still only a slightly less passive form of didactic teaching. Other frequent cases were where students were divided into groups, but beyond being assigned into groups, showing no evidence of teacher preparation or guidance for collaborative learning or a specific group activity.

C.3 The signal degrades
92. If the first level of training at the central level does not actively embody new methodologies in delivery, one can imagine that the training received at the district and school level, many times removed, will be substantially diluted. Even with a clearly defined goal and central level training that is designed and delivered to effectively communicate the new theories and learning and how to apply them, the current model responsible for disseminating training from MOET down through the provinces to district and then to schools leaves room for significant signal degradation.

93. Vietnam employs the Cascade Model for in-service teacher training to support the implementation of the new curricula and textbooks. This means training content and goals originate at the central level, where provincial level educators attend training. These include provincial DOET and TTC personnel. These individuals are then responsible for retraining others at the provincial level, then organizing training for the next level down, or the District education office personnel. The district participants in turn train others across the district, then are responsible for training teachers, either through having all teachers of a subject or grade attend various sessions, or by training some teachers after which the teachers are responsible for retraining the remaining teaching staff at their school.

94. By the time a primary or lower secondary teacher receives training on the new curriculum and methods, the information might be as much as 6 times removed from the original training. In most cases, provincial and district staff try to replicate trainings exactly as they received them. But no matter how effective training materials or experience may be, it would be difficult for information not to be lost along the way. More difficult still is the guarantee that trainers at every level have the skill to apply newly learned methodologies sufficiently enough to either deconstruct it to explain to others or to demonstrate their practical application. According to one interlocutor working at the provincial level, the current mode of delivery means that “information is collected by a few and often not shared to the many”.

95. The other shortcoming of the current in-service training in place for dissemination of new curriculum and methods is that these trainings are one time opportunities. As MOET phases in new texts at primary and lower secondary, they introduce one grade at each level each year. For example, grades 1 and 6 in 2002-2003, grades 2 and 7 in 2003-2004. This summer they will begin training for grades 3 and 8. Training consists of 4-5 days of training per subject at lower secondary and 3-4 days per subject at the primary level. This may be enough to familiarize someone with a new teaching concept, but certainly not enough to create lasting change in practice. It is also not a very long time to learn new content, theory and application well enough—even temporarily—to then transfer that knowledge to others. Even so, since the in-service is targeted each year to the new grades being introduced, if MOET training for grade 1 was 2000-2001, but a teacher graduated from TTC in 2001, then he or she has missed the boat. Subsequent years are devoted to the following grades.

96. Although some informants mentioned monthly subject area meeting scheduled at the district level, it is not clear what guidance is provided at using this time to reinforce or developing teaching competencies for teachers. These were to form the basis of a new model of school based in-service implemented by the
LSED, using centrally provided materials and school-based mentors who received training and support from the district and from provincial TTCs. However, while teachers and district personnel acknowledged that the monthly event does take place, there was little evidence of focused professional development. Teachers referred to these events as “meetings” rather than trainings or opportunities for learning.

C.4. New blood in teacher force?
This problem of diluted in-service training is compounded by two issues concerning the TTCs. First, except for project pilot sites, most TTCs have not appreciably altered their curriculum or approach to match the new methodologies. Their teacher trainers are essentially attending training sessions on the new student curricula at the same time as primary and lower secondary teachers. Thus, new graduates continue to enter the classroom without having any exposure to the new methods. Students are also getting mixed messages in their coursework and their practice teaching, rather than have practice teaching reinforce and provide a real context for academic theory. And even the institutions that are piloting the new lower secondary teacher training curriculum as part of the LSTTP will not graduate new teachers trained in the new methods until 2006.

98. An additional concern about the teacher training program changing so late in the reform process, is that because of teacher surpluses in many areas, TTCs have been facing drastic reductions in recruitments, with some provinces not recruiting pre-service candidates in primary or even lower secondary for as many as years. Thus, while no small amount of resources have been poured into training institutions to raise the academic qualification of their trainers or to improve facilities, many institutions have been upgraded just in time to curtail enrollments. In addition to the wastage of resources, the opportunity to infuse the teacher force with teachers trained in the new curriculum is seriously limited. This increases the burden of in-service training as the main mechanism for ensuring teachers master the necessary competencies for effective classroom teaching. What happens in in-service training is also all the more critical when considering that most teachers have little access to outside references or resources besides the textbook and possibly a teacher’s guide/manual.

D. Weak instructional support

D.1 Managers and inspectors
Teacher training is not left to teachers and teacher trainers alone. Managers and inspectors are involved in the process and those who do not fully understand new methods and demands can impair the effectiveness of training by failing to provide reinforcement or support for using the new methods. At the local level, this includes school principals and for the case of primary and lower secondary education, district staff in charge of in-service and inspection. At the central level, this includes those responsible for developing guidelines and regulations for classroom observation and teacher assessment.

100. Although the new espoused theory of teaching and learning emphasizes formative feedback over grades and encourages self-reflection, a constant refrain in the research was that the teacher evaluation process is not yet aligned with these objectives. Teachers have admitted that they do not use new methods when they are being observed because it might negatively affect their ranking. Inspectors who do not understand active methods deduct points for noise level or for furniture out of place. Or they give more attention to the quality of handwriting used on lesson plans or regulated timeframes for activities than to eye contact, questioning techniques and the learning outcomes of the lesson. For example, when asked to describe the characteristics of an effective classroom, one principal stated these three qualities: adequate school supplies for every student, good penmanship and class discipline. At the other end of the spectrum, inspectors who are unfamiliar with the nature of group work may reward a teacher with full points for having students sitting in groups, even if there is no evidence of collaborative learning.
101. District and school administrators, who hold the primary responsibility of evaluating and inspecting teachers and schools, use criteria provided by MOET in classroom observations. An examination of the classroom evaluation criteria used for both lower secondary and primary revealed new attention to the new curricula and methods. [See Appendix D] However, it was not clear how commonly these revised forms are used across schools and districts. Much of the criteria were also quite broad, such as “Applies the active teaching/learning methodology”, or “Ability to make group discussion”. Understanding whether teachers are actually meeting such criteria assumes deep understanding of the new methodologies on the part of the evaluator. In addition, “Effective use of teaching/learning aids” has equal standing with neat handwriting and finishing the lesson in the regulated timeframe. Examples of forms that engage elements of teaching practice more deeply and concretely appear in the LSTTP TA Final Report, in NGO project evaluations, and in international practice.

102. Another drawback is that both forms are presented as a checklist of items where each are scored on a 0-2 scale (lower secondary) or 0-10 scale (primary), followed by a ranking assigned based on point total. There is no rubric (performance standards) given that explains what type of performance might earn a particular point assignment. This once again leaves a lot up to the knowledge and discretion of the evaluator. It also provides little feedback to the teacher as to specific strengths and weaknesses, and reflects the use of classroom observations as a ranking tool rather than as a learning tool for improving instruction. More telling is that nowhere throughout the research did we interview principals or district officials responsible for inspections who could clearly articulate, much less deconstruct, these criteria.

D2. Pedagogical supervision

103. An institutional reason contributing to the weaknesses in instructional support described above is the lack of an organizational home for pedagogical supervision and support. According to a recent organizational capacity assessment of the Ministry of Education and its provincial and district offices, while DOETs and BOETs have ‘Inspectorate’ units, these largely focus on compliance to MOET regulations and standards, rather than on instructional assessment and support for teachers. The conclusion of the report is that the inspection function sits outside the primary or secondary education professional units because it is seen as a technical rather than educational matter. Given the shifts in national strategic goals to raise the quality of education, the current organization is a critical deficiency.

D.3 Professional community

104. Given the fairly prescriptive common curriculum all teachers must follow, and the well-established practice of principal and peer evaluations, it is surprising that there is not a stronger shared professional culture in schools. An MOET official remarked that while teachers had monthly meetings to discuss common issues and frequent teaching demonstrations, these are more symbolic than indicative of true teamwork. Teachers admit that they do their lesson planning alone, and teachers and administrators point to structural barriers to working together, such as multi-shifting or teachers taking on outside employment for supplemental income. One trainer questioned whether this isolation in teacher practice was also due to competition. Currently, an important part of teacher ranking and evaluation is the actual lesson plan each teacher produces, down to the quality of the handwriting. Especially in the early phase of implementation of the new curriculum and methods, when teachers are clearly struggling to find ways to apply the new methods, to design activities for group work, and to make teaching and learning aids, the lack of a shared practice is a gross deficiency.

E. Weak linkages and cross-coordination

105. In Vietnam, weak linkages within and between levels of the education system, schools as organizations and teacher training institutions has inhibited both coherence in the reform program and the strategic use of expertise and resources available. On the international side, a similar lack of linkages between donors, between donor projects, and between donor projects and NGO projects contributes to further discon-
nects in implementing a comprehensive and complementary sector wide reform program. Together, the lack of interconnected strands weakens institutional capacity and productivity.

106. At the central level, one example is the lack of close coordination between the two projects responsible for developing the in-service (LSEDP) and pre-service (LSTTP) programs to support to new lower secondary curriculum and textbook implementation. While both are funded by the same donor, concerns about sequencing and separation of in-service and pre-service reform efforts were voiced by informants at both the central and local levels. Like other major donor projects, each has its own Project Coordination Unit (PCU) at the central level to manage the project and oversee operations, procurement, etc. Separate executing bodies, and the highly formalized channels of interaction within MOET and other government agencies further supports silos of activity with little cross-fertilization across projects. Fragmented data collection projects also add to inefficiency and weaken capacity for analysis and programmatic coordination.

107. Another weak link is the difficulty of provincially implemented projects to establish partnerships that include all educational and administrative institutions, and the lack of coordination between centrally executed initiatives with provincial institutions and locally resources and expertise. For example, the BETTP in Binh Thuan province has established a close partnership with the provincial DOET, district BOETs and schools across each district, but has been unable to engage TTC in the training program. Thus, the teacher trainers are notably absent from the core of key trainers in the province, and the model for professional development and instructional support developed by the project and widely implemented across the province is not introduced during pre-service education. Across Vietnam, the TTCs have not been well-equipped to lead the implementation of the new primary and lower secondary curriculum and textbooks. Teacher trainers expressed concerns about attending in-service training on the new curriculum along side classroom teachers when the TTCs are seen as responsible for delivering quality and up-to-date pre and in-service training. Finally, MOET identified BETTP’s grade one activity book and ELTTP’s grade 6 lesson plan book as important resources for supporting the provincial introduction of the new curricula and textbooks. Yet, there has been no move to build on these foundations and use the available local tools and expertise to produce much needed practical training material that are relevant to the new curriculum being implemented in subsequent grades.

108. The international side of education reform efforts also suffers from incidental rather than systematic learning between donors, NGOs and related projects. In general there has been an insufficient level of coordination and networking between NGO projects and few links have been established between NGOs and the larger bilateral or multilateral donor funded projects. The proliferation of projects constrains cross-learning and results in inevitable overlaps and gaps between projects. It further limits coordination with MOET and provincial governments to build coherence between projects, and maximise efficient use of resources and expertise toward shared objectives.

**F. Organizational dissonance**

**F.1 Sequencing and coordination**

109. An issue raised resoundingly by the TTCs but also voiced from provincial level education officials down to principals, is the sequencing of Vietnam’s reforms. In 2002, Vietnam introduced new curricula and textbooks at both the primary and lower secondary levels to modernize the content and methods of teaching and learning. At the same time, they introduced a parallel program of teacher in-service training to support the implementation of the new curricula and to introduce new instructional strategies. Yet another concurrent program in Vietnam’s modernization of education is the development of new pre-service training materials and modules at both the primary and lower secondary level.
110. The unanswered question is why Vietnam did not lead a renovation in teaching and learning by starting at the training level. Instead, as MOET rushes to deliver in-service training, classroom teachers are not prepared to teach the new student curriculum and teacher trainers are in turn unprepared to facilitate in retraining. In many cases, lecturers from TTCs are attending trainings alongside primary and lower secondary teachers. A greater anxiety of the TTCs is that their teacher training curriculum has still not been brought in line with the new student curriculum and methods. Programs to redesign pre-service materials and curriculum are still in the beginning pilot stages in limited provinces so the first handful of new lower secondary teachers trained under the new system will not graduate in 2006. In addition to the simultaneous nature of the reforms, in-service and pre-service training models are also being developed under separate projects. This further hinders deliberate planning of the relative responsibilities of pre-service training and in-service professional development.

F.2 Mixed messages for TTCs
111. The frustration of the TTCs about the sequencing/roll out of the new methods through the primary and lower secondary curriculum points to a deeper tension between the TTCs and MOET. The TTCs occupy a particularly troubled position in Vietnam’s struggle between centralization and decentralization. The GVN’s stated policy is to encourage moves toward decentralization while maintaining authority over policy. In the context of this tension, Vietnam has chosen to decentralize financing and some areas of administration, while maintaining control over key elements of the education program, such as student curriculum, examination requirements, and teacher training. There is a policy on the implementation of the new student curriculum which says that schools should use Ministry documents as a guideline and innovate, but in reality (caused by MOET’s continued control over curriculum and exams) most provincial and district education departments follow the exact guidelines laid down by MOET.

112. While MOET continues to dictate the curriculum framework and develop textbooks/materials for pre-service and in-service training, most entities in the education and training system, including MOET, see the TTCs as the main institutions responsible for training teachers. The Ministry’s position is that the TTCs job is to take the general curriculum framework provided by MOET and make pedagogical decisions and innovations in order to best prepare teachers. In the case of the current reforms, TTCs are expected to provide the road map for helping teachers implement the modernized instructional methods of the new primary and lower secondary curricula. Yet the research bears out that the TTCs themselves feel heavily constrained by the MOET curriculum framework and textbooks, and that the reform continuum has left the TTCs behind in the process of reforming teaching and learning. Except for at the more prominent TTCs which had faculty involved in the new curriculum and textbook designs, and were therefore better equipped to anticipate needed changes in teacher preparation, teacher trainers are only learning of the changes to the new student curricula and new teaching methodologies through MOET’s in-service training program.

113. In a public statement, Vice Minister Dr. Nguyen Van Trong identified pre-service preparation of the teacher force by TTCs as one of the main barriers to teaching reform, pointing out that pre-service students spend too little time on methods and learning how to teach, and do not spend enough time practice teaching in real schools. The central level appears to be holding the TTCs accountable without providing the essential tools to accomplish the goal they have been set. According to the Education Law, MOET is required to define the framework curricula for teacher training. This includes the credit distribution for content of subjects, training duration, proportion of time between basic and specialized subjects and between theory, practice and practicum. Research was less clear on how much flexibility TTC’s have to develop specific curricular content or allocate credits differently. TTC administrators were adamant that they had very little flexibility, being able only to make small changes to a prescribed set of “basic knowledge” courses, or to choose the topic of an elective class on social issues. Admittedly, the perception of central control may be greater than the legal reality. In the case of practice teaching, however, MOET officials supervising primary and lower secondary teacher training agreed that it fell under the “core” curriculum that was fixed for all institutions.
114. Perhaps a more important unanswered question is who is responsible for training the trainers? Even with the dissolution of the Teacher Department that responsibility ostensibly remains with MOET. While certain administrative responsibilities have devolved down to the Provincial DOETs and the Provincial People’s Committee’s, those have not included making decisions about the instructional core. The teacher trainers are as much in need of intensive retraining, reinforcement and monitoring as teachers at the primary and lower secondary levels. Paralleling the issue of upgrading qualifications of classroom teachers, upgrading the degrees of TTC lecturers alone will not ensure the profound changes needed to alter deeply embedded beliefs and instructional practices.

115. In the context of learning in a knowledge society, where self-expression, innovation and flexibility are encouraged, the mixed messages in the current reforms have implications for the design and delivery of in-service and pre-service training, and the implementation of the new student curricula. The GVN’s stated policy of decentralization and encouragement of innovation and the free exercise of new competencies is inconsistent with the actual practice of maintaining strict control over the pace and content of innovation. This contradiction mirrors in a policy context the practical difficulty educators are having turning the theory of new teaching methods into the reality of changed classroom behavior.

F.3 Mixed messages for practitioners
116. Previous studies have raised the issue of bringing in-service training decisions closer to the consumer. (World Bank, 1998) Yet in-service training is still centrally directed and uniform for all teachers. This perhaps makes sense for a comprehensive program like the one introducing the new curricula and methods. However, in-service training provided for teachers upgrading qualifications, and district in-service providing “frequent refreshing” also follow a pre-set program. Teachers and schools have little to voice in selecting further training and are generally just told when and where to go to receive training. This rigid approach fails to identify or address relevant school or individual teacher learning needs. It also sends mixed messages to teachers, who are asked to be more self-reflective in their practice, but are not allowed to exercise control over their own professional development.

117. The new student curriculum also demands that teachers think differently and more flexibly and creatively in delivering instruction; yet, they still receive contradictory signals from educational managers who complain about noise level of classrooms or inspectors who penalize them for straying from a regulated timetable. On the training side they are introduced to new theories and told to apply them flexibly; on the curriculum side, they are given strict guidelines on what is to be covered in each 35 or 45 minute period and each of the components that must be included in their lesson plan. This tension between an independent and prescriptive approach causes not only practical difficulties, but also heavily limits the creativity and innovation of teachers. At the primary level, although teachers are responsible for multiple subjects, there is the additional problem of being trained by (and having regulations set by) different experts in each subject area, leaving little flexibility for teachers to apply cross cutting strategies over the course of teaching multiple subjects to the same group of students.

118. The criticism above of a prescriptive approach is a criticism of non-instructional constraints such as formatting and penmanship on lesson plans, number of minutes of each sub-activity, or physical arrangement of the classroom, as opposed to rigorous guidance or instructions on how to delivery a new activity or how to apply a new method through clear, structured practice. The latter, what teachers need and have asked for, will be discussed in greater detail in the recommendations section.

X. A FUNDAMENTAL CONTRADICTION

119. Educational reforms in Vietnam will have difficulty achieving their desired effect without a revolution in thinking and doing. As a nation, Vietnam has place great emphasis on education and in its socio-
cultural tradition, education and economic prosperity are linked. This has resulted in a relatively well-educated, literate population and also a relatively equitable education system. However, the desire to transform current conceptions and methods of teaching and learning to prepare the country’s youth to perform competitively in a knowledge society and economy will require more than merely an “updating” of discrete professional knowledge. Failure to address the lack of common vocabulary discussed earlier, or to consider how to build on or transform cultural and political beliefs and assumptions that inform how people think and behave, will seriously impair attempts to put theory into practice.

120. A recent MOET statement cites “teacher dependence on old habits” as the chief barrier to teaching method reform. (www.moet.edu.vn) Many managers and education officials at all levels shared this frustration of being unable to change teacher habits. This is indicative of a general failure in Vietnam to acknowledge that teachers are not being asked just to change teaching habits but to build entirely new competencies. The current teaching force was not brought up or educated in a system which encouraged or cultivated these competencies. Thus, teachers are not merely learning that they need to switch from one method to another, but teachers themselves need to first acquire and master those competencies that are now expected of students in order to do differently. Blaming teacher habits assumes that they have been given the necessary tools and capacity to do differently but choose not to use them.

121. In spite of the new national efforts to change the student curricula and methodologies, starting at the primary and lower secondary level, Vietnam is still deeply rooted in its socio-political traditions. One teacher’s manual produced to support the implementation of new methods in geography, history and civics articulated the difficulty of using new methods in the subject of history as follows: “The characteristic of history is that history is the series of events that happened in the past, which exist objectively and no one can predict or make any elaboration on the happening of these past events.” This view reflects official political discouragement of alternate interpretation of historical events, in theory a critical element of historical analysis. Similarly, a political tradition juxtaposing centralization and rule by consensus results in a deep reluctance by either individual departments or levels of administration to take initiative in proposing innovations, and much adherence to or at least lip service to following MOET regulations.

122. The sensitivity of applying a creative, student-centered, critical thinking methodology in the study of history is potentially a canary in the coal mine for the entire endeavor. The process of revamping the education system to create a human resource base capable of building a knowledge economy in Vietnam assumes that the outcome – an independent-thinking, creative, skeptical, problem-solving population used to finding their own answers and working together to find solutions to problems rather than blindly accepting direction from above – is what the State and the Party really want. In a nation where challenging assumptions about government, leadership, and the organization of society is a crime, teaching methods and teacher training techniques are only a tiny percentage of what really needs to change in order to develop a truly modern “knowledge society.”

XI. HOW CAN TEACHING AND TEACHER EDUCATION BE IMPROVED IN A KNOWLEDGE SOCIETY CONTEXT?

123. What are the key competencies Vietnam professes to desire of its students and future workers and citizens? Hallmarks of a functional knowledge society—a deep understanding and reality of which as yet eludes most educators in Vietnam—are the analysis, adaptation, and application of knowledge to new problems, the development of new professional insights from shared enterprise, common concerns and pooled expertise, and the capacity of workers and practitioners to operate flexibly and innovatively. Knowledge is not constant, but dynamic and iterative, generated through action and interaction between people. This concept of learning by doing together assumes cooperation and collaboration between individuals and across traditional divisions in organizations. Cultivating, accumulating and managing knowledge within and
across an organization are levers for change and improvement, and for increasing learning, capacity and outcomes. (A. Hargreaves; Grayson and O’Dell)

124. Ultimately, what Vietnam wants is a broader curriculum and instructional approach for students that includes more practical, relevant and applied content and skills. What Vietnam needs is for teachers to build a repertoire of teaching and learning strategies to help students acquire and apply knowledge, develop insights, and be able to think “logically, resourcefully and imaginatively”. (Adler) What it comes down to is changing the instructional core—what, how and for what purpose students are taught. If at the end of whatever interventions or investments teachers do no differently, then changing curricular objectives, re-writing textbooks, supplying teacher training institutions with laptops and PhDs, wiring schools for internet access, or even increasing the hours of classroom instruction will have little effect on the final measure—that of increasing student learning in ways that reflect and help manifest a knowledge society in Vietnam.

125. The recommendations that follow are intended to help advance Vietnam’s efforts to encourage and build a knowledge society through its reforms in the education sector. They are grouped into a few core thematic areas that must be approached in combination to cultivate and support sustained and wide spread changes in the practice of teaching and learning. These areas target teacher and instructional development—practitioner level requirements—along with policy supports and ideological contradictions—systemic and cultural tensions—that Vietnam must address in order to move toward a true knowledge society. Each general recommendation is followed by some specific suggestions for action based on Vietnam’s current context.

26. Recommendations for learning to teach in a knowledge society:

A. Teacher and instructional development emphasizing shared and continuous learning through practice, reflection and leadership:
   #1 Ensure an adequate knowledge base; promote pedagogy and practice
   #2 Build a toolbox for examining practice
   #3 Create a culture of shared practice and shared knowledge

B. System level scaffolds focusing instructional goals and supporting new vision of teacher practice:
   #4 Introduce a standards based system
   #5 Build accountability for performance and progress

C. Critical contingency of State, school and teacher professional contexts: addressing social, economic, ideological inconsistencies:
   #6 Tackle centralization/decentralization, supply/demand tension
   #7 Redefine teachers’ professional environment and incentives

D. Equity and excellence as unyielding twin goals (#8)

A. Teacher and instructional development emphasizing shared and continuous learning through practice, reflection and leadership. Together, recommendations 1 to 3 foster a picture of teaching as not just a job or worse yet, just a part-time job, but as a profession of skilled and shared practice that is able to learn and advance together. However, in Vietnam, where even baseline qualifications vary widely, teacher training efforts must pay careful attention to the whole continuum of teacher development, from strengthening content knowledge and basic pedagogical skills of practitioners, to cultivating the professional competencies and shared practice of a knowledge society.
**Recommendation #1: First things first**

127. As Vietnam’s strategic goals call for a revolution in teaching and learning, and for new methodologies to develop analytic and problem solving competencies for a knowledge society, education leaders must not get caught up in making sure teachers are conducting group activities or using manipulatives and forget to ask if teachers can do the math they teach; or get distracted by developing the theoretical basis for a new approach or methodology and forget about how that theory applies to practice. The demands of a fast growing enrollment and teaching force have resulted in big differences in levels of teacher education; however, the recent shift in goals from access to quality means Vietnam must work to ensure a well-prepared teacher force. While Vietnam has been wise to make the upgrading of teachers, teacher trainers and teacher training institutions a clear priority, that effort must be accompanied by an articulation of the specific skills, knowledge and capacity that this upgrading should produce.

128. **Ensure an adequate knowledge base**—Research has shown that in Vietnam, subject matter knowledge matters a great deal. In the recent grade 5 assessment of the *Quality of Education at the End of Primary School in Vietnam*, teachers’ scores on both reading and mathematics tests were the largest predictor of student achievement in both subjects. Yet teacher performance differed widely across schools and provinces, with some 12 percent of students scoring higher than 30 percent of teachers. This has grave consequences for basic student achievement. Rather than expect under skilled teachers to be able to adapt to new instructional demands, these teachers must first be given targeted support that is accompanied by clear measures of improvement. These expectations must be held in common across schools and provinces and for teachers exiting pre-service training. Vietnam’s current reforms already identify teachers that are below standard in certification or education level; these efforts must ensure that upgrading courses and programs articulate at least a baseline mastery of subject area knowledge. Efforts should go a step further by identifying for training teachers who are already ‘at standard’, yet who still lack sufficient subject knowledge.

129. The importance of subject area knowledge goes well beyond ensuring a minimum baseline, or teachers merely knowing as much as what students are expected to learn. While this is clearly a first step, research has demonstrated that deep and thorough knowledge of a subject is required for effective and fluid problem solving in teaching. Liping Ma’s exploration of the profound understanding of fundamental mathematics in elementary teaching examines how it allows practitioners to approach teaching problems flexibly and respond to students using different learning styles and other variable contextual factors. Ma found that Chinese elementary school teachers are not only more adept at doing the math they are expected to teach, but they also know the concepts well and the best ways to teach them. According to Ma, this teaching knowledge in China has contributed to Chinese students typically outperforming U.S. students on international comparisons of mathematics competency despite Chinese teachers having far less formal education than their U.S. counterparts. In China, much of teachers’ expertise is learned on the job. Given the substantial variation in formal education of its current teacher force, Vietnam should focus on how it can develop this critical knowledge base needed for accomplished teaching, rather than simply implement requirements for more schooling or diplomas.

130. **Promote pedagogy and practice**—Perhaps more revealing than the correlation of teacher subject knowledge with student achievement, or even the wide variation of teacher knowledge, is the surprising degree of sameness in how they teach. Teachers currently are not prepared with a repertoire of pedagogical skills to operate flexibly within the rules they are given and adapt instruction to different student needs. In order to improve teaching and learning strategies and outcomes, Vietnam must address a persistent problem in of the current education and training system and the most readily agreed upon gap in putting theory into practice—the shortfall of practical resources and practical training. Changes are needed in both pre and in-service training to introduce new expectations of teachers for classroom performance and new approaches for meeting them. This training must be grounded in practice, with concepts and strategies contextualized in how they will be used in teaching and learning, and materials and activities relevant to the curriculum.
Delivery must respect the Confucian adage, “I hear and I forget, I see and I remember, I do and I understand,” in order to get beyond a narrow attempt at conformity or compliance.

**Recommendation #2: Build a toolbox for examining practice.**

131. Vietnam needs to cultivate a knowledge base for teaching and learning in a knowledge society. Once teachers have demonstrated mastery of baseline subject area knowledge and basic pedagogical skills, they must learn how to critically observe and analyze classroom and teacher practice. They must also learn how to critically evaluate and discuss student work. Having the tools for examining, discussing and learning from practice will help teachers to build up a repertoire of approaches and strategies that allow them to better judge and respond to different instructional contexts and problems.

132. As a first step to building this capacity in the existing teacher force, teachers must be shown and given the opportunity to practice how to do differently through modeling, support and reinforcement. Sharing empirical evidence or model sites that actively demonstrate the benefits of new methods is one strategy that will challenge teachers to question or reassess underlying beliefs and existing practices. This is especially important in view of stakeholder reports of teacher resistance to new methodologies in teaching and learning. Demonstration sites are not merely a model for replication, but are useful in building confidence in and an appetite for a new vision of professional practice.

133. Even if convinced of the necessity of doing differently, before teachers can shift to a problem solving paradigm from the regulatory and transmission based paradigm that currently dominates Vietnamese education, they must possess a solid repertory of teaching skills and develop the tools necessary to operate and communicate in the new paradigm. Chief among these is the capacity for reflective practice, which contrary to the rigid recitation of the technocrat, requires practitioners to be innovative and responsive to changing conditions. This reflection includes learning to evaluate and interpret the classroom context, to critically examine both teacher and student work for evidence of effective teaching and demonstrated learning, and finally, to be able articulate and debate instructional choices. (Schon) While reflective practice, done right, is an essential tool for informing and improving instruction, Vietnam must also take care not let theory get ahead of practice. An analysis of the ELTTP approach warns that assuming core skills are there when they are not increases the danger of “getting teachers to reflect on thin air” or worse, reaching faulty conclusions about instructional strategies. For example, without core classroom management skills teachers cannot research the efficacy of group work in a large class.

134. Appendix F offers an example of a generic but substantive guide to examining teaching practice. It can be used as a starting point for guiding teachers to reflect concretely on their own practice, and can be further developed in a community to define a common understanding of effective practice. Along with using a professional framework to analyze classroom practice, the case study approach, long in use by law and business schools, is another method by which to train practitioners. This method includes learning from an existing body of real life scenarios which focus the comparative advantages of different instructional approaches, or analyzing instructional problems in a dramatized context to practice finding solutions to unexpected classroom situations.

135. In Vietnam, classroom observations have traditionally served the purpose of checking adherence to regulations and ranking teachers rather than to inform conversations about improving practice. Student assignments were likewise used for scoring and ranking students. Both teacher and student work, however, can be used instructively in professional development. Observing classroom practice and analyzing instruction together can help teachers learn more about the effective application of different methodologies in a practical context. Analyzing student work can help teachers define common expectations of student learning, as well as measuring student success in specific learning outcomes to identify the areas of teaching that need greater attention. More broadly, these interactions will help stimulate teachers’ instructional initiative and provides practice-based professional development.
136. Developing this knowledge base for examining practice must begin in pre-service teacher training. The Ministry should respond to the solid consensus from across the education system calling for more practical training and specifically, more practice teaching in pre-service training. There is a growing body of knowledge and expertise in Vietnam, including researchers, provincial education officials, INGO project staff and trainer core, and effective classroom practitioners, that should be tapped to help evaluate current practice and generate new learning to improve that practice. A clear priority must be to reshape the resources, activities and mentorship of an extended practice teaching experience so that it instills responsive and reflective practice and lays foundations for a culture of shared, collaborative practice.

**Recommendation #3: Create a culture of shared practice and shared knowledge.**

137. Vietnam must overcome its traditional isolation of professional practice by providing time, clear expectations and guidance for conversation and collaboration around issues of instructional practice, shared expertise and shared responsibility. Teachers must learn to interact with one another to establish rapport and trust so that they can examine practice around teaching and student learning together. Creating a culture that develops professional knowledge and supports collaboration is necessary for schools, teacher training institutions and teacher professional development. Clear linkages between both within and across education levels, institutions and organizations are needed to ensure coherence and coordination in planning, implementing initiatives, and the use and development of material and human resources.

138. **Community of Practice**—Common to organizational development, knowledge management and human capital development, a Community of Practice is unfamiliar territory to teacher education institutions, schools as organizations, or education systems at large, even in countries operating in an established knowledge society and economy context. Yet, the essence of its existence and value is critically relevant to what is necessary in developing a shared professional practice that works to advance and improve teaching and learning. Simply put, a Community of Practice is a group of professionals who share a common sense of purpose, common problems, and employ common practices and tools in pursuit of solutions. Members recognize their peers as valuable stores of learning and expertise. By finding ways to learn what each other knows—sharing what is explicit and making sense of what is tacit and intuitive—the network helps its members to work more effectively or to understand their work more deeply. Moreover, the Community of Practice is not merely about peers exchanging ideas and benefiting from each other’s expertise, but about colleagues committed to jointly develop better practices. (Community Intelligence Labs, et. al.) While this introduces yet another complex theory to put into practice, Vietnam can stand to learn from the rationale and component parts of a working Community of Practice.

139. Establishing a model for school-based professional development is an important first step to building a community of practice among teachers. While project documents for the LSEDP proposed such a model, this was not yet evident through the research. It is important for professional development to take place at the school site and during school time, so that the work is firmly rooted in practice. The education system thus makes a statement that professional development is not something extra or extraneous but rather something essential to teacher practice. Teachers can also interact in real time about common lessons, assignment or assessments. The additional benefit of examining practice within teachers’ classroom and school context, and not during theoretical discussions or isolated summer workshops is that the results are locally tested. This maximizes the sharing of internal knowledge and best practice, and reduces the tendency to use the “we’re different” argument. In the school as an organization, it leads to greater confidence in joint solutions and willingness to participate in improvement of existing collective practice.

140. The Japanese lesson study approach is another example of shared reflection on practice and of shared practice that help transform practitioner knowledge into professional knowledge. In the lesson study model, teachers work together regularly over a long period of time to define an instructional problem, then
plan, teach, critique, revise, teach again, and finally reflect together on the shared results of their joint lesson. The professional learning is context-rich and the group works constantly to develop new knowledge based on student thinking and their effectiveness in achieving learning goals. The final lesson and reports of a lesson study group are shared publicly and include theories linked with examples from practice. Hypotheses about helping students reach particular learning goals are accompanied by detailed descriptions of activities, anticipated responses of students and suggested responses by the teacher. (Heibert, et. al.; Stigler and Heibert) Just as a Community of Practice, teachers participating in lesson study conduct their research for the development of the profession, not just for their individual benefit.

141. Identifying and tapping local expertise is another key tenet of a Community of Practice. Teaching knowledge is by nature highly context specific, difficult to systematize, and experiential. Furthermore, research on heuristic knowledge suggests that expert practitioners have a deep knowledge of their field—a marriage of profound content or book knowledge with experiential knowledge—to the point where they do not always use logical analysis for problem solving. Thus, expert practitioners—and expert teachers—work from a familiarity and reflexive adjustments to their practice that uses tacit, intuitive knowledge to make sense of complex or ambiguous situations. (Dreyfus) This tacit knowledge of expert teachers or of the expertise of any teacher is what can be articulated and made public through shared engagement over a common instructional problem. In Vietnam, where local instructional resources and support are in short supply, this type of shared expertise across a school or faculty would be an invaluable asset and a driver for developing local competencies and capacity toward improving teaching and learning.

142. A few critical elements for establishing school-based collaboration are already in place in Vietnam. Because of the prescribed national curriculum, teachers have a common basis for examining practice, and for potentially planning and developing lessons jointly. There is already an existing culture of open classrooms and frequent peer observations but these need better mechanisms for feedback and learning. The timing is also ripe for cultivating shared learning and a common purpose in light of the demands of implementing the new student curriculum and methodologies. Teaching contests that currently encourage individual competition might be transformed into opportunities for groups of teachers to showcase the results of their collaboration. Finally, one of the most common barriers for creating school-based continuous professional development is the lack of time available for teachers to do this work together. Vietnam has time set aside each month for “frequent training” that could be used more effectively to support dialogue on challenges and strategies of the new instructional methodologies. Schools also reported having weekly meetings for subject areas that could be focused on instructional rather than administrative issues. The gradual move toward full day schooling and a revised compensation package for teachers should also support both more flexibility in scheduling school-based professional development for teachers and greater engagement of teachers in improving practice.

143. Participatory training and trainer networks: The Binh Thuan BETT project offers an effective province wide example of developing shared practice and building professional knowledge; it also offers a hopeful model in bringing this practice to scale. In its training, the project uses a manual developed from teacher tested resources and linked to the new grade one curriculum, thus taking individual knowledge and strategies and making them shared and public. Its participatory training process also helps make the tacit knowledge of how to apply and use those resources explicit so it can become part of teachers’ professional repertoires. MOET recently responded to demand for the Binh Thuan resource manual by publishing it for national dissemination, effectively challenging the old continuum where central level ‘experts’ conduct research with administrators disseminating resulting new findings or policies down to practitioners. Instead, experienced practitioners guided and generated new professional knowledge and informed learning at the system level.

144. Now in its 9th year, the BETT model has also successfully developed a local trainer core, with a trainer positioned in each district office (BOET) and at each school, offering a number of interesting possi-
bilities for effectively scaling up shared practice. First, building an established network of trainers, and one that includes both teachers and education managers and offers ongoing school-based support for teachers is a basis for growing sustainable lasting changes in practice. Second, a professional network of trainers can develop its own community of practice, linking trainers who share common roles and concerns across sites. A trainer network can accelerate the accumulation and application of instructional expertise across varied contexts, as well as build a knowledge base specific to effective training and instructional support. Third, the province now has a seasoned cadre of leaders who can help seed and grow its vision, culture, and practice. A fourth promising factor that will facilitate exchange of knowledge and concerns across traditional barriers is the participation and cooperation of trainers across the provincial, district and school levels.

145. The ELTTP offers very parallel lessons in training model. Like the BETTP, it offered intensive training to a trainer core to build local capacity for supporting and sustaining efforts. The training for new methods in English language instruction used materials developed to support the new grade six curriculum. There points where the two programs differed offer important lessons for sustainability and shared practice across institutions. BETTP recognized the need to engage local TTCs for reaching pre-service teachers, sensibly broadening their cadre of core trainers, and helping develop institutional teaching knowledge. ELTTP’s evaluation noted the limits of increasing capacity through targeting individual teachers. It highlighted the importance of engaging schools as an entity, either through school based supports or by having teachers attend trainings in school teams rather than individually, in order to facilitate changing the culture of teaching and learning.

146. **Clinical practice**—The intense interest in extending pre-service practice teaching provides opportunities to build teacher training as a shared clinical practice. One of the shortcomings of TTCs is that teacher trainers often do not have enough or any practical classroom experience. Coordinated interaction between trainers and teachers during the student practicum would not only give trainers experience in the classroom context, but would also empower teachers, and give them greater ownership over their practice. A more radical approach being piloted in the United States to help teacher trainers and trainees alike gain experience in practical applications while providing classroom teachers with opportunities for leadership and further learning, is rotating experienced and effective teachers into TTCs as clinical instructors. Like Binh Thuan’s instructional resource book generated from teacher experience, this allows practitioners to directly inform the training of new teachers, as well as cross pollinate their practical expertise with current research and scholarship.

147. Closer to home, both Ho Chi Minh City and Hanoi have institutionalized models of a clinical learning context. Each city has an example of pedagogical or lab schools which are connected to a training or research institution. As discussed earlier in this study, HCMC’s TTC has formal relationships with a primary and lower secondary school, where teacher trainers can go to both demonstrate and experiment with instructional strategies. In Hanoi, the National Center for Education Technologies runs a semi-private school at each level, kindergarten through high school. The schools serve as a lab for research on instructional methodologies, adolescent development, child psychology and school environment. These models should be examined more closely as sources of learning for all, and as potential models for cooperative partnerships between the provincial teacher training institutions and neighboring schools. Unfortunately, due to political tensions, the research center in Hanoi, although officially belonging to the Ministry, currently operates only at the margins and its research and training materials on student centered learning have largely been excluded from current reforms.

148. **Building bridges**—In addition to bridging boundaries between schools and teacher training institutions, many other interactions across Vietnam’s education system and with outside agencies would contribute to building a stronger knowledge base for the teaching profession. Better channels of communication and networks that cross district or province, or that bridge research, policy and practice would both improve relevance and reduce redundancy. Shared learning between NGOs and TTCs, and between NGOs and do-
nor organizations can in the first case introduce TTCs to innovative or alternate materials and training design. In the latter case, NGOs can on the one hand attempt to streamline their local activities with larger donor project objectives; donor organizations on the other hand, can use extended NGO grassroots experience both in the Vietnamese classroom, and in working with the provincial and district levels of the education and training system to inform project design and evaluation. Shared learning across all stakeholder groups would provide Vietnam with a stronger context of shared instructional definitions and values, and a more coherent structure for focusing improvement efforts.

149. As the executing agent in the numerous education and teacher training initiatives, MOET is well-positioned to look across the many project and determine where coordination and reinforcement is needed between related initiatives, and to reduce misalignment between different project objectives or activities. It is imperative that educational leaders and managers follow up in areas where projects have generated initial momentum and the beginnings of changes in instructional practice, so the educational system can capitalize fully on the resources and expertise developed and gain more lasting impact or continued changes after projects close or external funding ends.

150. Shared knowledge across projects of different donors and even across projects supported by a single donor can also contribute greatly to increased coherence in project objectives and activities, and increased efficiency in implementation. For example, strategies for pre-service curriculum development and delivery could be shared across the primary and lower secondary levels (PTDP and LSTTP), as could a mapping of how critical competencies are developed across pre and in-service training at the lower secondary level (LSEDP and LSTTP). Some projects may introduce useful new concepts and innovative approaches, while strategic information in the form of a unified and integrated education data system, or a joint dialogue about quality assurance or accountability mechanisms could improve current practice in a number of ways. Better outcomes could range from more efficient use of resources, to more informed planning for all partners, to less overlap, fewer gaps and a more programmatic rather than project based approach to education assistance.

B. System level scaffolds focusing instructional goals and supporting new vision of teacher practice.

The following recommendations outline two key preconditions to operationalizing a focused, aligned and accountable system, and are necessary to define the desired improvements in terms of specific student learning outcomes and related teacher competencies.

Recommendation #4: Introduce a standards based system.

151. Changing the discourse on teaching and learning takes time. The process of changing the culture around teaching practice needs consistent guidance and reinforcement from within the educational community, and consistent messages to families and society at large. Because implementation of education services is decentralized in Vietnam, it is even more critical to have explicit criteria and benchmarks to give direction to and to measure its progress towards an instructional goal. Establishing a standards based system will help build the common language that can form a foundation of common expectations for learning, allow concrete and precise communication about effective practice, and build in commitment and accountability.

152. Certainly, there exist individual schools and small scale projects that demonstrate effective practice in a knowledge society sense, even without systemic supports. However, to ensure sustained practice and the increased likelihood of it working at scale, local efforts at cultivating knowledge sharing and communities of practice must operate in concert with system level policies in order to create conditions that encourage and enable teachers to tackle instructional problems and that foster open channels to facilitate shared learning across levels, agencies and actors in the education system. In a manner of speaking, one must act locally, and act globally, too.
Vietnam’s current system is not standards based, but is highly scripted, with teachers at all levels using the same textbooks and materials, and closely following regulations that ‘guide’ their lesson planning down to the minute and exercise. By contrast, and contrary to common perception, ‘standards-based’ does not mean standardization. Although some education systems have implement standards in a prescriptive way, a standards based system does not in its essence call for scripted curricular content nor does it dictate a single approach to teaching or learning to stated standards. What it does mean is transparency for educators, students and the community of the types of competencies and skill that are expected, and of how good is good enough. These measures not only ensure equity across the education system, but also provide a common instructional focus. By forming the basis for external accountability measures to ensure that institutions meet centrally set standards and performance targets, a standards based system can create the environment that enables more institutional and practitioner flexibility and autonomy in choosing specific curricular content and instructional strategies or activities.

Vietnam has already taken steps in this direction by drafting teacher professional standards at the primary level under the PTDP. The Ministry should not only apply lessons from the development of the primary education teacher profile to the secondary level, but should consider an articulation of cross curricular teaching competencies—ones that extend across all levels of education as well as across subject area disciplines—that are critical to teaching in a knowledge society. Appendix F provides an example of such a framework for teacher professional practice. It offers a comprehensive breakdown of professional domains, with concrete components articulated in each. Originally derived from a performance assessment for teaching licensing, it demonstrates how a comprehensive framework can serve as a guide for talking about practice, and as a tool for designing an evaluation of teacher training or teaching practice.

**Recommendation #5: Build accountability for performance and progress**

Following the maxim that “there is nothing you can measure that you can’t manage”, Vietnam needs to institutionalize student and teacher performance assessments. Tracking student achievement forms the basis for measuring performance and progress, and for establishing accountability measures based on agreed upon performance targets. Once there are general content standards on expectations for student and teacher knowledge, skills and understandings, performance standards articulate levels of mastery and specify how good is good enough.

The availability of education data in Vietnam has increased in the last decade, but there continues to be little good data on student achievement. The research showed that provincial and district officials are neither familiar with nor fully understand the importance of having good data. However, the grade 5 assessment and study of reading and mathematics achievement conducted under the Primary Education Project demonstrates that at least centrally Vietnam has the capacity to design and implement such a comprehensive assessment system. Another component of the PEP that warrants revisiting is the formation of an Education Management Information System (EMIS). Having a comprehensive educational data system that includes student achievement data will allow more informed decision making on issues of policy and instructional needs. Recent years have seen a number of projects supported by UNESCO, the EC, ADB and others which include an EMIS component. Before embarking on the development of several uncoordinated management information systems, Vietnam should consider what mechanisms and indicators are needed to ensure the development of a comprehensive and integrated data system across education levels (primary, secondary, higher education) and across levels of education administration (national, provincial, district, school).

Along with student measures, Vietnam must establish measures of teacher performance. Currently, each TTC sets and marks its own exit examinations, so there is wide variation in standards across both the primary and lower secondary pre-service teacher training system. This is not a new recommendation for Vietnam. An original subcomponent of the LSTTP that so far has not materialized is the establishment of a quality assurance mechanism for TTIs in the form of a national assessment system for teacher certification.
An external mechanism is necessary so that institutions will prepare teachers toward the same competencies and can measure their effectiveness on a common scale; it also helps ensure equity in a system where teachers are trained and deployed locally. Minimum performance standards for certification would also address a chief concern raised in this study by ensuring that institutions upgrading teachers are actually producing candidates who demonstrate required competencies. This study reissues the PEP grade 5 study’s urging that those in charge of upgrading and certifying teachers make this a top priority.

C. Critical contingency of State, school and teacher professional contexts: addressing social, economic, ideological inconsistencies. This last pair of recommendations addresses broad systemic issues that Vietnam must resolve in order to support and not obstruct innovation, adaptation, problem-solving and strategic thinking in its education and training workforce.

Recommendation #6: Tackle centralization/decentralization, supply/demand tension

158. If Vietnam wants to move into a modern, swiftly changing, and competitive knowledge economy and society, it will have to resolve internal tensions between centralized and decentralized administration and decision-making. Current constraints, mandated by law and compounded by tradition and perception, allow little institutional autonomy or flexibility in education and training implementation. Although Vietnam has a vertically decentralized system of education management, the divisions in responsibilities are not neat and centralized decision making in the areas of curriculum development, examinations, and teacher training mean there is little true decentralization of management beyond simple administrative operations.

159. The knowledge society paradigm is premised on core values and practices such as professional autonomy, freedom of expression, mobility, inquiry and informed critique. The current nature of the Vietnamese State, shaped by its historical and ideological norms, does not adequately support systems or mechanism for transferring or sharing knowledge based on these principles. Thus, practitioners must seek every opportunity for joining shared enterprises for understanding and improving practice, and the GVN must develop more incentives and supports for teacher engagement and investment.

160. In addition to the need for more knowledge society norms to drive the reforms in teacher training and practice, Vietnam also needs to strengthen the organizational capacity of the offices of education and training across all administrative levels. The education sector priorities shifting from access to quality and relevance have demanded more specialized expertise from education officials. However, provincial DOETs and district BOETs are not only understaffed and have too few officers to provide adequate educational supervision in their regions. They are also weak in technical expertise, especially in the area of pedagogical supervision. Thus, schools and teachers receive limited and sometime contradictory professional guidance and feedback on implementing new curriculum and requirements.

161. TTC practice and institutional autonomy: As the primary institutions responsible for training new teachers, the provincial Teacher Training Colleges play a critical role in developing the competencies teachers need to prepare students for success a knowledge society. The TTCs, however, are generally perceived as low quality and lack a sufficient knowledge base to effectively support learning to teach in a knowledge society. The strategy for developing TTCs and teacher trainers is no different than the recommended actions for developing new competencies in primary and lower secondary teachers. That objective is teacher trainer development emphasizing shared and continuous learning through practice, reflection and leadership.

162. The foremost priority is to build shared practice and expertise within and across TTCs. Just as for teachers at the lower levels, TTC lecturers also need to develop a common language of practice and new ways of interacting with one another and with teachers. Networks of TTCs, clustered around the Regional TTCs which have a longer institutional history, more experienced instructors, and a research faculty will be essential in lending support to newly upgraded TTCs, where almost no teachers have practical teaching ex-
perience in the levels they are preparing to teach, and many are newly minted university graduates with little or no operational expertise in teaching or providing training at any level. TTC should also develop relationships with primary and lower secondary schools, so they can have a clinical context for exchanging instructional strategies with classroom teachers, and for observing and testing new ideas. TTCs can also learn from experienced trainers of new instructional methodologies, such as the trainer core at Binh Thuan or other such project sites. In this way, the TTCs not only gain from the varied experiences and pooled expertise of other TTCs, schools, and NGO developed trainers, but all levels and agencies gain from the network, or community of practice that is built among them in the process.

163. Another critical shift that could help TTCs innovate or at least evaluate current practice is to move them away from their strict adherence to centrally dictated curricula and activities. If MOET is able to establish the accountability measures discussed above, then TTCs can be held to common standards for the quality of teacher candidates they produce, in exchange for a measure of institutional autonomy. Typically a market competitive strategy, exchanging flexibility for accountability, with MOET monitoring quality and content, may well be what Vietnam needs to peel back its current strict regulatory compliance to a scripted curriculum with little incentive to problem solve or focus on student development. If the TTCs are to remain a vital delivery mechanism for pre-service education and in-service upgrading and training, then they must be given the necessary instructional resources and supports from MOET, and allowed adequate mechanisms for meeting required outcomes.

164. Teacher recruitment and deployment: Findings from research yielded some confusion about the policy governing recruitment and deployment of teachers. This study recommends further research to study both the teacher supply-demand issue across the provinces, and to build a clear picture of current teacher recruitment and deployment policy and how that has changed in light of other recent educational reforms. A troubling contradiction lays in the purported Provincial recruitment policy driven by an annual needs analyses performed by District DOETs, against the current significant teacher surplus experienced by many provinces. One proffered explanation that research was unable to confirm is that the demand based strategy was only implemented recently and over the last decade, with the looming fear of shortages because of UPE and expansion at lower secondary, TTCs recruited numbers that far surpassed what actual growth demanded.

165. Regardless of what has caused the current bubble in primary education and in core subject areas at the lower secondary level, granting schools or districts some authority over both hiring and firing could have a dramatic effect on professional behavior. Since civil service currently means guaranteed lifetime employment with neither rewards nor sanctions based on performance, professional advancement or education, there is no incentive to distinguish oneself. Coupled with low salary and lack of a career ladder in teaching, a great proportion of teachers see teaching as merely a part-time civil service job, and not as an essential role in cultivating the minds and future of Vietnam’s youth.

166. Teacher deployment must also be made more flexible to allow the efficient distribution of teachers. Allowing increased mobility in teacher assignment will attract more quality candidates to the teaching pool. Current restrictions on inter-provincial assignments are a detractor to competitive candidates who wish to relocate. In that case, candidates either seek jobs in semi-public or private schools, or find other private sector opportunities. Restricted mobility is an additional barrier to a functioning learning organization, since people cannot be flexibly moved to distribute knowledge, leadership and expertise as needed across the system.

167. District and school based curriculum and professional development decisions: The final area where increased local decision making can have powerful effects, is regarding the delivery of the student curriculum and professional development. Again, this hinges on the establishment of a standards based system with measures of both student achievement and teacher performance. Curriculum is the content or course
of study toward a learning goal. If Vietnam established public standards on what children were expected to know and be able to do, and there were assessments in place to measure their performance and progress, then MOET could grant greater flexibility in terms of precise curricular content, delivery and timing. Like the case with TTCs, this would allow greater attention and innovation in the area of teaching and learning strategies, and would create ownership and responsibility for producing greater learning.

168. Currently, teachers, schools and districts are not encouraged to think imaginatively about or to take responsibility for teacher professional development. In fact, the continued use of the term in-service training underscores the distinction between the current enacted and desire systems. Vietnam wants a teacher force that is capable of demonstrating flexibility, inquiry and the capacity to self-direct growth and evolution of professional knowledge and skills. Yet, the current system delivers training that is uniform for all teachers, may or may not be relevant, and is delivered in the form of a forced march. A professional development model based on the principles discussed in recommendations 1 and 2 would foster a community of practitioners that given the freedom, would be skilled in identifying instructional needs, and take collective responsibility in targeting those needs to raise student achievement.

Recommendation #7: Transform teachers' professional environment and incentives

169. Recommendations 1, 2 and 3 go a long way to addressing some of the major concerns of creating a professional community. However, outside of control over instructional issues, policies governing recruitment, salaries, professional advancement and contractual duties also contribute to the morale and responsiveness of the teacher force. Vietnam must find ways to improve the compensation and professional conditions under which teachers work, to better attract and retain a competitive and committed workforce that can prepare Vietnam’s youth to participate in and contribute to a knowledge society.

170. Since a proposed guideline for teacher professional classification and options for revised terms of service and remuneration are anticipated outputs of the current Primary Teacher Development Project, the recommendation here will be limited to an example of a different type of incentive—through cultivated teacher leadership—that can generate greater teacher investment toward improving their practice.

171. Like the Binh Thuan model introduced in this report, professional development that is supported by a site based facilitator (or coach or trainer—all different names for the same role) provides opportunities for teachers not only to learn directly in the context of their practice, but also to take on leadership roles in their school or district. In the words of the BETT project coordinator, “Trainers themselves are all classroom teachers, and that was the design, to take classroom practitioners who were having some success, give them more tools to have more success, give them training and professional development, and then have them lead a serious of local meetings to provide training to their colleagues.” (interview) Teacher trainers may earn an extra stipend for training duties, but more importantly, they are given the reward of professional advancement among the teacher ranks that does not further siphon qualified practitioners into administration. As teacher leaders, these individuals will support teachers in improving instruction and reinforce the overall message of continuous learning.

D. Recommendation #8: Ensure equity and excellence

172. While Vietnam turns its attention toward improving education quality, it must remember that equity and excellence are twin goals, and do not add up to a zero sum game.

173. There are many areas of the country that are currently caught in a closed cycle of compounding disadvantages. In the past, for example, a remote area may have ethnic minority children who did not attend pre-school and did not enter primary education speaking Vietnamese. Because of the difficulties they faced because of language and other barriers, they were given a shortened curriculum at the primary level. This shortened curriculum did not adequately provide them with the skills needed to advance to lower secondary, so of the few who made it to grade 5, fewer still were able to continue to grade 6 and beyond. Although
national standards for teacher training was 12+2, requiring students to finish upper secondary, because of the shortage of teachers willing or able to teach in the remote regions, students completing grades 9 or 10 were identified as local success stories and were put directly in a teacher preparation program. Upon completing their training, these under qualified teachers were then placed back in their communities where they were faced with the same difficulties they themselves confronted as students—language acquisition and reading difficulties, inadequate facilities, and teachers where were not well-equipped to help students overcome those barriers.

174. As Vietnam manifests its goal of entering a knowledge based economy, market forces and a continued trend toward decentralization can have huge implications for compounding inequity. As communities are forced to become increasingly reliant on local resources for educational infrastructure, they will be less able to produce conditions that can attract high quality teachers from other locations. More flexible teacher recruitment or deployment policies will also require close monitoring to ensure systems that support the development of ethnic minority candidates as well as the adequate distribution of qualified teachers. Currently, there are regional and national TTCs that help prepare candidates from disadvantaged provinces. Although the TTCs prepare their own candidates—whether for primary or lower secondary education—to the 12+3 level, they prepare candidates from the disadvantaged provinces to the 12+2 level. Again taking those who need and can benefit from qualified teachers the most, and giving them less.

175. How do we break this cycle as Vietnam continues to expand its education system to truly include all students—poor, remote, ethnic minority and disabled? As the government pursues further education development and other poverty reduction strategies, it must sustain an unswerving focus on equity. It must make sure that whatever programs are initiated to help improve educational quality have clear goals established for improved instructional outcomes for all groups. And finally, it must hold itself and other institutions accountable to those measures for providing a quality education for all.
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Theoretical background:


4. Learning to Teach in the Knowledge Society:
The Case of Cambodia

Yael Duthilleul
I. INTRODUCTION

The following country report was completed as an input to the World Bank (WB) study “Learning to Teach in the Knowledge Society” which aims at “assessing what developing countries are doing and which are the training needs and major skill gaps to equip teachers with the competencies and skills which facilitate student acquisition of the key competencies required in the knowledge society”. Cambodia was one of the six countries selected to participate in this international study jointly with Vietnam, Mexico, Chile, Ghana and Senegal. The countries participating were chosen in light of their current interest in teacher education reforms and the World Bank’s involvement in financing them.

The purpose of the country review was (i) to assess in each country teacher education and teachers’ professional development in light of the teaching skills perceived to be necessary by different stakeholders and (ii) to identify both good practices and existing gaps between desired competencies and current teacher education programs and institutions. This report was also expected to help illuminate the gaps that might exist between what the research literature said about teacher training and skills, what developing countries were actually doing in terms of teacher education policies and what policy makers and other stakeholders thought was important for their countries in light of the demands of the knowledge society. A key input to this reflection was the literature review prepared by Professor Carlos Marcelo from the University of Seville (Marcelo, 2003).

The visit to Cambodia took place in December 2003. At that time, different type of informants were interviewed: Ministry of Education (MOE) staff; Heads and teaching staff of Teacher Training Centers and Universities, local officials at the provincial level responsible for teacher deployment, principals and teachers, student-teachers and representatives from teacher associations, academics, international agencies, and NGO’s based in the country carrying work on teacher issues (see Annex 1 for detailed list of the agenda for the visit).

While the focus of the WB study was on general secondary education, in the case of Cambodia, the comprehensiveness of the agenda put in place provided opportunities for an overall review of all levels, from preschool to upper secondary and an examination of teacher education in the context of teacher attraction, recruitment and retention issues. In the context of Cambodia it also made more sense to focus on basic education. While there was no time to visit remote schools, the issues relevant to them were addressed in the discussions with selected informants. Discussions were held most of the times in Khmer with the assistance of interpreters. Interviews took place in schools, training centers and state offices. Small groups of teachers, student-teachers and trainers joined the discussions in each site. Other key informants were met individually. The schools and sites visited were selected by the Ministry of Education as representatives of Cambodian schools. However, given the small number of sites visited per type of school and the limited number of people interviewed, the information presented in this report must be interpreted with care and should be understood as suggestive of the type of issues encountered in the country.

The report starts by presenting some background information on the education sector in Cambodia. It then presents an overview of teacher education and professional development programs and follows with a section on teacher attraction and recruiting issues. An analysis of critical issues as seen and experienced by the different stakeholders is then presented, followed by an attempt to address some of the initial research questions. Some policy suggestions are presented at the end. This report was written with the expectation that it

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1 The author would like to thank the senior officials at the Ministry of Education, Youth and Sports for welcoming the idea of this study and facilitating access to all necessary informants and background documentation. A special recognition is due to Mr. Eng, Deputy Director of the Planning Department of the Ministry of Education, Youth and Sports (MOE), and to Mr. Beng, from the World Bank Cambodia Office for their support to put in place such a rich agenda in a short time. And a very special note of appreciation to all informants who kindly contributed their time, opinions and experience to this discussion.
could serve as an input both to the larger international WB study on teacher competences and to a national debate on teacher education issues that could guide the next stage of policy making in the country.

II. EDUCATION IN CAMBODIA

Country Context

Cambodia’s population of about thirteen million people is concentrated in rural areas and depends mostly on the agriculture sector for survival. With an annual population growth of about 2.5% in the last decade, about 40% of the population are under 14 years of age in spite of a high infant mortality rate. A substantially large share of the adult population over 15 years of age is considered illiterate (31%) and more women than men are included in this category. GNP per capita of $260 puts Cambodia among the poorest countries in the region with about 1/3 of its population living under the poverty line.

Cambodia’s long history has been marked by a high period of influence during the X-XIII centuries, internal power struggles among dynasties, the influence of its neighbours Thailand and Vietnam at different periods of time, the French protectorate from 1864 to 1953 and Cold War geopolitics. Civil unrest and instability characterised recent times. However, it is the period of the Khmer Rouge regime, between 1975-79, that has had one of the most dramatic impact on its people in recent times. The policies implemented under this period led to the destruction of the education system and the death of most literate people. Much has been written and said about this tragic period in the history of Cambodia and it is beyond the scope of this paper to get into this theme. However, it is difficult to assess and fully understand the situation of education in the country today without acknowledging the damages suffered during that period. The government estimated that 75% of teachers, 96% of students and 67% of pupils were killed during the Khmer Rouge period. Few books remained and the deterioration of school buildings and equipment was evident (King, 2003). The education system was destroyed and its people traumatized by the experience. A period of international isolation followed as a result of Cold War geopolitics with internal fighting continuing in some parts of the country among the different factions while the process of rebuilding the system was launched. In the mid-nineties international agencies increased their involvement in the country but it was only after the 1998 elections that some stability was accomplished.

The Education System

The education system in Cambodia comprises 6 years of primary education, 3 years of lower secondary and 3 years of upper secondary. In 2002, according to a recent World Bank report (World Bank, 2003), there were about 2,805,000 students enrolled in the system, out of which about 2,408,000 were in primary school. Net enrolment rates at the primary level were at 86%, 26% for lower secondary and 8% for upper secondary. Student teacher ratios were about 57:1 in primary and 22:1 in lower secondary. In 1999, the total number of teachers from preschool to upper secondary was 77,929 (Bun Roeun, 2002). Enrolments have increased substantially in the last decade mostly at the primary level, reaching many over-aged students that were out of the system. Most primary schools function in double shifts in order to accommodate the growing demand.

The agenda for the development of the sector is clearly presented in a series of government documents. The 2001 Education Strategy Paper (ESP) presents the sector’s goals while the Education Sector Strategic Plan (ESSP) describes annual plans and activities to implement the sector strategy. The strategy aims at achieving EFA objective of providing 9 years of basic education for all children by 2015 and expanding opportunities for post-basic education through public-private partnerships. The review of the 2002 ESSP program acknowledges the pro-poor focus of government policies, with more children from poor families progressing in primary education and beginning to enter secondary education. Steps towards decentralization have continued. Some of the programs implemented have a special focus on teachers redeployment and profes-
sional development. Difficult posting and remote areas allowances for teachers have been introduced to better serve underserved areas and reduce the number of non-teaching staff. The numbers of new graduating teachers has increased in an effort to meet the increased demand, with a larger proportion of graduates from remote areas; in-service opportunities have been provided for multi-grade teachers and textbook orientation programs related to new curriculum implementation.

Policies to improve teacher education and competences in the last decade have tended to focus on (i) promoting an increase in the number of years of education required to enter the training programs and an increase in the length of the training program; (ii) providing some in-service opportunities to primary teachers to become familiar with child-centered approaches and discuss teaching and learning experiences among peers. Future priorities to be addressed are the development of a new curriculum program for pre-service teachers and the development of the related learning materials; improve the competences of trainers; better link theory and practice in teacher education and development and develop teachers’ foreign language and ICT competences. A recent review of the general primary and secondary education curriculum which had been introduced in 1996 has been launched and a new curriculum will be developed after this analysis is completed. A curriculum policy paper to define the national goals of education is being prepared taking into account the feedback collected from stakeholders. While this paper is not yet finalized, there is so far agreement that there is curriculum overload in its present version. The new curriculum will have set of core subjects required for all and an additional set of optional subjects organized in two areas: academic and vocational. Once the policy paper is completed, the curriculum development work including development of new syllabus and textbooks will begin. Teacher competencies and requirements will have to be adjusted to these new demands.

III. CURRENT SITUATION IN TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT

Teacher initial education

When the rebuilding of the system started after 1979, schools could re-open on the basis of volunteers who assumed the new roles and functions of teachers and principals. Those volunteers teachers, most with a few years of primary education completed, received between two, four and six weeks of training to support them in their new job (this type of training will be referred to as “short term training”). The principle followed was that those with more education would teach the less educated ones. Gradually the requirements and the training program offered to become a teacher were increased. Over the years, primary teachers were trained under different formulas: 3 years of primary education + 1 year of teacher training; 4+1, 4+3, 5+3, 8+1, 8+2, up to the current formula of 12+2. A similar path was followed for lower secondary teachers, moving from 7+3, 8+3, 11+2, to 12+2 and for upper secondary teachers going from 11+3, 11+4 to now being 12+4+1. Preschool teachers have gone from 8+1, to 11+1, and are now into 12+1. However, at present and in order to meet growing demands, entry requirements are flexible and for example, students from remote areas can be admitted into the training program with only 9 years of basic education completed. Students can also be admitted just with the 12 years of education completed, without having passed the grade 12 certification exam.

These diversity in education background and training continues to characterize the teacher labour force in Cambodia today. Recent estimates presented in the 2002 review of the ESSP indicate that 5% of teacher have completed primary education level, 89% have completed secondary and 6% have a graduate level. A more clear description of the diversity of the level of education of the teachers is shown in the following table reporting on 1999 data.
Table 1: Number of teachers by level of qualification (1999)


<table>
<thead>
<tr>
<th>Preschool teachers</th>
<th>Total</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term training</td>
<td>2857</td>
<td>80%</td>
</tr>
<tr>
<td>Training (8+1)</td>
<td>432</td>
<td>12%</td>
</tr>
<tr>
<td>Training (11+1), (12+1)</td>
<td>277</td>
<td>8%</td>
</tr>
<tr>
<td>Primary school teachers</td>
<td>Total 46815</td>
<td>100%</td>
</tr>
<tr>
<td>Short term training</td>
<td>20059</td>
<td>43%</td>
</tr>
<tr>
<td>Training (3+1), (4+1), (5+3)</td>
<td>767</td>
<td>1.5%</td>
</tr>
<tr>
<td>Training (7+1), (8+1)</td>
<td>5795</td>
<td>12%</td>
</tr>
<tr>
<td>Training (8+2)</td>
<td>6663</td>
<td>14%</td>
</tr>
<tr>
<td>Training (11+2), (12+2)</td>
<td>12522</td>
<td>27%</td>
</tr>
<tr>
<td>Training Bachelor degree +1</td>
<td>1009</td>
<td>2.5%</td>
</tr>
<tr>
<td>Lower Secondary School Teachers</td>
<td>Total 21 320</td>
<td>100%</td>
</tr>
<tr>
<td>Short term training</td>
<td>6626</td>
<td>31%</td>
</tr>
<tr>
<td>Short term training (9+1)</td>
<td>1583</td>
<td>7.4%</td>
</tr>
<tr>
<td>Training (7+3), (8+3)</td>
<td>11933</td>
<td>56%</td>
</tr>
<tr>
<td>Training (11+2)</td>
<td>1178</td>
<td>5.5%</td>
</tr>
<tr>
<td>Upper Secondary School Teachers</td>
<td>Total 6228</td>
<td>100%</td>
</tr>
<tr>
<td>Short term training</td>
<td>526</td>
<td>8.5%</td>
</tr>
<tr>
<td>Training (11+3)</td>
<td>1392</td>
<td>22%</td>
</tr>
<tr>
<td>Training (11+4)</td>
<td>2209</td>
<td>35.5%</td>
</tr>
<tr>
<td>Training Bachelor Degree +1</td>
<td>2101</td>
<td>34%</td>
</tr>
<tr>
<td>Grand total</td>
<td>77,929</td>
<td></td>
</tr>
</tbody>
</table>

Applicants have to pass an entry exam in order to be admitted into the teacher training program. The exam is developed by staff from the Teacher Training Department of the Ministry of Education and administered locally with the assistance of local authorities. To enter a primary teacher education program, applicants need to have completed 12 grades of general education and pass an exam in Khmer language, Mathematics and General Culture. To enter a lower secondary teacher training program, grade 12 completion is also required plus an examination in three subjects: two from the specialization chosen to teach and one in General Culture. To be trained as an upper secondary teachers, students need to have completed first four years of study of the discipline at the University before entering the Faculty of Pedagogy for an additional year of training. Entry exams are scored centrally.

Initial teacher education for primary teachers is provided at present by 18 Provincial Teacher Training Centers (PTC), by 6 Regional Teacher Training Centers for lower secondary level teachers, by the Faculty of Pedagogy in the case of upper secondary teachers and by the National Teacher Training Center (NTC) in the case of preschool teachers. The education provided at these centers is free of charge. Some centers have the capacity to offer accommodation to students, others had to transform their bedrooms into classes in order to increase the number of places available. Students receive a scholarship to help cover their living expenses of about $2 USD per month, but it tends not to be sufficient to cover all their living expenses.
The number of places available in each program is determined centrally on the basis of planned forecasts by province. The number of applicants every year is higher than the number of places available. For example, at the PTC of Kampong Speu, 150 students were selected out of 1195 applicants in 2003. At the RTC of Takeo that covers 4 provinces, in 2003, 215 student were selected from a pool of 3412 applicants. At the NTC, about 25% of applicants are selected every year for 100 posts available. In the case of upper secondary, in 2003, 351 students were selected from a pool of 450. In all cases except preschool, more boys than girls apply and are selected.

The training program offered is developed by the Teacher Training Department of the MOE. (A detailed list of each program by level if presented in Annex 2). It covers 5 key areas:

1. Academic studies: to ensure academic knowledge at the appropriate level;
2. Curriculum studies: covering teaching methods specific to subjects /curriculum to be taught;
3. Education studies: including psychology, pedagogy, school administration and professional morals;
4. Specialized education: covering environment, hygiene, first aid, human rights, drawing, art, physical education, agriculture, workshop, music and handicraft;
5. Practicum: including micro-teaching practice during the year and about 8-10 weeks of teaching practice in school.

While subject matter requirements and subject hour allocations are determined by the MOE, the TTC’s and RTC’s have to complete the lesson plans. A more detailed syllabus has been completed by the MOE for most subjects at the primary level and provided to PTC’s to support their work. Less references and guidance exist for the other levels.

Student-teachers need to complete their practicum and pass a final exam in order to graduate. The final exam for primary school teachers covers: Mathematics, Khmer Language, General Culture, History/Geography and Psychopedagogy. Prospective lower secondary teachers are required to pass an exam in each of the two subjects of specialization, and in addition General Culture and Psychopedagogy. Future upper secondary teachers are required the same 4 subjects plus Foreign Languages.

Trainers working at the Training Centers have not been trained to be teacher trainers, but rather to be teachers for the level above they train. They rarely have some teaching experience. At the RTC of Takeo and Kandal, most trainers are graduates from the Faculty of Pedagogy with no teaching experience. Those few that have some, tend to have lower levels of education completed. At the Faculty of Pedagogy, most staff have a B.A. and no teaching experience.

In an effort to improve trainers’ competences, all trainers at the primary level have recently been required to completed a new certification requirement. Trainers had to complete a training program that covered five areas: school management, curriculum study competences, school curriculum competences, adult education competences and the use of new textbooks and materials. After completing the training program they had to pass an exam to be certified.

There are steps being made towards proving PTC’s and RTC’s with more administrative and financial responsibilities. However, most content and substance remains centrally determined.
Teacher in-service

In-service teacher training is the responsibility of the Teacher Training Department of the MoE. In the last years, opportunities for in-service have been concentrated at the primary level. The programs provided were of two types: (i) courses organized to introduce new textbooks to teachers; (ii) school-based training facilitated by an animator, usually aimed at developing a vision of an effective school, grant development and implementation, and introduction of child-centered methodologies. The first type of courses are usually organized at the province level and the lead subject teacher of the school attends. Courses usually last about a week per grade. Upon completion of the course, the lead teachers is expected to replicate the training at the school level with the other teachers. The second type has mostly been financed through donor funds (e.g. World Bank EQIP project, UNICEF, Save the Children Norway and VSO). Schools are organized in clusters and a facilitator meets weekly with a group of teachers. The training content varies from program to program, some focusing on school assessment, grant development and grant application, others on analysing classroom experience, observing colleagues and giving constructive feedback over a lesson.

Teacher manuals have been recently developed for all primary subjects by the Pedagogical Research Department of the MOE (responsible for curriculum and textbook development). Printing and distribution is expected to be completed by the beginning of the next school year. Teacher manuals are expected to give guidance to teachers to interpret the minimum curriculum that should be completed. Given the growing demand for schools and limited facilities, actual lesson time in most schools has been reduced to accommodate double shifts, the new manuals will guide teachers in terms of how to make those curriculum choices to ensure all students meet a certain minimum. Manuals for the lower secondary cycle are also planned and will be completed as soon as funds are made available.

In addition to in-service opportunities, an Inspectorate system has been put in place to improve the quality and efficiency of the system. Inspectors have been trained by the Faculty of Pedagogy (supported by French and UK programs). In 1999 there were 159 Inspectors at the primary level and 12 at the secondary level. In 2003, there were 21 Inspectors at the secondary level. During 2002 they were able to inspect 222 teachers in 46 schools. Given their limited capacity to reach all teachers nationwide, there were plans to delegate inspection at the provincial level. Principals are also expected to supervise teachers, visit their classrooms and provide feedback to support teachers’ professional development.

There have also been occasional publications of teaching materials and newsletters that provide guidance and support to teachers at a distance. Their publication has usually been related to the availability of funds for this purpose.

Teacher attraction, recruitment and working conditions

Cambodia is committed to meeting EFA goals and ensuring universal primary education for all by 2015. While progress has been steady and enrolments have substantially increased between 1998/2002 at the primary level, and average net enrolment rates have reached 86 although, disparities continue to be present in some remote areas (MOE 2002 data reporting some provinces only reaching half of the target group). According to the MOE Primary Education Department, 17,000 classrooms are still needed at the primary level even if schools are used in double shifts and 103 schools are currently operating in triple shift. Teacher shortages continue to be experienced, more markedly in remote areas and in some subjects (e.g. foreign languages, sciences, and mathematics). While there were 58,898 posts needed at the primary level, in 2002 there were only 48,474 teachers. Some teachers were asked to work in two shifts or carry multi-grade courses and in addition, 1,659 contracts were made to teachers without the required certification, mostly in remote areas. Anecdotal evidence suggests that abuses in the hiring of contract teachers led the Ministry to change these policies. MOE now promotes having qualified teachers working in two shifts and encourag-
ing people from remote areas to enter teacher education programs instead of filling vacancies with unqualified staff.

Lower secondary school net enrolment rates in 2002 were only about 20% in spite of an increase from 352,000 to 416,000 students in grades 7-9 from 2001 to 2002 and an additional 1,800 students enrolled in 15 private schools. Given improved enrolments and survival rates in primary grades it is expected that enrolments in grade 7 could double in the next 4 years. Upper secondary net enrolments are only 10%. The situation of teacher shortages is and will be aggravated at the lower and upper secondary level as policies to increase access are being promoted. According to the EFA plan and given the particular characteristics of the age structure of the population in Cambodia, by 2015, 57,077 posts will be needed in primary education and about 27,084 in lower secondary with the highest increase in posts expected to be in 2011 for primary and in 2007 for lower secondary. Regional Teacher Training Centers are expected to train about 10,000 lower secondary teachers every year between 2005-2010.

Teachers are civil servants in Cambodia. The MOE Personnel Department manages all teaching and non-teaching staff working in schools, except the contract teachers that are managed at the provincial level. Total number of staff managed by the department was about 97,000 in 2003. The department is responsible for managing nationwide teacher appointments, retirements, promotions, and leave.

After completing their initial education program successfully, new teachers are assigned to a post. Those that score higher at the final exam have a better chance of choosing where to teach among the listed vacancies at the provincial level. Given gender issues and concerns, female teachers are usually not offered hard to reach schools and are given the chance to choose first. An appointment committee at the provincial level is established with representatives from the Human Resource, Secondary, Primary and Planning Offices. Vacancies are listed two days before appointments and teachers are given 7 days to decide on the appointment offered. Since schools usually need more teachers than the posts available, the Provincial office has first to determine how many and what type of posts per school will be allowed. Priority is given to assign posts where a primary teacher can work in two classes and ensuring that there is at least one qualified teacher per subject per secondary school. After a teacher is assigned to a post and has accepted it, it is very unlikely that transfers be granted in the coming years. Given the low salary offered and difficult living conditions, teachers tend to prefer to be assigned to posts in their own villages, where they can save in accommodation and have the community and family support.

Teachers first appointment is probationary in their first year (“Stagiaires”) and during that time they are paid half their salaries. They are only formally appointed after the Technical Committee of the school made of the Chief of the Technical group, Director, Deputy Director and some school teachers reviews and approves their work. They can be asked to stay one more year in probation if their performance is considered unsatisfactory by the Committee. This chance is only allowed once, after two years if performance does not improve, they cannot become formal teachers. In practice, very few students fail.

Every two years teachers can be recommended by the Technical Committee for promotions although not all teachers recommended get it. Teachers working in remote areas are offered a salary incentive. In addition, a new program has recently been introduced to recognize best teachers. Three teachers in each province can win. Each one is awarded for that year a prize ranging from r$80,000 to r$120,000 (USD$ 20-30). Teacher retire at age 60. It is expected that about 900 teachers will retire in 2004.

Teachers’ salary structure was revised in 2000. Teachers initial base salary is r$113,000 (about USD$28) for primary teachers, r$142,000 (about USD$35) for lower secondary and r$177,500 (about USD$ 44) for upper secondary. This base salary increases over time to acknowledge seniority, special incentives to the function carried and a prime for carrying a pedagogic function (in relation to other civil servant positions). As a point of comparison, workers at the garment industry today are making between US$70-90 per month.
Being a school directors only offers a r$2,000 increase over the base salary of a teacher in the corresponding level. After 16 years of experience, salaries increase by about 20% and after 28 years of service it has gone up to about 30% of their initial salary. As a reference point, OECD countries average salary increase after 15 years of experience is 37% for primary, 38% for lower secondary and 41% for upper secondary.

In spite of the low salaries, teaching continues to be an attractive profession. Every year, the number of applicants to the teacher education programs largely surpasses the number of places available. Teaching is one of the few post-secondary education careers offered for free and hence attracts many students who cannot afford to pay university fees and the associated costs of tertiary education. Teaching continues to have a certain social status and is an acceptable job for women who want to work. In urban areas, teaching offers the possibility to generate an additional income by providing private tutoring to students, particularly at the secondary level. Private tutoring has become quite an institutionalised practice, with classes being offered in the same school buildings. Teaching workload (e.g. 18 hours per week for lower secondary school) and schedule also leaves teachers the time to carry a second job, most often as motorbike taxi driver and farmers. Teachers do not seem very favourable to having to work in double shifts because it prevents them from having a second income-generating activity. The stability of the civil servant position continues to be appreciated in a country with high poverty and unemployment rates, and a valid alternative to joining the army. Anecdotal evidence however suggests that while prior to the Khmer Rouge years the best secondary students wanted to become teachers, today the best students that can afford it prefer to enter law, medicine or business schools and it is only those that cannot afford it or do not have the required qualifications for other programs that are interested in becoming teachers.

IV. Key Issues in Teacher Education and Professional Development

Diversity of teacher initial education backgrounds

The views of the MOE

The particular challenges Cambodia faced in the 1980’s when having to rebuild the education system resulted in a teaching force with a wide range of professional background experiences. A senior MOE official recognized the challenges faced at that times, “usually not understood by foreigners. In 1979 we had to start training teachers who had only 3 years of education and we could only afford to give them three weeks of training. It was difficult to train those who could not even read or write well. Things have improved since then, but problems and needs remain high”.

Just as an example, in one of the schools visited, of the sixteen primary school teachers, twelve had completed the pre-service formula under either the 7+1 or 8+2 framework and four had completed 11/12+2. Of the sixteen teachers of lower secondary, ten had completed a training formula of 7+3 or 8+3 and five had completed 11 or 12 years of secondary and an additional 2 of pre-service. The diversity of professional backgrounds corresponded well to the diversity of ages and years of experience: the youngest ones having the more preparation and the less experience.

The views of teachers

It is important to understand that teacher acquired these professional competences over time. When asked to assess the relevance of the teacher education received to the classroom challenges, one of the most experienced primary teachers recalled that he was selected in 1979 to become a teacher. However, it was only in 1981 that he was invited to participate in a first set of three months training. Later, in 1988, when he completed the lower secondary certification he took an additional three and a half months of training. He remembered that during those training months he learned what was called “the fundamental 20 steps to teaching” which are presented in Box 1.
Box 1: Key principles to teacher education in the 1980’s

5 steps to a lesson:

- Warming up
- Recall last lesson/check homework
- New lesson
- Strengthen knowledge/practice
- Homework

7 principles of teaching:

- Ensure the educational nature of teaching
- Ensure the scientific nature of teaching
- Ensure that theory is linked to practice
- Intuitive nature of teaching
- Importance of student active consciousness and ownership
- Ensure knowledge provided is solid
- Be concerned about the particularities of each student

3 M’s

- Morale
- Voice
- Method

5 Components

- Intellect
- Morale
- Physic
- Aesthetics
- Labour

He had found that training useful to organize his practice. His experience was echoed by other colleagues of similar age in this and other schools in the country teaching primary and lower secondary—the only difference being that those teaching lower secondary had to complete a third three months session of training offered during the summer break. A former teacher encountered even commented that of the initial three months and a half of training he was provided at the beginning of his career, “three months focused on Marxism ideology and two weeks were dedicated to teaching practice”, a clear memento of the politics of that time.

The limited relevance of current teacher education programs to classroom practice

The views of teachers

Younger teachers who had completed the corresponding two years of pre-service more recently had a different experience. In general, they tended to think the training program they had completed was too theoretical and not really linked to the classroom experience. They also believed the time allocated for classroom practice during their initial education was not sufficient. They had to rely on older and more experienced teachers for guidance with day to day classroom issues and found a useful resource in the weekly technical meetings carried in school.
Lower secondary teachers trained in the 1980’s recognized their limitations in delivering the current curriculum. A Mathematics teacher for example mentioned that what he learned as a student in lower secondary was different from the curriculum that students complete today and his preparation did not match the new content. A Khmer teacher echoed this concern. Older teachers who had been certified to deliver three and four subjects recognized the limited content mastery they had of those subjects.

While younger teachers tended to feel more competent in terms of curriculum content than older teachers, they also acknowledged their own limitations with subject matter understanding. Even recent graduates acknowledged not having covered all content topics included in the present curriculum at the required level of mastery. As an example, they mentioned that the time allocated during the teacher pre-service program to cover the new unit in Probability and Statistics was not sufficient to prepare teachers to master it. Secondary teachers that had received a dual specialization training also recognized the limited mastery they had of the second subject. Limited content mastery was a concern expressed by all teachers at all levels.

While child-centered pedagogies have been theoretically introduced in the new training programs and through in-service, the level of implementation varies by teacher. Some teachers commented that it was easier to give more individualized attention at the lower secondary level where classes are smaller but that at the primary level with 60 students it was more difficult. However, some of the primary teachers interviewed that had received special training on new pedagogical approaches and were implementing a more student centered approach felt satisfied with the experience in spite of having larger classrooms. Teachers also identified a mismatch between the preparation received and the model of supervision carried by the Inspectors. One of the key issues that raised concerns among teachers were differences in the way they were expected to prepare a lesson (which is one of the key aspects checked during supervision). Teachers complained that at the Training Centers they had been trained to prepare the lesson using twocolumns (teacher activity, student activity), and now Inspectors expected them to do it in three columns (teacher activity, content, student activity). This issue confused them plus meant additional work since the lesson planned one year in two columns could not be used again and a new one had to be prepared.

Primary teacher that had participated in school based in-service training and had regular technical meetings were appreciative of the support received. This mode of delivery of in-service was preferred over cascade model of training carried outside the school at the province level, usually for textbook guidance and new curriculum.

The views of principals

The lack of practical experience and subject matter mastery acknowledged by practicing teachers was also recognized by school principals and deputy principals interviewed. Some principals thought that although there might be some initial differences among teachers who had completed the current pre-service training program in their capacity to plan a lesson, this aspect was quickly levelled-off after some years of experience in the school. They all thought young teachers needed help to deal with the real challenges of daily classroom practice and had to rely on older teachers to provide this support, as well as on the weekly or monthly technical meetings in the schools. They believed that the lack of link between the preparation received and the practical needs of teachers was a result of the lack of teachingexperience of trainers both in the Training Centers and the Faculty of Pedagogy. Some principals also expressed their concerns over the basic level of education of recent teacher graduates who could not even read or write Khmer correctly. They all believed new graduates were weak both in subject matter knowledge and in the practical skills of pedagogy and classroom management. The principal of one of the lower secondary schools visited in Phnom Penh indicated that he made a special point of supervising teachers’ work in the classroom but that given time constraints he could only work with a limited number of teachers so he chose to concentrate his efforts on weak teachers. He tried to help the weak teacher develop the right practice through his regular presence in class and constant monitoring. While the mark given by principals on these supervisions had no
direct link with teachers’ promotion, we were told that they could contribute to speed up the promotion, be selected as a member of the school technical committee or become a principal. It was clear from the discussions held that very few principals had been trained on how to carry effective teacher supervision and few of them did it regularly.

**The views of trainers**

The issue of the relative balance of theory and practice during pre-service was thoroughly discussed with trainers at Regional and District Centers. Trainers acknowledged the difficulty in even completing as expected the 8-10 weeks of practicum included in the pre-service program. The increase in number of students enrolled in the program had increased the number of classes and schools needed for demonstration practice. While most TTC’s and RTC’s were expected to have one school close by associated to their practices, not all of them had it and one had become insufficient in most cases given the increase in student-teachers. So students were spread over different schools in the area, making it more difficult for trainers to supervise, since they could not afford to go to all those different schools. In some cases, trainers and student-teachers complained about the quality of the teachers assigned as tutors in the practicum schools and the differences in methodological approached proposed between the school and the TTC.

As one of the trainers interviewed acknowledged, in practice, the ten weeks of practicum listed in the program might result in only eight hours of full practice by the student-teacher. Because of the difficulties in matching students and tutors, student teachers were assigned in small groups to a class/tutor. Each week of practice, resulted in one hour of actual practice per student, while the rest of the group watched. Since the first week was dedicated to observation, and the other two were split between observation and practice, in total it added up to eight hours per student. In some TTC’s, primary students were assigned in pairs to a class, and split the practice rotating assignments between Math and Khmer language. In these cases, students managed to complete four and a half weeks of practice. The trainers at the TTC met weekly with students to help them prepare their lessons and go over their experience.

Others trainers pointed out that the real problem was that students entering the teacher training program with grade 12 completed were not really competent at that level. Since they could not even read or write Khmer correctly, they could not benefit from the training program. Trainers mentioned they would be happy to provide further assistance to students to catch up with basic concepts but the lack of financial resources impeded them from doing so.

**The views of the MOE**

At the MOE level, the discussion centered more around the need to equip teachers with ICT and foreign languages skills in order to help them change their practice. MOE also considered essential to strengthen trainers qualifications.

A focus on inputs, rather than competences

An input focus orientation characterized the discussions with the different stakeholders in terms of teacher education policies. When asked to describe the strengths and weaknesses of teacher education program or the impact of changes introduced, trainers, teachers and MOE officials referred to the evolution in the different training formulas experienced over the years in regards to level of education required at entry and number of years of pre-service (e.g. 7+1, 8+3, 11+2, etc), rather than to the different skills and competences expected or acquired. This way of thinking and understanding of the problem was also evident in discussions with student-teachers about their model of a competent teacher. These views, in conjunction with a centralized decision making system have resulted in a lack of initiative and limited capacity for transformation within the system, and can in part explain the demand for subject matter mastery from teachers. It is
also said that the experiences of the Pol Pot times have deteriorated the self-esteem and confidence of Cambodians to express their views in public.

**The views of prospective teachers**

These teachers-to-be tended to emphasize the importance of subject matter mastery as a key characteristic of an excellent teacher, one who is capable to “transmit this knowledge to the students”. Excellent teachers are also expected to be well prepared, work hard and be a good role model for students. The dominance of a knowledge transfer model was present at all levels among the stakeholders interviewed and in the lessons observed.

**The views from the Training Centers**

In spite of the decentralization steps being taken in the administration of the Teacher Training Centers, when directors and trainers are asked about their opinions on the training program provided, they tended to go back to the fact that the programs were decided by the experts at the central level and it was not their job to comment or question their appropriateness. When trainers asked for assistance, what they requested was further guidance and directions, to be told what to do, since they felt lost and unprepared to fill the open space.

**The views from the MOE**

The MOE Training Department recognized the challenges of moving from a knowledge transfer model to a knowledge generation one, the long term perspective needed to change teachers behaviour and the difficulties of doing this without trainers who have the adequate competences. They believed that opportunities to be exposed to classroom practices in foreign countries and having foreigners demonstrate those practices in the country could help. ICT could also become a useful tool to facilitate these changes in teachers’ role. The Teacher Training Department was planning to equip all TTC’s with computers in 2004 and training the trainers in ICT skills in 2005.

**The inadequate preparation of teacher trainers**

**The views of Directors of Training Centers**

A common complaint heard from different stakeholders was the inadequate preparation of teacher trainers. In fact, those working as trainers in TTC’s and RTC’s were in fact recent teachers graduates, who had just completed their training at the level above they work for. For example, in Takeo Regional Center, most of the thirty trainers working to prepare lower secondary teachers were recent graduates from the Faculty of Pedagogy, where they had been trained to become upper secondary teachers. Given the fact that most of them had just completed their studies, they had no teaching experience. At the primary Provincial Training Center of Kampong, fourteen trainers came from the Faculty of Pedagogy and nine had graduated from the RTC as lower secondary teachers. Half of them had some teaching experience in schools. At the Preschool Teacher Training Center, only two of the teaching staff had some preschool experience. The Directors of the training centers at all levels acknowledged the difficulty of attracting qualified trainers to the job. Directors and senior officials recognized that part of the difficulty in attracting people to the position was that becoming a trainer, instead of becoming a school teacher, resulted in a loss of additional income generated in schools through private tutoring.
The views of Trainers

Trainers expected additional professional support and guidance from the MOE. They claimed having limited resources to plan the lessons and not sufficient guidance to interpret the curriculum guidelines. While some support in terms of a more refined and detailed curriculum had been provided by the MOE for the training of primary school teachers, not much had been done for the other levels. Trainers felt lost when having to prepare lessons in subjects like environment, human rights or home economics, where they had no resource materials to guide them. In some centers, they had decided to teach aught Khmer instead. Some older trainers who had only completed primary school realized that their knowledge of subject matter was lower than what they were expected to cover. The rapid increase in number of students entering the teaching program has put additional pressure on trainers who were being stretched to teach subjects outside their areas of competence. In addition, the fact that they all needed to have another job to supplement their income, limited their time to prepare lessons and follow up students.

In order to level off some of the difference in professional background among trainers, the MOE had recently introduced a certification program from primary school trainers. Trainers met had participated in the program and had found it a useful experience. They appreciated the opportunity to be on more equal grounds in terms of their preparation for the job, although most of the training was theoretical in nature.

The limited opportunities for professional development

As was mentioned before, no real and systematic opportunities for professional development exist for teachers of preschool, lower and upper secondary education. There have been occasionally some programs financed through donor funds that have provided some assistance like a Math and Science program funded by the Japanese government and VSO involvement in the provision of in-service training for 1,000 pre-school teachers.

In-service opportunities have so far been mostly provided for teachers at the primary education level and usually linked to school development initiatives. For example the World Bank financed Education Quality Improvement Project provides opportunities for staff development to schools in three provinces. Though this program, grants are awarded to support the development of effective schools. Animators work with schools and their communities, in developing a vision of an effective school and in identifying problems and solutions for their own schools. Grants are awarded in a transparent manner and their implementation assisted and followed up by these animators. Other agencies are also promoting school development in remote areas and training teachers to introduce child-centered methodologies. A recent evaluation report by Save the Children Norway attests to the success of these efforts to change practices. VSO has also been working for several years in training English teachers and more recently working with English volunteers posted in remote schools as a resource to change pedagogical practices. UNICEF through a Sida financed program is introducing child-centered methodologies in six provinces. In-service opportunities have also been provided to help teachers gain familiarity with new curriculum demands and textbooks. In these cases, as was mentioned before, training had been usually provided at the provincial level for subject head teachers in schools, who then had to replicate the training with their colleagues at the school.

Teachers interviewed were appreciative of both type of training opportunities although they seemed to indicate that from a logistical point of view, training that was offered at the school was easier for them to participate and benefit from.

While the value and impact of these efforts should not be underestimated, the fragmented approach to professional development in place does not reflect a coherent strategy. It looks more like the result of many different donors initiatives taking place rather than the response to a clear vision and coordinated strategy linking initial education and professional development opportunities. The diversity of approaches being
implemented is seen with some distress by some senior officials more used to having a single and uniform model applied systematically nationwide. While multiple approaches can enrich the pool of experiences and provide more opportunities for exchange and discussion, to be effective they need to fit an agreed framework for teachers’ professional development.

The sustained attractiveness of teaching

It was touching to hear about the high level of commitment to the profession all student-teachers met expressed. In most cases, teaching had been their first choice. They had worked hard over the summer to prepare for the entrance exam and were proud of being among the few selected. When asked about the reasons for choosing teaching as a profession, they expressed their commitment to the country’s development and the importance of being a role model for future generations. Some also indicated financial constraints for pursuing other options. Their answers were different from the reasons given by some older teachers met in other schools visited. In one lower secondary school, of the six teachers interviewed, only two confirmed that they always wanted to be teachers. One of them mentioned that before the Pol Pot times it used to be a prestigious occupation. This comment was echoed by another teacher who said he had wanted to become a policeman but his mother insisted on him being a teacher because in the 1960’s a teacher’s salary could support two to three families. One of the younger teachers recognized that he had no other choice because he had tried to enter other programs but had failed the entrance exam. Another mentioned that he used to be part of the military and that in 1991 military personnel were asked to become teachers so he became one.

The prestige the teaching career had in the past was also recognized by other informants. A former teacher commented: “In the past, the best students graduating from secondary school wanted to become teachers. It was better to become a teacher than join the police, the military or becoming a farmer. I completed my secondary school studies with a good average mark and chose teaching. Being a teacher was respected and well paid. Now the best students choose something else like law and medicine”. Other informants agreed with this statement. Principals had already noted the low level of academic and professional competences of some recent teacher graduates. Trainers at TTC’s and RTC’s pointed out that students entering the program with grade 12 completed were not competent at that level and could not even read or write Khmer correctly. It must be kept in mind that given recruitment shortages and the difficulties in finding teachers in remote areas, there are flexible arrangements currently in place that allow students having completed grade 12 (or 9 in some case) even without having passed the final exam to enrol in a teacher education program.

MOE officials recognized that of the 35,000 students that took the grade 12 exam last year only 40% passed, which seemed to confirm that the rapid expansion of education had been made at the expense of quality. Given the limited opportunities for employment and continued education, the academic profile of those interested in becoming teachers today is likely to be lower than in the past. The low salary and limited career opportunities may also suggest that the motivation to become a teacher may not necessarily be sustained on the value of teaching as a profession, since teachers have to find other sources of income to survive and limit their time available to students. Low salaries have also contributed to promoting the introduction of private tutoring as regular practice in schools, although it is more common in urban than rural areas. Out of 77 primary school surveyed in 1997-98, 60.6% of those in urban areas reported that their children received private tutoring, whereas the proportions was 9.1% in rural areas (Bray, 1999). The perverse effects of allowing private tutoring to become an institutionalised practice impacts on the attractiveness of teaching (Bray, 2003).
V. SOME RESPONSES TO THE INITIAL RESEARCH QUESTIONS

While the focus of this study was on determining the competences teachers need to teach in a knowledge society, it is worth stepping back for a moment and consider what would be necessary in the Cambodia context to carry the necessary changes in the teaching and learning implied by a knowledge society.

Andy Hargreaves in one of his recent book on teaching in the knowledge society (2003) argues that what we do with information is one of the most important aspects of the “knowledge society”. He points out that in the knowledge society, creativity, ingenuity and flexibility are some of the qualities societies strive for in order to compete in the global economy, and teachers are expected to develop these characteristics in students. The knowledge society is certainly a society where knowledge is generated from different sources and it is easily exchanged among individuals around the globe, it is a society that needs to adjust quickly to sudden changes and where trust becomes an essential element. Whether teachers are prepared to develop these competencies in students and whether these are the right competences for Cambodia today is the question.

Teachers in Cambodia today see their job more as knowledge transfer than as knowledge generation and hence expect to have better subject matter mastery of the content they teach. MOE policies and programs are trying to introduce some changes in classroom practice to make teaching more centered on student needs and interests and promote professional exchanges among teachers in schools. The literature review completed by Carlos Marcelo as an input to this study recalled that ensuring that students understand, and not just remember, requires from teachers deeper knowledge of the subject matter to be taught, the capacity to present it in a way understandable to children, and expecting students to actively engage in building their own knowledge. It implies teachers who reflect about their practice regularly with their colleagues and requires teacher trainers that can model the competencies needed.

In Cambodia today, most teachers have weak subject matter knowledge, they have limited pedagogical content knowledge, limited knowledge about how to adapt teaching strategies to individual student learning needs, and limited opportunities for practice and reflection among peers. Teaching cannot be considered in Cambodia a profession, in the sense defined for this activity (see annex 3 for a description of the competence framework) as professionals who assume responsibility for their own development, who can critically distance themselves from the subject taught and alternative views, and who are guided by a code of ethics. In addition, we were told that the impact of the Pol Pot time had eroded trust among individuals and colleagues.

Feedback on this proposed framework was collected from some of the principals and teachers met and also from some key informants with long experience in the education sector in Cambodia. They thought “school competencies” defined in the chart as working in cooperation with other members of the pedagogical team and cooperating with the community, were relatively absent in the country. School-community relationships were believed to fall more in the sphere of the responsibility of the principal although informally teachers acknowledged their links with students and parents from their village. While opportunities to meet with peers exist in schools during technical meetings, it was the opinion of some of these informants that those meetings tend to be more about information exchange than about peer learning. They also thought “professional competences”, described as acting critically and ethically as a professional and engaging in a professional development project, was seen as an individual decision rather than a systematic aspect built in the system of teacher education and professional development. They indicated that some aspects of the “teaching competences” like linking content to teaching and the learning situation (competence 5) were somewhat acknowledged in some of the textbooks and that some aspects of planning and organizing the group-class work (competence 7) were recognized as an element in some of the in-service programs promoting a child-friendly environment. It was their opinion that the remaining competences listed under this category were absent from the current education and development programs. Somebody
noted however, that “emotional competences”, to connect and care about the child, which are very important in the Cambodian culture, were not included in the proposed framework. In light of all of the above, teachers in Cambodia could benefit from strengthening their subject matter knowledge as an initial step towards developing a practice more coherent with the needs of a knowledge society. Systematic support will need to be provided to facilitate changes in their classroom practice and school community.

VI. POLICY SUGGESTIONS

Adopt a framework for teacher competences

In order to facilitate the transformation of the system from its input focus to a more outcome based orientation, it would be useful to develop and adopt a competence framework for Cambodian teachers. This competence framework could define the minimum knowledge, skills and competences expected from teachers at each level (preschool, primary, etc). The framework could be a useful tool to improve and monitor the quality of initial teacher education and entry into the profession. It could ensure that the evaluation of prospective teachers be based not only on requirements and recognition of inputs like courses completed or number of hours of practice in school, but also on results assessed on the basis of expected competences. It could help deal with the current unevenness in competencies that exists among graduating teachers and teachers working in schools. It could also become a tool to certify those unqualified teachers under special contracts in remote areas that have accumulated a valid professional experience but have not completed a formal professional teacher education program. This competence framework could become the first step on a series of competences developed to mark and recognize different stages of a teachers’ career under a life long learning framework (this issue will be further developed later under the heading of professional development). Having agreed professional standards to guide the evaluation process after the probationary period could also contribute to the development and recruitment of effective teachers, as well as give more value to the practice time in schools during the probation.

The process of developing the teacher competence framework itself could be an important step in the policy process since it would facilitate a discussion of important and complex issues like what should an initial teacher know and be able to do. The development and implementation of this framework should be negotiated between the Ministry of Education, Training Centers, Universities, Teacher Unions and Professional Associations. This process would also facilitate the development of a common language between policy makers, trainers and teachers. It could become an essential tool if the process of decentralization continues and Training Centers and Universities assume more responsibility for program content. To be effective, it is essential that this competence framework be developed in the country with the participation of all key stakeholders.

Improve teacher education and support professional development

The reform of the pre-service teacher education programs has been identified as a priority by the MOE Teacher Training Department. The opinions of teachers, trainers and principals in terms of weak subject matter mastery and insufficient time for practice coincide with this assessment. It is however clear, that while improving the initial education of teachers is an important element of a long term strategy, there are immediate training needs in the current teaching force that only substantial investments in in-service can address. It is important to think of initial teacher education just as a first step in the development of teachers competences and keep in perspective what other inputs and support they will need over their life as a teacher. Given that resource constraints may limit the possibilities of increasing the number of years of initial education programs it is essential that the necessary cost-effectiveness analysis be conducted between the resources invested in initial education and in-service opportunities.
There is a gap today in Cambodia between the intended curriculum of teacher education programs and the reality of implementing it at the teacher training centers. For example, many hours assigned to subjects like ICT and foreign languages are not effectively implemented given lack of resources and experienced trainer. The practicum, as was already discussed, is not being carried like initially intended. There are in addition expectation on teachers to have the competences to work in multi-grade schools when these competences are not being developed through the training programs.

In order to improve the education and training system, it would be important to address the following:

First of all, in order to ensure a better use of the limited time allocated for teacher initial education, it is important that students entering the program have effectively mastered the secondary school curriculum. Special remedial programs could be introduced to help entering students meet minimum standards.

Second, it is fundamental to strengthen trainers’ competences. The inadequate preparation and support provided to trainers at all levels has already been discussed. Their lack of teaching experience and their limited subject matter mastery do not contribute to the development of prospective teachers’ competences. Links with Universities could be explored to support their strengthening of subject matter knowledge. Summer programs could be developed by Universities to address this need. To develop their teaching practice, trainers could be encouraged to spend some time teaching in schools (even a one year assignment would help). Teaching materials and trainers guides could be developed to support trainers in their job. In addition, the possibility of including experienced teachers from schools as staff of Training Centers could also be considered as a way of strengthening the understanding of practice in the Training Centers. For example, those teachers that are now being recognized in each province by the bonus program as excellent teachers, could be invited to teach at the Training Center the following year. This type of staff exchange could help strengthen the links between schools and training centers and bring relevant practice to the training of prospective teachers.

Third, it is essential to establish better partnerships with schools to accommodate and monitor the practicum. Steps in this direction have already been made by the government by recognizing the work of tutors in schools. It is important however that these tutors be trained and guided in their new role so they could also get the most benefit from having the student teachers in class. Given the large number of students in class, having a student teacher can be an important resource for the teacher. Scheduling the practicum over the school year rather than having all students concentrated at the same time could make it easier to find the classrooms and tutors needed to accommodate the growing number of trainees, and ensure the regular class teacher full support over the year even if this is carried by different students. The experience of the practicum if well organized can be effective at different times of the program, and not just at the end of it. In any case, it is just an initial step in teachers education and would have to be supported by many other instances of practice and reflection among peers to help the new teacher develop effective practices.

Finally, teachers need on-going support and opportunities for continued education and professional development all along their careers. Given the heterogeneous educational background of practicing teachers and the new demands placed on them, the need to provide adequate in-service and professional development opportunities is urgent if quality is a concern. A well planned and systematic approach is needed for all levels. There is a world-wide tendency these days, in line with school autonomy trends and a revalorization of practice, to promote school-based development approaches. It is however important to keep in mind that different approaches serve different purposes and the needs for subject mastery at the secondary level for example, may be better served by a different program.

Ideally, teacher education and professional development could be organized over a set of modules from which courses and activities could be chosen at different stages of the career. Completing the requirements of certain key modules could be a requisite to move up to the next stage. These requirements could com-
bine school based training opportunities to develop teaching practice, team work and self-reflection with subject matter mastery. Their relative balance evolving over the life of a teacher’s career. Given the current situation in Cambodia, and as a way to strengthen teachers’ self-confidence, supporting the development of subject mastery could prove useful in building teachers competences and confidence. The efforts to change classroom practice by promoting teachers reflection and exchange of experiences in school facilitated by a local animator should be continued and expanded as well as supplemented by on-going regular support and effective supervision of their classroom practice.

Ensure coherence of entry requirements and professional competences

Both entry requirements into teacher initial education programs and entry into the teaching professional provide opportunities for governments to give clear signals about what are the knowledge, skills and competencies expected of teachers. Well used, selection and certification requirements are important policy tools to manage the quality and quantity of teachers.

Given expected teacher shortages in light of increasing student enrolments, quantity been more attended than quality aspects in this stage. However, given the attractiveness of the teaching profession and the large number of students interested in becoming teachers, there is an opportunity to select those best qualified to become teachers. As the decentralization of TTC’s and PTC’s continues, they could play a more critical role in the selection of entering students. A different model of selection could be developed at that time where not only subject matter knowledge would be evaluated but an assessment of personal and social skill and an understanding of the profession included.

Designing a teacher certification mechanism upon completion of studies and the first year of stage could ensure new teachers have the competences needed as defined by the framework of professional competences. A certification process could ensure a critical assessment through the use of a combination of oral and written exams and samples of teachers’ work. Re-certification could take place every certain number of years and be associated with different financial and professional rewards. The relative inputs available to help meet those certification requirements could be the different courses and activities completed through professional development opportunities

Needless to say, policies that promote teacher professionalization would need to go hand in hand with working conditions that would allow teachers to be professionals, to dedicate themselves full time to their job. It is essential that the attractiveness into teaching be driven by the right incentives.

CONCLUDING REMARKS

Over the last 30 years, Cambodia has overcome many challenges and has been able to rebuild an education system from the ashes under very difficult economic, social and political circumstances. All levels of the system are now functioning, from preschool to higher education. Enrollments have significantly increased at the primary level and the government is committed to meet the EFA goals of achieving 9 years of basic universal education by 2015. Most teachers have completed some form of training for the job and requirements to become a teacher both in terms of level of education completed and years of training have increased to be closer to international standards. Teaching remains an attractive profession and every year the number of applicants to enter teacher education programs is larger than the number of places available, although the academic profile of those that are attracted into teaching seems to have declined.

It is clear however that while progress has been impressive, the challenges that remain are high, specially in terms of developing teachers’ needed competences. All stakeholders interviewed recognized the need to provide further support to teachers to help them meet the demands of the job and be able to promote quality learning in students. Teachers of all levels demanded further support both in terms of subject knowledge
and pedagogical skills. While it is understandable that attention in the past has focused on the urgency of reestablishing the system and its key functions, the time may now be right for policies with a more quality focus. Developing a sound investment strategy to support teachers development could be the next step. However, for it to be effective, contextual factors related to the attractiveness of the teaching profession, salary and career will also have to be addressed (for a detailed analysis on the perverse impact of private tutoring in the system see Marc Bray, 2003).

The suggestions proposed in this paper provide some ideas about how to address some of these issues and attempt to provide some examples about how other countries are dealing with similar issues, under different circumstances and with different resources. They are presented with the hope that they can stimulate a national debate in the search for appropriate solutions for Cambodia. Any solution would have to be adapted and developed to meet the local context, priorities and constraints. Given the limited resources and multiple demands that Cambodia faces, assessing cost implications of alternatives would be essential. The openness of the officials of the Ministry of Education, Youth and Sports to undertake this study is a clear indication of their interest and engagement to find the appropriate solutions. We hope participating in this international study will be a useful input to their reform efforts.

As an input to the larger international paper being prepared by the World Bank, the case of Cambodia has made a significant contribution in illuminating a very complex reality, a constrained resource environment and the challenges of implementation. The needs expressed by different stakeholders remind us of the many basic competencies that need to be addressed. Their sensitive analysis and feedback raises questions about the feasibility of developing a framework of teacher competencies that can be valid across countries and cultures.
REFERENCES


Bun Roeun. (2002). “Teacher and teacher education in Cambodia”. In Teacher and Teacher Education in South East Asian Countries”, SEAMED, RIHED (Eds.). Bangkok, Thailand.


# ANNEX 1: AGENDA FOR THE VISIT

**Cambodia: December 8-19, 2003**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Places and people</th>
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<tbody>
<tr>
<td>8/12/03</td>
<td>7.30-8.00</td>
<td>Mr. Eng, Liaison Officer for BEIC Preparation and Mr. Beng, WB Project officer</td>
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</tbody>
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|            | 8.00-11.00 | Preschool Teacher Training Center, Mrs. Prak Solida  
Meeting with Director and Trainers  
Meeting with Student teachers |
|            | 2.00-3.00 | Mr. Soy Yeng, Deputy Director of Primary Education Department, MOE                                                                           |
|            | 3.00-4.00 | Mr. John Morefield, Training of Principals                                                                                                     |
|            | 4.00-5.00 | Mr. Thing Boran, Director of Personnel Dept., MOE                                                                                                  |
| 9/12/03    | 8.00-11.00 | Visit Prek Taten Primary and Lower Secondary school, Punhead Leu, Kandal  
Meeting with Director and management team  
Meeting with teachers |
|            | 2.30-3.30 | Meeting with Yos Eang, Teacher Association Chair                                                                                                   |
|            | 4.00-5.00 | UNESCO Education Officer, Mr. Supote Prasertsri                                                                                                   |
| 11/12/03   | 8.00-11.00 | Visit Lower Secondary School, Samrong Andete, Chres, Thmey Sankat, Phnom Penh  
Meeting with Director and team  
Meeting with teachers |
|            | 2.00-5.00 | Visit Faculty of Pedagogy  
Meeting with Director and trainers  
Meeting with student teachers for upper secondary |
|            | 5.00-6.00 | Mr. Neang Muth, President of new teacher association                                                                                               |
| 12/12/03   | 8.00-11.00 | Visit Regional TT Center-lower secondary teachers, Takeo  
Meeting with Director  
Meeting with Trainers  
Meeting with Student teachers |
|            | 11.00-12.00 | Meeting with head of PEO, Takeo                                                                                                                  |
|            | 2.00-5.00 | Meeting Regional TTC, Kandal, lower secondary teachers  
Meeting with Director  
Meeting with Trainers  
Meeting with Student teachers |
| 15/12/03   | 8.00-11.00 | Visit Hun Sen Koh Thom Upper secondary school, Koh Thom district, Kandal  
Meeting with Director and Management team |
| 16/12/03   | 8.00-11.00 | Visit Provincial Teacher Training Center, Primary teachers, Kampong Speu  
Meeting with Director  
Meeting with Trainers  
Meeting with Student teachers |
|            | 2.30-3.30 | Mr. Sam Serey, Planning Dept (cancelled)                                                                                                         |
|            | 4.00-5.00 | UNICEF, Mr. Peter de Vries                                                                                                                       |
| 17/12/03   | 7.30-9.00 | Save the Children Norway and Educational Partnership NGO                                                                                          |
|            | 9.00-11.00 | Mrs. Tun Sa In, Director Pedagogical Research Department, MOE                                                                                     |
|            | 2.00-3.00 | Primary School Inspector (cancelled)                                                                                                               |
| 18/12/03   | 9.00    | Secondary Education Dept, MOE (cancelled)                                                                                                         |
|            | 2.30-4.30 | Dr. Nath Bun Roen, TTD, MOE                                                                                                                      |
| 19/12/03   | 9.00-10.00 | VSO.                                                                                                                                             |
ANNEX 2

Initial Education Teacher Training Program in Cambodia

Preschool Teachers,

1 year program

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Culture</td>
<td>27</td>
</tr>
<tr>
<td>Professional Moral</td>
<td>14</td>
</tr>
<tr>
<td>Psychology</td>
<td>53</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>66</td>
</tr>
<tr>
<td>Physiology</td>
<td>51</td>
</tr>
<tr>
<td>Mathematics</td>
<td>44</td>
</tr>
<tr>
<td>Literature</td>
<td>81</td>
</tr>
<tr>
<td>Physical education</td>
<td>51</td>
</tr>
<tr>
<td>Sing-dance</td>
<td>48</td>
</tr>
<tr>
<td>Material Development</td>
<td>102</td>
</tr>
<tr>
<td>Citizen</td>
<td>52</td>
</tr>
<tr>
<td>Administration</td>
<td>24</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>48</td>
</tr>
<tr>
<td>Practicum</td>
<td>8 weeks</td>
</tr>
</tbody>
</table>

Primary Teachers, 2 year program

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total Hours in 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about children</td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>98</td>
</tr>
<tr>
<td>Children situation</td>
<td>10</td>
</tr>
<tr>
<td>Classroom environment</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>50</td>
</tr>
<tr>
<td>Professional ethics</td>
<td>34</td>
</tr>
<tr>
<td>Strengthening knowledge</td>
<td></td>
</tr>
<tr>
<td>Khmer</td>
<td>105</td>
</tr>
<tr>
<td>Mathematics</td>
<td>109</td>
</tr>
<tr>
<td>General culture</td>
<td>84</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>118</td>
</tr>
<tr>
<td>Computers</td>
<td>118</td>
</tr>
<tr>
<td>Primary Education related knowledge</td>
<td></td>
</tr>
<tr>
<td>Khmer</td>
<td>78</td>
</tr>
<tr>
<td>Mathematics</td>
<td>107</td>
</tr>
<tr>
<td>Practical science</td>
<td>34</td>
</tr>
<tr>
<td>Social studies</td>
<td>310</td>
</tr>
<tr>
<td>Sports</td>
<td>118</td>
</tr>
<tr>
<td>Home economics</td>
<td>118</td>
</tr>
<tr>
<td>Subject</td>
<td>Total Hours in 2 years</td>
</tr>
<tr>
<td>------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Research in library</td>
<td>59</td>
</tr>
<tr>
<td>Teaching aid development</td>
<td>59</td>
</tr>
<tr>
<td><strong>Teaching methodology</strong></td>
<td></td>
</tr>
<tr>
<td>General pedagogy</td>
<td>83</td>
</tr>
<tr>
<td>New textbook program</td>
<td></td>
</tr>
<tr>
<td>Khmer</td>
<td>136</td>
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<tr>
<td>Mathematics</td>
<td>113</td>
</tr>
<tr>
<td>Practical Science</td>
<td>54</td>
</tr>
<tr>
<td>Social studies</td>
<td>132</td>
</tr>
<tr>
<td><strong>Practicum</strong></td>
<td>10 weeks, last semester</td>
</tr>
</tbody>
</table>

**Lower Secondary Teachers**, 2 year program; Dual specialization teachers

Degrees in:

- Math and Physics
- Physics and Chemistry
- Biology and Earth Science
- History and Geography
- Khmer language and Moral/Civics
- Technology and Home economics
- English and Khmer Language

<table>
<thead>
<tr>
<th>Subject</th>
<th>Total hours in 2 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
<td>98</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>98</td>
</tr>
<tr>
<td>General culture</td>
<td>79</td>
</tr>
<tr>
<td>Classroom environment</td>
<td>59</td>
</tr>
<tr>
<td>Foreign languages</td>
<td>118</td>
</tr>
<tr>
<td>Sports</td>
<td>59</td>
</tr>
<tr>
<td>Workshop</td>
<td>59</td>
</tr>
<tr>
<td>Agriculture</td>
<td>59</td>
</tr>
<tr>
<td>Art</td>
<td>59</td>
</tr>
<tr>
<td>Computer</td>
<td>118</td>
</tr>
<tr>
<td><strong>Practicum</strong></td>
<td>10 weeks, 3rd semester</td>
</tr>
<tr>
<td>Subject specialties</td>
<td></td>
</tr>
<tr>
<td>Subject 1 and method of teaching</td>
<td>767</td>
</tr>
<tr>
<td>Subject 2 and method of teaching</td>
<td>472</td>
</tr>
</tbody>
</table>
## Upper Secondary Teacher Education Program, 1 year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours per week per semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychopedagogy</td>
<td>6</td>
</tr>
<tr>
<td>Moral profession</td>
<td>2</td>
</tr>
<tr>
<td>Administration</td>
<td>2</td>
</tr>
<tr>
<td>General education</td>
<td>2</td>
</tr>
<tr>
<td>1\textsuperscript{st} subject</td>
<td>6</td>
</tr>
<tr>
<td>2\textsuperscript{nd} subject</td>
<td>8</td>
</tr>
<tr>
<td>Teaching methodology</td>
<td>4</td>
</tr>
<tr>
<td>Practicum</td>
<td>2</td>
</tr>
<tr>
<td>Foreign languages</td>
<td>4</td>
</tr>
<tr>
<td>ICT</td>
<td>2</td>
</tr>
</tbody>
</table>
ANNEX 3

A Roadmap of Teacher Competencies for a Knowledge-based Secondary School

Martinet, Raymond and Gauthier (2001) have developed a map of teaching competencies that can be very useful to guide the development of programs of the teacher education. Based on this work, we have adapted and supplemented their proposal further with the results and evidence from recent research on learning to teach:

PROFESSIONAL DOMAIN

Acting critically as a professional, interpreting the objects of knowledge or culture in performing one’s functions:

- Identifying the core issues and the axes (concepts, postulates, and methods) of knowledge in the subject in order to facilitate students’ meaningful learning
- Critically distancing oneself from the subject taught
- Establishing relationships between the cultural background embedded in the prescribed curriculum and that of the students
- Making the class a place open to multiple viewpoints
- Taking a critical look at one’s own origins and cultural practices, and at one’s social role
- Establishing relationships among different fields of the subject matter knowledge.

Becoming involved in an individual and collective project of professional development:

- Evaluating one’s own competencies and adopting the means to develop them using available resources
- Exchanging ideas with colleagues about the suitability of pedagogical and didactic options
- Reflecting on one’s practice, and putting the results into practice
- Encouraging colleagues to participate in research aimed at the acquisition of competencies set out in the training plan and educational targets of the school.

Acting ethically and responsibly in the performance of functions:

- Being aware of the values at stake in one’s performance
- Encouraging democratic conduct in class; Giving students due attention and support
- Keeping high expectations: believing that the students are capable of learning and that they are capable of and responsible for teaching them successfully;
- Explaining, in function of the public interest, the decisions taken concerning students’ learning and education
- Respecting confidential aspects of the profession
- Avoiding all forms of discrimination by students, parents, and colleagues
- Making judicious use of the legal and authorized framework governing the profession.
TEACHING DOMAIN

Designing teaching-learning situations for the subject matter to be learned, and doing so in function of the students and of the development of the competencies included in the curriculum:

- Mastering ways of representing and formulating the subject matter with the specific purpose of making it comprehensible to others
- Understanding of what makes the learning of specific topics easy or difficult: and the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of the most-frequently taught topics and issues
- Analyzing students’ misconceptions concerning the subject matter
- Planning sequences of teaching and evaluation bearing in mind the logic of the content and of the learning process
- Bearing in mind representations, social differences (sex, ethnic origin, socio-economic, and cultural), needs, and special interests of the students
- Choosing varied and appropriate didactic approaches when developing the competencies included in the curriculum
- Foreseeing situations of learning that enable integration of competencies in varied contexts.

Steering teaching-learning situations in order for the content to be learned, and doing so in function of the students and of the development of the competencies included in the curriculum:

- Creating the conditions for students to become involved in situations-problems and in significant topics or projects, bearing in mind their cognitive, affective, and social characteristics
- Establishing a learning orientation by starting lessons and activities with advance organizers or previews
- Presenting the subject matter in networks of knowledge structured around powerful ideas
- Making available to students the resources necessary in the learning situations proposed
- Giving students opportunity to learn, dedicating most of the available time to curriculum-activities
- Questioning to engage students in sustained discourse structured around powerful ideas
- Guiding students in selecting, interpreting, and understanding the information available
- Shaping students’ learning by means of frequent and pertinent strategies, steps, questions, and feedback, so as to help the integration and transfer of learning
- Giving the students sufficient opportunities to practice and apply what they are learning and to receive improvement-oriented feedback.

Evaluating learning progress and the degree of acquisition of students’ competencies in the subject matter to be learned:

- In a learning situation, managing information in order to overcome students’ problems and difficulties, and to modify and adapt teaching to sustain students’ progress
- Monitoring students’ progress using both formal tests and performance evaluations and informal assessments of students’ contributions to lessons and work on assignments
• Constructing or employing instruments to enable evaluation of progress and acquisition of competences and skills

• Communicating to students and parents, clearly and explicitly, the results achieved and the feedback concerning progress in learning and acquisition of competence

• Co-operating with the teaching staff to determine the desirable rhythm and stages of progress in the training cycle.

Planning, organizing, and supervising the way the group-class works, in order to help students’ learning and socialization processes:

• Defining and applying an effective working system for normal class activities;

• Communicating clearly to students the requirements of correct school and social behaviour, ensuring that they adopt them;

• Fostering students’ participation? as a group and as individuals? in establishing the norms to work and live together in the classroom

• Adopting strategies to prevent incorrect behaviour cropping up, and intervening effectively when it does.

Adapting teaching to the student diversity:

• Designing learning tasks adapted to students’ possibilities and characteristics;

• Organizing different learning rhythms according to students’ capacities

• Organizing heterogeneous groups for students to work together

• Helping the social integration of students with learning or behavioural difficulties

• Seeking pertinent information regarding students’ needs;

• Participating in the preparation and implementation of a plan of adapted performance.

Integrating the technologies of information and communication into the preparation and development of teaching-learning activities, classroom management, and professional development

• Adopting a critical and well-founded attitude to the advantages and limitations of ICT as medium for teaching and learning, and for society

• Evaluating the pedagogical potential of ICT

• Using a variety of multimedia tools for communication; using the ICT effectively to investigate, interpret, and communicate information, and to resolve problems

• Using the ICT effectively to set up networks of exchange related with the subject taught and its pedagogical practice

• Helping students use the ICT in their learning activities, to evaluate such use, and to analyze critically the data gathered by these networks.

Communicating clearly and correctly, both oral and written, in the different contexts related with the teaching profession:
• Using the appropriate oral language when addressing students, parents, or colleagues.

• Respecting the rules of written language in documents aimed at students, parents, and colleagues

• Knowing how to take a position, and maintain one’s ideas and discuss coherently, effectively, constructively, and respectfully;

• Using questions to stimulate students to process and reflect on content, recognize relationships among and implications of its key ideas, think critically about it, and use it in problem solving, decision making, and other higher-order applications;

• Communicating ideas rigorously, using precise vocabulary and correct syntax; correcting errors made by students in their oral and written work; constantly seeking to improve oral and written expression.

SCHOOL DOMAIN

Co-operating with the school staff, with parents, and with the various social agents to achieve the school’s educational targets:

• Co-operating with the other members of the school staff in defining targets, and in the preparation and putting into effect of projects on educational services.

• Promoting participation and the flow of relevant information to parents

• Encouraging student participation in the management of the school and in its activities and projects.

Working in co-operation with the other members of the teaching staff in tasks enabling the development and evaluation of the explicit competencies of the training plan, and doing so in function of the students:

• Knowing which are the situations requiring collaboration with other members of the pedagogical team for the design and adaptation of teaching-learning situations and the evaluation of learning.

• Working to achieve the required consensus among the members of the teaching staff
The competencies related to the work of the teachers in the classroom are those that should be considered the core of pre-service teacher education. This is why a wider circle is marked in the graphic right in that area. Research evidence shows the importance for the beginning teachers of having a repertoire of abilities and basic knowledge that allows them to have a good start of their professional itinerary.
5. Learning to Teach in the Knowledge Society: The case of Ghana

Albert Kwame Akyeampong
TABLES

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Table 4: Teacher Remuneration
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Table 6: The Structure of the B.Ed. Programme (Science)
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Table 8: Scope of Data Collection
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Table 11: Survey Results of Extent of acquired desired teaching competencies (%)

BOXES

BOX 1: In-In-Out Model
BOX 2: Desired Teaching Competencies
BOX 3: Desired Student Competencies

FIGURES

Figure 1: Map of Teaching Competencies
Figure 2: Model of Teacher Certification and Promotion for Secondary Teacher Training
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADP</td>
<td>Accelerated Development Plan</td>
</tr>
<tr>
<td>WAEC</td>
<td>West African Examinations Council</td>
</tr>
<tr>
<td>JSS</td>
<td>Junior Secondary School</td>
</tr>
<tr>
<td>SSS</td>
<td>Senior Secondary School</td>
</tr>
<tr>
<td>UCC</td>
<td>University of Cape Coast</td>
</tr>
<tr>
<td>UEW</td>
<td>University of Education, Winneba</td>
</tr>
<tr>
<td>GES</td>
<td>Ghana Education Service</td>
</tr>
<tr>
<td>TED</td>
<td>Teacher Education Division</td>
</tr>
<tr>
<td>GSS</td>
<td>Ghana Statistical Service</td>
</tr>
<tr>
<td>PGDE</td>
<td>Post Graduate Diploma in Education</td>
</tr>
<tr>
<td>BEd.</td>
<td>Bachelor of Education</td>
</tr>
<tr>
<td>GNAT</td>
<td>Ghana National Association of Teachers</td>
</tr>
<tr>
<td>NAGRAT</td>
<td>National Association of Graduate Teachers of Ghana</td>
</tr>
<tr>
<td>PTA</td>
<td>Parent Teacher Association</td>
</tr>
<tr>
<td>NTC</td>
<td>National Teachers’ Council</td>
</tr>
<tr>
<td>MOEYS</td>
<td>Ministry of Education, Youth &amp; Sports</td>
</tr>
<tr>
<td>MUSTER</td>
<td>Multi-Site Teacher Education Research</td>
</tr>
</tbody>
</table>
I. GENERAL BACKGROUND AND INTRODUCTION

I.1 Development of secondary school system in Ghana

Ghana’s secondary education system emerged strongly after the accelerated education development plan (ADP) of 1951 in which the colonial government initiated steps to recognise and give state funding support to primary schools most of which had been established through missionary efforts (McWilliam & Kwamena-Poh, 1975). The ADP created the conditions for church managed schools (primary and middle) to be absorbed into the state system by making the government responsible for providing educational facilities for all schools. Up until this time there were only a few secondary schools run by missionary organisations and staffed mostly by expatriates. With rapid expansion in primary and middle school enrolments the ADP plan concentrated efforts to build more secondary schools to absorb the increases. A notable achievement of this period was the introduction of sixth-form work in secondary education and the establishment of the West African Examinations Council (WAEC) to offer school certificate examinations (McWilliam & Kwamena-Poh, 1975). At this time, pre-tertiary education comprised a six year primary course, four years middle school and five to seven years secondary education. Many graduates of secondary education went either into secondary teacher training and returned to teach in secondary schools or teacher training colleges, pursued other non-teaching courses or entered the world of work.

After Ghana gained independence in 1957, governments continued to emphasize the importance of expanding access to secondary education for national development. Thus, the period between 1966 to 1972 saw a 25% increase in the number of secondary schools and in 1972 alone, 1,300 new places (37 streams) were added to the secondary form 1 level (McWilliam & Kwamena-Poh, 1975). Secondary education at this stage provided a broad general education covering the sciences and the humanities. Local politicians and educators called for secondary education to reflect as much as possible local environment issues and for teaching and learning to be conducted in ways that would promote critical thinking in preparation for university education. At the secondary level teachers were to use instructional approaches that favoured “experimentation and the development of an understanding of the methods of science and a spirit of enquiry” (McWilliam & Kwamena-Poh, p. 124). Post-colonial governments saw in secondary education the opportunity to build the country’s human resource capacity for accelerated economic growth, and advocated a strong practical orientation and setting of clear standards for preparing students for university education.

Continued expansion in secondary education had initially outpaced plans to attract and train more Ghanaians to enter secondary teaching. This posed a real danger in terms of achieving the quality expected. During this period secondary teaching was dominated by expatriate staff.

“According to statistics ... there were 2,100 secondary school teachers in 1966. University graduates numbered 960, of whom 660 were expatriates. Of the remaining 300 who were Ghanaian graduates, 90 were headmasters. Thus, only 210 Ghanaians were devoted to active teaching in 105 schools. With their average length of service of 1.1 years, and the scarcely better 1.5 years of the expatriate graduates in secondary schools, the task of maintaining the high standards expected had become impossible” (McWilliam & Kwamena-Poh, 1975 p. 125).

This problem was resolved by reviewing teachers’ conditions of service, especially the salaries upwards. The effect was immediate: by 1972 the total teaching staff had shot up to 3,199 in 139 schools of which 2,665 were Ghanaians made up of 1,202 graduates and 1,463 specialist and diploma holders (McWilliam & Kwamena-Poh, 1975).

In 1975 a new structure of education was proposed which effectively split secondary education into two parts. The old system was to be replaced with a 3-year junior secondary school (JSS) system where students progressed automatically after six years of primary education. The new structure moved basic education
from 6 to 9 years. A Basic Education Certificate Examination (BECE) was introduced to select candidates for senior secondary school (SSS) education.

In 1987 implementation of proposals for a new education system began and attempt was made to introduce more practical subjects into the secondary school curriculum. But reformers failed to match this effort with a plan to train teachers in handling the new subjects and engage in more participatory pedagogical approaches to reflect the ideology of the change (Akyeampong 2003a). The reforms were to change where and how secondary school teachers are trained. Teachers for the JSS level are trained at post-secondary teacher training colleges where subject content knowledge learning was equivalent to the SSS level or slightly beyond that. There is greater emphasis given to pedagogical subject content learning. Teachers for SSS continued to receive their training from the University of Cape Coast (UCC) where teacher training programmes placed a premium on advanced academic subject learning in addition to general education and pedagogy courses.

Structure-wise education in Ghana has changed from 17 years of pre-tertiary education; six years Primary Education, four years Middle School, five years Secondary School (O-level) and two years of Sixth Form (A-level) to 12 years of pre-tertiary education consisting of: 6 years of Primary school, 3 years of Junior Secondary School and 3 years of Senior Secondary School.

To conclude this short historical account, it is important to reiterate the effect the 1987 education reform had on training secondary school teachers. First, it meant that because part of secondary education (JSS) had been included in basic education, JSS teachers received a post-secondary teachers’ certificate after training in a teacher training college. SSS teachers were however trained in the University of Cape Coast (UCC) or the newly established University of Education, Winneba (UEW).

This report primarily focuses on training teachers for the SSS level. A detailed analysis of basic school teacher training in Ghana is reported as part of the MUSTER project (see, Akyeampong 2003).

I.2 Profile of Secondary School Teachers in Ghana

In Ghana, teaching as a profession almost guarantees job security and social mobility. A career in teaching is considered by many as a gateway to further education and a better job outside teaching (Akyeampong, 2003). Teaching at the SSS level is the most preferred option with many primary and JSS teachers aiming to qualify as graduate teachers and secure a senior secondary teaching post. Senior secondary teachers, particularly science and mathematics teachers have a better chance of jobs outside teaching and tend to be in higher demand. Keen interest in senior secondary teaching is partly due to the fact that many secondary schools are boarding institutions and provide housing for their teaching staff.

I.2.1 Supply and Demand

Table 1 shows the teacher supply and demand situation at the senior secondary level for the 2000/01 academic year. General Arts and Business subjects had an oversupply of 1077 teachers. Subjects where demand had not matched supply are mostly in pure science and English. Teacher deficits in Mathematics, History/Political Science and Geography are quite appreciable. In subjects with acute teacher shortage, such as science and mathematics, vacancies are filled by unqualified teachers.

---

2 Today there are 41 teacher training colleges in Ghana (3 private and 38 state-run) which trains teachers for primary and JSS education levels.

3 MUSTER stands for Multi-Site Teacher Education Research Project and was a joint research project coordinated from the Centre for International Education University of Sussex, with research partners from Ghana, Lesotho, Malawi, Trinidad & Tobago and South Africa.
Table 1: Posting of Teachers, 2001

<table>
<thead>
<tr>
<th>SUBJECTS</th>
<th>NUMBER SUPPLIED</th>
<th>NUMBER DEMANDED</th>
<th>EXCESS/DEFICIT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music</td>
<td>94</td>
<td>12</td>
<td>82</td>
</tr>
<tr>
<td>Social Studies</td>
<td>130</td>
<td>101</td>
<td>29</td>
</tr>
<tr>
<td>Art</td>
<td>94</td>
<td>81</td>
<td>13</td>
</tr>
<tr>
<td>Business Education (Accounting)</td>
<td>373</td>
<td>73</td>
<td>300</td>
</tr>
<tr>
<td>Business Education (Sec. &amp; Mgt.)</td>
<td>322</td>
<td>129</td>
<td>193</td>
</tr>
<tr>
<td>Home Economics</td>
<td>143</td>
<td>79</td>
<td>65</td>
</tr>
<tr>
<td>Agric Science</td>
<td>249</td>
<td>128</td>
<td>121</td>
</tr>
<tr>
<td>Religion</td>
<td>127</td>
<td>43</td>
<td>84</td>
</tr>
<tr>
<td>Economics</td>
<td>70</td>
<td>56</td>
<td>14</td>
</tr>
<tr>
<td>Technology Education</td>
<td>211</td>
<td>84</td>
<td>127</td>
</tr>
<tr>
<td>Physical Education</td>
<td>112</td>
<td>62</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1925</strong></td>
<td><strong>848</strong></td>
<td><strong>1077</strong></td>
</tr>
<tr>
<td>Mathematics/Statistics</td>
<td>317</td>
<td>371</td>
<td>(54)</td>
</tr>
<tr>
<td>English/Linguistics</td>
<td>117</td>
<td>351</td>
<td>(234)</td>
</tr>
<tr>
<td>French</td>
<td>94</td>
<td>95</td>
<td>(1)</td>
</tr>
<tr>
<td>Pure Science (Physics, Chemistry/Biology)</td>
<td>112</td>
<td>469</td>
<td>(357)</td>
</tr>
<tr>
<td>History/Political Science</td>
<td>37</td>
<td>57</td>
<td>(20)</td>
</tr>
<tr>
<td>Geography</td>
<td>25</td>
<td>71</td>
<td>(46)</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>702</strong></td>
<td><strong>1414</strong></td>
<td>(713)</td>
</tr>
</tbody>
</table>

* Figures in bracket represent deficit

I.2.2. Teacher Qualification

From late colonial to the early post-independence era, candidates for teacher training were selected after completing middle school and were awarded a certificate ‘A’ and thereafter certificate ‘B’ after having completed 3 years of teacher training. As the education system expanded from the 50s, a new two-year programme was introduced for certificate ‘B’ holders to upgrade to what became known as ‘Post-B Certificate A’. An important entry requirement for the two year programme was previous teaching experience. This requirement marked the first time prior teaching experience was used as a key prerequisite for teacher training. Later, with further expansion in secondary education, a new two-year teacher training programme was introduced for secondary school leavers to teach in either the middle school or secondary schools. These teachers were awarded the certificate ‘A’. In the mid 70s, this programme was extended to 3 years and is now known as ‘post-secondary teacher training’ for certificate ‘A’.

Teachers in Ghana are required to possess a professional qualification to teach in public schools. What this means is that they have to undergo teacher training either in a training college or university before being classified as qualified teachers. JSS teachers are required to possess a teacher certificate ‘A’ qualification which includes specializing in two or three subjects, for example math and science. Teachers obtained this qualification after a three-year course of study in one of the 41 teacher training colleges in the country. University graduates, other than those from UCC and UEW, who have not completed up to diploma level teacher training are classified as unqualified but can still teach in a secondary school.

Table 2 shows the current qualification status of teachers in Ghana and the school level their qualification entitles them to teach at.
Table 2: Teacher Education in Ghana: Program and Qualification Status

<table>
<thead>
<tr>
<th>Level</th>
<th>Duration of Course</th>
<th>Entry Level After Qualification</th>
<th>Certificate Awarded</th>
<th>Level of teaching after qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-secondary level</td>
<td>3 years</td>
<td>Completion of Secondary school</td>
<td>Post-secondary certificate “A”</td>
<td>Primary and junior secondary</td>
</tr>
<tr>
<td>Higher Education (non-graduate level)</td>
<td>2 years</td>
<td>Completion of Post-secondary teacher training and having taught for 3 years</td>
<td>Diploma certificate</td>
<td>Either post-secondary teacher training or senior secondary</td>
</tr>
<tr>
<td>Higher Education (under-graduate level)</td>
<td>3 years or 2 years for post-diploma B.ED.</td>
<td>Teachers holding diploma or senior secondary leaving certificate$^4$</td>
<td>B.Ed. Degree</td>
<td>Either post-secondary teacher training or, senior secondary school</td>
</tr>
<tr>
<td>Higher Education (post-graduate level)</td>
<td>1 year</td>
<td>Holders of graduate degrees e.g. BSc., BA.</td>
<td>Post-Graduate Diploma in Education (PGDE)</td>
<td>Senior secondary school or post-secondary teacher training colleges</td>
</tr>
</tbody>
</table>

Source: Akyeampong (2003b)

There are basically two routes to a teacher qualification status in Ghana. The first is the post-secondary certificate ‘A’ - for teachers who have completed three years post-secondary teacher training. Certificate “A” teachers, after teaching for at least 3 years are eligible for enrolment into a diploma Teacher Education Program. Thereafter they can move on to the B.Ed. teacher training programme.

In effect, a certificate “A” teacher will require a further 4 or 5 years of training to obtain a B.Ed., making the total length of training to graduate level 7 or 8 years which is a rather long route to achieving a secondary school teacher qualification (see table 2). But students who complete SSS with good qualifying grades can gain direct admission to university to study for a B.Ed. degree and qualify as trained secondary school teachers – this is the second route to becoming a qualified teacher. A secondary school teacher who comes through the certificate ‘A’ route has more professional capital as a result of prior initial teacher training followed by at least 3 years teaching experience. PGDE teacher trainees also have some teaching experience but no initial teacher training experience.

Table 3 is the qualification status for JSS and SSS teachers for 2000. It shows that at JSS, there are more male teachers than female. However, there are more qualified female teachers than male qualified teachers. With the exception of two regions - Ashanti (31%) and Greater Accra (52%), which are high urban areas, the rest of Ghana has less than 30% qualified female teachers teaching at the JSS level. Nationally, there are about 47% male teachers and 53% female teachers teaching at SSS who are qualified. The high number of unqualified teachers at SSS level is a recent phenomenon that can be attributed to a recent policy change in university teacher training at UCC. UCC which was originally established to train teachers for secondary schools later discontinued programmes which offered professional teacher training to all students. Previ-

$^4$ Higher entry qualification than is required for candidates applying to do 3-year post-secondary teacher training.
ously, all UCC graduates would have pursued a Bachelors degree in a subject area leading to a B.Sc. or BA degree, and concurrently studied to obtain a diploma in education which granted them teacher qualification status. UCC discontinued this practice from 1995 and introduced B.Ed. teacher training programmes. B.Sc. and B.A. holders from UCC who enter teaching are now classified as untrained teachers but can enrol in a PGDE programme after teaching in school for at least 2 years.

Table 3: Qualification status of Teachers in Public & Private Secondary Schools by gender, 2000/01

<table>
<thead>
<tr>
<th>Region</th>
<th>JSS</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>% male</td>
<td>% female</td>
<td>% qualified male</td>
<td>% qualified female</td>
<td>% male</td>
<td>% female</td>
<td>% qualified male</td>
</tr>
<tr>
<td>Ashanti</td>
<td>69</td>
<td>31</td>
<td>91</td>
<td>98</td>
<td>85</td>
<td>15</td>
<td>47</td>
<td>53</td>
</tr>
<tr>
<td>Brong Ahafo</td>
<td>87</td>
<td>13</td>
<td>84</td>
<td>91</td>
<td>90</td>
<td>10</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Central</td>
<td>76</td>
<td>24</td>
<td>73</td>
<td>94</td>
<td>79</td>
<td>21</td>
<td>73</td>
<td>78</td>
</tr>
<tr>
<td>Eastern</td>
<td>73</td>
<td>27</td>
<td>82</td>
<td>97</td>
<td>84</td>
<td>16</td>
<td>52</td>
<td>51</td>
</tr>
<tr>
<td>Greater Accra</td>
<td>48</td>
<td>52</td>
<td>94</td>
<td>99</td>
<td>68</td>
<td>32</td>
<td>57</td>
<td>65</td>
</tr>
<tr>
<td>Northern</td>
<td>87</td>
<td>13</td>
<td>81</td>
<td>89</td>
<td>90</td>
<td>10</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Upper East</td>
<td>82</td>
<td>18</td>
<td>79</td>
<td>87</td>
<td>84</td>
<td>16</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Upper West</td>
<td>83</td>
<td>17</td>
<td>83</td>
<td>91</td>
<td>85</td>
<td>15</td>
<td>57</td>
<td>50</td>
</tr>
<tr>
<td>Volta</td>
<td>79</td>
<td>21</td>
<td>88</td>
<td>93</td>
<td>87</td>
<td>13</td>
<td>41</td>
<td>37</td>
</tr>
<tr>
<td>Western</td>
<td>80</td>
<td>20</td>
<td>79</td>
<td>95</td>
<td>84</td>
<td>16</td>
<td>58</td>
<td>56</td>
</tr>
<tr>
<td>Total %</td>
<td>74</td>
<td>26</td>
<td>84</td>
<td>96</td>
<td>83</td>
<td>17</td>
<td>47</td>
<td>53</td>
</tr>
</tbody>
</table>

Ghana EMIS 2002

I.2.3 Conditions of Service of Teachers

Table 4 shows the salary structure of teachers in Ghana. Teachers from initial teacher training colleges start from junior teacher and rise to Assistant Director whilst graduate teachers who are non-professionals start from Superintendent and can rise to as far as the Principal Superintendent grade. Graduate professional teachers however, start from the Principal Superintendent grade and can rise to the rank of Director. A teacher’s salary is based on qualification and years of experience and does not depend on whether that teacher teaches at primary, JSS or SSS level. Promotion to a higher rank is not related to evidence of professional growth. For example, to be promoted to principal superintendent grade all a teacher requires to show is evidence of teaching service for at least 2 years. If teachers are promoted without having to show evidence of professional growth linked possibly to the pay structure or other professional benefits, then this is likely to undermine interest in continuing professional development activities since participation in such activities is not counted towards promotion.

Compared to other salary scales within the civil service, teachers in Ghana are relatively well paid. Teachers’ salaries are usually higher than other civil servants with similar qualification and experience. But, generally, salaries in Ghana are among the lowest in the West African sub region. It is common for teachers, especially secondary school teachers, to engage in part-time or extra teaching to supplement their income.

Teachers in Ghana enjoy a rare professional incentive package: they can receive their full salary whilst on study leave to upgrade their professional qualification. Three years minimum teaching experience is all that is required to qualify for this financial support from government. Of late, this policy has come under criticism after many teachers having benefited from this scheme, leave teaching for better paid jobs usually in the private sector. But other primary and JSS teachers have used this generous incentive to further their ambition to teach at the senior secondary school level (Akyeampong, 2003).
Table 4: Teacher remuneration (8500 cedis = 1 US$)

<table>
<thead>
<tr>
<th>Max annual salary</th>
<th>Category</th>
<th>Type of qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>§7,746,493</td>
<td>Junior Teacher</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$911</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td>§10,111,360</td>
<td>Assistant Superintendent</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$1190</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td>§13,166,082</td>
<td>Superintendent I&amp;II</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$1548</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td>§15,042,110</td>
<td>Senior Superintendent</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$1770</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma</td>
</tr>
<tr>
<td>§17,185,453</td>
<td>Principal Superintendent</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$2022</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>First degree and above</td>
</tr>
<tr>
<td>§19,634,199</td>
<td>Assistant Director</td>
<td>3-Year Cert “A”</td>
</tr>
<tr>
<td>$2310</td>
<td></td>
<td>4-Year Post Middle Cert “A”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diploma</td>
</tr>
<tr>
<td></td>
<td></td>
<td>First degree and above</td>
</tr>
<tr>
<td>§22,431,867</td>
<td>Director</td>
<td>First degree and above</td>
</tr>
</tbody>
</table>

I.3 Teaching for the Knowledge Society: Challenges for Ghana?

After a decade of multi-party democracy, Ghana is slowly emerging as one of the successful democracies in the sub region. The new political climate has fuelled optimism about the country’s future. Recent government policy documents have drawn attention to the importance of harnessing the country’s human resource potential to achieve the status of a middle level income country by 2020. Ghana has sometimes been compared to South Korea and Malaysia; countries with which it shared similar economic profiles in the late 50s to early 60s, but unlike Ghana have managed to achieve middle level income status by diversifying their economies and investing rapidly in primary and secondary education. In particular, the heavy emphasis on post-basic education has been seen as part of a number of important measures that contributed to rapid economic growth in South Korea and Malaysia. If Ghana is to make similar strides, then quite apart from creating the necessary conditions for economic growth, it has to have more people with secondary education qualification or higher to take advantage of opportunities that would be emerging as a result of rapid economic growth. The country will not be able to meet its target of becoming a middle level income country by 2020 if the educational level of its manpower base does not experience rapid growth. Recent census data indicates that only about 10% (a million adults) of Ghanaian adults have secondary education or higher level education (GSS 2000).

It is often assumed that for a country to achieve rapid economic growth the mix of critical factors should include a workforce with efficient group-working capabilities, creative and adaptive skills, and problem-solving abilities to tackle, in particular, the increasingly technological environment of production that would emerge as a result of economic growth. Productive human capital must also be endowed with skills in interpreting, analysing and manipulating information to handle the challenges of sustaining economic development.
Increasing the number of people in the workforce and the society in general with at least secondary education is seen as not only necessary but crucial for social and economic development, because it is at this level that higher order cognitive abilities become more accessible (Lewin 1999). For example Lewin notes that, “effective secondary schooling can … provide access to abstract reasoning and the kind of flexible thinking skills associated with growth-oriented production and new jobs in manufacturing and the service sector, which have an increasing information processing and knowledge content” (p. 3).

For secondary schools to become places where such desirable competencies are nurtured and developed they must have in them teachers who can organise teaching and learning in ways that maximise students’ creative and problem-solving skills. The emergence of information communication technologies (ICT) as effective tools for accessing and using information to solve problems means that teachers can no longer hold themselves as repositories of knowledge. Information can now be acquired from different sources analysed and applied to solve problems in different situations. The ability to adapt knowledge and skills to face and deal with the demands of the modern society are now seen as the hallmark of progressive education. All of which means that the traditional authoritarian posture of the classroom teacher needs to change and give way to a less dominant role; one in which the teacher creates in the classroom an environment where students assume a more central and active role in constructing and adapting knowledge to solve problems.

The 21st century is often referred to as the knowledge society because of the ever increasing role that information and knowledge is playing in the global economy. Hargreaves (2003) points out that in the knowledge society ingenuity and the capacity to initiate and cope with change are qualities that societies strive for in a highly competitive global economy, and that more than ever before, teachers are being called upon to nurture these qualities in students. For this study a central issue was whether the process of learning to teach in the secondary school was in any way drawing attention to, and emphasising the kind of teaching competencies and dispositions that are considered important for developing student competencies for the knowledge society.

I.4 Guiding questions for the study

Recent studies of teacher training in Ghana have already provided some good insights into the teaching philosophy and practice of primary and JSS teachers, and the role initial teacher training plays in shaping teachers’ classroom identity and practice (Akyeampong 2003). Regrettably, there are no comprehensive studies researching similar issues at the upper secondary teacher training level. This report is an attempt to fill this gap. It reviews Ghana’s experience with secondary teacher training to identify good practices and the existing gaps that might exist between desired teaching competencies and current teacher education programmes. The study has been guided by five key questions:

1. How is the curriculum of secondary teacher training structured and organised? What can be deduced about the assumptions of learning to teach in secondary school from the structure and content of the training curriculum?

2. What is the nature of the gap between what the research literature about teacher training and teaching skills is saying, and what Ghana is actually doing in terms of teacher education policies and practices, and what teacher educators, policy makers and other stakeholders think is important for Ghana?

3. How can professional knowledge and skills be efficiently transferred and shared within and among secondary teacher training programmes and individual teachers?
The rest of the report focuses on various aspects of these questions and related issues.

II. SECONDARY TEACHER TRAINING IN GHANA: STRUCTURE, CONTENT AND RECENT REFORMS

II.1 General Structure of Programmes

II.1.1. The PGDE programme

This section provides a brief overview of the structure of some secondary teacher training programmes. We begin with the University of Cape Coast PGDE programme which consists of three inter-related elements with the following objectives:

- Subject studies (pedagogical content knowledge): these courses are concerned with the knowledge and understanding of teaching a particular subject. As outlined in the programme document, this component aims to develop trainees “ability to apply teaching knowledge in the classroom, and the assessment of pupil’s achievements”.

- A second component of the PGDE programme is professional studies. Here the emphasis is on the various aspects of teacher’s professional role in the school and covers issues such as the school as an institution, teacher’s responsibilities towards special needs children etc.

- Finally, there is practical teaching component. This aspect of the programme aims to develop teachers “competencies in classroom teaching, and ensuring that (they) are equipped to contribute effectively to worthwhile learning”.

The PGDE programme runs over two semesters organised during the long vacation periods of June and August which means that it actually takes two academic years to complete. Each semester’s course work is completed in approximately 8 weeks.

The stated purposes of the PGDE programme appear to be based on two assumptions. The first is that, a sound theoretical knowledge of teaching is a prerequisite for learning to become an effective teacher. Secondly, teaching practice is intended for student teachers to learn to apply their acquired teaching knowledge and skills. The programme is structured hierarchically and presented in two stages: acquisition of theoretical knowledge - stage one; application in the classroom – stage two (see table 5). Thus, teaching knowledge is assumed to be objective, value and context free. This structure, we shall see, runs through other secondary teacher training programmes and has implications for what teachers are supposed to know and be able to do in the Ghanaian classroom.

It is difficult to discern whether the PGDE programme takes an equally important view of the trainees’ own perspective of teaching as a result of their own experiences of teaching. Given that PGDE students already have some teaching experience, exploring how their practical knowledge of teaching has been shaped by their experiences would seem to be an area to include in teacher education programming. Focus group interview of secondary school teachers conducted for this study suggested that the PGDE programme may be viewed simply as equipping trainees with predetermined knowledge and skills about teaching, such as the preparation of lesson notes, procedures for closing a lesson, preparation of instructional materials etc. This
needs to be balanced by an equal emphasis on adaptive teaching behaviour where teachers are less domi-
nant and authoritarian in their classroom practices. Changing teachers’ classroom behaviour to reflect less
dominant and flexible roles would require programmes that give serious attention to practical knowledge
and how this knowledge utilises theoretical teaching knowledge to create the conditions for effective stu-
dent learning. The B.Ed. science and mathematics programmes, which we examine next, offers students the
opportunity to examine the practices of classroom teachers before introducing them to specific teaching
knowledge and skills in the programme.

Table 5: The Structure Of The PGDE Programme

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semester 1</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Foundations:</strong></td>
<td></td>
</tr>
<tr>
<td>Social &amp; Philosophical Foundations in Education</td>
<td>2</td>
</tr>
<tr>
<td>Educational Psychology</td>
<td>2</td>
</tr>
<tr>
<td>Principles of Guidance &amp; Counselling</td>
<td>1</td>
</tr>
<tr>
<td>Educational Assessment</td>
<td>1</td>
</tr>
<tr>
<td>Introduction to Educational Research</td>
<td>1</td>
</tr>
<tr>
<td><strong>Pedagogical Strategies:</strong></td>
<td></td>
</tr>
<tr>
<td>Teaching Subject (e.g. maths, science, Economics, English etc.)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Curriculum issues:</strong></td>
<td></td>
</tr>
<tr>
<td>Curriculum studies in maths, science, Economics, English etc.</td>
<td>2</td>
</tr>
<tr>
<td><strong>Semester 2</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Compulsory component:</strong></td>
<td></td>
</tr>
<tr>
<td>Education &amp; Development in Ghana</td>
<td>2</td>
</tr>
<tr>
<td>Educational Management &amp; Administration</td>
<td>2</td>
</tr>
<tr>
<td>Psychology of Learning &amp; Instruction</td>
<td>2</td>
</tr>
<tr>
<td>Internship (Teaching Practice)</td>
<td>3</td>
</tr>
<tr>
<td>Project Work</td>
<td>3</td>
</tr>
<tr>
<td><strong>Elective: (1)</strong></td>
<td></td>
</tr>
<tr>
<td>Psychology &amp; Education of Exceptional Individuals</td>
<td>2</td>
</tr>
<tr>
<td>Adolescent Psychology</td>
<td>2</td>
</tr>
<tr>
<td>Psychology of Learning and Instruction</td>
<td>2</td>
</tr>
<tr>
<td>Counselling Techniques</td>
<td>2</td>
</tr>
<tr>
<td><strong>Elective: (2)</strong></td>
<td></td>
</tr>
<tr>
<td>Human Resource Management in Education</td>
<td>2</td>
</tr>
<tr>
<td>Educational Planning &amp; Financing</td>
<td>2</td>
</tr>
<tr>
<td>School, Community Resources – Mobilization &amp; Management</td>
<td>2</td>
</tr>
<tr>
<td>Supervision of Instruction/In-service Education</td>
<td>2</td>
</tr>
<tr>
<td><strong>Elective: 3</strong></td>
<td></td>
</tr>
<tr>
<td>Comparative Education</td>
<td>2</td>
</tr>
<tr>
<td>Teacher Education</td>
<td>2</td>
</tr>
<tr>
<td>Adult Education</td>
<td>2</td>
</tr>
<tr>
<td>Educational Statistics</td>
<td>2</td>
</tr>
</tbody>
</table>

* Note: Students are required to opt for one course from each elective group

In summary, the PGDE programme generally reflects a traditional view of learning to teach and as it stands,
therefore, would seem to have little chance of introducing trainees’ to best teaching practices developed by
more experienced teachers reflecting a more complex understanding of teaching gained through extended
period of practice.
II.1.2. The B.Ed programmes

Next we examine two B.Ed programmes (science and mathematics) for insights into the kind of teacher the programmes aim to produce. The B.Ed. programmes in Ghana attract two types of students:

- The first type is the student who has come straight from SSS, and has no previous teaching experience and is therefore quite unaccustomed to the tensions teachers experience in classroom teaching.
- The second type is the student who has come through the certificate ‘A’ route and has therefore some initial practical teaching experience, followed by further teacher qualification (a diploma certificate in teaching), before finally enrolling on a B.Ed. programme.

As the research literature suggests, the gap between what is taught in teacher education programmes and what teachers actually do in their classrooms either reflects the difficulty of dislodging previously held notions about teaching from previous teaching experience, or from years of observing teachers teach as a student. Thus, the two types of B.Ed students may be unlikely to change significantly what they know and think about teaching simply from the teacher education programme, especially if the programme does not include elements that explore trainees’ images and perceptions about teaching.

B.Ed. Science

We start with the B.Ed. science programme as shown in Table 6. The highlighted sections of the table are meant to draw attention to certain important features of the programme. First of all, the first year focuses entirely on developing subject content knowledge and is meant to strengthen students’ knowledge base in the specific science subject areas. In the second year, students spend about 3 hours a week (“Field experience in Science Education”) making notes of their observations of science teachers classroom practices and the impact on student learning.

Table 6: Structure of the B. Ed (Science) programme

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Content introductory courses (Theory &amp; Practical)</td>
<td>26</td>
</tr>
<tr>
<td>Nature of Science</td>
<td>3</td>
</tr>
<tr>
<td>Field Experience in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>Mathematical Methods for Scientists</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 1 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 2 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Science Subject Content or Vector Algebra and Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Psychological Basis of Science Education</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Retrieval</td>
<td>1</td>
</tr>
<tr>
<td>Subject Content Elective 1 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Subject content area not previously selected or Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 2 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Subject content area not previously selected or Advanced Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>Curriculum Studies (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Methods of Teaching Biology/Physics/Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of Science Teaching Materials</td>
<td>3</td>
</tr>
<tr>
<td>Role of Language in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 1 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Development of Science Education in Ghana</td>
<td>3</td>
</tr>
<tr>
<td>Computer Applications in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 2 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Content Elective 1 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
<tr>
<td>Development of Science Education in Ghana</td>
<td>3</td>
</tr>
<tr>
<td>Computer Applications in Science Education</td>
<td>3</td>
</tr>
<tr>
<td>Subject Content Elective 2 (Biology/Physics/Chemistry)</td>
<td>3</td>
</tr>
</tbody>
</table>
It is difficult to judge the extent to which the field experiences is able to address the gap between what teacher education programmes teach and what effective science teachers are able to accomplish in their classrooms. But the university lecturers we interviewed pointed out that the course is intended to give students the opportunity to examine more closely how science teachers use their knowledge in teaching. What the course does not do is to provide space for students to engage in critical dialogue with practicing teachers about the wisdom of their practice; in other words what constitutes for them effective teaching and how they manage to achieve it. Although observing teachers can provide trainees with valuable insights into their practice, without exploring the professional reasoning that informs teachers’ classroom actions, such learning will have limited impact on trainees’ conception of effective practice. Korthagen & Lagerwerf (1996) have argued using empirical evidence to show just how difficult it is to change teachers’ behaviour simply by exposing them to practical situations. They go on to point out that it is only through purposely “organisation of sufficient suitable experiences … and opportunities for reflection on those experiences” that may trigger conflict in trainees’ already held conception of teaching and learning, and thus create the conditions for conceptual change.

But at least the opportunity offered student teachers in the B.Ed. science programme to look into the science classroom recognises the value of practical knowledge in learning to teach, and can be considered a ‘good practice’ of the programme. Student teachers first begin to examine the issue about instructional strategies in the 3rd year of their training after having spent time observing science teachers teach. But overall, the programme lays disproportionate emphasis on subject content knowledge: capturing about 72% of programme time with courses that relate to the elements of teaching knowledge taking only 23% of allotted time. The ICT course takes up 5% of programme time.

In year 4, trainees take the course, “Computer Applications in Science Education” which is an attempt to explore ways in which computers can be used in teaching and learning science. Secondary school teachers interviewed indicated that computers are rarely used in teaching and learning. This may be because the school curriculum has no reference to how computer applications can be used in teaching and learning. For example, it does not provide any descriptions of computer applications that illustrate abstract concepts, demonstrate experiments and activities that would otherwise have required hands-on practical science activity.

Until ICT applications for school science and mathematics is properly conceptualized and integrated into the school and teacher education curriculum to show how it can be integrated into the preparation and development of teaching and learning, a course on its applications for science teaching will achieve very little. Nevertheless, its inclusion in the science teacher training programme suggests that programme designers recognise its potential as a tool for teaching and learning.

B.Ed. (Mathematics)

The content structure of the B.Ed. maths programme as shown in table 7 is in many respects similar to the science programme described earlier. Field experience in mathematics education is organised in the second year of training after a first year programme that is entirely devoted to advanced studies in mathematics. A unique feature of the first year programme is the option to study Economics or Geography which according to lecturers interviewed, is an attempt to highlight the important applications of mathematics in the social and natural sciences. But since these courses are offered as cognate subjects in departments outside education the applications may be too far fetched and inappropriate for illustrating inter-disciplinary knowledge use and applications at school maths level.

Table 7 also shows that the methods of teaching mathematics in the secondary school are introduced in the third year, after students have observed mathematics teachers teaching. An important aspect of learning mathematics is problem solving, and a course is devoted to this in the fourth and final year of training.
Unlike the B.Ed science programme, there is no specific course on the use of computers in teaching mathematics. Instead, what is offered is a course in computing, which is a general course with no particular reference to its applications in mathematics teaching. Clearly, the B.Ed. programme has a strong orientation towards academic study subjects. Courses in the study of advanced topics in mathematics takes up approximately 64% of programme time and only about 36% of instructional time is reserved for Education courses. In both the B.Ed science and mathematics programmes about 6 weeks in between the 3rd and 4th year is used for teaching practice.

Table 7: Structure of the B. Ed (Maths) programme

<table>
<thead>
<tr>
<th>Year</th>
<th>Courses – Subject Content</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>Algebra and Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Economics/Biology/Chemistry/Physics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Analytic Geometry and Calculus</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Economics/Geography</td>
<td>3</td>
</tr>
<tr>
<td>Year 2</td>
<td>Further Calculus</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Introduction to Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Advanced Algebra and Calculus</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Economics/Geography/Physics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Vector Algebra and Differential Equation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Introduction to Probability and Statistics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Field Experience in Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Educational Measurement and Evaluation</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Educational Psychology</td>
<td>1</td>
</tr>
<tr>
<td>Year 3</td>
<td>Advanced Calculus 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Advanced Calculus 2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Modern Algebra 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Computing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Curriculum Studies</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Methods of Teaching Maths in Secondary Schools</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Research Methods in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Intermediate Economics 1/Geography/Physics/Biology/Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Intermediate Economics 2/Geography/Physics/Biology/Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Educational Technology</td>
<td>1</td>
</tr>
<tr>
<td>Year 4</td>
<td>Introductory Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>School Administration</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Development of mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Assessment in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Vectors and mechanics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Vectors and Mechanics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Problem Solving in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Development of Education in Ghana</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Social Foundations of Education</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Principles of Guidance and Counseling</td>
<td>1</td>
</tr>
</tbody>
</table>
II.1.3. Emerging Issues

As Marcelo (2003) points out in his literature review on learning to teach in the knowledge society, the jury is still out on what type of subject knowledge teachers need to possess to be effective practitioners. Unlike the PGDE programme where the trainees already have degree qualifications in their subject area, candidates for the B.Ed. programme are admitted with a subject knowledge background of SSS level. Thus we notice greater emphasis being placed on advance subject content learning in the B.Ed programme. In an interview with the runner-up to the 2003 national best teacher who is also a science teacher, he pointed out that many advanced subject content courses taught at the university made little difference on the ability to teach one’s subject. Instead the emphasis, he argues, should be placed on pedagogical content knowledge as this was more related to the subject content knowledge teaching requirement at SSS level.

Curriculum organization as portrayed in the B.Ed. science and mathematics programmes presents the view of the teacher as a knowledge ‘expert’. This seems counter to the notion of the knowledge society teacher as someone who though knowledgeable in their subject, has a deeper understanding of how to create instructional situations for students to develop their own understanding of the subject matter to be learned. Surely highly advanced mathematics and science content will not necessarily promote this kind of teaching competence.

It is difficult to know, simply by analysing the programme structure, to what extent the courses offered in both the PGDE and B.Ed. programmes engage trainees’ knowledge and beliefs about teaching in learning to teach. The field experience course of the B.Ed. programmes where student teachers spend time observing classroom teachers serves as a good practice that could offer possibilities in exploring the interaction between knowledge and beliefs in learning to teach. It is interesting to note that this course is taken before the course in pedagogical subject content knowledge. This may offer the opportunity to use the knowledge gained from observing teachers teach to understand “knowledge of the subject to be taught and the pedagogical and didactic knowledge of how to teach it” (Marcelo, 2003, p. 15). Korthagen & Lagerwerf (1996) point out, “if teacher education really wishes to promote changes in teachers, it should start from their understanding of their work and their needs and concerns” (p 185). Thus, by starting with student teachers walking the rounds of schools and classrooms, trying to understand what teachers do and what makes them effective, the science and maths B.Ed. programmes signal the importance of teacher’s practical knowledge in learning to teach.

Another good practice as far as the teacher education programme is concerned is the computer applications in science education. It shows awareness of the important role new technologies can play in teaching and learning, although further investigations will be needed to establish how some teachers are using ICT in teaching.

Finally, learning to teach in the secondary school as illustrated by the courses offered at UCC could be said to place emphasis on two important elements of learning to teach: “knowledge for the practice” and to some extent “knowledge of the practice” (see Marcelo 2003). What is less evident is the opportunity to develop “knowledge in the practice” in which issues such as beliefs, school and classroom contexts are seriously taken on board in learning to teach more effectively.

II.2 Recent Reforms of Secondary Teacher Education

One of the recent changes in the ideology of teacher education in Ghana has the move towards school-based teacher training with student teachers learning to teach under the guidance of mentors. This shift is gaining ground in policy thinking because of the feeling that the problems with teacher quality are a result of the minimal attention paid to school-based teacher training. In the early 90s a national commission on Teacher Education that was set up by the Ministry of Education to review teacher education practices made refer-
ence to this issue. Although, the commission’s work focused mainly on training teachers for basic schools and not senior secondary schools, we will consider an issue it raises that is relevant for this report.

The Commission indicated that:

[The Teacher Training Colleges] are inefficient in producing effective teachers since the trainees and the tutors have so little exposure to actual schools and classrooms, and academic content is taught and tested above practical teaching methodology (Ministry of Education 1993, p 23).

The Commission’s contention was that teacher training in Ghana was not focusing enough attention on developing practical knowledge which it saw as the key to effective teaching. This criticism has been echoed by teacher educators and education policy makers over the years until the late 1990s when teacher education policy makers began to take concrete steps to restructure training so that it included considerable elements of school-based training as part of the process of learning to teach. Thus, in 1999 a two year in college and a one year out of college - in schools learning to teach (termed the “in-in-out” model) was introduced to replace the 3-year residential training for basic teacher training (i.e. primary and JSS teachers).

II.2.1 The in-in-out model

Elements of the in-in-out are presented in box 1 below:

<table>
<thead>
<tr>
<th>Box 1: In-In-Out Model:</th>
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<tbody>
<tr>
<td>Rationale to:</td>
</tr>
<tr>
<td>- develop pedagogic knowledge</td>
</tr>
<tr>
<td>- give more exposure to actual classroom</td>
</tr>
<tr>
<td>- devote more time to practical teaching &amp; develop skills of teaching</td>
</tr>
<tr>
<td>• 1st Yr Curriculum</td>
</tr>
<tr>
<td>- Foundation Academic &amp; Introductory Studies in Education</td>
</tr>
<tr>
<td>- School attachment for observation of teaching and work practice</td>
</tr>
<tr>
<td>• 2nd Yr Curriculum</td>
</tr>
<tr>
<td>- Education Studies, Curriculum Studies with Methodology &amp; on-campus practice teaching</td>
</tr>
<tr>
<td>• 3rd Yr Curriculum</td>
</tr>
<tr>
<td>- Practice teaching for 2 terms</td>
</tr>
<tr>
<td>- On-campus group discussions for 1 term</td>
</tr>
<tr>
<td>- Exams based on Community &amp; Teaching Experience</td>
</tr>
</tbody>
</table>

The innovative aspects of the in-in-out model of training are:

- First, there is the school attachment component which student teachers undergo during vacation. Guidelines for observing how teachers conduct their lessons are provided to the student teachers on attachment to schools. The guidelines also encourage student teachers to enter into dialogue with teachers about their classroom practice. The information gathered by trainees is expected to form part of the content of learning to teach in the second year of training.

- Secondly, the third year school-based training was later changed from one full year to two terms to allow for review of the student teachers’ experiences with their college tutors.
• Final exams for certification include a paper that examines practical teaching experiences gained from the school-based training.

Thus, the in-in-out training could be described as an example of a good practice in teacher education since it shows an attempt to develop teaching competencies that relate more directly to teachers classroom and school work. The ‘out’ phase can be considered as a transitional period into teaching similar to internship or induction. Trainees arrive in the schools with a kit of methodology books plus a general Education Studies book. These materials are known as distance learning materials (DLMs).

Recently, the Institute of Education of UCC conducted an evaluation of the in-in-out programme which highlighted some of the challenges that this mode of training faces. For example, in the ‘out’ year, students are expected to be supervised and assessed by college tutors (teacher educators) and school mentors who are classroom teachers. As might be expected, the most consistent support for the trainees came from mentors. The main complaint was about the mentors professional attitudes and commitment which varied from school to school and reflects the poor preparation for mentors to support school-based training. Mentors were also supposed to facilitate a ‘study circle’ every afternoon after school for about 2 hours, where student teachers reflect on their classroom experiences and plan future lessons. But this practice was difficult to institutionalise because of lack of commitment from school mentors. Properly designed, the ‘out’ training can become a valuable induction period where beginning teachers learn to develop on-the-job teaching and professional competencies whilst also learning to adjust to the realities of teaching.

II.2.2 The UEW ‘out’ programme

The University of Education at Winneba (UEW) recently embraced this school-based teacher training idea and restructured its secondary teacher training programme to include a one year school-based training with mentors offering professional guidance to trainees. The fourth year of the B.Ed. course has been organised as an ‘out’ year, similar to the in-in-out programme described earlier. Students are placed in schools nationally, including private institutions, where around 700 trained mentors give them professional guidance. Student teachers are also supported by link co-ordinators and university supervisors from UEW. As the students are already fairly experienced teachers, and have received three years of in-college preparation, it is assumed that they are able to call on a significant set of resources to support their subject teaching, without recourse to additional specially generated handbooks. During the year the student teachers develop a rather formidable looking Assessment Portfolio, which should contain in all sixteen items, including an action research study, a reflective study, records of assessed lessons, etc. However, none of this battery of instruments involves the student in communication with experienced teachers, observing how they teach and learning by modelling. Darling-Hammond & Wise (1999) rightly point out that, “learning by modelling is a precept of internship.  Learning only by doing – that is by trial and error alone is less effective” (p 128).

School-based teacher training in Ghana is now accepted as a vital part of the process of learning to teach. The developments in this direction show that a number of good practices have been introduced that opens up several opportunities for desired teaching competencies to be appropriately introduced in school practice. But as the research literature points out, for this learning process to be effective training scenarios must be purposely designed around cases and simulations illustrating the challenges of classroom practice (Marcelo, 2003; Korthagen & Lagerwerf, 1996). The ‘out’ school-based model of training in Ghana has the potential to offer student teachers the opportunity to develop practical knowledge of teaching. But this will not happen automatically without carefully designed professional learning activities that try to elicit critical dialogue and reflection of practice aimed at changing traditional views of teaching. As some teacher education researchers have pointed out this is not a simple task given the deeply embedded traditional teaching practices in many schools (Lewin & Stuart, 2003). To develop the sort of teaching and student competencies that the knowledge society expects (Hargreaves 2003), school-based training must be organised to bring teacher education staff, school mentors (experienced teachers) and student teachers in regular contact
for critical dialogue about the kind of professional practices that promote deep learning and problem-solving skills.

III. WHAT ARE DESIRED STUDENT COMPETENCIES AND TEACHING COMPETENCIES: THE GHANA CASE STUDY EVIDENCE

III.1 Introduction: conducting the case study

To develop a comprehensive understanding of the teaching competencies and skills that should be incorporated into the curriculum of university teacher training and those which should be the focus of teachers’ professional development activities, as well as identify gaps between what the research literature says about teacher training and teaching skills, and what stakeholders and policy makers think is important for Ghana, the study examined the perspective of people closely associated with teacher education as well as secondary school teachers. Thus, the study sample included university teacher educators, secondary school teachers and teacher education officials. Table 8 shows the scope of data collection.

Table 8: Scope of data collected for case study

<table>
<thead>
<tr>
<th>Method</th>
<th>Sample group</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interviews</td>
<td>• University teacher educators</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>• Secondary school teachers (focus group)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• Best Teacher Award Winner (secondary)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• Deputy Director General of the Ghana Education Service</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• Director of Teacher Education Division</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• Assistant Director of Professional Development – Ghana National Association of Teachers (GNAT)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>• Secondary school teachers in Cape Coast District</td>
<td>112</td>
</tr>
<tr>
<td>2. Questionnaire</td>
<td>• Analysis of Best Teacher Award winners practices – documented by Ministry of Education, Youth &amp; Sports</td>
<td></td>
</tr>
<tr>
<td>3. Documents</td>
<td>Purpose was to identify what has been identified and documented as desired teaching and student competencies for senior secondary schools</td>
<td></td>
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</tbody>
</table>

This section of the report reviews the evidence gathered in respect of understandings about what constitutes teaching quality, the expected outcomes of secondary education in terms of student competencies and teachers’ reflections on the value of inputs from teacher education on teaching competence. After reviewing the evidence the key messages emerging are discussed to summarise the perspectives on desired teaching and student competencies.

III.2 Desired teaching competencies and skills: views of teachers and university teacher educators

The interview protocol designed for the study took into account the issues raised about learning to teach in the knowledge society in the literature review by Marcelo (2003).
Views from the best secondary school teacher award winner

The runner up to the national best teacher award winner (a Biology teacher with 15 years teaching experience) was interviewed extensively for his views about teaching competencies in the context of his practice and about the kind of classroom interactions he has with students and his expectations of them.

On his view about what counted most in becoming an effective teacher, he recounted these factors.

- He pointed out that learning on the job was the most important factor and recalled the importance of reflecting on his classroom actions and paying particular attention to the things he did that influenced positively student learning.

- The other important input was learning from an experienced science teacher who he was able to observe, explore practical science teaching approaches with, and engaged in frequent discussions about classroom teaching and student learning. He also noted the importance of learning by trial and error and favoured clinical supervision involving close one-to-one professional learning relationship with experienced teachers as a strategy for mentoring new teachers. The point about learning first through trial and error and later by close association with an experienced teacher reflects two important phases identified in teacher induction. Novice teachers often start learning to teach through trial and error but it is also important for them to learn through modelling to advance to more competent performance (Darling-Hammond, Wise & Klein, 1999).

- He noted that in the early years of this teaching career he relied extensively on his subject methodology course at the university, describing it as exemplary because of the way his university science education tutor had modelled effective teaching. His tutor demonstrated teaching behaviour that went beyond simply applying a set of teaching strategies to modelling good practice such as the effective use of group work to promote learning.

He noted that although in some instances teachers would cooperate with each other and work as a team to plan teaching, this was not a common or preferred practice because most secondary school teachers saw themselves as “masters in their own right”, not wanting to be seen to be in the habit of consulting or discussing teaching problems with other colleagues.

On how he would describe his philosophy of teaching he noted:

“I try to get students close to me, for example always use an interesting topic of discussion to begin or initiate a lesson. As a teacher your attitude to students is key to being effective … students must see you as somebody who loves the job. It opens the door to transfer knowledge … it creates an environment for students’ to enquire and actively participate in learning … you have to win the confidence of the boys”.

What he saw as important skills and knowledge critical for effective teaching included the following:

- Good preparation, ability to shift or change from what you expected to teach as students learning needs emerge and become clearer

- Ability to undertake a critical review of curriculum materials (not to take them as given) to meet the needs of learning

- Importance of having absolute control over the content to be learned – you achieve this by reading other sources beyond the syllabus requirements. Must exude confidence in presentation.
• Effective communication with your students, students must understand what you mean (fluent in the English Language) and be able to use or improvise teaching materials to drive home important ideas in the subject.

He referred to his knowledge base of teaching in terms of subject content mastery initially acquired from his university education but more recently through his own efforts which included library research to inform his teaching. In his view, emphasis on learning to teach should be placed on pedagogical subject content knowledge and that this underlined all effective teaching.

On the issue of desired student competencies he summarised it as producing students with a ‘curious mind’ who will not simply accept things as they are. Other important characteristics included developing a scientific approach to knowledge acquisition and good reading and working skills. Additionally, such students should be able to work independently and also contribute to group work. He believed that many secondary school teachers did not work in ways that could produce these competencies because of their very restrictive ideas about teaching and weaknesses in their subject content knowledge base. In his opinion, this was one reason why a lot of secondary school teachers resorted to giving copious notes to students.

Finally, on how to improve secondary teacher education, he enumerated three key things:

• Improving the lecturer (tutor)/student-teacher ratio for more effective teacher training.

• Making it mandatory for student teachers to have some previous teaching experience before enrolling in the B.Ed. programme, thus highlighting the importance of giving preference to candidates enrolling into the B.Ed. programme who had a previous background in teaching.

• University lecturers must have teaching experience at the secondary school level to be able to contribute more meaningfully to secondary teacher training.

In summary the interview with this teacher produced a picture of a teacher who had a much clearer sense of the complex nature of teaching and the importance of cultivating an environment in which students’ knowledge and views play a key role in teaching and learning. His views are compared and contrasted with other secondary school teachers with less experience. This is the subject of the next set of evidence.

**Focus group interview with 4 secondary school male teachers**

General issues that emerged from this interview were the following:

• First of all, the teachers felt that many aspects of their university teacher training particularly subject content courses had little bearing on being an effective teacher. Having a sound content knowledge in the subject was considered important, but equally important is having the ability to present the content to be learned well to students.

• There was a feeling that academic subject knowledge courses taught at the university were important for learning to become a teacher although the reasons given had more to do with the belief that teachers had to have more superior knowledge to teach effectively. There is a difference between this knowledge and the deep knowledge of the structure of teaching subjects. The latter is crucial for effective communication of concepts and ideas about the subject.

• Of the four teachers in the focused group interview, one had recently completed a PGDE teacher training course at the University of Cape Coast. This teacher saw desired teaching competencies mainly in terms of the knowledge and skills he had acquired from the PGDE programme. He contrasted his pre-
sent teaching knowledge after his PGDE training against his previous knowledge before the training, and explained the difference in terms of his ability to write lesson plans, scheme of work, apply specific instructional techniques. He discounted his knowledge and experience prior to teacher training and felt suitably qualified to teach now that he had undergone training.

• The teachers expressed concern about the lack of consistent professional counselling provided by university teacher educators during pre-service teaching practice. University teacher educators on teaching practice were seen as mostly concerned with student teachers ability to apply the knowledge and skills taught in university teacher education programmes. The appropriateness of choice and adaptive behaviour were rarely the subject of professional counselling discourse during teaching practice.

• Interestingly, promoting critical dialogue with students was seen as upon condition that students showed readiness and commitment to engage in such interaction. Where this was lacking, the teachers felt less motivated to create the physical environment conducive for this level of interaction to take place. This attitude stood in sharp contrast to what the 2nd best teacher award winner in the same school said about his students. He felt it was a teacher’s prime responsibility to create conducive environments for students to engage in critical dialogue as they construct and apply knowledge.

• Working with other members of the pedagogical team: On this theme, the teachers felt that this was dependent on the leadership style of the head of department. Competent teachers were considered to be single-minded and independent people who seldom consulted other colleagues. Frequent consultation would be regarded as a sign of incompetence. “Team teaching is not part of the Ghanaian culture” is the way one teacher put it. Competence was associated with the length of teaching service – the longer a teacher served the more competent he or she became. But long service does not necessarily produce highly competent teachers (Marcelo, 2003). Teachers can become experienced in doing very unproductive things. It was not clear whether the teachers fully appreciated competent performance as a function of reflective teaching behaviour that demanded deep and personal involvement with the teaching task. This would required for them to see the essential task of teaching as a problem-solving activity and not simply selecting from a repertoire of teaching strategies that will be effective in every situation. The “… actions of the competent performer comprise an element of interpretation and judgement” (Flyvbjerg 2001, p 13) and such interpretive and evaluative behaviour is located at the heart of teaching as a problem-solving activity.

• On desired student competencies: there was quite a strong feeling that the teachers task was to prepare students to pass the final external examinations and that teaching activity was essentially geared toward achieving this goal. As one of the teachers put “you cannot afford to waste their time”. Similarly, the notion of students working cooperatively in group learning situations was considered counterproductive since group work was likely to devalue personal effort and responsibility – attributes considered important for successful performance in examinations. It is not that the teachers did not see group work as potentially good pedagogical practice. But confronted with pressure to complete the syllabus in preparation for examinations, they were less inclined to use this instructional strategy.

The focus group interview revealed many contrasting understandings about desired teaching competence and student competence with those of the best teacher. It is clear that what distinguished the best teacher from the focus group teachers was the deeper and better understanding of the teacher’s responsibility for creating powerful learning environments that encourages greater student participation in the teaching and learning process. But, also the experienced teacher seemed to have a keener sense of students and teachers as collaborators in the creation and sharing of knowledge.
Views from University Teacher Educators

University teacher educators were asked to reflect on two main questions: what would they consider as desired teaching competencies and secondly, what do they saw as the competencies students in secondary education should be developing. Mainly what they said in relation to the first question reflected key objectives of the university teacher education programme: to provide teachers with a knowledge base for teaching, including subject content knowledge, pedagogical content knowledge, foundations of education, curriculum knowledge etc.

The views as illustrated in box 2 suggests that because teacher educators professional work is not situated in real school classroom context, but rather in university programme context their views reflected the objectives of university programme requirements. Whereas, the experienced classroom teacher views about desired teaching competencies was focused much more on a personalised understanding of teaching from practical experience.

Box 2:
Desired Teaching Competencies

1) Ability to present lesson logically – this mainly referred to systematic or sequential presentation of a plan lesson. Most illustrated this in the context of writing coherent lesson plans using a behavioural framework of teaching and learning

2) Effective questioning techniques – the ability to ask appropriate questions that enabled students to engage in the lesson constructively

3) Good class management and organizational skills – ability to keep the class under control so that teaching and learning is facilitated unhindered.

4) Good communicative skills – this often meant being able to express oneself coherently in the English language so that students could grasp what was being taught.

5) Ability to guide students solve problems

6) Ability to instil discipline in students – this was a point emphasized by all the teacher educators and is also considered by many teachers as a desired teaching competence.

But also only a few of the teaching competencies touched on some of the elements mentioned in the literature review of Marcelo (2003). The exceptions are: “communicating clearly and correctly in the teaching language” (4), “directing teaching-learning situations for the content to be learned” (2) & (5). There was a strong emphasis on the first point and no mention was made of competencies that describe professional and school competencies as outlined in Marcelo’s (2003) review of the literature. But this is hardly surprising. Perhaps university teacher educators were simply recalling the key objectives of university teacher education programmes. The reference “to ability to instil discipline” is a reflection of the importance attached to
authoritarian classroom environments where teachers keep the class under control by means of strict disciplinary actions.

Controlling disruptive behaviour is important in managing an effective environment of learning especially for novice teachers. But as Korthagen & Lagerwerf (1996) point out:

“Such (behaviour) are not compatible with theories of teaching and learning in which the teacher plays a less dominant role. The idea of building on students’ ideas promotes feelings of anxiety: how can one handle the class during the complex process of communicating about meanings?” (p. 189).

And yet the knowledge-based classroom requires that teachers play a less dominant role and create conditions where self-discipline is fostered.

Next, we examine what the teacher educators said in relation to desired student competencies (see box 3 below). A pattern of responses emerges which suggest a dislocation with the teaching competencies presented earlier by the university teacher educators.

**Box 3: Desired Student Competencies**

1) Develop the skills of critical thinking
2) Have the ability to investigate issues, think in scientific terms and possess the ability to deal with numbers in practical context
3) Time conscious, creative and be able to take initiative
4) Possess the ability to solve problems that demand critical analysis
5) Appreciate the sense of responsibility because it is vital ingredient for development
6) Ability to apply what they (students) learn in everyday living activities
7) Ability to extend knowledge and ideas at work places – the point here was that student teachers must be able to adapt the knowledge and skills in the environment of work

The key teaching competencies that teacher educators recalled differ in many respects to those suggested in the literature and if taken as the focus of teaching activity are unlikely to produce such student competencies, especially if teachers’ still maintained an authoritarian instructional posture. The university teacher educators were sceptical about the ability of trained teachers to fuller promote these student competencies because they claimed many were still passive learners or had not fully developed competence in applying the appropriate teaching and learning techniques.

The interview discussion with the teacher educators highlighted the importance of including school-based training in which experienced teachers acted as mentors to ensure that teacher trainees developed a practical and more comprehensive understanding teaching. Teacher educators and experienced school teachers see teaching through different lenses representing their domain of professional activity, bringing them together to work as partners in teacher training has the potential of improving the impact of teacher training on effective teaching. Experienced teachers bring to the training process the importance of the relationship between teacher knowledge, judgement and sensitivity to the physical environment for deep student learning.
Teacher educators, on the other hand, provide the foundation teaching knowledge and skills student teachers need to start on their journey to become a teacher.

This partnership is necessary to create the understanding that learning to teach is a developmental process, starting with institution-based teacher education programme and extending to school-based training and continuing well into the professional career of a teacher. Currently, there is a pervading notion in Ghana that learning to teach is completed after initial teacher training (Akyeampong 2003).

III.3 Perspective of Best Teacher Award Winners

In 1995 the government of Ghana initiated a best teacher award scheme to identify and award prizes to teachers whose classroom and professional practices have been shown to be exemplary. The award day is celebrated as a public holiday with successful teachers awarded prizes ranging from television sets, fridges to a house which is awarded to the overall best teacher. In 2003, the Ghana Ministry of Education, Youth and Sports (MOEYS) published a document describing the best practices of the award winners for the benefit of other teachers in the county. Generally, there are four main award categories.

- Educational – e.g. primary school level, JSS, SSS, Teacher Training, Technical vocational institute level
- Subject-based/Discipline level – Basic school science & mathematics, SSS science & mathematics
- Professional Level – Rural national service teacher, non-teaching personnel, foreign volunteer
- Overall National Best – national best teacher, runner-up and second runner-up.

The selection process starts with headteachers recommending teachers in their school for consideration of an award in a specific category. From there it moves to the district then to the regional level where winners are determined. Nominated teachers are interviewed and observed teaching by a panel of judges. From the regional winners an overall best teacher is determined by a nationally constituted panel of judges. Judges also look for evidence regarding a teacher’s contribution to social development in the community and other professional qualities. More specifically teachers are assessed against the following criteria:

- Innovativeness and creativity in the teaching and learning process
- Efforts made to upgrade his/her academic and professional qualification
- Social impact of teachers work qualifying the teacher to be seen as an opinion leader and role model
- Depth of knowledge teacher displays about educational policies and issues
- Contribution to the development of his/her subject association

For the purposes of this report key points in the report relating to desired teacher competencies is discussed briefly. On the issued of desired teacher characteristics or competence three key areas examined are;

- teachers skills of researching his/her practice and an ability to search and use a wide range of references to plan teaching,
- ability to engage students in learning by addressing the material to be learned to their level of understanding and
- equipping students with problem-solving skills and setting up learning situations that helps to promote positive learning attitudes.
Each of these competencies illustrates the importance attached to practical knowledge and skills. Judges at the district and national levels observe nominated teachers’ practices using a number of criteria. The following have been selected for comment.

- Teacher must nurture the trust and confidence of students by being approachable and friendly. However, the authority wielded should not be undermined by over-familiarity with students
- Create a listening culture
- Encourage teacher-learner-learner interaction
- Demonstrate good class management systems
- Punishment must be streamlined. It must not be at the expense of student’s lessons. The object of the punishment must be understood by the offender and it must be corrective rather than vindictive

The first three points reflect an attempt at creating the right conditions for students to become actively involved in learning. To achieve this will require less authoritarian teacher behaviour. But at the same time there is concern as expressed in part of 1st, 4th and 5th points that the competent teacher must maintain an authoritarian posture. How teachers manage the balance between actions that encourage students to actively explore knowledge, and at the same time project an authoritarian image that is interpreted to mean keeping students in a subordinate learning position would be the challenge Ghanaian teachers will face. It is a tension located at the heart of the professional teaching culture in Ghana and largely reflects the Ghanaian society’s expectation of how adults and children communicate and relate (Akyeampong 2003).

Another dimension that is considered in the best teacher award scheme is teacher development. Here, judges look for evidence of whether the teacher has either participated or made the effort to enrol in professional development activities. It is an assessment which is supposed to test the teachers’ commitment to continuous professional development. Examples of the criteria used in this assessment are:

1. Teacher must show evidence of having undertaken action research into education to inform his/her classroom practice
2. Record of in-service training organized at school, cluster, national levels etc. This in-service training could take the form of seminars, workshops or lectures
3. Provide concrete plans to upgrade his/her qualification. In this respect all avenues such as study leave and distance and open learning should be explored by the teacher
4. There must be evidence of the teacher in the habit of sharing his/her experience in teaching with colleagues. This practice of exchanging views and ideas with others helps to update teachers’ knowledge and skills

In all the areas examined by the award committee, mastery of subject content although raised as an important quality is not given the kind of prominence noted in teacher education programmes and by university teacher educators.

The only reference to ICT is with respect to teacher education programmes where the criteria states that “teachers (must have) pursued courses and programmes which would enable them keep pace with current globalization practices (and) include skills in information and communication technology to enable (them) access information and link up with other colleagues around the world” (p. 5). Such criteria may only be there to remind teachers of the importance of ICT in the service of teaching and professional development. It is unlikely to motivate teachers to actively use ICT as a teaching and learning resource and for enhancing their professional development since it does not actually seek direct evidence regarding such uses.
In conclusion, a list of the teaching competencies of 10 best teacher award winners in the secondary division illustrates once again the sharp contrast in desired teacher competencies between best teacher award winners and teacher education programmes and teacher educators as discussed earlier in the report.

Examples of what best teacher award winners say are the characteristics of their teaching:

- Learners are active contributors to teaching topics
- Create conditions for learners to apply knowledge to everyday life
- Create conditions for good teacher-student relationship
- Act as a guide to build students confidence in learning
- Place a lot of emphasis in teaching on improvising to communicate effectively the subject matter to be learned
- Engage students through demonstrations rather than giving them information
- Ensure logical sequence in the development of concepts, principles on which broad knowledge rests
- Ensure regular assessment of learning to enable teacher take corrective measures in teaching and learning
- Plan lesson with adequate illustrations and analogies
- Maintain a balance between facilitator role and the need to be a role model for students
- Create conditions that encourage students to approach teacher with learning difficulties but still maintain a distance since “over-fraternization undermines discipline and devalues teacher’s status as role model” (p. 23)
- Maintain mastery over the subject matter to be taught and employ skilful questioning to deepen students’ understanding of what is being taught

(Best Teacher Practices, MOEYS 2003)

It is important that these understandings about what makes teachers effective in their practice are reflected in some of the teacher education courses at the university level. This will help to improve the link between initial teacher training and practical teaching experience.

III.4 Policy makers and other stakeholders views on learning to teach

This section draws from interviews conducted with the Deputy Director General (DDG) of the Ghana Education Service (GES) who has considerable experience of teacher education, the Director of Teacher Education (DTE) of the GES and an Assistant Director of the Ghana National Association of Teachers (GNAT) responsible for professional development. The interview focused more on policy related issues.

Both DDG and DTE strongly favour teacher training programmes which lays more emphasis on pedagogical knowledge and pedagogical subject content knowledge, rather than the current emphasis on subject content knowledge. But there was recognition that because many candidates for teacher training, especially those applying for post-secondary teacher training possess weak subject knowledge backgrounds, this has provided the justification for programme designers to give a disproportionate amount of training time to subject content knowledge teaching (Akyeampong 2003b). The DDG however believed teacher training

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5 The deputy director was for a long time principle of one of Ghana’s leading teacher training colleges and before his appointment as deputy director of the GES was deputy director of teacher education at the Teacher Education Division of the GES.
programmes should give equal attention to student teacher’s pedagogical knowledge and skills, and that, the way to accomplish this was not to try and cover everything teachers are expected to know and do, but instead devote time to training teachers how to learn and seek for information. In other words, doing less in terms of curriculum coverage and instead strengthening student teachers ability to learn how to search for and integrate relevant information and knowledge about teaching into practice.

The importance of ensuring that secondary school examination requirements are aligned with the desired student competencies was raised in the interviews. In their view, current examinations requirements favoured teaching and testing lower order cognitive skills. This encourages teacher-centred instructional approaches. Shifting the emphasis to high-order cognitive abilities where problem-solving, critical discussions and library research form the core of student learning experience would be possible if examination requirements changed to reflect this orientation in learning. It points to the need for systemic change where reform targets all the relevant sections of the education system to reinforce common teaching and learning values for the knowledge society.

Another issue raised is the impact of large classes on pedagogical practices. Pointing to instances where in some schools the teacher to pupil ratio can be as high as 1:50 or even more, it was noted that this situation generally encouraged teachers to adopt less participatory teaching approaches.

According to the two GES directors, there are no clearly articulated policies for regulating standards in secondary teacher education. University teacher education programmes by de facto defines the requirements and standards of secondary teacher education. The DDG believed that by beginning a process of documenting best teacher practices attention will be drawn to the critical factors that make teachers effective and possibly cause a shift in thinking about teacher education policy and programming.

There was general consensus among the interviewees that the future of teacher education in Ghana lies in locating more of training in school-based context but at the same time, ensuring that it is well coordinated and structured to fully realise the benefits. Also the introduction of performance related policies that are linked to desired teaching and student competencies was recommended as a way to motivate good practices in secondary schools.

The AD of GNAT focused most of his comments on the general culture of teaching in secondary schools and how in his opinion this culture was resistant to change. Such is the powerful influence of this culture that as he put it “the old ones (long serving teachers) change the new ones instead of the new (beginning teachers) influencing the old”. His assessment of secondary school teaching was that it tended to be teacher-centred thus limiting the opportunities for genuine knowledge sharing and knowledge construction with students. For schools to become productive learning centres school library facilities especially needed to improve significantly.

According to the AD participatory instructional approaches are often shunned by teachers because of the fear that students consider them as a sign that a teacher lacked confidence and knowledge of the subject matter. There is an uneasy feeling among such teachers that students will think “you (teacher) don’t know your stuff if you adopt a team approach to teaching or ask them to be responsible for developing their understanding”.

On desired teacher competencies for effective secondary school teaching, the AD pointed to three main things: good subject knowledge base, effective communication skills and creativity in teaching. Unfortunately, he added, secondary teacher education programme designers lack deep understanding of what skills and knowledge teachers require to perform competently in secondary schools – a view shared by the DDG and Director of Teacher Education.
On desired student competencies the AD of GNAT acknowledged two important qualities: (i) *ability to analyze information and apply knowledge* and (ii) *ability to use knowledge in practical life situations and show understanding of the knowledge required to address particular problems.*

His position on the policy reformulation to move teacher education forward raises the importance of a system-wide approach to change in education practice. He argues that teacher education reform should be based on a synthesis of the real needs ‘out there’ (conditions that act to mediate the effect of teacher competencies), and also that change must be systemic. For example, if secondary school curriculum designers advocate teaching to develop problem-solving abilities, the curriculum and pedagogy of teacher training must reflect this, as well as assessment policies and practices. In sum, teacher education policy changes must be conceptualised in the context of wider education reforms. This goes back to an earlier point raised in this report that, unless there is a serious effort through policy and programme reforms to share and transfer *best teacher practices* within and among teacher education programmes and individual teachers, fostering desired teacher competencies on a wider scale will be difficult to realise.

### III.5 Desired Teaching Competencies: Survey Findings

#### III.5.1 Introduction

A quick survey was conducted to develop insights into the extent to which some of the desired teaching competencies from the research literature reviewed by Marcelo (2003) are recognised as being present in schools. This survey is fairly limited in providing insight into what teachers actually do. Thus what teachers indicate about the extent, to which each of the competencies occurs in their practice or is recognised in their school, is unlikely to be as is described in the literature, for the simple reason that the contexts are different. Nevertheless the survey was an attempt to provide an approximate idea rather than gauge the exact situation in secondary schools in Ghana.

#### 3.5.2 Profile of Professional Characteristics

Table 9 & 10 show the years of teaching in secondary school and number of in-service teacher training courses attended in the last five years. The teachers were sampled from 8 Senior Secondary Schools in the Central Region of Ghana.

**Table 9: Teaching Experience of Sampled Teachers**

<table>
<thead>
<tr>
<th>Number of Years teaching in secondary school (years)</th>
<th>Number</th>
<th>Percentage (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>41</td>
<td>36.6</td>
</tr>
<tr>
<td>3-6</td>
<td>40</td>
<td>35.7</td>
</tr>
<tr>
<td>7-9</td>
<td>9</td>
<td>8.0</td>
</tr>
<tr>
<td>10 or more years</td>
<td>22</td>
<td>19.6</td>
</tr>
<tr>
<td>Total</td>
<td>112</td>
<td>100</td>
</tr>
</tbody>
</table>

* approximated to one decimal place hence total may not round up to 100%
Table 10: Number of in-service attended in last 5 years

<table>
<thead>
<tr>
<th>In-service attended</th>
<th>Number</th>
<th>Percentage (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>56</td>
<td>50.0</td>
</tr>
<tr>
<td>1-3</td>
<td>40</td>
<td>35.7</td>
</tr>
<tr>
<td>4-6</td>
<td>14</td>
<td>12.5</td>
</tr>
<tr>
<td>7-10</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>More than 10</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>112</td>
<td>100</td>
</tr>
</tbody>
</table>

* approximated to one decimal place hence total may not round up to 100%

Table 9 shows that over 70% of the surveyed teachers had been teaching in secondary school for up to about 6 years. Assuming that 10 years teaching experience is a reasonable length of time for teachers to develop a deep and personalised understanding of teaching, then most of the sampled teachers could be classified as being in their early professional developmental stage. Less than 30% have about 10 years teaching experience. Table 10 shows that about 50% had not attended any in-service training since graduating from teacher training. In the reform choices for teacher education programmes in Ghana that would allow a better match between teaching knowledge and skills and desired student competencies, (discussed later in section 4) it is suggested that the school-based part of teacher training be recognised and organised as an induction into teaching. This is because many teachers in the early years of their professional career are unlikely to receive any form of in-service training as the survey results indicate.

3.5.3 Survey findings: the extent of acquired teaching competencies

Table 11 shows the results of the survey with respect to the desired teaching competencies that teachers think is in operation in their school practice. The specialist subjects of the teachers surveyed are as follows: (1) Business (14.3%); Science (32.1%); General Arts (42.9%) and Visual Arts and Home Economics (10.7%).

Table 11: Survey results of extent of acquired desired teaching competencies in percentages (%)

<table>
<thead>
<tr>
<th>Competencies</th>
<th>High</th>
<th>Moderate</th>
<th>Minimal</th>
<th>Not acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Working closely with other teachers to discuss &amp; plan teaching</td>
<td>36.0</td>
<td>44.1</td>
<td>16.2</td>
<td>3.6</td>
</tr>
<tr>
<td>2. Sharing information on learning progress with students</td>
<td>22.5</td>
<td>46.8</td>
<td>24.3</td>
<td>6.3</td>
</tr>
<tr>
<td>3. Planning teaching and learning for greater student participation</td>
<td>40.5</td>
<td>44.1</td>
<td>13.5</td>
<td>1.8</td>
</tr>
<tr>
<td>4. Using ICT in the preparation and development of teaching learning activities</td>
<td>9.9</td>
<td>14.4</td>
<td>47.7</td>
<td>27.9</td>
</tr>
<tr>
<td>5. Adapting teaching to student learning needs</td>
<td>53</td>
<td>40</td>
<td>5</td>
<td>0.9</td>
</tr>
<tr>
<td>6. Using variety of resources and resources as reference for subject matter to be learned by students</td>
<td>40.9</td>
<td>39.1</td>
<td>18.2</td>
<td>1.8</td>
</tr>
<tr>
<td>7. Communicating clearly and correctly the content of subject to students</td>
<td>67.6</td>
<td>26.1</td>
<td>3.6</td>
<td>2.7</td>
</tr>
<tr>
<td>8. Organising and supervising group work in order to help students’ learning and socialisation</td>
<td>39.6</td>
<td>39.6</td>
<td>16.2</td>
<td>4.5</td>
</tr>
<tr>
<td>9. Developing fresh insights into your subject through subject group meetings</td>
<td>20.7</td>
<td>45.9</td>
<td>23.4</td>
<td>9.9</td>
</tr>
<tr>
<td>10. Giving students project work assignments</td>
<td>39.6</td>
<td>41.4</td>
<td>16.2</td>
<td>1.8</td>
</tr>
</tbody>
</table>
Generally the results suggest that many teachers have acquired to a reasonable extent a lot of the desirable teaching competencies. What the survey results do not suggest is the extent and quality of these skills. The survey requested teachers to indicate the context under which the skills had been mostly acquired or developed, but the results showed some confusion in locating exactly the context and were therefore discarded. Nevertheless we can speculate on some possibilities given that about 50% had not taken part in any in-service training activity and the majority were in the early years of their teaching career (about 72%). This profile suggests that many of these competencies are at an early proficiency level. Thus, for example, it is possible that ‘moderate acquisition’ could mean anything from low to moderate proficiency.

The use of ICT (4) in preparation and development of teaching learning activities although low suggests that some teachers may be finding ways of using computers in teaching and learning. Only 1 out of the 8 schools did not have a computer laboratory. In depth qualitative research will be required to establish just how teachers use computer facilities in teaching and learning. About 68% indicated they communicated clearly and correctly the content of subjects to students – again what we cannot say is whether this was done through a prescriptive instructional approach or by using participatory teaching and learning processes. In general, if the results of those responding ‘minimally acquired’ and ‘not yet acquired’ are combined, they do show that a good number of teachers still need support in developing these desired competencies.

III.6 Teaching science and mathematics in secondary schools: syllabus requirements for developing desired student competencies

Integrated Science & Core Mathematics

Both the new integrated science and core maths syllabuses for SSS provide very clear ideas about what students are expected to be capable of doing as a result of teaching and learning. Although both syllabuses still present the objectives of teaching and learning in behavioural terms, they advocate a greater focus on higher-order thinking skills.

In the preamble to the main SSS syllabus the designers point out that a new direction is being sought in the classroom learning environment by “moving teaching and learning from the didactic acquisition of ‘knowledge’ to a new position where students will be able to apply knowledge, develop analytical thinking skills, synthesize information, and use their knowledge in a variety of ways to deal with learning problems, and with problems and issues in their lives” (Senior Secondary School Integrated Science syllabus p.viii). To achieve such objectives both science and mathematics syllabuses mention the need for teachers to “avoid rote learning and drill-oriented methods and rather emphasize participatory teaching and learning ...” (p. viii). For example, the syllabuses suggest that teachers should begin each lesson with a practical problem and aim to develop the following student competencies:

1. Ability to use knowledge and other types of information not specifically taught in class

2. Ability to analyze problems, suggest solutions, criticize solutions offered, justify solutions and evaluate the worth of possible solutions

The Integrated Science syllabus recommends that in developing students “practical and experimental skills (PES) teachers should pay particular attention to: hypotheses generation, ability to modify and change procedures when difficulties arise, creativity and persistence. The core mathematics syllabus also advises teachers to give students tasks that will challenge them to apply their knowledge to issues and problems.

These desired student and teacher competencies resonate with a lot of what the research literature suggests are important for teaching and learning in the context of the knowledge society. But prescriptions do not necessarily translate into practice and as the research literature and some of the case study evidence sug-
suggests, changing professional practices of teachers is often an uphill task. But the point is clear: the requirements of teaching and learning at secondary level in Ghana places considerable emphasis on most of the teaching and student competencies and skills advocated for the knowledge society. But most of the teacher education programmes are not properly aligned in terms of philosophy and practice to achieve these expectations of the secondary school curriculum. The documentation of best teacher practices can be used as a useful learning resource in teacher education programmes to alter this, but also in planning well-structured activities for appropriate professional learning to occur.

3.7 Key Emerging Issues from the Case Study

In section 1.4 one of the questions posed for the case study was:

- **What is the nature of the gap between what the research literature about teacher training and teaching skills is saying, and what Ghana is actually doing in terms of teacher education policies and practices, and what teacher educators, policy makers and other stakeholders think is important for Ghana?**

1. The Ghana case study has given some indication about the nature of the gaps in desired teaching and student competencies as compared to the research literature evidence literature. Mainly this is between what teacher education programmes and what teacher educators emphasise as important, especially desirable teaching competence and what policy makers say is necessary for the country. The focus of teacher education programmes and teacher educators on prescriptive teacher behaviour is unlikely to produce the desired student competencies as explained in the literature. However, there is better agreement between what teacher educators advocate and the general view of the research literature on desired student competencies.

2. Mismatch between what teacher educators viewed as important teaching competencies and what they said should be desired student competencies seems to be the result of teacher education programme insensitivity to context, experience and practical knowledge as key elements of effective teaching.

3. Desired student competencies are clearly articulated in school curriculum and by teacher educators and experienced teachers (best teachers). Experienced teachers also seem to have a better and deeper understanding of the kind of teaching skills required to promote desired student competencies, whereas teacher educators appear less sensitive to this understanding.

4. The case study evidence demonstrates that policy makers and experienced teachers (best teachers) place greater emphasis on the role of practical knowledge and experience in becoming an effective teaching. Also they consider a strong subject knowledge base as equally important but place emphasis on teacher’s ability to teach school subjects meaningfully and effectively.

- **How can professional knowledge and skills be efficiently transferred and shared within and among secondary teacher training programmes and individual teachers?**

Again from the case study, there is greater match between what experienced teachers say they do and the desired student learning outcomes and attitudes stated in subject syllabus (e.g. science and mathematics). Thus, it would be more productive to find ways of integrating the knowledge base of experienced teachers into teacher education programmes. However, most of the knowledge of experienced teachers is tacit knowledge and difficult to objectify and codify. Thus, teacher education programmes and in particular teacher educators, have to work in closer partnership with experienced teachers to create situations where student teachers can observe experienced teachers at work, and enter into critical dialogue with them about
their *classroom work* (Eraut 1996), analyse this knowledge and how it relates to desired student competencies.

The documentation of best teacher practices is a good start to make this knowledge more accessible to student teachers and especially the novice teacher. It could also be used for in-service training. As experienced teachers write about their practice this can be developed into critical case studies of effective practice and used in teacher training.

**IV. CONCEPTUAL FRAMEWORK FOR LEARNING TO TEACH**

**IV.1 Brief Overview on Research on Learning to Teach: A Changing Conception**

Research on learning to teach has moved towards a consensus that teaching is an intense and complex activity embracing much more than applying a set of predetermined strategies or teaching behaviour (Dwyer 1995; Danielson 1996; Darling-Hammond et al., 1999). Although the research recognizes that certain specific teacher behaviour or actions can positively influence the quality of student learning outcomes, this effect on students has also been noted to vary under different circumstances (Doyle, 1978; Shavelson and Dempsey-Atwood, 1976). Following a review of research on the extent to which teacher behaviour can be generalised under different conditions and circumstances, Shavelson & Dempsey-Atwood concluded that, in educational contexts “generalisability may be extremely limited”, due to variability in teacher behaviour over time and differences in pupil characteristics (p. 610). Similarly Darling-Hammond et al., (1999) notes that some research on teaching suggest that effective teaching behaviours may even vary for students due to differences in their socio-economic and psychological characteristics as well as for grade levels and subject areas. Thus, it is not possible to generalise the effectiveness of any particular teacher behaviour or a set of teaching repertoire over all classroom situations, contexts and student characteristics (Feiman-Nemser & Remillard 1996).

What has rather emerged from insights into the complex nature of teaching is that, teachers who are effective in achieving their goals of instruction intelligently adapt their subject matter knowledge “to the variations and ability and background presented by the students” (Shulman 1987, p. 15). In effect, the quality of teachers’ pedagogical reasoning makes all the difference to whether what they do in their classrooms will have positive impact on student learning or not (Shulman 1987). Because different teaching situations and learner characteristics mediates the effect of teachers’ actions and effectiveness, *how* teachers adapt their professional knowledge and skills (i.e. transform their competence) under different instructional circumstances to achieve desired goals, stands as an important test of teachers’ classroom effectiveness. In Shulman’s (1987) view pedagogical reasoning is linked to the practical aspect of teaching through *teachers’ comprehension of purposes, subject matter structures and ability to transform these through stages of preparation, representation, selection and adaptation*. The ability to effectively do so is what differentiates expert teachers from their novice counterparts. Unlike novices, expert teachers are more able to adopt appropriate teaching strategies that maximises their ability to promote student learning.

Yarbrough (1995) points out another important understanding of teaching which has implications for teacher education. He observes that teaching presents itself as an ill-defined problem that can have no predefined solution strategies. By that he means, “ill-defined problem solving is not inherent in teaching per se but rather may or may not describe the representations that teachers bring to bear on particular constellations of stimuli arising in specific teaching situations”(p. 51). In effect, teachers’ representation of teaching provides the boundaries for conceiving their solution strategies. Consequently, if teachers are unable to ap-

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6 According to Michael Eraut (1996) “classroom knowledge is built into the actual process of teaching and incorporates much of what is sometimes described as “practical know-how”. Much of it is learned on the job and it is difficult to codify and describe” (p. 1).
precipitate the full implications of specific teaching situations defined by such variables as student subculture, classroom climates, ability groups, learning environments etc., on their instructional strategies, their actions are unlikely to contribute significantly to student learning. This notion highlights the importance of distinguishing between teachers’ competence – as what teachers know and can do (representing the knowledge and skills acquired through college/university based teacher programmes) and teacher performance – what teachers do in specific job situations (representing dynamic quality of teachers in the teaching process). How well teachers are able to deal especially with student characteristics and school/classroom conditions determine the quality of their classroom performance (Cheng & Tsui, 1998). Thus, an important task of teacher education programmes has to be to help student teachers’ appreciate the value and importance of effective pedagogical reasoning in fostering desired student competencies.

Despite its contextual nature effective teaching is underpinned by some broad principles of professional practice (e.g. Good & Brophy, 1980, Danielson, 1996). For example, Danielson (1996) enumerates four broad domains of teaching responsibility that form part of the framework of professional practice developed by US Educational Testing Service (ETS) PRAXIS III for Classroom Performance Assessment of teachers. These include, “planning and preparation, classroom environment, instruction and, professional responsibilities. These broad domains or “commonalities” do not override the importance of individual choices and decisions that reflect particular response to the individual characteristics of the teaching situation. Rather, such domains provide boundary for professional discourse on what constitutes key responsibilities towards effective practice. As Danielson (1996) notes:

“Even though good teachers may accomplish many of the same things, they do not achieve them in the same way. Therefore, a list of specific behaviours is not appropriate. Rather, what is needed is a set of commonalities underlying the actions, with the recognition that specific actions will, and should vary, depending on the context and the individual” (p. 17).

Danielson uses the example of “providing feedback to students – rather that the specific actions to provide such feedback” to illustrate the point that the commonalities, broadly speaking, represent effective practice and not the specific actions since these may vary depending on the particular situation and objective of teaching.

This picture of teacher effectiveness painted above is a call to traditional teacher education programmes to adopt an approach to learning to teach based on an understanding of teachers’ professional development as a dynamic process starting from initial teacher training and extending well into the entire professional career. Thus a map of desired teaching competencies and skills should illustrate a notion of competencies developing progressively from the initial teacher training phase, through to the beginning teacher phase and well into the professional development phase (Marcelo 2003). With this understanding, college/university teacher education programmes should, therefore, structure the content of their programmes to purposely interface and integrate with school-based teacher education with the objective of developing practical teaching knowledge and skills. Ultimately, it is the quality and effectiveness of transforming what teachers should know and do into effective classroom practice where students are engaged in deep learning that matters most in learning to teach. Also, at the school level teachers’ work within the context of a learning community comprising students, parents, and colleagues. Teachers, therefore, have to develop competencies that foster good relationships with all members of this community, with the objective of promoting conditions for desirable student competencies.

IV.2 Map of Teaching Competencies and Skills

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7 PRAXIS III: Classroom Performance Assessments were derived by Educational Testing Service (ETS) in the US for assessing the “teaching skills of beginning teachers that recognises the complexity of teaching and the primacy of student teacher interactions in assessing it” (Dwyer, 1998)
Which are the teaching competencies and skills that should be incorporated into the curriculum of secondary teacher training, and which are those that should become the preferred focus of teachers' professional development activities and policies?

Several examples of desired teaching competencies and skills can be found in the teacher education research literature, but for the Ghana context we will adapt the one presented by Marcelo (2003), which is also adapted from Martinet, Raymond and Gauthiers (2001). The Ghana case study showed that experienced teachers have a more dynamic understanding of effective teaching orientated towards facilitating desired student competencies. In adapting Marcelo’s (2003) map the following suggestions have been made to take into account the Ghanaian context of teacher education.

1. First, it is suggested that level II of the model (induction phase) be included as part of the initial teacher training phase and considered as the school-based component of teacher education. In this case, the ‘out’ phase of teacher training described earlier is used to provide opportunities for developing practical insights into teaching. During this training phase experienced teachers play a major role by modelling effective teaching and coaching student teachers on how to adapt their teaching knowledge and skills in response to classroom situational needs. The suggestion is that an extended period of school-based training should be treated like an induction into teaching with emphasis placed on learning from more experienced teachers. Properly conceptualised and organised this has the potential of forging closer training partnership relationship between college/university teacher educators and experienced teachers in schools to the benefit of the student teacher.

2. College/university teacher education programmes usually include courses that address specific aspects of learning to teach e.g. methods of teaching science or mathematics, curriculum studies, psychology of human/child learning etc. It will be useful to design such education courses so that they take into account the implications for developing desirable teaching competencies. Practically, this could mean providing frequent opportunity during the course for student teachers to discuss and reflect on the meaning of the knowledge for use in the Ghanaian classroom, school and professional environments.

3. Incorporated into the Marcelo (2003) map are the four broad domains of teaching responsibility presented by Danielson (1996):

(1) Planning and Preparation,

(2) Classroom Environment,

(3) Instruction and,

(4) Professional responsibilities

Teaching competencies are subsumed under the broad domains 1-3 and developed in college/university based programmes as well as school-based teacher training contexts. Professional and School competencies are given more attention during school-based teacher education programming. The 12 competencies and their descriptors (Marcelo (2003) (see appendix 1) provide more detailed information to develop professional learning activities for initial training, induction (or ‘out’ school-based training) and continuous professional development (or in-service). This approach has the potential of keeping close the link between desired teaching knowledge and skills, and desired student competencies at all stages of teacher education programming. In the design of programmes it is important that the 12 competencies are used to inform the design of professional learning activities.
Level I: Initial Teacher Education (college/university based programmes)

Level II: School-based teacher training (‘out’ programmes)

Level III: Continuous Professional Development (In-service teacher training)

The 7 teaching competencies are developed within the context of the 3 broad domains: planning and preparation, classroom environment and instruction

Professional and School Competencies, the remaining 5 are developed within the context of the professional responsibilities.

5.0 Implications of desired teaching competencies for Policy and Practice in Ghana

- Which reform choices in secondary teacher training are likely to allow a better match between teaching knowledge and skills and desired competencies in student learning?

1. Teacher Assessment and Certification
Reforming the system of assessment and certification of teachers is one important step to foster a better match between teaching knowledge and skills and desired student competencies. To qualify to teach in the secondary school in Ghana, student teachers have to pass written exams and teaching practice, which usually consists of testing teacher trainees’ ability to apply teaching knowledge and skills taught in the university teacher education programmes. There is little motivation under this assessment system for teacher trainees to work towards developing practical knowledge of teaching. A certification assessment system could be introduced that require, apart from knowledge of specific instructional practices, prospective teachers to show deep conceptual understanding of teaching as a problem solving activity. Assessment tasks or activities can be designed to determine to what extent prospective and beginning teachers have “… acquired the knowledge and judgement required to evaluate what strategies are appropriate in very different situations and whether [they] can apply these understandings in practice” (Darling-Hammond et al., 1999, p. 101 emphasis added). Assessing such abilities will require more complex assessment methodology than the current teacher education examination requirements in Ghana.

In a new Education bill soon to be introduced in Ghana, prospective teachers will now be required to apply for a license to teach from a National Teachers Council (NTC). To obtain this license, a teacher will be expected to produce evidence of minimum teaching experience after initial teacher training. This initial teaching experience is expected to include evidence of having gone through a process of induction into teaching. A license will be issued for a specified period after which a teacher will have to apply for renewal. This impending change in teacher certification and licensure policy presents an ideal opportunity to make teacher certification more tied in with desired teaching competencies. A new teacher certification assessment scheme could be used to induce desirable teaching abilities by ensuring that:

- Assessment tasks provide better assurance that teachers who are certified have the potential to work towards more effective practice. This means improving the validity evidence of teacher certification assessment so that a teacher seeking a license to teach works towards developing the desired teaching competencies.

- Certification is provisional until after induction in schools where further evidence can be produced about beginning teachers’ practice and professional dispositions. Evidence for certification must then reflect an assessment of practical skills and knowledge and how they have contributed towards desired student competencies.

This process of certification could also be adopted for teacher promotion to replace the current situation where teachers are promoted on the basis of the length of teaching service, rather than on evidence of professional growth. Figure 2 illustrates how such an assessment scheme can be conceptualised for certification and promotion policy.

**Figure 2: Model of Teacher Certification & Promotion for Secondary Teacher Training**

3 or 4 year college/university teacher education programme that includes an ‘out’ phase

1 year ‘Out’ induction phase – school-based training

Licensed to teach – promotion level 1

Promotion Level 2 … Nth
level – following further professional development

Performance-based assessment e.g. portfolios, interview etc.

Initial Teacher Education

The length of arrow is indicative of the length of teaching experience *before* reaching the next stage of assessment for promotion. Figure 2 also incorporates all three levels of learning to teach: initial teacher education, induction and continuous professional development.

Criteria for performance-based assessments can be based on the 12 teaching, professional and school competencies that are described in appendix 1. Because the competencies form the criteria for certification assessment this is likely to promote a stronger link between teaching knowledge and skills, and desired student competencies. As pointed out earlier, because the Ghana Education Service (GES) has experience of using judges to select teachers for best teacher awards, it could easily adapt this for a new teacher promotion system. As teachers progress from one stage to the other the assessment and evaluation activities for promotion should become increasingly more demanding. Teachers who reach the highest levels will be equivalent to the ‘best teachers’ as currently determined through the best teacher award scheme.

2. Institutionalising the role of experienced teachers in school-based teacher training.

Another possibility is to identify highly proficient teachers who will work in close partnership with college/university teacher educators in training teachers. This can help to raise the value and importance of practical knowledge in teaching. A start has been made with the Best Teacher Award Scheme. Experi-
enced teachers can work with university teacher educators to develop appropriate learning activities for school based teacher training. The challenge is identifying sufficient number of highly proficient teachers who will act as mentors for school-based teacher training.

3. Institutionalising the structures for life-long learning in teaching

Linking promotion to attractive teacher remuneration especially at the higher professional grades can motivate teachers to work towards high levels of proficiency with attendant positive effect on student learning and achievement. Once a new promotion system has become a part of the professional culture, teachers will become more interested and motivated to participate in life-long learning in teaching.

4. Improving teacher professionalism and competence in schools: using best teachers as change agents

The Ghana case study has shown that experienced teachers possess deeper insights into what makes teaching more effective. Creating conditions where highly proficient teachers share their knowledge and insight into teaching with colleagues at school level should be a major objective of school-based in-service activity. Given the individualistic teacher culture at secondary school level in Ghana, this will not be easy to achieve. However, if regular participation in such school-based in-service activity is made one of the criteria in a teacher promotion system, teachers may be galvanised into working more cooperatively, and learn to share their knowledge and experience of teaching without threatened into feeling that this is unprofessional. In other words, teacher education policy must specifically target the teaching culture for reform by introducing incentives that would motivate teachers to change their individualistic working culture, and embrace the culture of teamwork where teaching knowledge is regularly discussed and shared.

5.1 Making secondary teacher education reform alternatives succeed: what are the necessary policy conditions?

Five policy conditions have been identified for supporting the changes presented in this report and are discussed briefly.

1. A New Legal framework of teacher professionalism

Many of the recommendations presented in this report will simply not be realised if the appropriate teacher education policy conditions are not introduced to motivate change. For a start, a change in the way teachers are assessed and certified as described earlier should provide the right environment for changes in the way teachers think and practice teaching. The new education Bill in Ghana which is seeking among other goals to link teacher certification and licensure to evidence of professional teacher development activity will strengthen any new teacher certification assessment policies. Currently, there are no clearly stated policies and explicitly defined teaching standards that guide the activity of secondary teacher education in Ghana. Policies that introduce fresh ideas about teaching have to find expression in all aspects of teacher education programming, such as; its objectives, pedagogy, assessment and certification policy.

2. ICT in teacher education

The development of new information and communication technologies (ICTs) has been rapid and is transforming work and knowledge production. Clear policies and guidelines are required to show how ICT should be used to introduce teachers to new ideas about teaching and how schools can network professional development activities. For example, a special website can be created where teachers can post their experiences and ideas about teaching for feedback comments from other teachers. This can generate a wealth of knowledge and understanding about effective teaching in Ghanaian schools.
3. **Resources to support changes in teacher education policy and practice**

If university teacher education is to change its orientation and work in closer partnership with schools especially to induct student teachers or beginning teachers into teaching, then resources must be committed to support this practice. Teacher education in Ghana is front-loaded in the sense that almost all resources are committed to the initial teacher training phase leaving nothing for future teacher development activity. Institutionalising induction programmes where experienced teachers act as mentors to train student teachers or beginning teachers will require some sustainable funding arrangements. The proposed changes in the way teachers are promoted using judges who visit teachers and assess their work will also mean providing budgetary support to sustain this activity.

4. **Role of Teacher Unions**

Recently, SSS teachers in Ghana broke away from the Ghana National Association of Teachers (GNAT) to establish the National Association of Graduate Teachers (NAGRAT). This union was formed because graduate teachers have often felt the need to be treated differently, mainly in terms of remuneration, from basic school teachers who are mostly post-secondary teacher graduates. Dialogue with teacher unions such as NAGRAT should be aimed at encouraging its membership to embrace a teacher development and promotion policy that is based on standards of professional practice for SSS teaching.

5. **Teacher Education Instructional Materials**

A key step towards supporting teacher education policies that attempt to break from behaviourism as a philosophy of learning to teach is to ensure that teacher education instructional materials are less close-ended – this is to break with the deterministic view of teaching. Instead, more open-ended and inquiry based approaches must be introduced and become the building blocks for learning about teaching in African contexts. As student teachers use such materials, create new ones on the job and document their learning experiences, they would be developing more personalised understandings of teaching. Pre-service and in-service teacher training should make more use of cases of teaching scenarios where these are analysed and the implications for practice evaluated. What should become of the more conventional pedagogy of teacher education such as, ‘pedagogic content knowledge’, ‘education and professional studies’, ‘subject content’ etc.? Along with learning and educational theories (e.g. child development), these should still have important roles in learning about teaching, but should be presented in contexts which allow critique and evaluation of their implications for practice in the Ghanaian school system. Also, it is important that such content are presented through inquiry-based approaches with greater responsibility for understanding teaching and its variable component parts shifted to trainees.

5.2 **Training teachers in a knowledge society: issues for dialogue between policymakers, stakeholders and teacher educators in Ghana**

Unlike recent efforts to reform primary teacher education in Ghana which brought important stakeholders together to discuss the findings of research conducted in Ghana, secondary teacher education has been completely ignored. In fact some of the recent changes in teacher education policy for training basic school teachers have come about as a direct result of stakeholder meetings that discussed findings of teacher education research about learning to teach at primary and JSS levels. A similar national symposium on secondary teacher education that examines the issues concerning secondary teacher education can be organised as a starting point for dialogue between all relevant stakeholders.

The dialogue should include the following critical issues that have been identified in this report:
• Clarity about the philosophy of secondary teacher education – what should it be trying to achieve and what are the implications for how secondary school teachers are trained, assessed and certified?

• Establish the purpose, scope and depth of subject content knowledge teaching in teacher education programmes – what does the secondary school teaching profession and university teacher educators see as the critical minimum of subject content knowledge teachers should learn during initial teacher training? How should this learning be organised so that teachers develop deep insights into the structure of their subjects and how it can be learnt to promote desired student competencies?

• Discussions about setting standards to promote good practices in secondary teacher education – which institution or body should set and regulate these standards?

• The curriculum and organisation of secondary teacher education programmes – which programme content is relevant and which should be given less space and time? What specific partnership arrangements should be established between university/college teacher education and secondary schools for closer collaboration in training teachers to acquire desired teaching competencies for the knowledge society?

• The induction of student teachers into teaching - who should be responsible for induction and how can this important stage in becoming a teacher be institutionalised and managed effectively?

In conclusion, the Ghana case study has shown that there are a number of good practices in secondary teacher education. What are needed for the practices to have wider impact on secondary school teaching are policies that are consistent with the philosophy of learning to teach in the knowledge society. A number of these policies have been suggested in this report.
Appendix I

PROFESSIONAL DOMAIN

Acting critically as a professional, interpreting the objects of knowledge or culture in performing one’s functions: Situating the basic points and the axes (concepts, postulates, and methods) of knowledge in the subject in order to make possible a significant learning for the students; Critically distancing oneself from the subject taught; Establishing relationships between the culture prescribed in the teaching programme and that of the students; Making the class a place open to multiple viewpoints in a common living space; Taking a critical look at one’s own origins and cultural practices, and at one’s social role; Establishing relationships among different fields of the subject matter knowledge.

Becoming involved in an individual and collective project of professional development: Evaluating one’s own competencies and adopting the means to develop them using available resources; Interchanging ideas with colleagues about the suitability of pedagogical and didactic options; Reflecting on one’s practice (reflective analysis), and putting the results into practice; Developing pedagogical projects to resolve problems in teaching; Encouraging colleagues to participate in research aimed at the acquisition of competencies set out in the training plan and educational targets of the school.

Acting ethically and responsibly in the performance of functions: Being aware of the values at stake in one’s performance; Encouraging democratic conduct in class; Giving students due attention and support; Keeping high expectations: believing that the students are capable of learning and that they are capable of and responsible for teaching them successfully; Explaining, in function of the public interest, the decisions taken concerning students’ learning and education; Respecting confidential aspects of the profession; Avoiding all forms of discrimination by students, parents, and colleagues; Situating the moral problems presented in class within the great currents of thought; Making judicious use of the legal and authorized framework governing the profession.

TEACHING DOMAIN

Designing teaching-learning situations for the subject matter to be learned, and doing so in function of the students and of the development of the competencies included in the teaching programme: Basing decisions and performance on recent data from didactic and pedagogical research; Knowing the ways of representing and formulating the subject to make it comprehensible to others; Understanding of what makes the learning of specific topics easy or difficult: the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of the most-frequently taught topics and lessons; Analyzing the students’ misconceptions in connection with the subject matter taught; Selecting and interpreting subject knowledge with regard to the aims, competences, and elements of the teaching programme content; Planning sequences of teaching and evaluation bearing in mind the logic of the content and progress of the learning; Bearing in mind representations, social differences (sex, ethnic origin, socioeconomic, and cultural), needs, and special interests of the students when preparing teaching-learning situations; Choosing varied and appropriate didactic approaches when developing the competencies included in the teaching programme; Anticipating obstacles to learning the subject matter to be taught; Foreseeing situations of learning that enable integration of competencies in varied contexts.

Directing teaching-learning situations for the content to be learned, and doing so in function of the students and of the development of the competencies included in the teaching programme: Creating the conditions for students to become involved in situations-problems and in significant topics or projects, bearing in mind their cognitive, affective, and social characteristics; Establishing a learning orientation by beginning lessons and activities with advance organizers or previews; Presenting the subject matter in net-
works of connected knowledge structured around powerful ideas; Provide experiences with tasks at all levels of subject matter complexity. Making available to the students the resources necessary in the learning situations proposed; Giving the students with opportunity to learn, dedicating most of the available time to curriculum-activities; Questioning to engage students in sustained discourse structured around powerful ideas; Guiding the students in selecting, interpreting, and understanding the information available in the different resources, and in understanding the aspects of the situations-problems or in the requirements of a topic or project; Shaping students’ learning by means of frequent and pertinent strategies, steps, questions, and feedback, so as to help the integration and transfer of learning; Helping students to work in cooperation; Giving the students sufficient opportunities to practice and apply what they are learning and to receive improvement-oriented feedback.

**Evaluating the progress of learning and the degree of acquisition of the students’ competencies in the subject matter to be learned:** In a learning situation, managing information in order to overcome students’ problems and difficulties, and to modify and adapt the teaching to aid students’ progress; Monitoring students’ progress using both formal tests and performance evaluations and informal assessments of students’ contributions to lessons and work on assignments; Establishing an evaluation of the students’ acquisitions in order to judge the degree of acquisition of competence; Constructing or employing instruments to enable evaluation of progress and acquisition of competence; Communicating to students and parents, clearly and explicitly, the results achieved and the feedback concerning progress in learning and acquisition of competence; Co-operating with the pedagogical team to determine the desirable rhythm and stages of progress in the training cycle.

**Planning, organizing, and supervising the way the group-class works, in order to help students’ learning and socialization:** Defining and applying an effective working system for normal class activities; Communicating clearly to students the requirements of correct school and social behaviour, ensuring that they adopt them; Fomenting the students’ participation — as a group and as individuals — in establishing the norms of class function; Adopting strategies to prevent incorrect behaviour cropping up, and to intervene effectively when it does; Maintaining a suitable learning environment.

**Adapting teaching to the student diversity:** Designing learning tasks adapted to the students’ possibilities and characteristics; to Organizing different learning rhythms in function of the possibilities of the students; to Organizing heterogeneous groups for the work of the students; Developing experiences of cooperative learning Helping the pedagogical and social integration of students who present difficulties in learning or behaviour, or are handicapped; Seeking pertinent information from human resources, including parents, regarding students’ needs; Suggesting to the students learning tasks, challenges, and roles in the group-class enabling their developmental progress; Participating in the preparation and putting into practice of a plan of adapted performance.

**Integrating the technologies of information and communication into the preparation and development of teaching-learning activities, classroom management, and professional development:** Adopting a critical and well-founded attitude to the advantages and limitations of the TIC as medium for teaching and learning, and for society; Evaluating the didactic potential of IT and computer networks in the development of competence in the teaching programme; Using a variety of multimedia tools for communicating; Using the TIC effectively to investigate, interpret, and communicate information, and to resolve problems; Using the TIC effectively to set up networks of interchange and of continuous training related with the subject taught and its pedagogical practice; Helping the students use the TIC in their learning activities, to evaluate such use, and to analyze critically the data gathered by these networks.

**Communicating clearly and correctly in the teaching language, both oral and written, in the different contexts related with the teaching profession:** Using a variety of appropriate oral language when addressing students, parents, or colleagues; Respecting the rules of written language in documents aimed at stu-
dents, parents, and colleagues; Knowing how to take a position, and maintain one’s ideas and discuss coherently, effectively, constructively, and respectfully; Using questions to stimulate students to process and reflect on content, recognize relationships among and implications of its key ideas, think critically about it, and use it in problem solving, decision making or other higher-order applications; Communicating ideas rigorously, using precise vocabulary and correct syntax; Correcting errors made by students in their oral and written work; Constantly seeking to improve oral and written expression.

SCHOOL DOMAIN

Co-operating with the school staff, with parents, and with the various social agents to achieve the school’s educational targets: Co-operating with the other members of the school staff in defining targets, and in the preparation and putting into effect of projects on educational services, in the ambit of the responsibilities assigned to the school centres; Fomenting participation and information flow with respect to parents; Co-ordinating performance with that of the various school agents; Encouraging student participation in the management of the school and in its activities and projects.

Working in co-operation with the other members of the pedagogical team in tasks enabling the development and evaluation of the explicit competencies of the training plan, and doing so in function of the students: Knowing what are the situations requiring collaboration with other members of the pedagogical team for the design and adaptation of teaching-learning situations, the evaluation of learning, and mastery of the competencies at the end of the period; Defining and organizing a project in function of the targets of the pedagogical team; Participating actively and continuously with the pedagogical teams that handle the students; Working to achieve the required consensus among the members of the pedagogical team.
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6. Learning To Teach In A Knowledge Society: The case of Senegal

Odile Akpaka
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<th>Abbreviation</th>
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<tr>
<td>CAERENAD</td>
<td>Centre d’application, d’étude et de ressources en apprentissage à distance (Center for Application, Research and Resources in Distance Learning)</td>
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<tr>
<td>CEM</td>
<td>Collège d’enseignement moyen (Middle School)</td>
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<tr>
<td>CNFC</td>
<td>Coordination nationale pour la formation continuée (National Coordination for In-service Training)</td>
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<tr>
<td>CPI</td>
<td>Conseiller pédagogique itinérant (Roving Education Advisor)</td>
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<tr>
<td>CPN</td>
<td>Conseiller pédagogique national (National Education Advisor)</td>
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<tr>
<td>CRDI</td>
<td>Centre de recherche pour le Développement International (International Development Research Center)</td>
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<tr>
<td>CUSE</td>
<td>Chaire Unesco en sciences de l’éducation (Unesco Chair in Education Science)</td>
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<td>DEMSG</td>
<td>Directeur de l’enseignement moyen secondaire général (Director of Middle and High School Education)</td>
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<td>DFP</td>
<td>Directeur de la formation professionnelle (Director of Vocational Training)</td>
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<td>DPRE</td>
<td>Directeur de la planification et de la réforme de l’éducation (Director of Planning and Educational Reform)</td>
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<tr>
<td>EFI</td>
<td>Ecole de formation des instituteurs (Teacher Training School)</td>
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<td>EGEF</td>
<td>Etats généraux de l’éducation et de la formation (General Conference on Education and Training)</td>
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<tr>
<td>ENS</td>
<td>Ecole normale supérieure (Advanced Teachers’ College)</td>
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<tr>
<td>ENSETP</td>
<td>Ecole nationale supérieure de l’enseignement technique professionnel (National Advanced Technical and Vocational Teaching School)</td>
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<tr>
<td>ESAM</td>
<td>Enquête sénégalaise auprès des ménages (Surveys in Senegalese Households)</td>
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<tr>
<td>GEEP</td>
<td>Groupe pour l’étude et l’enseignement de la population (Group for the Study and Teaching of the Population)</td>
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<tr>
<td>IDH</td>
<td>Indice de développement humain (Human Development Index)</td>
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<tr>
<td>INEADE</td>
<td>Institut national d’études et actions pour le développement de l’éducation (National Institute for Educational Development Studies and Actions)</td>
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<tr>
<td>NTIC</td>
<td>Nouvelles technologies de l’information et de la communication (New Information and Communication Technology)</td>
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<tr>
<td>PCEM</td>
<td>Professeur des collèges d’enseignement moyen (Middle School Teacher, from 6th grade)</td>
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<td>PDEF</td>
<td>Programme décennal pour l’éducation et la formation (Decennial Program for Education and Training)</td>
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<td>PEM</td>
<td>Professeur d’enseignement moyen (Middle Education Teacher, from 6th grade)</td>
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<td>PES</td>
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<tr>
<td>PRF</td>
<td>Pôle régional pour la formation continuée (Regional In-service Training Center)</td>
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<tr>
<td>RESAFAD</td>
<td>Réseau africain pour l’enseignement à distance (African Distance Learning Network)</td>
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<tr>
<td>TBS</td>
<td>Taux brut de scolarisation (Gross Schooling Rate)</td>
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<td>TNS</td>
<td>Taux net de scolarisation (Net Schooling Rate)</td>
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<tr>
<td>UNFPA</td>
<td>Fonds des Nations Unies pour la population (United Nations Funds for Population)</td>
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<td>USAID</td>
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I. INTRODUCTION

It has been observed that, in many countries, teacher training, their professional development and educational reforms have been and are still separate processes. In many cases, the training of teachers and their professional development have been marginalized, sometimes considered as a constraint in the effective implementation of educational reform projects. Yet, the teaching profession is charged with the immense task of creating conditions and pushing up the process for the building of skills and capacities, considered today as indispensable to socio-economic development, social well being and individual development.

“Learning to teach in a knowledge society” is a study conducted simultaneously in six countries, two in Central and Latin America (Mexico and Chile), two in Eastern Asia (Vietnam and Cambodia), and two in West Africa (Ghana and Senegal). These countries were chosen because of their interest in teacher training reform and their commitment to educational reform projects. Some of these are funded through loans from the World Bank.

The main aim of this study is to examine what developing countries are doing to equip teachers in middle and high schools with skills and capacities, which will facilitate the acquisition of skills necessary in a knowledge society by learners. The initiators of this research put forward the initial assumption that there exists a mismatch between the radically new skills required of learners and the capacities, which teachers acquire after their passage through training institutions and participation in in-service training programs.

The objectives assigned to us as indicated in the terms of reference for this study to be conducted in Senegal can be summarized as follows:

- Review the country experience in teacher training in middle and high schools to identify both good practices and existing gaps between desired teaching competencies and current teacher education programs and institutions,

- Promote and enrich Senegal’s policy dialogue among relevant decision-makers about different training alternatives in the light of new key competencies demanded by the knowledge society,

- Construct a framework to enable teacher education policy analysis in Senegal from the standpoint of the relationship between teaching skills and desired competencies in learners.

- Explore viable strategies in Senegal to create a system for building a knowledge base for the teaching profession through its institutions and programs of pre- and in-service teacher training.

To begin this work and as a first step, we associated a national consultant, Mrs. Maguette Diop-Kane, Education Specialist, Consultant for many international organizations and trainer at the Advanced Teachers’ College (ENS) of the Cheikh Anta Diop University in Dakar. Not only did she facilitate contacts and participate in data collection and analysis but above all she helped us to better understand specific problems related to teacher training in middle and high schools. The methodology, jointly implemented from 13 January to 5 February 2004, comprises the following aspects:

1. Documentary research at the Ministry of Education, ENS (library and Department of Studies), UNESCO Chair in Education Science Documentation Center (CUSE), as well as on Internet. We had to be acquainted with official texts governing education and training policy in Senegal and the implementation of the policy, statistics related to the objective of the study, and Senegalese university works on teacher training. These documents were utilized throughout the study (see bibliography in annex).
2. Development of data collection tools. Two types of tools were prepared: interview guidelines, questionnaires to teachers in middle and high schools and learners.

Given the diversity of the people to be interviewed, we designed four (4) somewhat different guidelines: the first was meant for decision-makers and officers at the central level, the second to be used with trainers involved in pre- and in-service training, the third for social partners and the fourth for development partners. Some themes ran through all the guidelines, for example, questions relating to skills to be developed in learners and teachers. Others were more specific to the different groups, for example, on the organization of training for trainers or actions by development partners in training (see guidelines in annex).

The teachers’ questionnaire was based on that used in Ghana so that a link can eventually be made between the two countries chosen in West Africa. Made up mainly of close-ended questions (8/10), it had been tested before being used and somewhat modified based on comments gathered (see questionnaire in annex).

The learners’ questionnaire had not been prepared at the beginning of the mission but rather at the end, after the debriefing session. It preparation took place after the intervention, which also reflected what we had already intended to do, that is, listen to learners. It was quickly tested before being finalized (see learners’ questionnaire in annex).

3. Information collection

Interviews with resource persons were held mainly in Dakar and some in Louga during the survey with teachers. Those interviewed were: decision-makers (Directors at the Ministry of Education and officials at the central level), trainers involved in pre- and in-service training (trainers at the Advanced Teachers’ College, trainers at the regional training centers), civil society partners (labor unions, NGO, subject matter associations), development partners (officials in international organizations and bilateral cooperation agencies). A total of fifty-two people were interviewed either individually or collectively (see the table summarizing the interviews conducted and the list of those met).

The teachers’ questionnaires were used in twenty-five (25) public and private schools: middle schools (CEM), high schools and ENS (student teacher in training). Only teachers who were available during our visit to their school responded to the questionnaire. A total of two hundred and twenty people (183 men and 27 women, i.e. 220) in the Dakar, Kaolack and Louga regions completed the questionnaires (see the annex for distribution per region and professional categorie). The selection of the teachers surveyed was based on a logical choice: schools in the capital and regions, middle and high schools, various subjects taught, diverse professional categories.

Sixty (60) learners, 28 boys and 32 girls, from 12 public and private schools (middle and high schools) responded to the students’ questionnaire. Half of them are in equivalent 10th grade (final class of middle school) and the other half in the final year of high school. It was a rather quick survey in the three departments of the Dakar region, which nevertheless gave us the chance to listen to the learners’ point of view.

4. Analysis and writing of the draft: an initial sifting through was done to allow us to draw some important trends for the debriefing (cf below), then this was fine tuned, taking into account regions and professional categories. The analysis was based on the terms of reference and the expectations of the Senegalese authorities. Observations from a number of resource persons, to whom the draft was submitted, made it possible to take into account the various expectations. Maria Soumonni, Teacher-Translator, has translated the text from french into english.
5. Debriefing: a debriefing session of the initial analyses was held on 4 February 2004, in the presence of about fifteen people from various identified groups. This session helped, after the presentation, to begin a fruitful policy dialogue on the issues raised in the study.

Some difficulties encountered explain the limitations of this study, particularly the issue of time availability with teachers. The period when the survey was conducted coincided with the African Cup of Nations, when school hours were rearranged. Because of this and the advent of school vacation for Tabaski, we were not able to begin discussions with the teachers in most of the schools visited. These discussions might have enriched the responses to the questionnaires. Moreover, we were unable to interview some people because our trip coincided with the period of the pilgrimage to Mecca. Thus, we were unable to meet with the Coordinator of the General Inspectorate. Nevertheless, we were able to authenticate, during the debriefing, a number of important points, which could be treated in-depth later.

For the purpose of clarity, this work comprises three chapters. In the first, after a brief presentation of Senegal and its educational system, the issue of teacher training policy is examined using official texts and some university research works, then teacher training in middle and high schools is examined, finally, some opinions on the knowledge society and teacher training are stated. In the second chapter, desired skills in learners and expected skills in teachers are highlighted, then experience in the field is outlined and an analysis of the gaps between the first two sections of the chapter is attempted. The third and last chapter is devoted to recommendations to improve the training of teachers in middle and high schools: the need for an orientation document on the teacher training policy, strengthening good training practices and some guidelines for reflection and action are proposed.

MAP OF SENEGAL
II. STATE OF TEACHER TRAINING IN MIDDLE AND HIGH SCHOOLS IN SENEGAL

In this chapter, after a brief presentation of Senegal and its educational system, we shall examine aspects of the training policy using official texts and some documents from Senegalese literature. Then, we shall examine the various types of teacher training programs. Finally, we shall present some points of view on the knowledge society and teacher training.

II.1 BRIEF PRESENTATION OF SENEGAL AND ITS EDUCATIONAL SYSTEM

1.1.1 PRESENTATION OF SENEGAL

Situated between 12°8 and 16°41 north latitude and 11°21 and 17°32 west longitude, Senegal is a Sahelian country of 197,161 km². Bordered in the north by Mauritania, in the east by Mali, in the south by Guinea Bissau and Guinea Conakry, Senegal is almost split into two by the Republic of Gambia.

Administratively, the country is divided into eleven regions, subdivided into departments (a total of 33). Each department comprises districts made up of rural communities, with the village being the basic administrative unit. Senegal has about 13,000 villages.

Since its independence in 1960, Senegal enjoys a politically stable democratic regime and the last elections in 2000 introduced a system of changeover of political power between parties.

The population was 6,896,808 inhabitants during the 1988 census with an average annual growth of 2.7%. The population was estimated at 10,100,000 inhabitants in 2003, growth at 2.4% and life span at birth at 50.8 years for men and 55.1 years for women. It is a highly youthful population with 58% of them less than 20 years old. Women represent 52% of the total population. The 2001 HDI places the country 156th out of 175 countries. The urbanization rate was 34% in 1988 and was estimated at 48% in 2003. The Senegalese society is very unequally divided among the eleven regions in the country.

Senegal has about twenty ethnic groups with the major ones being Wolof (43%), Pulaar (24%), Sérer (15%), Joola (5%), Manding (4%). 94% of them are Moslems, 5% Christians and 1% in traditional religions.

Senegal suffers from degradation of its environment resulting in drought and demographic pressure in urban as well as rural zones. Senegal is a country with a poor economic performance. If the macro-economic situation showed improvements in the past, the people are now experiencing real difficulties. As a matter of fact, the various structural adjustment policies and above all the devaluation of the CFA franc in 1994 had serious negative effects on the economic situation of households. Consequently, the Senegalese economy renewed its growth with GNP increasing by more than 5% on an average per year between 1995 and 2001. However, the economic performance recorded neither helped to improve the living conditions of the people nor substantially reduce poverty. In 2001, the average income per capita was estimated by ESAM at 220,950 CFA F, less than 400 US$. Unemployment is still high and affects 23.4% of the active population in urban areas. The extrapolations established indicate that the poverty rate in households is about 53.9%, that is a slight fall compared to 1994, due certainly to increased per capita income during the 1995-2001 period. Poverty is to a large extent limited to rural areas and more especially in the rural areas of the Center, South and North East. This concentration of poverty in the rural areas is equally confirmed by the Perception of Poverty Survey in Senegal (2001): in fact, the poverty rate varies in the rural areas between 72% and 88% while in the urban areas it varies between 44% and 59%.
II.1.2 EDUCATIONAL SYSTEM IN SENEGAL

1.2.1 Organization of the educational system

From independence to date, the structure of the educational system has not changed much.

General education in Senegal consists mainly of four levels to which can be added the pre-school for children of three to five years, a system that has resurfaced these past three years.

The elementary level accepts children between the ages of 7 and 12 and comprises six classes. In 2002-2003, the number of students in elementary schools was 1,287,093 including 47.5% girls. At the end of primary school, there is the Certificate of Elementary Primary Studies (CFEE), which gives access to the middle school system.

Middle school comprises four classes corresponding to the 13-16 age group. It is in this sub-sector that a lot of private establishments are found (192 out of 435 that is about 44.2% of all schools). There are 240,924 registered students. At the end of the final year of study, students receive a diploma for the end of studies at the middle school, “Brevet de Fin d’Etudes de l’Enseignement Moyen” (BFEM). Graduates can then be oriented either to the general high school or to the technical and/or vocational school.

The middle school GSR is 26.5% with 21.1% for girls and 32.3% for boys.

General high school education lasts 3 years and prepares students (71,316) for the baccalaureat, which leads to higher education or to competitive entrance examinations to vocational training schools. The number of middleschools is 118 and of highshools only 28. The GSR in high school education is 9.1% including 6.5% for girls and 12.1% for boys

Chances to continue schooling at the high school level differ greatly according to whether one is living in the urban or rural area, whether one is a girl or boy, or according to the social group to which one belongs.

Among all the students registered in the equivalent seventh grade, 83.3% complete the middle school, 47.2% continue to the highschool, 34.8% make it to the final year, and finally only 19% succeed in obtaining the high school diploma.

Public higher education comprises the University of Dakar and of Saint Louis and a number of higher schools and institutes either autonomous or attached to the universities. In the past five to six years, we observe the appearance of many private higher education institutions.

Technical education and vocational training (ETFP): From independence to date, this sub-sector in education is undergoing development problems. Technical Education and Vocational Training institutions (ETFP) are unequally distributed among the different regions in the country. In fact, about 70% of them are found in only three regions (Dakar, Thies and Saint-Louis). Funding for technical education remains poor. The State allocates 1.49% of its budget to it compared to 21.05% for middle/high school general education.

Moreover, a good number of graduates from these technical and vocational schools face enormous difficulties integrating the economic fabric.

Non-formal education is the field for diverse initiatives: NGOs, development companies and organizations, cultural organizations and many ministries. The literacy rate for people of 15 years and above is, according to figures quoted in the Poverty Reduction Strategy Document, 39.1% (28.9% for women and 51.1% for
men). Apart from functional literacy activities for the over 15 years of age, basic community schools for children of 9 to 14 years, uneducated or drop-outs at an early age, exist. They are given access to a complete basic education cycle (4 years) based mainly on practice and pre-professionalism in national languages and French. Other forms of education are increasing to respond to the needs of social groups.

1.1.2.2. Management of the educational system

The governmental administration of the educational system is organized around the Ministry of Education and two delegate ministerial Cabinets (Delegate Minister in charge of Public and Private Vocational Training, Literacy and National Languages, on one hand, and on the other hand, the Delegate Minister in charge of Pre-school and of "Very Young's Home"). At the central level, the administrative, technical and financial management of the education sector is ensured by a number of central departments such as the General Administration and Equipment Department (DAGE) and the Planning and Educational Reform Department (DPRE). The Minister of National Education supervises the general educational system through departments corresponding to the different educational categories: Elementary Education Department (DEE), the General Middle and High School Department (DEMSG).

The management of the decentralized system is the responsibility of the Academy Inspections (IA) at the regional level, and the National Education Departmental Inspections (IDEN) at the departmental level.

1.1.2.3 Educational policy

The most recent policy is found in the General Policy Letter of the Education/Training Sector signed in 2000 and the Decennial Education and Training Plan (PDEF), which falls within the context of the United Nations Special Initiative for Africa. The PDEF now fixes universal schooling at about 2010.

The policy gives girls special consideration. The objectives of the action plan are to allow for increased access to education, while correcting disparities, increase the quality of educational supply and relevant learning, and promote a more coherent management of basic education.

Less than half of the students leaving the elementary school in Senegal make it to the middle school. The objective of PDEF is to reach 50% by 2008, taking into account registrations in private schools.

1.1.2.4. Inadequate resources

The part allocated to education in the budget rose from 32% in 2002 to 35% in 2003 including 44% for basic education. About 90% of this budget covers the salaries of the administrative staff and teachers, thus leaving very little to resources relating to pedagogy and school equipment.

1.1.2.5 Management of teachers

In Senegal, teachers are grouped under a unique cadre of eleven bodies from a certified teacher to the assistant teacher thus giving them a special status of state-employed teachers (See the table on the middle and high school teaching corps as well as certificates, employment criteria).

Promotion by classification system including step increases (length of service) and class (merit and length of service) corresponds to remuneration levels. The remuneration of a teacher comprises grade-related salary or wage, additional family expenses, teaching and housing allowances.

Faced with budgetary constraints and the multiplication of the middle and high schools, the Senegalese State is increasingly relying on short term or contractual teachers.
Short term teachers are agents recruited to serve in the middle and high schools. They must hold a university degree.

Contractual teachers are recruited among the short term ones and who have spent two years in short term teaching in the public middle or high schools. Recruitment is based on a contract with the Ministry of Public Affairs, Labor, Employment and Professional Organizations.

**Table N°1: Number of teachers in middle and high schools (public)**

<table>
<thead>
<tr>
<th></th>
<th>Civil servants</th>
<th>Contractual teachers</th>
<th>Short term teachers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td>4517</td>
<td>536</td>
<td>903</td>
<td>5956</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td>897</td>
<td>115</td>
<td>224</td>
<td>1236</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5414</td>
<td>651</td>
<td>1127</td>
<td>7192*</td>
</tr>
</tbody>
</table>

Source: DEMSG, 2002-03 figures

*317 teachers should be added to this number. We do not know how they are distributed but they come from 6 middle and high schools.

Teachers’ working conditions vary according to their workload (hours and number of students), work environment (buildings, teaching materials…), and the rapport with colleagues, school and departmental authorities as well as parents, which is very often challenging. During the interviews, many of our interviewees described middle school as the “disaster sector”. Senegalese teachers face overcrowded classes in urban and semi-urban areas and a work environment, which most times, makes work very arduous especially in rural areas. Shortages and non-existent unprinted teaching aids to help teachers with experiments and practicals abound. School buildings are often dilapidated and inadapted to the number. Most schools have neither water nor electricity and not all have toilets.

Middle school teachers (PCEM) are obliged to teach 21 hours a week while middle education (PEM) and secondary education teachers (PES) teach 18 hours.

Education in the Senegalese society aims at making the child a responsible adult, capable of assuming his/her roles in society. Traditionally, there is a difference between the socialization of women and that of men.

It should be noted that, due to an ineffective educational system, which, very often produces, in the eyes of the people, unemployed graduates, unintegrated people, unmarried mothers, other forms of socialization are competing with modern schooling (Koranic schools, apprenticeships, early labor, emigration…).
1.2 TEACHER TRAINING POLICY

We shall first examine official texts in order to identify policy orientations for teacher training in middle and high schools, then look at Senegalese documents for components, which will lead to helpful reflection on the issue.

1.2.1 OFFICIAL TEXTS


The teacher, in charge of shaping lucid, responsible citizens, ready to integrate the active society, will be an active development agent and a knowledge stimulator with the task of training the citizen and the producer of society, which the country wants to build.

The role of the teacher as defined by EGEF is to train students so that they can acquire knowledge, thought processes, capacities and behavior. To respond to all these expressed needs and to new teaching demands, all future teachers of secondary schools should obligatorily undertake adequate pedagogical training at ENS.

1.2.1.2 The National Education Orientation Law, N° 91-22 of 16 February 1991, stipulates in Article 7 « further vocational training and social promotion of all citizens in order to improve living and work conditions and increase work productivity ».

Article 16 concerns higher education, which « aims at training development agents needed by Senegal and Africa… ».

This law does not state any explicit reference to teacher training.

1.2.1.3 In the « General Policy letter for the education and training sector », dated January 2000, it is said that « the Government shall reform the training system as well as the recruitment method of teachers based on the objectives of the Decennial Program on Education and Training (PDEF). The standardization of pre- and in-service training of the teachers concerned, massive recruitment of contractual teachers and the decentralization of their management will be the major axes of this reform.

In the same letter, it is also specified that:

- “the short term teacher selected at the regional level and posted to the higher basic schools (currently middle schools or CEM) and high schools, will undergo a one-year pedagogical training at the Advanced Teacher Training College (ENS) in order to strengthen pedagogical competencies”.
- “Institutional capacities of Primary Teacher Training Schools (EFI), ENS and regional in-service training centers (PRF) will be strengthened to enable them ensure pre- and in-service training effectively for staff of basic schools and high schools.
- “The government will put in place an improved in-service training mechanism based on a relevant, effective and specialized reference system according to education levels. The objective will be to complete and strengthen in-service training and hold sessions in schools in order to respond mainly to training needs linked to concrete pedagogical problems encountered by teachers or implement innovations. PRF will play a central collaboration role with EFI and ENS”.
In this Letter, it appears that there is a willingness to reform the training system and to strengthen the capacities of the various structures, concern to liaise and articulate within pre- and in-service training as well as emphasize the pedagogical dimensions of these two phases of training.

1.2.1.4 Decennial Education and Training Program (2000-2010) has planned for the first phase, to implement the “restructuring of ENS operations and revise training plans for student teachers so as to adapt them to envisaged reforms (polyvalence, school projects, learning evaluation, etc.), pre-service training of short term teachers and contractual teachers to be recruited at ENS as well as the “development of an effective strategy for distance training, promotion of an in-service training system based on teacher initiatives, centered around their training needs, on concrete pedagogical issues which they encounter in the implementation of the innovations linked to establishment projects; fruitful action-research to progressively implement the various pedagogical reforms to be promoted in the PDEF context”. The strengthening of roving pedagogical advisors and the extension of in-service training to new subject matters are also programmed.

For the second phase of PDEF (2004-2007), the following actions are planned:

- improvement of pre-service training system,
- improved and generalization flexible in-service training system, with training initiated and managed by the teachers,
- training of the heads of schools,
- putting in place a feed-back mechanism for the results of the learning evaluation system to be used by ENS and PRF, to correct inadequacies in teacher performance

PDEF also foresees teacher training in environmental education and preparation of teachers in introduction to new technologies and their utilization in teaching-learning.

PDEF therefore defines some axes for the restructuring of pre- and in-service training with the aim of better adapting the envisaged reforms. Among these reforms, curriculum development based on competencies and behavior to be acquired by the students occupies a prominent place. If this has already begun in elementary education, it is not the same for middle school.

1.2.1.5 Technical education policy document (2001) insists on the technical education orientation necessary for the needs of the job market at all levels of the system. The strengthening of partnership between the professional milieu and the private sector is at the heart of the envisaged reform.

The re-dynamism of the training of trainers is evoked: revival of the National Advanced Technical and Vocational Teaching School (ENSETP), liaise closely with the National Vocational Training Office (ONFP), adapt the profiles of trainers to new needs and technological development. To guarantee the operational capacity of the trained and facilitate their professional insertion, it is anticipated that programs will be developed based on the identification of competencies.

The private sector will also be associated in the in-service training activities of trainers. In-service training will be strengthened, generalized and sustainability mechanisms will be put in place.

The training of trainers occupies a relatively unimportant position in this document, which greatly emphasizes professional qualification of trained teachers and their adjustment to the job market.

1.2.1.6 The Advanced Teachers College master-booklet, undated, but later than 1983, reproduces the missions of the Cheik Anta Diop University Advanced Teachers College of Dakar. These missions can be summarized thus:
• ensure the pedagogical training of teachers at the middle and high school levels, academic and pedagogical training of teachers in middle and high schools, the training of control agents,

• ensure the in-service of teachers and help towards their professional development,

• organize brain-storming seminars and refresher courses for the teaching staff.

This document no longer reflects the reality of in-service training, which was not kept at ENS.

According to the training program for student-teachers, training aims at acquiring knowledge, know-how and attitude. Do these reflect the challenges, which learners should overcome in the third millennium? The programs are centered on theoretical training, practical training and methodology and professional moral education. *Such a program certainly needs to be reviewed in order to better take into consideration the new orientations in the Senegalese educational system.*

### 1.2.2 Senegalese Literature

We did not find any university works related directly to the teacher training policy in Senegal. However, many doctorate theses initiated by ENS trainers, dealing with teachers’ professional competencies in secondary education, teachers’ professionalism at the middle school level, professional motivation, caught our attention in so far as, directly or not, they seek to improve teacher training. All these arguments were based on the surveys conducted on middle and secondary school teachers.

In the works consulted, the issue of the teacher’s competencies was examined from various angles In his thesis for the advanced studies diploma (DEA), Ndiaye Mamadou⁸ observes that teachers still have a disciplinary representation of their profession, are more anxious about results in terms of knowledge than in the learning process and reckon that effectiveness lies, to a large extent, in the mastery of knowledge.

Sane A. in his thesis⁹ insists on the fact that growth opportunities for professional skills should be occasions to first intensify intradisciplinary and interdisciplinary relations, such as expected by teachers. Many problems facing the school today are, according to him, the effect of insufficient collaboration between teachers and other partners in the school institution.

Ratzue J.¹⁰, in his thesis, raises the issue of why it is necessary for teachers to have conditions, which will enable them to develop their professional skills “from, through, and for practice”. He inquires about poor student performance in Physics, due, according to the writer, to inadequate teaching-learning systems. Lessons consist of too much information giving and hardly contextualized; they present too quickly insignificant applications for students, they are also unsuitable for an in-depth understanding of concepts and adequate cognitive processing. For him, the development of professional skills, through the use of pedagogical practices based on the search for solutions contributes to improved students’ results.

The place of training in teacher competencies is the theme of many debates. For some, such as N’Diaye M., teachers “do not make use of the competencies acquired in training in their responses and explanations…. They no longer refer …to theoretical or scientific knowledge likely to throw light, to a certain extent, on the act of teaching-learning.” This observation is akin to some research, quoted by the writer, which indicates that 80% of teachers give more importance to experience than to theory. Ndiaye M. explains this result “by

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⁸ Ndiaye M. *Représentations des compétences professionnelles de l’enseignant, le cas des professeurs de l’enseignement secondaire public du Sénégal*, Diplôme d’Etudes Approfondies


the fact that the knowledge of experience is the teacher’s own knowledge, while theoretical knowledge is produced by other stakeholders in the educational system”.

Ndiaye, B. Daraw, in his thesis, articulates his work around the Paquay model, which distinguishes six facets in the teaching profession: learned teacher, technician, artisan practitioner, thoughtful practitioner, person, social actor. He notes that in the items concerning the objectives pursued, teachers are getting closer to the “person, social actor, and thoughtful practitioner” models than to those related to capacities to be mastered and learning of the profession. In these cases, the preferred models are those of “learned teacher, technician, artisan practitioner”. He notes also that teachers with less than five years of seniority prefer content (educated teacher element), while experienced ones (more than twenty years seniority) integrate more the challenges of society (social actor element). The thoughtful practitioner model would be enhanced more, at the level of capacity mastery, by ENS trainers than by teachers. Finally, Ndiaye asks some essential research questions, mainly: “what professionality for what learner to be trained?” or still “does professionality focus on the learner?” Another important question is the relationship between professionality and motivation.

In the “school crisis and teachers’ world: can it be affirmed that the quality of the relationship with his universe influences his professional motivation?” Sane Assoumana examines teacher professional motivation. According to him, it is linked to the quality of the relationship that the teacher has with his professional world, made up of the physical work environment, the relational universe (relationship with students, colleagues, training structures...), usual or occasional tasks within or outside the school and the symbolic universe (professionalization).

These writings, based on the concepts of motivation, competencies and professionalility, question the relevance of teacher training and its ability to take into account a thorough reflection on the teacher’s practice. Within training structures, such as ENS, such a reflection, according to many trainers, is quite rare, due to lack of a reflective dynamic among trainers in the subject or among trainers of different subject matters.

At the end of this presentation on official texts, it seems that the issue of teacher training policy needs to be reviewed, since some texts remain very general, others outdated, and others more action oriented. An orientation document, which will define a global teacher training vision, could be based on works done by academicians, trainers at ENS, such as those mentioned above and on an analysis of practices by trainers and the trained. The second phase of PDEF, which will place a special emphasis on middle school, will begin in 2005. Taking advantage of 2004 to develop the orientation document for teacher training will constitute a solid base for the continuation of the implementation of PDEF.

1.3 TEACHER TRAINING FOR MIDDLE AND HIGH SCHOOL EDUCATION IN SENEGAL IN 2004

In this section, we will try to present the current status of pre-service training, institutionalized in-service training as well as “non formal” methods of in-service training. The presentation on pre-service training will focus on ENS. In fact, ENSETP takes directives from the Ministry of Education and, for many years, has not done any training in the industrial sector. Only teachers in family and social economy and in administrative techniques are currently in training.

1.3.1 PRE-SERVICE TRAINING AND PROFESSIONAL DEVELOPMENT

The majority of our interviewees talk about pre-service training only when they recall the training given at ENS. Some prefer to speak in terms of the course leading to a qualification, to the extent that, it will be seen later, some student teachers are far from being beginners and have had, sometimes, at the time of entry into ENS, more than twenty-five years of teaching experience.

1.3.1.1 Heterogeneity of student teachers

ENS accepts four categories of student teachers:

- those who have never taught, have passed the entry examination (very often they come from high schools or faculties) and receive a State scholarship.
- those who have already taught at the CEM or high schools and after obtaining a university diploma (high school diploma, degree or masters) are “detailed for training” at ENS.
- those who were teaching in private schools (very often catholic private schools) and are sent by their institution who is responsible for them. The school and ENS pay teachers’ salaries. Many teachers in lay private schools cannot benefit from this because of the reluctance of heads of schools, who refuse to partially fund their stay at ENS. Moreover, they are not sure that these teachers will come back to their school after training.
- those who pay for their training and come from all over.

Apart from this heterogeneity in terms of origin and teaching experience, the various levels of training, recapitulated in the table below should be noted:

Table No. 2: Various levels of teacher training at ENS

<table>
<thead>
<tr>
<th>Initial certificate</th>
<th>Duration Training at ENS</th>
<th>Certificate obtained</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school diploma</td>
<td>2 years</td>
<td>Certificate in aptitude to teach in middle schools (C.A.E-CEM.)</td>
</tr>
<tr>
<td>Degree</td>
<td>1 year</td>
<td>Certificate in aptitude for the middle school level (C.A.E.M)</td>
</tr>
<tr>
<td>Master’s</td>
<td>2 years</td>
<td>Certificate in aptitude to teach in high schools (C.A.E.S)</td>
</tr>
</tbody>
</table>

Source: Information gathered from ENS

Two hundred and seventy-six (276) student teachers obtained their certificate in 2002, seventy-eight (78) of them had already taught in public institutions before entering ENS. In 2003-04, four hundred and ninety-two registered in 1st and 2nd years, of which one hundred and six (106) were women. About three hundred (300) should complete their training in 2004.

ENS ensures other training programs for inspectors trainee (National Education Inspectors) as well as preparing these inspectors trainee for the entry examination. Recently, ENS also trained two groups of specialized inspectors (for middle and high schools).

Finally, we have the training of short term teachers, recruited each year by the State, following instructions from PDEF, to teach in the CEM or high schools. More than 1000 youth, with a university certificate, were thus recruited for the 2003-2004 academic year. In 2002, ENS trained, in collaboration with the Center for
the Application of Studies and Resources in Distance Learning (CÆRENAD) more than 900 short term teachers. They have to be physically present for forty-five days during the holidays, receive distance training and training on site. The success rate was 85%, but the training in itself was not evaluated. A second set of short term teachers (identified among those who were recruited in 2002 and 2003) should be taken care of by ENS shortly, through funding from the World Bank. A distance-training project for short term teachers, funded by the Japanese Cooperation through UNESCO, is also being prepared. Reflection on distance training and the necessary interactivity continues.

This therefore concerns a very heterogeneous public, with very different motivation and backgrounds, all called upon to work in the Senegalese educational system, public or private, to facilitate learning. Is the wealth contained in this heterogeneity seen as a burden, is it advantageous or ignored? To what extent is training drawn its inspiration from the pedagogical experience of teachers and the representations drawn from their practices (in particular for student teachers “detailed for training”)?

1.3.1.2 Heterogeneousness of trainers

All trainers have to have taught in middle and high schools for at least five (5) years. This is non-negotiable criterion in the choice of all trainers. In fact, trainers are recruited after a selection done by ENS, based on their experience and dossier. No specific training is immediately envisaged for the trainers. The newcomer is taken care of by his more senior colleagues. Many trainers benefit from scholarships from the French, Belgium or Canadian cooperations.

All subjects are taught at ENS with the exception of physical and sports education and art education, with teachers coming from the Ministry of Culture (for art education and music). They have their training center apart.

The status of these trainers differ: some are teachers in high schools (PES), others teaching inspectors of elementary schools, others university graduates. More than half of the trainers have become assistants or assistant professors after doing university work that is very often associated with their specialization but sometimes in science education. According to the information gathered, about 60% of them have benefited from exchange outside the country. According to one of the trainers, “the culture of ENS is full of contrasts”. Trained for the most part in Belgium, France, Canada, they have different profiles and approaches, which could also be a source of wealth.

However, according to general opinion, training activities are done in compartments, “in isolation”. In the same department, group work is ignored. Even bivalent training, which hardly leads to an interdisciplinary approach. Remaining at the level of harmonization of class hours is often enough. The interdisciplinary approach has yet to be developed ….

Articulation between disciplinary departments (Mathematics, History-Geography for example) and the teachings called transversal such as educative technologies, psycho-pedagogy, school legislation, is very much lacking. Thus, up to very recently, student teachers had to prepare two “dossiers” (dissertations), one in their specialty, the other in psycho-pedagogy. It had been decided that only one dossier would be prepared and that all psycho-pedagogical aspects should be taken into account. This is still not the case, according to some trainers who raise the issue of “poor management”. Relationship between acquired skills in the subject teaching context and pedagogy-related skills are rarely utilized. The consequences are serious: the need to bridge the gap between curriculum content and the way in which learners will master this content is not understood.

12 Bivalent training: teaching given to a student teacher who will teach both French and English, for example, at the CEM.
The seniors reckon that seminars or formalized exchanges have become increasingly infrequent in the institution. It is rare that trainers work together to develop knowledge that is relevant to their practices as trainers. During our stay, we did not hear any talk of seminars during which trainers reflect together on their practices. Nevertheless very recently, a seminar for ENS trainers and French and Mathematics trainers and teachers from elementary schools, was organized with assistance from the French cooperation.

The diversity of the tasks taken care of by trainers can be noted: theoretical courses are common, supervision of internship and support to student teachers for their dissertation are normally ensured by all. Beside these obligations, their professional activities vary considerably and enrich their vision for training and teaching, but the sharing of this vision among trainers does not seem to be… the common lot. The professional development of trainers seems to be achieved very often outside of the institution. However, UNESCO science education chair (CUSE) situated within ENS premises, is considered by some trainers to be an opportunity to question and analyze attitudes with regard to knowledge. CUSE is open to other African countries. It also awards graduate and Master’s degrees in Education Science. Today, the high demand in training cannot be entirely satisfied.

1.3.1.3 To and fro between theoretical and practical training

The evaluation of ENS, conducted in 1992, with both those trained and trainers as well as users, is quite interesting. 100% of those trained in all sectors see the training as useful. According to users, the training was considered satisfactory: by 70% of principals and vice-principals (high school), 97% of principals (CEM), and 100% of inspectors. In terms of correspondence between the needs of users and the products “delivered” by ENS, only 48% of principals of high schools say it is satisfactory, compared to 63% of principals in the CEM. In our survey conducted with teachers, 90% of the 220 interviewed (including short term and contractual teachers, not passed by ENS) thought the training at ENS indispensable.

From lesson observations at the beginning of the year in the application classes, including experimenting lessons or internship in class leading in rural and urban areas, student teachers have numerous opportunities to practice teaching activities. The time allocated for theoretical training is alternated with that for practical training.

In the survey conducted with teachers of CEM and colleges, more than 60% of the teachers, who had benefited from pre-service training, place internship 1st or 2nd, while the other components proposed, namely psycho-pedagogy, didactics, academic reinforcement, are clearly less often ranked the same way. In the application classes during short courses, student teachers are expected to, according to the guidebook, participate in “teaching tasks, tests, class and subject area meetings, parents-teachers meetings”. Apart from courses in Dakar, student teachers participate in internships in rural areas so as to discover the more restricting realities that are different from those in the capital’s application schools.

Is the assimilation time thus adequate for the development of competencies by the future teachers? Is the teacher trainee effectively supervised by the ENS trainer and the teacher in charge of the internship in such a way as to evaluate the student’s performance? Is feedback adequately structured to enable the student teacher to make the link between his theoretical and practical acquisition? The evaluation of these internships is done by the teacher responsible for the students during discussions at the end of the internship. It is certain that situations greatly vary according to the application classes.

Are ENS trainers and the teachers in the application classes able to dialogue and speak the same language? Or, as is often heard in other countries, do the former complain about the lack of comprehension of innovations by the latter? And do the latter complain about the theoretical aspect of the advice given by the for-

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13 See characteristics of the group surveyed in annex.
mer? The dynamics between these two training axes is certainly fruitful but complex. Does it provide for joint reflection that should go beyond the organizational level and aim at a training common vision? Teachers from establishments were invited to ENS. A work session helped to define expectation at ENS and minimize the constraints of the permanent teachers. This is now increasingly rare. However, teachers hungry for innovations ask to have student teacher each year to refresh their know-how.

If one is to refer to the programs in the already mentioned master-booklet, and some training plans, which we were able to glance through, some theoretical aspects need to be reviewed.

According to the annexed Decree N° 90-437, which indicates the curricula, timetable and instructions in sections A and B, teachers in special fields must make it possible to

- better master the content of the subjects to be taught
- master the knowledge to be transmitted (theoretical and practical aspects of the curricula)
- be on top of teaching procedures, methods and techniques (or communication) in each special field.

According to official instructions, psycho-pedagogy should contribute knowledge for a more conscientious practice and provide the know-how to be adapted to all situations.

Professional practice aims at the acquisition of behavior for effective pedagogy and active insertion into the school.

Referring to the annex in the above-mentioned decree, the time allocated to the different training components is as follows:

<table>
<thead>
<tr>
<th>Training components</th>
<th>Year of training for those for the bachelor’s degree and first year of Master’s</th>
<th>Second year of Master’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization</td>
<td>33.3%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Educational Technologies</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Professional practice</td>
<td>16.7%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Psycho-pedagogy</td>
<td>25%</td>
<td>12.5%</td>
</tr>
<tr>
<td>School management, administration, legislation</td>
<td>12.5%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Conferences and debates to encourage greater world view, are part of the above-mentioned components.

With reference to the guidebook, it seems student teachers with baccalaureate, spend more than 80% in the first year on studying the curriculum and « practical pedagogy » while in the second year, the time for psychopedagogy and methodology and professional training varies according to the semesters between 55% and 65%. 
As envisaged by PDEF, these curricula need to take into account developments in education sciences, educational system reforms, as well as trends in the Senegalese society and the expectations of today’s youth. They need also to adjust to the challenges teachers face in class, be it too large classes, insufficient or lack of teaching materials in some schools. Already in the 1992 evaluation, it was recommended that training be adapted to the milieu and the times, to the definition of the entry and graduation requirements of interns and the reinforcement of the activities programmed.

During classes, trainers insist on the importance of the process of student learning in middle and high schools, but this process seems to be sometimes forgotten by some trainers when teacher training is involved. However, others know how to go beyond the curricula and do not forget the process. They teach the student teachers how to process, critically analyze information and form an opinion no matter the teaching-learning situation. To student teacher trained this way the criticisms formulated in 1992 cannot be applied: ENS trained teachers a how little sense of research and innovation.

Finally, are these curricula and training plans articulated around those of in-service training? Without taking any great risk, we can answer no. The inadequate articulation between the two types of training puts both at a disadvantage. After pre-service program, there is no beginning teacher induction.

1.3.2 IN-SERVICE TRAINING AND PROFESSIONAL DEVELOPMENT

It is organized within the framework of the National In-service Training Coordination (CNCF) and Regional in-service training centers (PRF), services attached to the Academy Inspectorate in each region, except the Matam region, which was recently established. The in-service training involves all teachers. For some short term teachers in the public and private schools, it constitutes a kind of pre-service training. Teachers with less than five (5) years of teaching experience are particularly targeted in some cases, such as in pedagogical seminars.

In the technical and vocational education sector, the same structures aim at ensuring pre- and in-service training. However, there is no problem of articulation in this regard. Diverse obstacles currently hinder these structures from really responding to teacher training needs in this sector. Some actions are undertaken here and there but very often, they are below the needs of the interested parties.

CNFC includes national pedagogical Advisors (CPN). Not all subject matters are found at CNFC. This structure is responsible, as far its resources can permit, for the training of roving pedagogical advisors (CPI) with regard to pedagogical facilitation and subject didactics, during the annual seminars of a couple of days. Thus, it organized training in evaluation for pedagogical advisors in mathematics. Working in close collaboration with the African Distance Learning Network (RESAFAD), CNCF facilitates access of teachers to Internet. An interdisciplinary effort is undertaken at the national pedagogical advisor level.

PRF is meant to be an information, training, pedagogical and didactic production research structure. A Coordinator coordinates work at PRF. Roving pedagogical advisors (CPI) are responsible, among other tasks, for

- Organizing and facilitating short-courses and pedagogical days,
- Ensuring training follow-up,
- Producing and disseminating teaching and didactic aids,
- Participating in the setting up and/or re-vitalization of pedagogical animation structures in schools,
- Carrying out studies or research-action,
• Coordinating, animating and controlling, in collaboration with interested structures, all training output and actions relating to their competencies.

PRF does not work regularly with ENS, except in some projects such as ARCHES (Support to research, putting into context and harmonizing secondary education), training in new programs in History-Geography, and strengthening Mathematics teachers. The synergy of action is acquired in theory, but is still not systematic in practice and all activities are very often parallel. Not everyone benefits from the intellectual and experiential wealth developed in pre- and in-service training. The construction of effective synergy could be accomplished in the challenge posed by the training of short term teachers.

As can be observed, CPIs have enormous responsibilities but no complementary or specific training is systematically organized for them, and according to one of them: “the methods utilized to teach us are no longer necessary today”. They hope to benefit from periodic training to better support teachers as well as more satisfactory material and financial conditions. The risk of seeing them leave after some years is real because, as teachers, they often obtain more interesting financial conditions than those of the CPI. Inadequate, or even lack of logistical resources in some cases, limit their actions. A pedagogical advisor association has recently been put in place.

The academic training plan (at the Academy Inspectorate level) is developed on the basis of training needs, which are the result of the summary of inspection reports, teacher supervision reports and examination results. Sometimes teachers are called upon to express their training needs. Moreover, PRFs are solicited, by the Department of General Middle and High Schools and CNFC, to organize training thereby leading them to identify national and regional instructions. Certainly financially different, in most cases, it is matter of “top down” training and harmonization is not evident. However, teachers in middle and high schools appreciate these pedagogical days, seminars, workshops, which are often centered on pedagogical issues (theoretical and especially practical aspects). Thus, in the survey that we conducted, many of them asked for more of such meetings, which, in most cases, resulted in the production of a document. The teachers, who did not go through ENS and eager for information and training, are the greatest petitioners. Specialized inspectors encountered at the end of their training at ENS, were more critical: they regret that training needs were not targeted at the grassroots level, questioned the choice of themes, sometimes inspired by trends and questioned the impact of such meetings. (Let us remember that these inspectors have taught for some years as secondary school teachers (PES) before being trained at ENS as specialized inspectors).

Class visits, after a training event, for example, are always negotiated with the teachers, who are, it seems, rather “nervous”, because CPIs are sometimes perceived as inspectors. In some regions, such as Louga, CPIs associate the most experienced teachers to these visits in the CEMs. Material and financial constraints also often hinder these visits to teachers. The luckiest are those who are close to the regional capitals where activities take place. According to information gathered during the MLA (Monitoring Learning Achievement) conducted with students of equivalent 8th grade, 60% of Math teachers had not worked with a pedagogical advisor (this rate is probably higher than in other subject matters).

Emphasis is placed by the CPI on curriculum appropriateness, in some cases, and in others, on communicative systems and student involvement in their own learning process. Others focus on evaluation skills and initiation by competency. In other words, there is actually a certain adaptability of the in-service training, which should not be lost. However, one cannot but wonder at the tools available to CPIs in order for them to move beyond pedagogical procedures.

**Pedagogical activity units**, located in a school with a significant teaching team, or with, very often, teachers from various establishments, are organized within subject matters. They host public and private school teachers. Themes vary: preparation of lesson notes, harmonization of the teaching given by different teachers of the same subject matter, development of a collection of exercises, production of small materials,
training in new technologies, development of evaluation tools…. As meeting places or support groups, some units are very active, others less. The dynamism comes from teachers and their needs (cf. also in the work of subject associations, which we will address later). In some schools, “school projects” are taken care of by the pedagogical units. It is the in-service training means, which is most often mentioned by 85% of the teachers interviewed, followed closely (82.5%) by the reading of subject-related works. These units are under the responsibility of an animator, the most experienced teacher, who pilots the unit’s activity plan. They can receive support from the CPI on a case by case basis. Some teachers, not only short term or contractual ones, reckon that the issue of collaboration among colleagues has been often addressed in pedagogical units more than in the training context, including pre-service training. These local units, where they operate, represent interesting staff development experiences. They could, if strengthened, represent the initial link in a network of collaboration among teachers.

Subject matter associations play a special and important role in Senegal in the in-service teacher training in middle and high schools. Some of them have known hours of glory some years back and are now somewhat “dormant”. Others are still blossoming. As a History-Geography teacher said, it is the last recourse for pedagogy-related problems. Some of the activities of the associations are: review of production, organization of study trips, development of exchanges among colleagues of the same subject matter, animation of pedagogical days in the different regions, support to the teachers’ professional development. Teachers often pay dues for the organization of these meetings, which facilitate exchanges. The personal commitment of their leaders is a key to success. The Ministry sees these associations as partners working in collaboration with PRFs.

Working closely with many subject matter associations, the activities of the Group for the study and teaching of the population (GEEP), an associative structure and a pedagogical innovation experimental laboratory, according to its Coordinator, should be noted. Conducting activities at various levels, GEEP hopes to bring teachers to better play their role as mediators of knowledge and develop in students the skills required for them to play their role of peer educators. It prepares teachers for the new programs and interdisciplinary unit, the development of which it contributed greatly.

It is through NGOs also that 25% of the teachers interviewed have heard, superficially or satisfactorily, the issue of gender mentioned. Given the responses to the questionnaire, training at ENS seems to ignore this issue, which is however important if we expect that the great efforts made in girls’ schooling at the elementary school level be relayed to the middle and high schools. However, in 2002, CÆRENAD organized a national awareness day on the need to introduce gender issues at ENS. Student teachers of some subject areas did research work and made presentations on gender issues.

In the in-service training field, initiatives are increasing. In 1994, seventeen (17) structures involved in French teaching were identified. The harmonization of the approaches implemented by these structures is rare, as are the meetings between pre-service and in-service training trainers. Other activities such as training in HIV/AIDS, health and human rights were hardly integrated into the other training events but the approaches are innovative in most of the cases.

In-service training is therefore characterized by the diversity of its activities and their poor valorization, proposed to teachers without any commitment on their part. The lack of evaluation of these activities makes it difficult to assess their impact even though teachers are interested in them. Apart from a few experiences such as GEEP, in-service training seems to be more often centered on subjects rather than on learners and is little connected to pre-service training.
1.3.3 Other training methods

This category covers non-institutional training activities, which our survey had to consider.

In the first instance, exchange of experiences with colleagues was retained by almost 80% of the interviewees as a training opportunity, which they had. It was not only the short term teachers and the contractual teachers who were in favor of this learning community. Referring again to the Paquay model around which Baraw Ndiaye based his thesis, it can be said that we have here a living image of the teacher as a “social actor”. In the process of exchanging, they can reflect together and better understand what they do. Among the youngest in the profession, in public and private schools, work with experienced colleagues is also taken as a training method. It allows these younger teachers to express their concerns and even their anguish in class management and in the management of students’ learning. The issue of collaboration with colleagues was addressed, according to 85% of those interviewed, superficially or satisfactorily, during their training. Even though we cannot talk about an exchange culture among teachers, the important nature of these exchanges is an advantage on which other new in-service training activities could be built.

The reading of subject related works is, as already mentioned above, a self-training method, which is widely used by the teachers interviewed: 82.5% of them confirmed this. However, one can ask if this implied school manuals or reference books. Most certainly, the situation differs depending on whether the teacher is in a high school in Dakar or in a local CEM recently created under very difficult conditions. Without going to these extremes, it is certain that many CEMs in the rural areas resemble the CEM visited during our survey in the Louga region: with completely empty shelves in the teachers’ lounge. The reading of works on science education met with less approval.

Less numerous but in a nevertheless significant proportion (22%), the teachers interviewed say they seek the information useful for their teaching on the Web. As an information and training tool, the Web attracts many of the teachers met. RESAFAD has trained teachers in both current and specific software, for example, for mathematics teachers. Apart from the RESAFAD Center in Dakar, another center has been opened in Thies and another is planned for Saint-Louis. The French Cooperation and the government actually want to put in place multimedia resource centers at the PRFs. The SITT (Senegal Improve the Teacher Training) project, funded by USAID, in conformity with its objective to strengthen training capacities, has programmed to support the PRFs so that they can become information suppliers through the computer. The Dakar PRF thus wishes to have a site to display on the screen the different productions done by the teachers in the Dakar region. However, centers in regions such as Louga, are not yet connected.

Still in the field of self-training, training based on the teacher’s actual experience should be mentioned. Two skills, which are indicated in the list proposed to the teachers interviewed, are “Exchange with parents on the progress of students’ learning” and “Identify problem-situations with the students”. Those who reckon that they have acquired these skills attribute it to experience rather than to pre- or in-service training. Can pre- and in-service training be limited to the class and can they forget the importance of dialogue with parents and their involvement in their children’s learning”? With regard to the second skill, it is possible that the “problem-situation” expression has not always been well understood by the teachers interviewed.

What makes these various facets of non-institutional training interesting is that they are entirely the fruit of the teachers’ own initiatives and are based on different types of networks (relational or informative) as well as various types of support. They are also embedded in the issues that teachers ask and in their daily experience. Nevertheless, if they are not sustained, valorized and reinvested, they will not necessarily develop solid skills in teachers.
1.4 POINTS OF VIEW OF DECISION-MAKERS, TRAINERS, TEACHERS AND PARTNERS ON THE KNOWLEDGE SOCIETY AND TEACHER TRAINING

1.4.1 KNOWLEDGE SOCIETY?

In the course of our interviews, we asked our listeners many times what they understood by knowledge society.

Many insisted on the fact that Senegal did not have any mineral resources but has men. For them, it is important to lay emphasis on knowledge. In this light, some reckon that the educated population has an intellectual level, which permits it to analyze situations.

Other listeners, particularly teachers, emphasized knowledge as the basis of development. According to them, development can only happen by acquiring solid knowledge and integrating it into development programs.

Some evoke the passage from the industrial era to a knowledge society. They mention the fact that the capitalization of knowledge has become capital wealth and give the example of India where there is supposedly the greatest number of scientists. They also feel that investment in this field is a good one.

However, other resource persons encountered, ask themselves certain questions: Has present-day Senegal become a knowledge society? If we are to refer to the gross schooling rate in elementary education (79.30% for boys, 72.30% for girls and a GSR of 75.80% on the whole) and in middle and high schools, will it not be premature to talk about a knowledge society? While debriefing, at the end of our stay in Senegal, the issue was raised again along these lines. Is access to information through writings or new information technologies (NTIC) and communication still not restricted to a limited number of people? Are difficulties to access, given the geographical, socio-economic and cultural milieus, not producing flagrant inequalities in developing societies?

Don’t we often have the tendency to think that knowledge means “modern” knowledge? Do we really take into consideration traditional knowledge, which is transmitted from the oldest to the youngest in the family or in the society of the initiated? As Cheik Anta Diop said, “an old man who dies is a burning library”. Is this knowledge capitalized so that new generations can tie their cords from the end of old ropes?

Others, while being conscious of the current situation in the Senegalese society at the beginning of the twenty-first century, reckon that the use of NTIC is not a luxury, but a chance for countries such as Senegal. This opportunity should be seized in order to radically review teaching strategies for the entire public, young and less young and that learners be really at the center of the teaching-learning process. “The young are more interested in surfing the Internet than going to the library”, said a Mathematics teacher and he added that it is easier to have a virtual library than a real one.

In the survey with teachers, the documentation centers and information technologies seem, to the majority interviewed, to be an interesting learning method, but inaccessible to most of their students and even inaccessible to most of them. Among training needs expressed by teachers, the learning of NTIC and that of psycho-pedagogy, are most in demand. They wish to master the computer and learn how to do research on the Internet. The students interviewed in the three departments of the Dakar region, and mainly those from middle schools (thus the youngest on the average) consider information technologies as relevant learning tools for them. Students in high schools however, give more importance to documentation centers than to NTIC.
These different situations, probably justifiable, are very interesting. In fact, it is certain that knowledge-related information processing is a socially and economically useful resource. It is also certain that the approach must integrate various communication tools. As indicated by some of our interviewees, the knowledge society is not based exclusively on NTIC even if these open new communication horizons and can change, both with regard to education and to many other areas, communication structures. These structures are often vertical but they can also be advantageous to horizontal ones and to networks. Creation, sharing, transmission and preservation of knowledge are functions of the knowledge society that go beyond the information society. The great challenge is the danger of the growth of inequalities.

1.4.2 NECESSARY ADAPTATION OF TEACHER TRAINING TO CHANGE

Decision-makers and trainers ask how to make the computer profitable in the Senegalese educational context; how to train teachers in its use; how to transform information from the Web into knowledge and skills. Another trainer declared: “We should re-think the way we teach and even learn. A student had contradicted the teacher because he had seen something contrary to what the teacher had said on the Internet”. Another worried: “even with new tools, old habits continue, teachers are tempted to make their students pass through the road they themselves tanned. It is necessary to have a completely different pedagogy”. And to confirm his concerns, a teacher affirmed that one should be up to date so as not to be surpassed by his students!…All these affirmations show that this issue is of interest to the many different players in the educational system. The aim of the education-computer laboratory at ENS is to initiate student teachers in computer literacy so that they can be capable of using the computer as a research and teaching tool. Is this initiation sufficient for them to be at ease to use the tool and to find pleasure in it?

There is a commission on Introduction of NTIC at school. Many experiments have begun, in elementary education and some secondary schools, in particular that of Cyber-Jeunes initiated by GEEP, with assistance from CRDI and UNFPA as well as World Links. Over a period of four years, from 1997 to 2000, World Links aims at connecting at least 1200 secondary schools in countries of the South. In Senegal, the objective is to cover all the departments (generalization at the level of regions and secondary schools). The project provides to schools a series of electronic work tools, services and training modules.

Those who pilot these experiments reckon that they are promising and able to generate knowledge in the Senegalese context. In two or three years, according to information received, all the high schools would have a computer room. Avoiding a two-tier or many-tier teaching will be a challenge, true today but more important still in the years to come given constraints in human, organizational and material resources.

It is not necessary to wait for many years before training teachers in a new vision based on their new roles, we were told many times. Both in pre- and in-service training, the trainer, like the teacher in the class, is no longer the exclusive depository of knowledge. It seems to have been unanimously accepted that to date training has centered on content. Henceforth, a lot of emphasis will be placed on class and learning management, relationships between secondary schools and communities, improved school environment, methodology and epistemics. All hope that training will allow student teachers to understand that “teaching is not preparing a lesson and reciting it in class”. In the same light, some evoke the necessity for a new supervision vision. The training of specialized inspectors and inspectors of school life is achieved with such a perspective in mind. Our meeting with some of those at the end of their training enabled us to observe that beside a “classical” vision, some understand their role of vector and facilitator of pedagogical exchanges among schools.

Another expression that we heard very often during interviews is “learner-centered teaching”. It is repeated in as much as teachers feel that they are often prisoners of their subject, programs and examinations. Most of the programs in the middle and high schools are seen as content programs, lists of lessons to do, with instructions. Some of those interviewed go further and hope for an interdisciplinary national commis-
sion so that the necessary interdisciplinarity, which we will examine later, be considered as acquired from the time the programs are developed. Perhaps we should hear the content-based school administration say “that each one should do what the program tells him to do”. Thus some of our interviewees foresee a re-writting of the program with curricula in mind (technical education foresees the review of the curricula, which are more than 40 years old, in collaboration with enterprises). However, we know that the curricula, even the best designed, do not completely resolve the issue of student-centeredness. Without going into detail, resource persons encountered also raised the issue of didactic contracts, entered into with students, which allows for an explanation of the rules, a negotiation in which learners become the actors of their own learning, and all eyes are riveted on the learner’s activity.

Elementary education also has its constraints. However, the existence of the sole teacher facilitates learner-centeredness. This is why experiences such as that conducted at the Dakar Inspection Academy is to be encouraged: all the CM2 (last year of elementary school) teachers and equivalent 7th grade (first year of middle school and therefore a transition class) teachers in the same area were invited to a meeting to discuss, exchange problems related to the learning process of their students. The issue of liaison between the different teaching bodies should also be resolved with a view to focusing on learners.

Another element of consensus on adapting training is: the necessity to reflect on the effectiveness of current training, the teaching profession, and subjects. Trainers and student teachers at ENS reckon that the adaptation capabilities to educational situations are important. How can they be developed during pre- and in-service training? This reflection will enable awareness for the changes necessary while taking into account real situations as experienced by teachers in the field. This reflection will also allow for the adaptation of training to the needs of the teachers according to seniority in the service. Our interviewees agreed that these needs are not the same: the newest in the profession will be more anxious about their teaching role and teaching-related contents. The most senior are more concerned by the educational role (when they are not bogged down in routine) and their social mission. The former increasingly seek training in methodology and pedagogy. They are willing to innovate while the latter want an update of their knowledge and a refresher course to get out of routine and integrate more the challenges of society into their teaching.

There was some consensus therefore to reflect in more depth and review pre- and in-service training orientations and processes so that they can better concentrate teaching-learning on learners and develop in learners skills necessary in tomorrow’s world.

III. FROM EXPECTED SKILLS TO REALITY

In the initial interviews we had, we systematically asked questions on skills to be given to learners in middle and high schools, as well as to their teachers. Many times, we met with resistance. Thus, the response we got was that entry by competencies was underway at the elementary level (the second experimentation is scheduled for the 2004-2005 academic year) and the issue will not come up in the middle school until after two years of experimentation and testing at the elementary school level. In order not to break communication with the interviewees, we preferred to talk about resources to be collected in terms of knowledge, know-how and attitude, knowing that competencies can be defined as “all acquisition comprising knowledge, know-how, attitudes and behavior mobilized through the implementation of an activity linked to identified objectives...” (Group of experts chaired by Joseph Losfeld, Paris 2002). Similarly in the questionnaires for teachers and students, we preferred to use the expression “ability to act” rather than competencies, in the sense that one can say that, “competence is knowing how to act” (Le Boterf, 1995).

In the first section, we shall present, as they were formulated, the resources to be mobilized: knowledge, know-how, attitude, how to develop, which the encountered persons thought should be developed in students in middle and high schools as well as in teachers in the same teaching order. A reminder of what the referenced texts have anticipated will precede this presentation. In the second section, we shall identify
some pedagogical realities from field surveys. Finally, in the third section, we shall analyze the differences in the first two sections.

2.1 SKILLS EXPECTED IN LEARNERS AND TEACHERS IN MIDDLE AND HIGH SCHOOLS

2.1.1 WHAT OFFICIAL TEXTS SAY

Orientation Law

In Article 2, it is said that national education contributes to “helping to acquire the ability to transform the milieu and society”.

Article 12 specifies that the aim of middle school is to:

- perfect the development of observation, experiment, research, practical action, reflection, explanation, analysis, synthesis, judgement, invention and creation capacities
- strengthen the mastery of logical and mathematical thinking, enrich its expression tools and extend its communication capacities
- familiarize students with the different aspects of the job market and initiate them into productive activities
- complete the student’s social, moral and civic education."

Article 14 mentions for secondary, general or technical education:

- a solid education in fundamental subjects…
- an adequate mastery of scientific and technical research methods.

Policy document on technical education

Technical education aims at making students acquire practical capacities, analytical skills through study and problem solving at the technological, economic and social levels.

The development of the programs will be guided by the identification of skills likely to guarantee good professional integration.

Decennial Plan for Education and Training

"Thus, more effectively, more students will graduate at the end of the cycle (middle), with a better mastery of basic contents in the major subjects (French, English, Mathematics, Physical and Natural Sciences and Technology) and able to integrate themselves into the community."

From reading these official texts, we note that professional insertion, integration into the community and transformation of the milieu and society constitute the finality attributed to middle and high school education, general and technical. Various intellectual and practical skills (mentioned for technical education) must be developed in this regard.

2.1.2 SKILLS MAP TO BE PUT IN PLACE FOR LEARNERS

We did not find documents referring to the profile for graduating students at the end of the middle or high schools, general or technical. As if a cry from the heart, an official exclaimed “that the Senegalese should
agree on the finality of middle schools”, given that the certificate at the end of the middle school education is often seen as a passport to be presented at the various professional entrance examinations.

As mentioned above, all the resources required to put in place skills identified by about fifty resource persons interviewed, were retrieved in the same terms as they were initially formulated and only these resources were presented. The categorization work was quite challenging, and it is completely debatable in as far as many of them are transversal. In order to clarify the presentation, we have put them in five (5) categories while recalling the holistic character of the approach by competencies and their interaction and interdependence, one on/between the other:

- How to learn
- Know-how
- Attitude
- How to develop
- Act as a development actor

The presentation on the following page helps to better understand the integration of all the various components.
WHAT ARE THE SKILLS/CAPACITIES TO BE DEVELOPED IN LEARNERS

How to learn

Know-how

Attitude

How to develop

Development actor
**How to learn:** in this category, skills, which help the learner to *be the actor in constructing his knowledge*, have been put together. This notion has come back many times in statements from decision-makers, trainers and partners. All insist that students must take ownership of knowledge, events in their school life and their life in general. According to an expression by a teacher, the “learner should be detached from restitution”. Practical work completed in scientific subjects appears in the eyes of some, as an excellent opportunity for taking ownership of knowledge.

In order to do this, the instrumental skills acquired in elementary school must be reinforced, *particularly reading, writing, counting, expressing and communicating in different languages orally and in writing*.

These instrumental skills will enable students, said the interviewees, to learn to *go seek and manage information*, whatever the level: in their closest milieus or in farther ones based on available information tools. Selecting information, categorizing it, verifying it… these are some of the components.

*Being able to identify a problem and seeking to solve it* is a skill that many decision-makers, trainers, and partners also mentioned as central to and necessary for the implementation of numerous skills.

*Being open to analytical and scientific procedures* is a skill, which has been cited by those interviewed in one form or another. The concern about developing and valorizing scientific subjects in secondary schools, for boys and girls, is not new to the drive to develop such a skill in learners. Scientific and technological blocks used by many secondary schools have been remodeled with this in mind. However, it will not be a question of limiting this skill to only science students. All learners must be able to use these analytical tools to process information, identify and solve a problem.

*Mutually learning from one another, while being autonomous in one’s learning*, is part of the basic skills to be given to learners in middle and high schools. The relationship with attitude-related skills is obvious.

In summary, one can say with one of those interviewed, that *students need to learn how to learn*. To what extent does the current middle and high school develop this competence, which is the basis of all others? Referring to Ratzue (cf. 1.2.2), it should be noted that many teachers do not give adequate importance to the learning process, essential to learning how to learn.

Skills related to *know-how* were much less explained by those interviewed. Maybe this is due to the fact that we met with very few decision-makers or partners in technical and vocational education. Maybe also that this observation is linked to the intellectual nature of the Senegalese educational system, to the precedence of general education on technical and vocational education, to the disinterest of some for practical jobs.

The learner must be able “*to put theory into practice*”, that is, put a lot of effort into practical and/or manual activities, without fear of damaging his reputation as a student. This capacity is in line with the concerns of parents, who are often sad to see their children, students in middle and high schools, lose contact with the manual activities, which they themselves perform everyday.

He must be able to *accomplish tasks*, that is do operations in the field of practical life, which will contribute to the resolution, albeit partial, of problems and which will allow him to improve, no matter how little, his immediate environment. Communities, especially rural, should often ask themselves what the middle or high school student knows how to do more than the student who finished schooling at the elementary level. It is in this context that resource persons highlighted this skill.
In the same light, “learning to work” was mentioned as a skill related to know-how, as well as the capacity to enter the job market by responding to the needs of enterprises and local processing units such as that identified in the technical education policy document. All these skills, even though hardly developed and rarely assessed, are not valued in middle and high schools except as a means to understanding scientific facts. In an era of education for all and integrating middle school to a ten-year basic education (primary education + middle school), it is essential for the students to develop the acquisition of all these skills so as to be able to utilize them in future as active members of the society.

In attitude, learning to manage relational problems, was cited by some. They included, it seems, negotiation skills, adhesion to a group and conflict management. Living in harmony with one’s immediate environment falls within the same domain and mobilizes diverse skills to address complex situations. Group work organization, which we will talk about later, is an opportunity to develop such skills.

Showing a spirit of critique and curiosity could certainly have been classified in knowing how to learn, but we have preferred to place it in the skills related to attitude because this attitude is not enhanced in the traditional Senegalese education, where the child and even the adolescent must adapt rather to the norms of the group.

Defending his ideas is an ability to act, which like all ideas in this domain, was only brought up by some informants. It should be connected to many other already identified skills, such as embracing analytical procedures and learning the management of relational problems. It is very interesting for the adoption of some behavior, particularly in health reproduction, so that the youth may be capable of protecting themselves against HIV/AIDS.

Developing self-confidence is a skill, which school systems encourage in “good students”. How many times have we not seen learners lose all confidence in themselves because of failure at school? This was why, it seemed interesting to us, to review this skill even if only a few informants mentioned it.

This area of attitude is also often ignored in middle and high schools as if the school’s mission is only limited to the acquisition of knowledge. However, family crisis and the disintegration of values, which numerous countries in the sub-region including Senegal face, call for, more than ever, the development of such skills in students.

In the area of how to develop, our interviewees mentioned three skills. Having a life project is a particularly useful and fruitful skill in present-day society where the young think increasingly less of school, seen by many of them as an unemployment-making machine and where the marginalization process, domestic or foreign, is fast developing. The Senegalese educational system has school projects in primary, middle and high schools. It is time for students, in the course of their schooling, to have a life project, which motivates them and allows them to organize all their learning towards this goal.

Managing everyday by utilizing one’s experiences falls within the categories already mentioned. It is a skill, which results from the ownership of the various types of experience, in such a way that the learner can better learn to rely on what he has learned to learn, to do, to be.

Facing unforeseen events requires learning, which combines knowledge, skills, attitudes developed during training (and after), and which the learner will be capable of putting into play when and as required.
Act as a development actor

«Is teaching aimed at making our children competent citizens capable of confronting multiple and concrete challenges, which our countries are facing, or at turning them into magicians of the verb incapable of facing problems…? (Situational analysis of the child and woman in Senegal – 2000: p260).

We thought it necessary to create this domain of skills, to highlight the specificities of developing countries and what is expected of those who have had the chance to go to middle school, and even to high school. This domain is akin, in different ways, to some general clauses of the 1991 orientation law on national education.

*Taking root in one’s culture* is of course not a skill that only the school can teach. However, the school system in French-speaking African countries, has, for a long time, been an externally oriented one. It is important for decision-makers and trainers to consider this concern and that school activities be implemented to develop this and make the skill the sub-foundation for other skills.

*Behave like a citizen open and attuned to the modern world:* conscious of the fact that the development dynamics assumes that the Senegalese culture must take root and that there should be an opening to the modern world, our informants pointed out the two aspects of the development process. Instituting such a skill concerns the leaders of the system, when we know the disparities in geographical and socio-cultural milieus, in which learners in the CEM and high schools live.

*Adopt appropriate behavior to safeguard the environment:* this includes a series of behavior, which will enable learners when faced with the environmental issues of Senegal, not to aggravate the situation and contribute to the resolution of some of them, a resolution without which it will be difficult to speak of balanced socio-economic development.

The last skill, which we have classified under this series “act as a development actor” could have been categorized under attitude: “being responsible, involved and committed”. It is not a matter of a feeling of responsibility but knowing how to act responsibly, which is based on an analysis of a problem-situation and motivates the person with such a skill to be committed.

Very often, education, as practiced in schools in francophone countries, does not develop, in the learner, behavior, attitudes and skills geared towards development. Despite the financial efforts invested in education, it seems as if it is not the real development lever required by the countries.

Thus, the resource persons met expressed their views on the skills/capacities, which middle and high schools must impart. *The panorama, which we have been able to develop based on interviews from all quarters, can seem to some incomplete, to others too ambitious. It constitutes, according to us, a basis to be, perhaps, improved, fine-tuned, completed by a work of reflection with all the stakeholders in the educational system, including of course, students at different levels beginning with schools.* Given the above, we must examine the skills to be developed in teachers so that they can facilitate the construction of these skills in learners.

2.1.3. **SKILLS EXPECTED IN TEACHERS IN MIDDLE AND HIGH SCHOOLS**

“Training cannot be reduced to a list of skills to be acquired, but all training should take into account the teachers’ pedagogical experience, the representations they make of their practices…” (extract from “Representations of professional skills in education” by M. Ndiaye).
However, to keep in line with the terms of reference, which was give to us and to enrich the teacher training policy dialogue in Senegal, we asked our informants to define the skills, which according to them, must be developed in teachers. To facilitate reporting, we have adopted the same categorization. We shall see successively, therefore, teachers’ skills/capacities, which facilitate the construction of knowing how to learn, know-how, attitude, how to develop and the development actor’s capacities in learners.

**Facilitating the development of knowing how to learn in learners**

Approximately twenty capacities were formulated. We have grouped some of them.

“Mastering his subject” is a skill, which was cited by quite a high number of the people interviewed. Some specified that it is a matter of mastering the content-related aspects and those related to the teaching of the subject in order to “place the priority on the learning process”. Acquiring this skill seems to be envisaged in the various texts. Some recommended the strengthening of methodology, “procedural knowledge” and to no longer focus, as in the past, on content.

“Accompanying the student in constructing his knowledge” corresponds entirely to one of the skills mentioned for learners: be the player in constructing his knowledge. In the same light, emphasis should be placed on the skill to “Play the role of mediator of knowledge”.

One can ask questions on more specific skills that must be developed in teachers so that all the knowledge, aptitudes, attitudes underlying this mediation, this support may be effectively implemented to resolve learning problems in the classroom. Some specified that teachers must be capable of “producing teaching tools”, props to facilitate students’ learning. Others hoped that middle and high school teachers should be apt to “integrate NTIC into teaching-learning.” Others expect of teachers “experimentation practice” linked to learning objectives. This support can also lead to the acquisition of other skills such as “developing strategies to put in place educational resources” irrespective of origin, so that students can make progress in the construction of their knowledge. As in the case of learners, teachers are expected to “process information, analyse it critically” and use it in their teaching.

“Placing students at the center of teaching” based on a solid knowledge of the psychology of adolescents was mentioned as a fundamental attitude, which must be the focus of a more regular analysis of educational practices. According to some, arousing the desire to learn and “teaching learners to learn” presupposes profound changes in teacher training.

Many trainers insisted on the skill to “assess the educational situation, make ad hoc decisions and use the most effective educational strategy” in a given situation. These people would like teachers, during their training, to be conscious of the numerous possible understanding of an educational situation, numerous possible reactions. They propose involving teachers in reflection before, during and after classes on the learning situations proposed to students.

“Working in group to resolve problems” is a skill brought up many times and in various forms. “Adopting a global educational perspective, instead of one of subject specialist” and “Integrating one’s teaching into a pluridisciplinary framework” reflect practices which are close to one another. The development of these skills is a concern shared by many of our informants, decision-makers, trainers, partners such as subject matter associations, and NGOs.

One skill, noted by some informants, needs to be mentioned here even if it was not developed by everyone: “self-training”. The management of one’s continuous learning was considered by many writers as a reference skill. Raised in the first part of this work (cf 1.3.3), it must, we said, be sustained, valorized and re-invested.
Facilitating the development of attitude in learners.

Our various informants realized the need for middle and high school teachers to learn to “manage the class like a micro-society”. Some specify that it is a matter of “creating occasions for meetings and facilitating exchanges among students”. These skills correspond to those, which our informants would like to see in learners, formulated in terms of managing relational problems.

“Adopting a receptive attitude” is considered by many resource persons met as favorable to the development of attitude in learners. In order that learners develop a critical spirit, defend their ideas, develop self confidence (cf above), this teachers’ attitude, which authors consider to be relational or psychological skills, is essential. In the completed questionnaires, the students hoped to observe this listening attitude more often in their teachers.

Similarly, “contributing to the development of a person, in relation to others” is a skill that needs to be made operational, to go beyond the somewhat abstract content and transform it into the action most closely related to the resolution of the problems the teacher is facing in the classroom.

Facilitating the development of know-how in learners

Practically only one skill was mentioned in this regard, yet numerous interpretations are possible. “Developing the skill to address the issue of lack of materials”, could eventually induce learners to produce materials themselves, to conduct practical activities that may assist them in developing their own know-how. Once again, it can be observed that skills related to knowing how to learn were often identified; those relating to know-how and also to how to develop are rare.

Facilitating the development of how to develop

Some of our informants insisted on the teachers’ capacity to “give meaning” to their work and to that of learners. Many of the youth go into middle and high school teaching as short term teachers “by default”, many students go to secondary school without believing in it, many students drop out without any prospects for the future. The challenges in education and the development of each learner are so important that they need to be made the subject of ethical orientations during pre- and in-service training. Traditional and modern values in the Senegalese society must make it possible “to give meaning to…”

Facilitating the installation of skills as a development actor

“Being involved in the school environment” was mentioned by some as the capacity to act in the milieu where the school is situated. In the criticism made to teachers, some mentioned that middle and high school teachers, contrary to elementary school teachers, hardly feel responsible for the school environment. Despite the rather vague wording of this skill, teachers are expected not to limit their activities to the classroom.

Based on the idea that there can be no development without some reflection on development, some people expect teachers to have the capacity to “reflect on their subject, their experience, their profession” with development in view.

It is thus that the skills/capacities to act, which our informants formulated during the interviews, are presented. It is certain that many of these formulations are abstract and sometimes correspond more to intentions than to skills. The merit of this work is that it reflects different points of view and has been cease-
lessly compared to skills, which learners should have. Thorough study still remains to be conducted, consisting of, in the words of Ph. Perrenoud:

«- first relate a skill to the category of problems and practices to help resolve them;

- then make an inventory of cognitive resources (knowledge, know-how, attitudes) mobilized by the skill considered.»

Today, these skills/ability to act are only partially covered in pre- and in-service training, neither are they part of the teacher’s assessment criteria. They are, in most cases, conducted by the heads of schools on a rather general normative basis.

2.2 EXPERIENCE IN THE FIELD

2.2.1 ABILITY TO ACT AND TEACHERS’ PEDAGOGICAL PRACTICES

The survey conducted among teachers and student teachers, a total of 220, included questions on the acquisition of certain ability to act and the context(s) in which these skills were acquired where possible (see questionnaire in annex).

In the question on ability to act, the interviewees tended to respond based on what they actually do in their professional life. The table below recapitulates the responses the interviewees gave on their acquisition of these different skills.

Table N°3: Perceptions of the interviewees on the ability to act

<table>
<thead>
<tr>
<th>Ability to act</th>
<th>±Acquired by</th>
<th>% Sample</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare lessons with other teachers</td>
<td>181/218*</td>
<td>83.0</td>
<td>1st</td>
</tr>
<tr>
<td>Organise group work in class</td>
<td>180/217</td>
<td>82.9</td>
<td>2nd</td>
</tr>
<tr>
<td>Exchange with other students progress in their learning</td>
<td>148/212</td>
<td>69.8</td>
<td>3rd</td>
</tr>
<tr>
<td>Involve students in the search for teaching tools and resources</td>
<td>142/216</td>
<td>65.7</td>
<td>4th</td>
</tr>
<tr>
<td>Identify situations-problems with students</td>
<td>126/214</td>
<td>58.9</td>
<td>5th</td>
</tr>
<tr>
<td>Exchange with parents learning progress of students</td>
<td>125/216</td>
<td>57.9</td>
<td>6th</td>
</tr>
<tr>
<td>Plan learning situations where students organize their own work</td>
<td>114/211</td>
<td>54.0</td>
<td>7th</td>
</tr>
<tr>
<td>Propose different activities to students in the same class according to their identified levels</td>
<td>80/217</td>
<td>36.9</td>
<td>8th</td>
</tr>
<tr>
<td>Utilize radio, video, cassettes, internet during lessons</td>
<td>42/216</td>
<td>19.4</td>
<td>9th</td>
</tr>
</tbody>
</table>

Source: Teachers’ survey

* the number of those who responded varied little from one skill to another, some did not complete the questionnaire for all the skills.

Two skills were considered by more than half of the teachers interviewed as remaining to be acquired:

14 Perrenoud Ph.(1997) De nouvelles compétences pour enseigner à l’école primaire, Faculty of psychology and education science, University of Geneva
"Utilizing radio, cassettes, video, Internet during lessons" was considered by 81% of the interviewees as an ability to act that remains for them to acquire. Certainly, the lack of teaching materials or installation of electricity can partly explain such a response. Among those who benefitted (or are benefiting during the current school year) from training at ENS, only 11% reckon that they have acquired this skill during their pre-service training. These responses show at the same time that teachers, during their pre- or in-service training, were a little (or not at all) familiar with the use of audio-visual or computer tools. The primacy of the written word (with manuals) or according to the professor, in a society with an oral culture, seems solid.

The second ability to act, not mastered by more than half of the teachers interviewed, involves *proposing different activities to students in the same class according to identified levels*. The difficulty many of them had understanding this skill is revealing: *teachers are more used to conducting learning activities, linked to the program, in a way that is identical for all the students as a group rather than grouping them by levels, focusing on the skills to be developed in students with different levels*. The majority of them did not learn how to manage the heterogeneousness within a class group. Student-centered learning is still a mere wish. It should be noted though, that the task is arduous for the teacher when, at the end of his training he has 98 students in an equivalent class of 9th graders, such as was the case at the CEM in Dakar-Banlieue. Among those who had benefitted (or are benefitting during the current school year) from training at ENS, 26% of them indicated that they acquired this skill during their pre-service training. *For all the skills, the proportion of those who thought that they had acquired them during their pre-service training is inferior to those who thought they acquired them through a combination of pre-/in-service training (institutional or not) or through only in-service training*. This observation recalls, if need be, the necessary link between pre-service and in-service training.

Teachers respect the autonomy of students in the organization of work in some learning situations, particularly, according to their observations, in the presentations that they must prepare and discuss in some subjects. This is why 55% of those interviewed said they more or less acquired the ability to “*plan learning situations where students organized their work themselves*”. More than half of the teachers (53%) trained at ENS reckon that they acquired it during this training. However, nearly 45% of them say that they still need to acquire this skill. For students to organize and learn to identify and solve a problem, they need to be prepared for this autonomy. The teachers interviewed do not often understand the ability to “identify situations-problems with students” and we cannot utilize the results obtained.

*Preparing lessons with other teachers*” is, in the context of the ability to act mentioned in the questionnaire, that which is most often acquired at ENS: 78% of them confirmed that they have benefited or are benefitting from this training. Moreover, 94% of those interviewed reckon that the issue of lesson preparation was tackled, superficially or satisfactorily, during their training. However, it does not seem as if lesson preparation with other teachers results in a sense of complementarity within subject areas. It is even less so with regard to global coherence in learning.

As noted above, when the skill “to exchange students’ progress with their parents” was acquired, it was more through experience than through pre- or in-service training. Lack of time did not allow us to go into depth with those concerned about the various ways in which they exchanged with parents: information meetings? Individual meetings? Inviting the parents of a student with poor performance? Similarly, we did not have the time to ask about the ability to involve parents in school life and in the learning process. When we know the reticence of illiterate or school drop-out parents with regard to their involvement in the school, even at the primary school level, especially CEM, it would be interesting to see how this skill is implemented at the quantitative and qualitative levels.

Almost 70% of the teachers interviewed say they are capable of *exchanging with students on their progress in learning*. However, only 30% indicated that the issue of knowledge of the learning modes of stu-
dents was studied satisfactorily during their training. Even then, because of lack of time, we were unable to gather information from the teachers on the type of exchange they had, nor on the situation in which it was done.

Almost 2/3 reckoned that they acquired the skill to “involve the students in searching for teaching tools and resources”. Inadequate teaching resources most middle schools experience, qualified by many of our informants as the “disaster sector”, partly explains this attitude. The same proportion of the interviewees say that the issue of seeking solutions to the lack of teaching resources was addressed, superficially or satisfactorily, during pre- or in-service training. This attitude also reveals the teachers’ concern to involve learners in the search for information.

For the majority of the interviewees (121 of the 220), the best means for students to learn the subject is from the information the teacher gives and lesson notes. This perception can also be explained by the fact that the teacher is still seen as the transmitter of knowledge. The students interviewed thought the same way. Almost 70% of them reckon that explanation and information from the teacher as well as lesson notes are the best means to master the various subjects. 80% of middle school students favor this learning channel. There is, at this point, a revolution to be implemented so that teachers and learners can consider multiple information and learning sources that are available to them and envisage new relationships in a knowledge society.

Some observations of class lessons during the survey revealed that most often: teachers speak a lot, leave little room for students to speak and dictate the summary (which is not the norm in high schools). Many of the decision-makers interviewed deplored the fact that in most cases “the adult speaks, students listen and reproduce what the teacher has said” and “that student participation is often limited to questions and answers”. In most cases, the transmission methods remain vertical.

As acknowledged by an official in a private school, “the teaching method is very theoretical, evaluations are based on knowledge rather than on know-how… training is less concerned with the training process. We prepare students to pass examinations, but in the long run, they are stuck” (that is, they have accumulated knowledge but have not developed skills). These “handicaps” are so serious that they do not allow students, apart from succeeding in examinations, to use these acquisitions to develop reflection, creativity and initiatives.

Another official observed that teachers are often prisoners of the timetable, program and examinations. This blocks creativity in them, which is particularly regrettable, according to the official, in an information society. Once again, we find, as with education, challenging situations, which, instead of serving as an exposure and development agent, have become sources of restriction and unproductivity.

However, situations vary in the field and during an observation, we saw a teacher (in an application high school) attempt to help students read a newspaper article and identify major ideas, even if they did not seek the information themselves. The intention is worthy of note, but relevant methods are often lacking, it would seem.

Individual exercises and work by students (papers, personal production) take second place: teachers are therefore conscious of the importance of individual student’s work and the implication for learners in learning. Three quarters of the students interviewed classify exercises and individual work second or third, that is, they also reckon that this work is important.

On the other hand, group work comes 4th. Teachers still prefer individual work based on lesson notes or manuals (which comes third). However, more than 80% of the teachers interviewed, said they have acquired the ability to organize group work in class. Yet, 76% of them reckon that the issue of learning
through group work was touched upon, superficially or satisfactorily during their training. We are therefore faced with a situation where teachers say they are capable of organizing group work but give it limited value when it comes to the appropriation of the subject by students. On the other hand, high school students seem (their number is too limited for us to affirm) to think that group work is important to their learning since almost half of them classified it first or second, well before manuals.

The following are the results of the examination of the observations and interviews conducted with regard to the survey:

-teachers have acquired, through different training and self-training programs, abilities to act, particularly that of preparing lessons with other colleagues, exchanging with students progress on their work, proposing some activities, which will bring the students to organize their work themselves, inviting them to research teaching materials;

-the image of the teacher, transmitter of knowledge, is still very strong, and consequently, vertical methods are most often used and “collaborative work” aimed at solving a problem is not yet perceived by teachers.

2.2.2 STUDENTS' ABILITY TO ACT

When giving the questionnaires to students, emphasis was placed on what they actually do. The table below gives some information on the ability to act, which the students interviewed saw as reality.

*Table N°4 : Perception of students interviewed on ability to act*

<table>
<thead>
<tr>
<th>Ability to Act</th>
<th>O'Level class (10th Year)</th>
<th>A' Level class</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team work</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Going to seek needed information</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Producing useful learning tools</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Discussing the progress of your learning with your teachers</td>
<td>12</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>Organizing your own work yourself</td>
<td>6</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Accomplishing practical tasks</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Developing a life project</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Diffusing tension between you and others</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Solving problems in your neighborhood</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Source : Students’ survey

Given these results, none of these abilities was acquired by at least half of the students interviewed (60). The ability for teamwork and discussing with professors about progress made in learning, which got most of the affirmative responses, also reflect the ability the teachers say they have. The ability to act, which relates in a way to know-how, is hardly acquired: the same goes for “accomplishing tasks” and “producing useful learning tools”. In the relational and community fields, also, scores were not high; perhaps middle and high school teachers reckoned that the construction of these capacities was not their responsibility and are therefore not interested in helping students to acquire them.
Students were also asked to identify, on the proposed list, the two skills, which they considered to be the most important. The first was the ability to organize their work themselves, followed closely by team work and going to seek the information they need. On the other hand, the abilities to solve problems locally and to produce learning tools were classified last (for more details, see the treatment of the question in annex). This classification reflects the perception by 10th and 12th graders of middle and high schools, of a school, which is concerned primarily with intellectual rather than manual or social activities.

2.2.3 TEACHERS’ ASPIRATIONS

In the questionnaires submitted to them, teachers expressed their expectations about the types of training and expected fields. Find below these training requests.

Types of training

Those who have not yet benefitted from pre-service training clamour for it: “I need pre-service training”, says one of them simply. Teachers interviewed made various suggestions about training at ENS. We have grouped them together under three items: orientations, organization, training composition.

In terms of orientations, according to them, teaching needs to be modernized by adapting it to NTIC, better prepare student teachers (and indirectly students) to the various social trends, which are drastically affecting the Senegalese society and its value system, insist on communication and teacher-learner relations, take more into account students’ needs and their realities, gear training toward an interdisciplinary vision.

Concerning organization, some envisage that it will be mandatory to go through the university before entering ENS. They propose a review of the training duration, an increase in the time allocated to internship and micro-teaching, more latitude to student teachers to organize their training, giving priority to research-documentation by providing more documents, separate training for teachers “detailed for training” from that for those newly out of high schools or university.

With regard to training components, many reckon it is necessary to re-think training modules, which have become outdated, according to them, to put more emphasis on class management, didactic training reinforcement and construction of evaluation tools, for large groups, in particular, updating pedagogical methods…

They also put a very important emphasis on in-service training, request that it be geared to all, be mandatory, at times when teachers are available. They propose a reorganization of in-service training structures, improved training needs identification systems, putting in place an in-service program and no more sporadic activities, better coordination, making PRFs more dynamic while providing them with resources to meet their objectives and greater decentralization of in-service training through distance learning.

The strengthening and stimulation of pedagogical units are often quoted. Some suggest that heads of schools consider participation at these units when evaluating. They would like more exchanges with experienced colleagues, more supervision by PRF, organization of seminars, study days, exchange with other training structures, other countries, trips abroad to update their knowledge, conferences facilitated by professionals from enterprises…. They suggest a follow-up in the field after graduating from ENS. Some suggest that in-service training be associated with a career plan and that it has an impact on the teacher’s career development.
Some seek academic reinforcement: either by returning to the university to pursue studies in the subject matter (they ask that access to higher institutions of learning be facilitated for them), or by increasing their knowledge in their subject matter, for example, in cartography, biotechnology....

*Training fields*

Two fields are repeated ceaselessly: NTIC and psychopedagogy.

The teachers interviewed requested to be trained massively in NTIC, to master the computer tool in order to carry out research and learn how to integrate these new tools into their teaching.

Many of them also requested pedagogical and psychopedagogical reinforcement: student psychology, reinforcement of student motivation to study, management of large classes, new teaching methods, classroom management, large group evaluation methods, evaluation by competencies....

They would like training in subject didactics/methodology, for example, image study, didactic engineering, communication methods, creating evaluation tools.

Some would like practical training: to develop didactic materials, from recycled materials, thereby making up for the lack of didactic materials.

Other fields are also cited such as education science, documentary research, school project management, communication techniques, administrative management, school legislation.

Ability to act, indicated in the questionnaire and not mastered by them, is often repeated as training fields. Similarly, they would like to be informed of issues indicated in the questionnaire and not treated during their training. There was thus a lot of demand for gender issues (that 75% of them have never worked on).

### 2.3 ANALYSIS OF THE GAPS BETWEEN EXPECTED COMPETENCIES AND REALITIES IN THE FIELD

Many factors explain the gap between expected competencies and realities in the field. Apart from the usual discrepancy between what is said and what is experienced, we shall emphasize, in this analysis, the teacher and the teaching team in relation to their training.

The teacher is expected to facilitate the construction of knowledge by the learner. However, he has very few related models. During his schooling at the middle and high schools, during his academic training at the university, he had, most of the time, teachers who transmitted knowledge to him. During his pre- and/or in-service training, he learned the different teaching-learning theories, but content took precedence over process. Certainly, in the best-case scenario, he participated in some courses, he was able to benefit from microteaching, if he went through ENS, and he saw a certain number of trainers and/or teachers attempting to do things differently. *He accumulated theoretical and practical knowledge himself, rather than constructing his knowledge.*

During his pre- and/or in-service training, he was able to learn how to identify, and still less put in place educational resources, which will permit learners to be more independent in their learning. He was very often able to amass teaching processes rather than reflecting on the educational strategies to be developed. As a matter of fact, *during these training programs, he did not have the opportunity to develop most of the skills, which are expected of him* (at least according to the interviews we conducted).
In the school, he is subjected to a double pressure:

- *That of programs*: presented in most cases as a list of contents, accompanied by more or less clear instructions, they reinforced his vision of the subject, already cultivated during his training (academic or initial). With regard to the demands of the school administration, they reinforced this vision when they did not increase it. Worried about being young in the profession and hardly equipped, he hangs on to these famous programs.

- *That of evaluations*, tests, examinations, which, in their current form, still give a preeminent role with regard to memory and rarely encourage the formative approach.

And the learner, theoretical focus of teaching-learning, is pushed back to second place, even third.

In some schools, there are real work groups, in others none. Where these teams exist, work groups make it possible to develop some of the skills expected of teachers. When they are ready to collaborate with other colleagues, they can discuss, express their opinions on professional issues and practices and even, begin interdisciplinary work (even though, here also, they did not have models during their pre-service training). Working themselves in teams, the teachers are more easily convinced of the advantages in collaborative work for their students even if they are not aware of the pedagogical advantages. The existence of these teams, is to a large extent, due to the leadership of the head of the school.

However, in many schools, the criteria for selecting heads of schools are based primarily on seniority rather than professional competencies. Labor unions insist on this seniority criterion to avoid, as they say, the “politization of the school”. Limited for the meantime to certain head of schools and to a training of some weeks, that may be called training in emergency situation, this has to given special attention by high officials. The importance of training for heads of schools consequently became obvious but there is still more to be done so that the training can prepare directors to play the role of facilitator in the training team, advisor to teachers, who still new to the profession and animator in the community where the school is established.

**IV. SUGGESTIONS FOR IMPROVING TEACHER TRAINING IN MIDDLE AND HIGH SCHOOLS**

The main point of these propositions was presented during the debriefing of the initial results of this study, made to the Ministry of Education, on 4 February 2004, in the presence of Ministry officials, trainers, social partners and development partners.

**3.1 NEED FOR A TEACHER TRAINING POLICY ORIENTATION DOCUMENT FOR MIDDLE AND HIGH SCHOOLS**

As previously noted, current texts do not give us a global vision of teacher training. When, during the interviews with resource persons, we asked the questions on training policy, we got responses relating to training systems.

This document can envisage *teacher training as a continuum*, which will integrate pre- and in-service training, and define articulations among them, not only in terms of structures and missions, but also in terms of *approaches*. It will define the dialogue mechanisms, which will enable these structures to periodically reflect together on problems encountered by teachers in the field and their involvement in training structures.

It will define a *global training strategy*. Going into more depth with this work and using the questions below, questions which could be the *subject of basic reflection*, in middle and high schools, one will determine this strategy based on the *skills, which one hopes to impart to learners to face the challenges of a developing society in the twenty-first century.*

**Questions to define global training strategy**

<table>
<thead>
<tr>
<th>What problems will learners face when they graduate from middle/high school?</th>
<th>What knowledge, know-how, attitude, how to develop must be mobilized to help face these problems?</th>
<th>What skills are required by teachers to develop these resources in learners?</th>
<th>What are the implications for teacher training?</th>
<th>What are the implications for the training of trainers?</th>
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This training strategy must evolve, since skills required of teachers and learners also evolve.

The orientation document will indicate *the relationships between the Ministry of Education and ENS*, which can no longer be considered only as an executing agent in the implementation of PDEF but must be more involved in the educational reform.

The development of this document will mobilize various actors involved in teacher training, namely, teachers themselves (labor unions, subject matter associations…), representatives of parents and students, different types of trainers (CPI, CPN, PRF Coordinators, Trainers from ENS, ENSETP, INEADE…), decision-makers and development partners. As indicated above, *making the most of 2004 to develop this orientation document for teacher training will constitute a solid basis for the continuation of the implementation of PDEF*

### 3.2 STRENGTHENING GOOD TRAINING PRACTICES

We will examine four of the good training practices: exchanges among teachers, pedagogical activity units, actions by subject matter associations and alternate theory/practicals. The reinforcement of these good practices can be achieved immediately without waiting for the training policy orientation document or structural changes, which require more time.
3.2.1 DEVELOPING EXCHANGES AMONG TEACHERS

The reflection that teachers of the same school do on teaching-learning problems they encounter is a very fruitful foundation on which many changes can happen. Be they experienced teachers working with short term teachers, or teachers of the same subject within a school, or teachers working in the same class-group, it is important to form a team, which is open to discussion.

This team can, for example, (i) identify problems common to learners and put in place a joint mechanism to seek solutions, (ii) have a transversal vision of the learning objectives related to any level, (iii) have a real school project, which will not be limited to the purchase of equipment for the school, as is too often the case, but will motivate students, appeal to their sense of initiatives and give meaning to school activities. Thus, knowledge can be constructed around questions teachers ask. The training of short term teachers, to be examined later (cf 3.3.2), will be based on development of these exchange.

All these activities develop skills in teachers with a view to focusing on the learner and on interdisciplinarity. As noted earlier, the dynamism of the head of school often encourages the accomplishment, visibility and valorization of these dialogue activities. Creating a kind of emulation around these activities and facilitating their exchange among many schools could be the responsibility of roving Pedagogical Advisors (CPI). With the development of NTIC, one can envisage other forms of exchange and communication among pedagogical teams.

3.2.2 STRENGTHENING PEDAGOGICAL UNIT ACTIVITIES

Many of the teachers interviewed wish for a re-dynamization of these units and better structuring. They are also dialogue centers, potentially rich and internal training points. Created on the basis of a common concern: same subject, they should be able to go beyond processes, certainly safe for newly recruited teachers, to, for example, (i) seek how to give the taste for a subject to learners, how to make it attractive, (ii) find information, dissect it, present it appropriately, (iii) construct pedagogical tools, (iv) encourage the creation of and support development clubs (for example, English club, family life education clubs), which often develop in learners skills that are rarely solicited in class. Pedagogical activity units and discussion teams within the schools will collaborate closely.

Specialized Inspectors, whose terms of reference are not yet finalized, could be made responsible for strengthening and monitoring the pedagogical activity units.

3.2.3 CAPITALIZING THE ACTIONS OF SUBJECT MATTER ASSOCIATIONS

The deccentralization of these associations, active in some cases both in Dakar and in the regions, the individual commitment of their members, key to their success, and their ability to adapt to the training needs of their members, make these structures very effective. To capitalize their actions, it would be good to conduct a retrospective and prospective study in the near future. Without wishing to make them the pillars of in-service training in some subjects, as some suggest, it will be good to draw lessons from their experiences, whether successful or not, analyze inadequacies and re-energize “dormant” ones.

In the work on the curricula and skills to be given to learners, these subject matter associations could be brought to work progressively from a pluri and interdisciplinary angle. One of the resource persons met even hoped that a national interdisciplinary program commission, in which these associations would participate, be put in place.
3.2.4 UTILIZATION OF ALTERNATING THEORY/PRACTICAL TRAINING

Those interviewed appreciated the back and forth between theoretical training at ENS and practical training in form of short courses. However, it is necessary to go beyond this and put in place training systems, to actually enrich both forms of training, not only at the level of pre-service training at ENS but also with regard to in-service training.

In other words, in teams, student teachers and teachers, alternatively, should compare the basic referentials in pedagogy and the realities in the classrooms in the Senegalese middle and high schools. They should also be helped to readjust both their practices and knowledge.

Analyzing these practices, in light of current trends in education sciences and reflecting on the relevance, appropriateness, even the usefulness of some theories vis-à-vis realities will enrich these teams. They will also encourage innovation, not in order to follow a certain kind of trend but to allow many Senegalese students to blossom while learning.

3.3 SOME REFLECTION AND ACTION TIPS

In our meetings with resource persons as well as during our interviews with teachers, many interesting suggestions were made. We cannot present all of them here but they need to be utilized. In this last section, we shall emphasize three aspects: pre-service training, training of short term teachers and the conditions for transferring training acquisitions.

3.3.1 PRE-SERVICE TRAINING MECHANISMS

During our interviews, the issue of changing the status of ENS to become the Faculty of Science and Technology of Education and Training was discussed. Also besides the training of middle and high school teachers, inspectors and heads of schools, a department of university pedagogy and the teaching of economy and sociology of education could be created.

The university will therefore offer subject teaching and the recruitment conditions will probably be reviewed. Any reform causes positive reactions, fears and reluctance. Some labor unions fear the extinction of the recruitment of teachers into the civil service and dysfunction among secondary and tertiary education.

Without delving into this discussion, we would like however to insist on some aspects. In becoming a Faculty, ENS should not turn into a university ivory tower, cut off from the daily reality of middle and high school teachers. The interaction between teachers’ practices and the so-called theoretical training must continuously sustain training (cf. 3.2.4) and foster the necessary reflection on the learner, methodology and the profession. Trainers at ENS, trainers in the classes, pedagogical advisors, and inspectors must seek to find a common training vision.

Trainers at ENS or the future Faculty must develop knowledge that is relevant to their own practices as trainers and construct, at their level, an interdisciplinary approach to be taken into account in training plans. These plans must be developed keeping in mind the final student teacher profile and skills to be developed in teachers. How can teachers be made capable of playing the role of knowledge mediator, develop strategies for putting in place educational resources and adopting an open attitude toward innovations? These are some of the questions that those who will work on these training plans should ask. They should take into account the aspirations of today’s Senegalese youth, social changes, the educational system reforms and the trend in education science. It is certainly a difficult task but not an impossible one, given the wealth of available intellectual and human resources.
Some trainers will surely need to be trained in this new light and adapt their training methods to this vision. It will be particularly important to facilitate student teachers’ access to all sources of information, in particular to NTIC, accompany them in the processing and use of this information.

The back and forth between pre-service and in-service training could materialize into different initiatives, such as the training of roving pedagogical advisors, utilization of dissertations written by student teachers in the PRFs, joint productions on problems encountered by teachers in group class, in the management of learning progress and in teacher participation in the development of the school environment.

3.3.2 TRAINING OF SHORT TERM TEACHERS

As many officials at the Ministry of Education asserted to us, the recruitment of professionally unqualified novice teachers must disappear. “Throwing someone with no professional training into a class has serious consequences”, also declared a labor union official. It is envisaged in the “Letter on the general policy for the education and training sector” (2000) that “short term teachers selected in the regions and posted to higher basic schools (current CEM) and high schools, will undergo a one-year pedagogical training at the Advanced Teachers’ College (ENS) to strengthen their pedagogical methods.

ENS alone cannot meet this challenge. All available educational resources must be mobilized. In other words, Ministry officials, ENS trainers, inspectors, PRF coordinators, pedagogical advisors, school directors, experienced teachers and those concerned themselves, must be a party to such a training, with each having a specific role to play. Be they godfathers, guardians, guides, in any case it is necessary that men and women in the profession help the short term teachers in training. We were told that such a support mechanism had been planned during the first training for short term teachers. It is not optional and must be integrated into the training budget. Cooperation among colleagues, which is said to be a current important training opportunity, is a basic resource to be integrated into the process.

A special training plan for short term teachers will be developed. It is an excellent opportunity to innovate and initiate with them new methodologies (and not only in the field of aids). The non-formal education approaches used for adults will be widely implemented.

Without going into details of such a Plan, which is not part of our terms of reference, we shall emphasize some aspects.

Asking these youth who work with students in schools all over the country and often in the worst equipped schools, what their problems are and what their training needs are, should constitute the preliminary work to be done in developing such a Plan. The quick survey we did is rich in information. We could begin with questionnaires also, organizing, moreover, discussion groups.

Some areas to be dealt with in depth are: basing arguments on the skills identified in this study, redefining learning tools, providing tools to these novice teachers to analyze what they do, enriching the search for solutions to difficulties encountered, allowing them to access basic information on learners and current teaching methods, bringing them to produce information themselves through their experience.

Using all the possibilities of distance teaching and NTIC, and those of local groups or regional courses during holiday periods, developing simple forms of mutual teaching, monitoring them in the field, as they request, making sure the short term teachers working in land-locked areas can be recruited and supported in training projects like their colleagues in Dakar, integrating this training into school projects, is not a matter of utopia but one of political will and a well-designed organization.
The institution of such training for short term teachers will most certainly enrich the entire pre-service and in-service training and education system. Numerous resource persons we met suggested putting in place a system to capitalize on training for the development of the teacher's career. The training of short term teachers, as we are suggesting, could be achieved in this light and thus enable these novice short term teachers to imagine a professional future with some prospects.

3.3.3 CONDITIONS FOR TRANSFERING TRAINING ACQUISITIONS

Transfer of acquisition is never easy and some components to be presented below can only give a certain number of tips. We will first insist on some measures to be taken during training, then on work conditions in places where this transfer can be favorably carried out.

The various studies on acquisition transfer indicate that the more trainers encourage the integration of training, the more the chance to achieve transfer increases. Many times during this work, the issue of implementing at ENS training the necessary interdisciplinarity to encourage integration was raised.

It is certain that the more the distance between learning during pre and/or in-service training and classroom reality is wide, the more transfer will be difficult. This is to say that trainers must properly design training conditions in middle and high schools and that they must give thought to these in the reflection to be carried out with student teachers or with teachers in training.

Bringing them to observe, to ask questions on educational strategies used, and on mistakes made, can facilitate the transfer. Analyzing mistakes is an important activity during training. Very often these mistakes as seen as faults while, on the contrary, they should be considered as a learning situation to help identify the source of the problems. This is why activities taking place in the class or microteaching are very important and especially appreciated by those in training. In addition, dialogue between trainer and the teacher in charge of the class should be carried in a climate of confidence and collaboration.

To conclude this section on the transfer of acquisition, we need to mention that if certain conditions, in terms of infrastructure and pedagogical materials, are not met, then the transfer will be really very difficult. The teacher will have the feeling of incapacity to implement the training received, given the very difficult working conditions in which he is struggling.

Moreover, if the teacher does not have satisfactory social and emotional conditions, he will feel alone, unacknowledged and will not be motivated to develop a status-enhancing professional project. We know that the importance of motivation in teachers' professional development is an essential component.

CONCLUSION

The wealth of the interviews we had, the interest of the teachers who responded to the questionnaire and often wanted to keep a copy, the quality of the university works on teachers and their training, the commitment of the numerous trainers involved in pre- and in-service training, all these positive factors augur well for the quality of the work, which remains to be done.

As mentioned above, it will be interesting to associate students from middle and high schools to this reflection on the competencies desired in learners and beyond this, even all the educational community: parents, teachers and students. Not only will they surely contribute relevant ideas, but most of all, associating them at this stage, we will facilitate their commitment in the process.

The reflection on the necessary reform of teacher training will be an opportunity to form a common training vision, a vision, which will inspire the required document on the training orientation policy mentioned
earlier. We hope that this study will help to enrich this reflection and develop the document. While integrating recent acquisitions in education science, this document will take into consideration the Senegalese context, in the educational, cultural, and socio-economic fields.

The revision of the curricula, programmed in the PDEF, will make it possible to emphasize essential learning and determine the skills relating to all the curricula. In the context of a knowledge society, a current or future context, the mastery of knowledge and the development of intellectual activities are extremely important. In a pluralist society like the Senegalese one, education must also be an agent of cohesion, encouraging the feeling of belonging to the collectivity and learning to better « live together ». These curricula will also take into account the need to make all students apt to undertake and integrate into the society through the mastery of professional competencies.

Teacher training, pre or in-service, formal or nonformal, should fight school failures. And to do this, it is necessary to equip teachers with skills to enable them give special attention to each student and accompany each in his schooling. This leads us to hope for, it is true, « a human sized » number of students. Teachers need to develop pedagogical skills to encourage a discovery and production pedagogy rather than a pedagogy aiming at consuming knowledge. Teachers will be able to accustom students to questioning and comparing their ideas to those of others, pay more attention to the integration of knowledge, in other words, to the ability to establish links in knowledge and organize them.

This is why, throughout this study, we have emphasized many times, just like our numerous informants did, the importance of focusing on the student and interdisciplinary work during pre- and in-service training. Given the quick trend in knowledge, teacher training as well as training of middle and high school students, must encourage in all the acquisition of methods allowing them to continue to learn and the motivation to incite them to do so. It is sure that NTIC has its place in these methods. Avoiding a two-tier or many-tier educational system and encouraging equal opportunities must be a permanent concern for all.
BIBLIOGRAPHY


INTERVIEW GUIDELINES FOR DECISION-MAKERS/CENTRAL LEVEL (General Secretary Directors of Ministry and its institutions)

1. What are the teacher training policies at the middle and secondary levels?

   Pre-service training

   In-service training

   Others:

2. What knowledge, know-how and attitude should middle/secondary teaching develop in students in the light of developments in the Senegalese society?

   What knowledge, know-how, attitude should teachers have in light of what we hope to develop in students?

   What knowledge, know-how and attitude are necessary to teacher trainers at the middle/secondary level?

   How can we achieve more coherence between expected skills in learners and desired competencies in teachers?

3. What are good training practices?

   What are the differences in what is expected and what is actually practised?

4. What are the needs of teachers in training with respect to their seniority?

   Less than 5 years  5-12 years  More than 12 years

5. What is your point of view with regard to the use of untrained staff as teachers?

6. What are the prospects for improvement or reform with respect to training, professional development and career development?

7. Today, there is a lot of talk about knowledge society. What is your understanding of this expression in general and with regard to Senegal in particular?
INTERVIEW GUIDELINES FOR TRAINERS PRE-SERVICE AND IN-SERVICE TRAINING
(ENS, PRF, Pedagogical advisors in the private sector)

1. What are the **policies** in the training of middle and secondary school teachers?

   Pre-service training

   In-service training

   Others:

   What is your **vision for teacher training**? Where should emphasis be placed?

2. **Training Organisation**

   What is the place of **subject teaching, pedagogy, staff development**?

   What is the **relationship between theoretical and practical training**?

   In training, who are the **actors in the various subjects**?

   What are the **training mechanisms**? To what extent does training take into account the teacher’s practical experience?

   What are training **duration and venue**?

   What is the graduation outline?

   How does training **prepare for the challenges in the field** (lack of resources, too large classes, lack of teachers…)?

3. **What knowledge, know-how and attitude** must middle/secondary teaching develop in students given developments in the Senegalese society?

   What knowledge, know-how and attitude must teachers acquire given what they hope to develop in students?

   What knowledge, know-how and attitude are necessary for trainers at the middle/secondary level?

   How can more coherence be achieved in expected competencies in learners and desired skills in teachers?

4. To become a teacher, what are the two **learning priorities**, according to you?

5. **What are good training practices**?

   What are the differences in what is expected and what is actually practised?
6. What are the needs of teachers in training with respect to their seniority?

Less than 5 years  5-12 years  More than 12 years

7. What is your point of view with regard to the use of untrained staff as teachers?

8. What are the prospects for improvement or reform with respect to training, professional development and career development?

9. Today, there is a lot of talk about knowledge society. What is your understanding of this expression in general and with regard to Senegal in particular?

INTERVIEW GUIDELINES FOR SOCIAL PARTNERS (Labor Unions, NGO, Subject associations)

Subject Associations, labor unions, NGOs

1. What is your vision for teacher training?

2. Role in training (pre-service, in-service, others)

   How can you compare your training activities to those of the State?

   What are training mechanisms?

   Learning priorities for middle/secondary school teachers

   What is the role of subject, pedagogy, staff development?

   Relationship with teachers’ practices?

   Budget allocation for training?

3. What knowledge, know-how and attitude must middle/secondary teaching develop in students given developments in the Senegalese society?

   What knowledge, know-how and attitude must teachers acquire given what they hope to develop in students?

   How can more coherence be achieved in expected competencies in learners and desired skills in teachers?

4. What are good training practices?

   What are the differences in what is expected and what is actually practised?
5. What are the needs of teachers in training with respect to their seniority?

   Less than 5 years   5-12 years   More than 12 years

6. What are the prospects for improvement or reform with respect to training, professional development and career development?

INTERVIEW GUIDELINES FOR PARTNERS IN DEVELOPMENT

UNICEF, World Bank, French Cooperation, USAID,

1. What are the activities in middle/secondary school, and in particular with regard to training?

   What are the training mechanisms?

   Learning priorities for middle/secondary school teachers.

   What is the role of subject, pedagogy, staff development?

   Relationship with teachers’ practice?

   Budget allocation for training?

What knowledge, know-how and attitude must middle/secondary teaching develop in students given developments in the Senegalese society?

What knowledge, know-how and attitude must teachers acquire given what they hope to develop in students?

What knowledge, know-how and attitude are necessary for trainers of teachers at the middle/secondary level?

How can more coherence be achieved in expected competencies in learners and desired skills in teachers?

How do your activities compare with those of the State?

3. What are good training practices?

   What are the differences between what is expected and what is actually practised?

4. What are the needs of teachers in training with respect to their seniority?

   Less than 5 years   5-12 years   More than 12 years

5. What are the prospects for improvement or reform with respect to training, professional development and career development?
Questionnaire for teachers in the field and student teachers

1. Identification

Male            Female

Region………………………………………………………………………………………………………………

Department ………………………………………………………………………………………………………

School ……………………………………………………………………………………………………………

Number of teaching years in a CEM or high school…………………………………..

Subjects taught……………………………………………………………………………………………

Category……………………………………………………………………………………………………

2. Pre-service Training

Have you received pre-service training to teach in middle/high school level?

Yes            No

If yes, in what year(s)?…………………………..

3. In-service Training

Have you had the chance to take advanced courses while exercising your profession?

Yes            No

If yes, how? Check one or more boxes

By participating in training workshops

By participating in teaching unit activities

By working with experienced colleagues

By reading subject-related books

By reading documents on the science of education

By searching on the Web for useful information for your own education

By exchanging experiences with other colleagues
4. Ability to act:

In the table on the following page, indicate, for each skill, where you are in the mastery of the skill by checking the corresponding box and indicating in the last column the context in which you have acquired it: (1) Pre-service training, (2) Regional training center or in-service training structure, (3) Others (specify)

<table>
<thead>
<tr>
<th>Ability to act</th>
<th>To be acquired</th>
<th>A little acquired</th>
<th>Averagely acquired</th>
<th>Well acquired</th>
<th>Context in which skill was acquired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare lessons with other teachers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Exchange with students progress in their learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Plan learning situations where students organize their work themselves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Utilize radio, video, cassettes, internet during lessons</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Propose various activities to students in the same class according to the levels identified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Exchange with parents progress in the students’ learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Organize group work in class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Involve students in the search for teaching aids and resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
<tr>
<td>Identify problem situations with students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(1), (2), (3)</td>
</tr>
</tbody>
</table>

5. Question for those who have had pre-service training:

Read then classify the pre-service training components in order of usefulness for your daily practice in the classroom from 1 to 5, (1) being the most useful, (5) the least useful

Didactic

Academic reinforcement in the subject(s)

Psychopedagogy

Practice teaching

Others (specify) ................
6. Classify the means by which your students are able to master your subject by ranking them from 1 to 7, (1) being the most beneficial, (7) the least beneficial

<table>
<thead>
<tr>
<th>Textbook</th>
<th>Work group</th>
<th>Information from the teacher and lesson notes</th>
<th>Exercises and practical work (talk, projects…)</th>
<th>Information Technologies (Internet)</th>
<th>Documentation Center</th>
<th>Others: specify</th>
</tr>
</thead>
</table>

7. In the table below, indicate how each question was addressed during the training you participated in and indicate in the last column the context in which it was addressed: (1) Pre-service training, (2) Regional training center or in-service training structure, (3) Others (specify).

<table>
<thead>
<tr>
<th>Questions</th>
<th>Not addressed</th>
<th>Addressed superficially</th>
<th>Addressed satisfactorily</th>
<th>Context (1),(2),(3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class management</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesson preparation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning through group work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of students’ learning styles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creation of evaluation tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Search for solutions to the lack of teaching resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration with colleagues</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender in teaching and learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. What are your training needs?

........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................
........................................................................................................................................................................

9. According to you, pre-service training is -(check only one response)

    indispensable
    useless
    optional
    No opinion
10. What improvements could be made to teacher training at the middle/high level?

………………………………………………………………………………………………………………
………………………………………………………………………………………………………………
………………………………………………………………………………………………………………
………………………………………………………………………………………………………………
………………………………………………………………………………………………………………

QUESTIONNAIRE STUDENTS

Boy       Girl

Class    School    Age

1. Classify the means by which you master the various subjects of your class by ranking them from 1 to 7 (1) = the most beneficial, (7) = the least beneficial.

| Text-    | Work  | Information / | Exercises and | Information | Document- |
| book     | groups| explanation by| work done (pre-| Technologies| tation      |
|          |       | the teacher and| sentations, re-| (Internet)  | Center     |
|          |       | lessons/notes  | ports…)         |            |            |
|          |       |                |                 |            |            |

2. Has the teaching you have received helped you to develop the following capacities? Respond by checking the « yes » or « no » column as the case may be.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Observations or examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working in a team</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Searching for the information you need</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producing useful learning tools</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussing your learning progress with your teachers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizing your work yourself</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doing practical tasks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing a life project</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolving tensions between you and others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolving problems in your neighborhood</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What seem to you to be the two most important capacities cited above?

What capacities, in your opinion, must a good teacher have?

What is, in your opinion, the meaning of a knowledge society?

RECAPITULATION OF INTERVIEWS

<table>
<thead>
<tr>
<th>PERSON-RESOURCES</th>
<th>INDIVIDUAL INTERVIEW</th>
<th>GROUP INTERVIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decision Makers</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Pre-and in-service training Trainers</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Social Partners</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Partners in development</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Other : Specialized Inspectors at the end of training</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>
DISTRIBUTION OF TEACHERS AND STUDENT TEACHERS DURING THE SURVEYS

<table>
<thead>
<tr>
<th>Sample</th>
<th>Region of Dakar</th>
<th>Region of Kaolack</th>
<th>Region of Louga</th>
<th>Student teachers ENS/F1C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Men</td>
<td>60</td>
<td>48</td>
<td>37</td>
<td>38</td>
<td>183</td>
</tr>
<tr>
<td>Women</td>
<td>22</td>
<td>05</td>
<td>03</td>
<td>07</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>53</td>
<td>40</td>
<td>45</td>
<td>220</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professional Categories.*</th>
<th>Region of Dakar</th>
<th>Region of Kaolack</th>
<th>Region of Louga</th>
<th>Student teachers ENS/F1C</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>PES</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>PEM</td>
<td>18</td>
<td>6</td>
<td>11</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>PCEM</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td></td>
<td>33</td>
</tr>
<tr>
<td>Contractual Teacher</td>
<td>6</td>
<td>13</td>
<td>4</td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>Short term Teacher</td>
<td>5</td>
<td>17</td>
<td>13</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>In charge of Education</td>
<td>4</td>
<td></td>
<td></td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td>Short term teacher in the private</td>
<td>24</td>
<td></td>
<td></td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>MEPS</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Teachers who have never taught</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>53</td>
<td>40</td>
<td>45</td>
<td>220</td>
</tr>
</tbody>
</table>

*Abreviations:

PES : professeur d’enseignement secondaire, Secondary Education Teacher (from 10th grade)
PEM : professeur d’enseignement moyen, Middle Education Teacher (from 6th grade)
PCEM : professeur des collèges d’enseignement moyen, Middle school Teacher (from 6th grade)
MEPS : maître d’éducation physique et sportive; Physical Education Teacher
### REGIONAL ANSWERS GIVEN BY TEACHERS AND STUDENT TEACHERS ABOUT HIS ABILITY TO ACT

<table>
<thead>
<tr>
<th>ABILITY TO ACT</th>
<th>DAKAR</th>
<th>KAOLACK</th>
<th>LOUGA</th>
<th>STUDENT TEACHERS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To be acquired</td>
<td>± Acquired</td>
<td>To be acquired</td>
<td>± Acquired</td>
<td>To be acquired</td>
</tr>
<tr>
<td>Prepare lessons with other teachers</td>
<td>20</td>
<td>62</td>
<td>7</td>
<td>44</td>
<td>4</td>
</tr>
<tr>
<td>Exchange with students progress in their learning</td>
<td>27</td>
<td>51</td>
<td>14</td>
<td>38</td>
<td>2</td>
</tr>
<tr>
<td>Plan learning situations where students organize their work themselves</td>
<td>39</td>
<td>43</td>
<td>15</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Utilize radio, video, cassettes, internet during lessons</td>
<td>67</td>
<td>15</td>
<td>43</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td>Propose various activities to students in the same class according to the levels identified</td>
<td>56</td>
<td>26</td>
<td>29</td>
<td>24</td>
<td>20</td>
</tr>
<tr>
<td>Exchange with parents progress in the students' learning</td>
<td>26</td>
<td>56</td>
<td>32</td>
<td>21</td>
<td>14</td>
</tr>
<tr>
<td>Organize group work in class</td>
<td>11</td>
<td>69</td>
<td>14</td>
<td>39</td>
<td>3</td>
</tr>
<tr>
<td>Involve students in the search for teaching aids and resources</td>
<td>27</td>
<td>53</td>
<td>22</td>
<td>31</td>
<td>14</td>
</tr>
<tr>
<td>Identify problem situations with students</td>
<td>33</td>
<td>46</td>
<td>22</td>
<td>30</td>
<td>9</td>
</tr>
</tbody>
</table>
SUMMARY OF DIFFERENTS CONTEXTS WHERE SAMPLE HAS ACQUIRED ABILITIES TO ACT

<table>
<thead>
<tr>
<th>ABILITY TO ACT*</th>
<th>ENS/ PRE-SERVICE TRAINING</th>
<th>IN-SERVICE TRAINING</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepare lessons with other teachers</td>
<td>97</td>
<td>119</td>
<td>42</td>
</tr>
<tr>
<td>Exchange with students progress in their learning</td>
<td>64</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Plan learning situations where students organize their work themselves</td>
<td>46</td>
<td>50</td>
<td>43</td>
</tr>
<tr>
<td>Utilize radio, video, cassettes, internet during lessons</td>
<td>14</td>
<td>9</td>
<td>23</td>
</tr>
<tr>
<td>Propose various activities to students in the same class according to the levels identified</td>
<td>32</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>Exchange with parents progress in the students’ learning</td>
<td>21</td>
<td>27</td>
<td>74</td>
</tr>
<tr>
<td>Organize group work in class</td>
<td>66</td>
<td>71</td>
<td>57</td>
</tr>
<tr>
<td>Involve students in the search for teaching aids and resources</td>
<td>57</td>
<td>48</td>
<td>55</td>
</tr>
<tr>
<td>Identify problem situations with students</td>
<td>46</td>
<td>42</td>
<td>49</td>
</tr>
</tbody>
</table>

*Several answers could have been given for each ability to act

ABILITIES TO ACT GETTING PRIORITY ACCORDING TO THE STUDENTS

<table>
<thead>
<tr>
<th>Ability to act proposed to students</th>
<th>Number of students choosing each ability as first or second choice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O'Level class (10th Year)</td>
</tr>
<tr>
<td>Working in a team</td>
<td>30</td>
</tr>
<tr>
<td>Searching for the information you need</td>
<td>29</td>
</tr>
<tr>
<td>Producing useful learning tools</td>
<td>14</td>
</tr>
<tr>
<td>Discussing your learning progress with your teachers</td>
<td>20</td>
</tr>
<tr>
<td>Organizing your work yourself</td>
<td>28</td>
</tr>
<tr>
<td>Doing practical tasks</td>
<td>21</td>
</tr>
<tr>
<td>Developing a life project</td>
<td>24</td>
</tr>
<tr>
<td>Resolving tensions between you and others</td>
<td>23</td>
</tr>
<tr>
<td>Resolving problems in your neighborhood</td>
<td>13</td>
</tr>
</tbody>
</table>
### TABLE OF THE TEACHING CORPS IN MIDDLE AND HIGH SCHOOLS

<table>
<thead>
<tr>
<th>Corps</th>
<th>Hierarchy</th>
<th>Basic recruitment criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>« Agrégé » teacher</td>
<td>A special</td>
<td>Admission into the agregation</td>
</tr>
<tr>
<td>Certified teacher</td>
<td>A1</td>
<td>Certificats d'aptitude au professorat de l'enseignement secondaire (CAPES), de l'enseignement technique (CAPET) et des enseignements spéciaux dans les établissements du second degré (CEASES)</td>
</tr>
<tr>
<td>Secondary Education Teacher (PES)</td>
<td>A1</td>
<td>Certificat d'aptitude à l'enseignement secondaire (CAES : master et 2 years of training) et à l'enseignement secondaire technique et professionnel (CAESTP)</td>
</tr>
<tr>
<td>Specialized Inspector</td>
<td>A1</td>
<td>Certificat d'aptitude à l'inspectorat de l'enseignement technique et professionnel (CAIETP) et à l'inspectorat de spécialité (CAIS)</td>
</tr>
<tr>
<td>Psychology advisor</td>
<td>A1</td>
<td>Certificat d'aptitude aux fonctions de psychologue conseiller (CAFPC)</td>
</tr>
<tr>
<td>Middle Education Teacher (PEM)</td>
<td>A3</td>
<td>Certificats d'aptitude à l'enseignement moyen (CAEM), à l'enseignement moyen technique pratique (CAEMTP) et au professorat d'économie familiale (CAPEF)</td>
</tr>
<tr>
<td>General middle school teacher (PCEM)</td>
<td>B2</td>
<td>Certificat d'aptitude à l'enseignement des collèges d'enseignement moyen (CAECEM)</td>
</tr>
<tr>
<td>Technical and vocational school teacher</td>
<td>B3</td>
<td>Certificat d'aptitude aux fonctions de maître (CAEM), certificat d'aptitude à l'enseignement de l'économie familiale (CAEEF)</td>
</tr>
</tbody>
</table>

Source: DEMSG
7. Learning to teach in the knowledge society: The case of Chile.

Beatrice Avalos
LIST OF ACRONYMS

CPD = Continuing Professional Development

CPEIP = Centre for In-service Training, Chile

FFID = Programa de Fortalecimiento de la Formación Inicial Docente (Programme for the Improvement of Initial Teacher Education)

ICT = Information and Communication Technologies

MINEDUC = Ministry of Education

OAS = Organization of American States

OECD = Organization for Economic Cooperation and Development

PCK = Pedagogical Content Knowledge

UMCE = Universidad Metropolitana de Ciencias de la Educación (ex- Instituto Pedagógico)
I. INTRODUCTION

This case study examines how Chilean teacher education prepares for teaching in the context of demands produced by the knowledge society. It is based on work done earlier to describe the teacher education system and its reform programmes (Avalos, 2002, 2003, 2004a), and on fresh interviews to key stakeholders.

As part of a set of country studies commissioned within a common teacher preparation framework, it sought information related to this framework. It was not difficult to do so for two reasons. The first one is the ongoing situation of education change in Chile since the early nineties. Such change placed new demands on teachers, and in turn induced a variety of continuing professional development (CPD) activities and initial teacher education reforms conceptually close to the framework for this study. Secondly, the Chilean standards designed to guide the processes of teacher initial preparation and performance evaluation of serving teachers, are also close in structure and form to the competencies set out in the framework. Bearing in mind this context and considering the purpose of preparing secondary level teachers for the knowledge society, it was decided to examine the view of key stakeholders on the following issues: (a) what teacher and teaching competencies are judged as being directly or indirectly important for the purpose, (b) what is the capacity of current teacher education processes to develop such competencies (pros and cons), (c) what factors affect this capacity and (d) what sort of policy supports or does not support these efforts.

To respond to these issues a stakeholder study was undertaken involving semi-structured interviews and the administration of a rating instrument on the importance of competencies for the knowledge society. Its procedures were the following.

1. A single semi-structured interview was held with the current Minister of Education and one former Minister, with professionals (7) linked directly or indirectly to CPD programmes at the Ministry of Education, with the head of the education department of the Teachers’ Union, with university academics involved in teacher education (18), with university authorities (6) and with a small number of other academics (4). Besides these interviews, non-structured meetings were held with students from three university teacher education programmes.

2. All those interviewed, with the exception of the minister and ex-minister, and the four non teacher-educator academics were also asked to rate the importance of competencies for the knowledge society from a list of competencies provided. This same list was also rated at meetings by groups of teacher educators at four universities and by student groups at three universities (see Appendix 1 for list of those interviewed and their institutions).

3. All the interview schedules included in one of their questions a simple description of what was to be understood as knowledge society and of the importance of education:

   Undoubtedly we live in a society described as “knowledge society” where to have and create knowledge, to be innovative and entrepreneurial are key elements for individual and social well-being and growth. In relation to the capacities needed for individuals and organisations to survive

---

15 Carlos Marcelo (n.d.) literature review on “Learning to Teach in the Knowledge Society”, and J.M.Moreno’s adaptation of Martinet, Raymond and Gauthier’s Roadmap of Teacher Competencies for a Knowledge-based Secondary School.

16 MINEDUC (2000), Estándares de desempeño para la Formación Inicial Docente; Mineduc (2003), Marco para la Buena Enseñanza.

17 Structured in the form of the Chilean standards but including many of the competencies in the Martinet, Raymond and Gauthier “Roadmap” (2001).
in the knowledge society there is widespread agreement that education and teaching play an important part.

4. The interview schedules differed depending on whom they were addressed to. However, in one form or another they all dealt with the following issues:

- The current relationship between teacher education and the knowledge society
- The quality of teacher education as provided at the moment (initial and CPD)
- CPD needs of secondary teachers and potential of existing CPD programmes in relation to the Knowledge Society.
- Institutional structures, co-ordination, to facilitate quality of teacher education
- Regulatory policies for teacher education development and quality
- Statement of two or three key competencies needed by secondary teacher to prepare for the knowledge society.

5. All the interviews were recorded. A coding scheme was developed on the basis of the analysis of the transcriptions, which helped to uncover the common themes across all interviews and the differences in opinion about each one of these themes. This analysis provides the basis for the core section of the report and its conclusions.

In its first part, the report describes the system of secondary teacher education in Chile, the programmes that address continuing professional development (CPD) for secondary teachers and the quality control mechanisms currently in place that affect teacher education. In its second part, the standards frameworks used for initial teacher education and the performance evaluation of serving teachers are presented showing their links to the Roadmap of Competencies that is part of the common framework of this study. The third part addresses specifically the stakeholders’ views on the issues of concern. A short conclusion summarises where we stand in Chile in terms of preparing teachers for the knowledge society.

II. THE SYSTEM OF SECONDARY TEACHER EDUCATION

1. Historical background
Development of secondary teacher education programmes (1889 – 1973)

Secondary teacher education as a university level career has over a hundred years of history in Chile. Towards the end of the nineteenth century Valentin Letelier, a well-known educator, put pressure on authorities for the establishment of a secondary teacher education institution. In his view such an institution should be part of the university given the key role that secondary teachers play in “cultured societies” (Cox and Gysling, 1990). According to Letelier both content knowledge and the capacity to teach of secondary teachers should be provided under the single umbrella of the University of Chile’s Faculty of Philosophy and Humanities. While, initially the University was not willing to establish such a centre, eventually it was forced to yield as the Ministry of Education decreed that the newly founded Pedagogical Institute become part of the university (1890). The central conception underlying the training approach was that secondary teachers should have a sound grounding in the knowledge discipline that they would teach, be it language, humanities or science. Concurrently they should be prepared pedagogically, which at the

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18 Secondary education covers ages 14-17 (four years) and is delivered in two forms: an arts/science stream and a technical-vocational one. There is no specific secondary teacher preparation for the technical-vocation stream, but new programmes are starting to provide pedagogical preparation to technical staff teaching in these schools.
time meant following the approach of Herbart, the German pedagogue. However, this concurrent form of training was not without tensions between the Faculties that offered discipline knowledge and the departments charged with pedagogical preparation. These tensions eventually led to discontinue for a period of eleven years the concurrent model (1934-1945) and to adopt a consecutive model in which learning of discipline knowledge occurred during the first three years of training at a Higher Institute of Science and Letters, followed by another two years of learning pedagogy and how to teach at the Instituto Pedagógico. In 1945 the concurrent structure was reinstated through a merger of both types of institutes. The renewed Instituto Pedagógico maintained its structure and training programme until it was severed from the University of Chile by the Military government in 1981.

During practically the entire first half of the twentieth century the Instituto Pedagógico was the unchallenged leader in the provision of well prepared secondary teachers among whom many distinguished themselves in the fields of literature, philosophy and history. Another secondary training programme established in 1919 by the University of Concepción adopted the University of Chile’s curriculum and was placed under its supervision. From the forties onward, a growing secondary school population stimulated other universities to establish new programmes that also followed the concurrent model of the Instituto Pedagógico. The State Technical University started a programme to prepare teachers for secondary technical schools and the University of Chile opened teacher-training programmes at some of its regional centres throughout the country. By the beginning of the seventies, seven out of the eight universities in the country offered secondary teacher education.

The period from 1973 to 1990

The military coup of 1973 and the installation of a repressive regime had devastating effects on teacher education and in particular on the programmes offered by the University of Chile at the Instituto Pedagógico and in its regional branches. All of the existing eight universities were intervened by the Military regime in 1973 and placed under military authorities. A process of “ideological cleansing” resulted in the dismissal of many academics, particularly those belonging to the Faculties of Education and Social Sciences (Núñez, 2002, p. 33), affecting the quality of teacher education. The easing of conditions for the establishment of private universities and institutes meant that new Schools or Departments of Education were opened with little quality control over their teacher preparation programmes.

However, the worst decision taken by the military regime was to declare in 1981 that teacher education would no longer be a university career, and to transfer existing programmes to newly established Higher Academies or Professional Institutes. The academic staff at the Instituto Pedagógico never fully recovered from the traumatic effect of being separated from the University of Chile and inserted into a new and dubious Higher Academy of Pedagogical Sciences. The change, as Núñez (2002, p. 34) describes it, “brought to an extreme older authoritarian tendencies that stood in open contradiction with a modern professional concept of teacher education”. The incongruence of this measure and the protests of those concerned forced the military authorities to retract gradually and in 1987 to reconvert two of the Higher Academies that had belonged to the University of Chile into pedagogical universities. Later with the enactment of the Organic Law of Education (1990), teacher education regained its status as a university career. Currently, universities provide programmes leading to a Licentiate degree, as well as a teaching qualification. A small number of professional institutes currently are allowed to prepare teachers and grant a professional qualification but not a degree.

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19 To provide academic guidance to the new Pedagogic Institute a number of German professors were contracted headed by Dr. Federick Johow as its first director. This explains the strong influence of German pedagogy that remained well into the twentieth century.

20 The Catholic universities of Chile, the North and Valparaíso, and the Austral University.

21 Universities may offer teacher education for any level of the system and grant an academic and professional degree. This requires from all those trained in the system the production of a research piece (thesis or seminar study).
All this to and fro could not but affect the delivery of teacher education. The Instituto Pedagógico reconverted into a pedagogical university\textsuperscript{22} and the biggest provider of teachers in all specialisations, is just beginning to recover some of the quality and leadership in teacher education it once enjoyed. The same is true of all the other public university teacher education programmes throughout the country that originally derived from the University of Chile, while private teacher education, with some exceptions, lags behind in quality and scope.


In the mid-nineties Ministry of Education authorities realised that the reforms of the nineties would be hampered if teacher education did not improve its quality. However, the structure of the Ministry of Education inherited from the military regime did not have a place for initial teacher education nor the authority to enforce changes in programmes administered by autonomous universities. Thus, in order to influence change the government decided to offer monetary incentives to reward successful projects presented by institutions wishing to improve their teacher education programmes during a four year-period. A sum of around US$ 25,000 was allocated for this purpose as well as a fund for scholarships to induce capable secondary school leavers into teacher education studies. During the whole of 1997 a complex selection process took place and beginning in 1998, seventeen university teacher education programmes (covering 80% of student teachers) across the country began their change processes which became known as the Programme for Improving Initial Teacher Education (FFID). These included: curriculum modifications, introduction of longer and progressive practicum experiences, improvement of infrastructure and teaching resources (especially libraries and Information and Communication Technologies), improvement of qualifications of teacher educators and greater links between the programmes and the schools. Some of the universities carried out major adjustments to their curriculum such as introducing a “Problem-Based Learning” approach (Cf. Iglesias, 2002), others were innovative in the way they institutionalised links between their teacher education programme and the school environment and most of the institutions substantially reformed the structure of the practicum experiences\textsuperscript{23}. An important effect of the changes and especially of the scholarship programme was to increase the number and improve the quality of applicants for teacher education, though this did not extend sufficiently to the maths and science specialisations in secondary education.

The most important element that favoured the positive results of the FFID project was its collaborative nature. On the one hand, while the initial kick came from the Ministry of Education, each one of the institutions had to develop their own project and mechanisms for change. Nothing, except the broad areas of change, was laid out from above. Each institution had the possibility of working out what they would do within the limitations of their capabilities and budgets. Despite what seems like an individualist approach, there were very strong links of an informal nature among the institutions and between each of the project coordinators and the national coordination team that allowed for learning from each other and for professional growth in all institutions. For example, the greatest success of the project, which was the reform of the practicum experiences, was discussed and experimented by all as a common experience. The most important effect of the influx of funds was the opportunity for teacher educators to engage in study tours to international centres and in a certain number of cases to complete Master’s and PhD studies.

The changes that took place between 1998 and 2002 clearly provided new and better conditions for teacher education compared to the situation in the early nineties. But, there is a generalised perception that four years of support for change is not sufficient and that the government should have continued a more direct intervention through a second set of projects. Given that Chile officially acknowledges its will to be part of the modern, competitive, knowledge society, and that the education system is considered

\textsuperscript{22} Universidad Metropolitana de Ciencias de la Educación

\textsuperscript{23} For a description of the change process and of what was and was not achieved see Avalos (2002).
to deal insufficiently with inequities in the cultural capital of the population (Cf. Brunner and Elacqua, 2003; OECD, 2004), it is unfortunate that currently, in public discourse, teacher education has become a policy concern only as an instrument for guaranteeing school quality. Within this perspective, there is a greater focus on controls rather than support as occurred during the FFID project.

3. Current status of secondary teacher education

Secondary teacher education is offered in approximately 19 publicly funded universities and 15 private ones. However, only about seven of these universities offer close to the full range of specialisations for secondary level teaching.

There are three main routes that can be followed to become a secondary teacher as shown in the next figure: enter one of the Professional Institutes with secondary teacher training in a few specialisations (i.e. the British Institute) and that provide an entitlement to teach (professional certificate), enter a university programme following a concurrent model in subject-matter and pedagogy (most of the existing ones) or having a degree or professional title enter a consecutive programme (post-graduate) for pedagogical training.

Figure 1: Secondary teacher education routes (No of semesters of study)

**Non-graduate secondary teacher training with specialisation: Professional Institute (concurrent)**

<table>
<thead>
<tr>
<th>Semesters</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
</tr>
</thead>
</table>

**Graduate secondary teacher training with specialisation: University (concurrent)**

<table>
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<tr>
<th>Semesters</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
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**Post-graduate pedagogical preparation for secondary teaching: University**

<table>
<thead>
<tr>
<th>Semesters</th>
<th>I</th>
<th>II</th>
<th>III</th>
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</table>

Consecutive secondary teacher education programmes are currently offered at four universities for arts or science graduates, and their length ranges from two to three semesters of study, but they are small programmes.

In 2003 there were approximately 14,570 students in secondary teacher education programmes (29% of all those enrolled in teacher education). Newly enrolled students in 2001 were mainly specialising in areas related to the humanities (Spanish language (11.4%), social studies (15%), English language (13%), music and the arts (8.2%) and physical education (19.6%). The numbers enrolled in the sciences were few, a situation that has not changed. Most of these students were enrolled in specialisations that combined maths and computer science (11.6%) biology (9.4%) and hardly any in physics (0.3%) and chemistry (0.4%). The larger numbers for physical education, English language and maths plus computer science suggest that graduates from these programmes may not teach in secondary schools but in commercial institutions providing training in these areas.

Given that most of secondary teacher education is university based the assumption is that secondary teachers are competent in their subject knowledge. A recent study in fact shows that for most of the competencies that require good management of content knowledge young teachers recognise the contribution of their university education (Cf. Avalos, Carlson and Aylwin, 2004). However, for other tasks such as assessment, classroom management, group work or using teaching resources adequately they attribute their competency to experience. The analysis of results of the FFID intervention in 17 universities shows

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24 These figures belong to the 17 universities that were under reform but these universities offer almost all secondary teacher education, with the exception of one of them that has a fairly large programme. The distribution would probably not be different if their figures were added (Cf. Avalos, 2002).
that while there was improvement in the quality of the pedagogical preparation offered\textsuperscript{25} a hard core of university professors in the discipline faculties as well as methodology professors did not progress much in the delivery of “pedagogical content knowledge” (Shulman, 1987). Equally, there is a number of professors who continue to believe that content knowledge preparation requires more time and courses rather than a less burdened curriculum that is centred on core concepts and themes that elicit meaningful learning (Gardner and Boix-Mansilla, 1994). This is so, despite the fact that the changes that took place in the nineties had been inspired in these principles.

4. Secondary teacher continuing professional development

In-service teacher education opportunities were first institutionalised with the establishment in 1967 of a National Centre for In-service Training, Experimentation and Educational Research (CPEIP). The initial purpose of the CPEIP was to serve the requirements of the wide-ranging education reform that began in 1965, especially the introduction of teachers into the new curriculum. In the next years, the CPEIP would also become a Latin American venue for in-service courses offered by regional organisations such as the OAS and UNESCO. During the military regime the CPEIP continued to offer in-service courses including the introduction of distance in-service modalities. However, many of these courses tended to be theoretical discussions on management, assessment or guidance that were not necessarily linked to teachers’ needs (Cf. Avalos, 2002). By the beginning of the nineties the activities of the CPEIP were widely criticised by teachers and in any case were irrelevant as far as the requirements of the new reform programmes.

In 1994, the Ministry of Education began a set of interventions in secondary education known as the Programme for the Improvement of the Quality and Equity of Secondary Education (MECE Media). An important component of MECE was the provision of school-based professional development opportunities for secondary teachers. Through the Teacher Professional Groups, as these activities were known, teachers from different subject areas met generally once a fortnight, to discuss and work on materials sent out by the National Co-ordination of MECE. The stated purpose of the groups was to provide teachers with an opportunity to develop personally and socially through collaborative actions, as well as professionally through betterment of teaching strategies (Avalos, 1998). In the course of time, the focus of these groups changed in several ways (MINEDUC, 2001). One of these entailed the preparation of curricular modules to assist teachers in the analysis of complex subject matter concepts. Later, the difficulty of meeting regularly at schools led to the holding of local or regional meetings, known as “didactic seminars” where pedagogical content knowledge\textsuperscript{26} was the main focus of the gathering and finally to the establishment of subject-matter networks. Encouraged by staff at the Ministry of Education, teachers began to communicate their teaching experiences in a letter known as “Páginas Didácticas”. Alongside these activities, the original Teacher Development Groups have continued to function in many of the secondary schools of the system.

The gradual implementation of a new curriculum for secondary schools required the setting up of teacher in-service courses to learn about its contents. A programme known as Perfeccionamiento Fundamental (Foundation Improvement) was established for the purpose. It took the form of short summer courses, delivered by university teams selected by the Ministry of Education. Every year, during these courses, teachers were informed about curriculum changes for that year. After completing this cycle of information for the four years of the secondary school, the programme has been reformulated as a more complex activity involving content knowledge and teaching improvement delivered through short courses and follow-up activities in schools.

A third type of activity to which teachers in Basic and Secondary schools have access prepares them for the use of ICT within the context of the ENLACES national programme in operation since the early nine-

\textsuperscript{25} Mostly through an increase in practical experiences

\textsuperscript{26} This concept was developed by Shulman (1997). It refers to how teachers understand and enact the transformation of content knowledge or subject-specific knowledge into teachable knowledge.
ties. Two other programmes directed to supporting secondary school improvement have involved actions directed to teachers: Montegrande Schools (building of secondary schools of excellence) and the Liceo para Todos programme (support for vulnerable secondary schools).

5. The quality of teacher education provisions in Chile.

Despite actions directed to improving the quality of teaching in Chile, national and international assessments show that student learning is not as good as expected and that differences in achievement are directly linked to type of school attended, with Municipal (publicly funded) schools showing lower rates. In the search for reasons that explain these results, attention has inevitably been directed to teachers. Both teacher performance and teacher education have come under public scrutiny. In relation to teacher performance a system of teacher evaluation has just been put into practice. The first group of teachers (all from first to fourth grade) have been evaluated and results published. This system designed to be “formative” rather than punitive entails opportunities to improve for those teachers assessed as lacking in key content knowledge and teaching areas. It will gradually cover all teachers in the system.

With the purpose of regulating the quality of initial teacher education provisions, the Ministry of Education established accreditation procedures as part of a national system of accreditation of university undergraduate programmes. At present the system is voluntary, but there is legislation under discussion to make it mandatory. Several university teacher education programmes have begun the process, which involves a year of institutional assessment followed by an external peer review. Around four or five universities have submitted their teacher education programmes for accreditation and been accredited for periods varying from three to seven years. Others are preparing for the process. There is general agreement that going through the process is indeed a very good exercise for reviewing strengths and deciding on areas in need of improvement.

In relation to the quality of the reforms carried out since the early nineties, the OECD was asked by the Ministry of Education to review these efforts and offer policy recommendations for improvement. The Report, recently published (OECD, 2004), devotes one of its chapters to teachers and in particular to teacher education. While it recognises the achievements of the programme to improve the quality of university teacher education (FFID) it also notes that changes are still underway and in some respects, fragile, if further support does not take place. Given the importance of the recommendations an excerpt from these is quoted below:

The relationship established by the Ministry with the universities on the initial teacher education project seems to be improving teacher education. It is very important that this be built upon and efforts made to sustain and extend the reforms in initial teacher education. Explicit benchmarks and accountability should be introduced to speed up the reforms towards more explicit changes in the curriculum in practice, with more precise attention to teaching and learning and content knowledge (p. 269).

Recommendations also cover shortfalls in teacher professional development as seen by the team. Among them, it is recommended to move away from general forms of in-service provisions to “more structured support” that assists teachers in improving subject matter teaching and integrates “ICT into curricular practices” (p. 270). The Report recommends that the ENLACES activities provide more hands-on-workshops for teachers on uses of ICT.

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27 Chile has two periodic assessments of Basic Education learning and one administered in the second year of Secondary Education (grade 10) known as SIMCE. The country has also participated in international studies such as TIMSS and PISA.

28 For a description of the recently approved teacher performance evaluation system see Avalos (2004).

29 After completion of funding for the FFID programme in 2002, the Ministry of Education discontinued its involvement and despite recommendations for further more targeted support, this has not happened.
III. TEACHING COMPETENCIES FOR THE KNOWLEDGE SOCIETY

References to the knowledge society are related to two critical situations: the new forms of economic development including competitiveness and globalisation and the possibility of individuals and nations to be part (or excluded) from this new social order. The new type of cultural and economic development defined by Castells (v. 3, 2000) as “informational” depends on technological capacity “with informational technology as the core of this capacity” (p. 372). Productivity and competitiveness are key factors for this development. These contribute to what Castells describes as the capacity to reprogramme oneself. This capacity requires embodied knowledge and key competencies such as flexibility for competitiveness and innovation or creativity for productiveness. Education that centres on skills and is a sort of “warehousing of children and students” (Castells, p. 372) does not equip people to constantly readjust when faced with demands from new information or new knowledge. Thus, to be disposed and capable of continuous learning is a requisite for survival in the knowledge society, and from that perspective it may be proper to refer to it as a learning society (Hargreaves, 2003).

The concept of “exclusion” from participation in the knowledge society is applicable to countries, such as those in Africa or Asia that Castells refers to as being part of a “fourth world” and that the OXFAM report (Watkins, 2000) describe as dramatically poor. But the concept of exclusion is also applicable to certain social groups in wealthy countries and contexts with good handling of the knowledge society demands (Tedesco, 2001). While according to some authors (i.e. Springer, 1998) the global economic powers contribute to exclusion, it is nevertheless important to understand exactly how these factors operate. The source of the new kind of power, in Castells view (2000), is culture because it is culture that enables access to power, Power, in turn provides access to the informational exchange networks and the kind of symbol manipulation that “relate social actors, institutions and cultural movements, through icons, spokespersons, and intellectual amplifiers” (Castells, 2000, p. 379). Thus to increase the chances of inclusion depends on opening access to a sophisticated education, beyond the basic level, and to educational influences that make it possible for knowledge to become “embodied” rather than “stored”.

1. Education as a factor of inclusion in the knowledge society

The role of education can be considered from two standpoints. The broader one refers to cognitive, emotional, social and value’s development and also acknowledges tensions between global and local demands. The second standpoint, which is more precise, refers to preparing for a “conscious, critical, active use of information and communication sources” (Tedesco, 2001).

From the standpoint of schooling, education for the knowledge society requires the use of qualitatively different teaching strategies to those usually employed, more convivial, stimulating and supportive modes of relations among teachers, students, parents and the community, as well as working contexts that promote flexibility and innovation. Despite the fact that there are those who consider these conditions to be soft and lacking in depth, there are ways of avoiding such pitfalls. Among these is concentrating on specific modes of preparing teachers and improving teaching on the basis of existing examples from research. Hargreaves (2003, p. 15) for example, on the basis of a set of studies in school contexts, lists the following targets that teachers should develop in order to prepare for the knowledge society:

- Promote deep cognitive learning
- Learn to teach in ways they were not taught
- Commit to continuous professional learning
- Work and learn in collegial teams
- Treat parents as partners in learning
Develop and draw on collective intelligence
Build a capacity for change and risk
Foster trust in processes

The development of these capacities requires many changes in persons, teacher education, school organisation, and social relationships and especially in the way teaching and work with students are structured. For example, the development and use of “collective intelligence” is a key strategy to improve education and overcome difficulties; but also it is a key requirement to avoid “exclusion”. As defined by Brown and Louder (2001, p. 8):

Collective intelligence involves a transformation in the way we think about human capability. It suggests that all are capable rather than a few; that intelligence is multiple rather than a matter of solving puzzles with only one right answer; and that our human qualities for imagination and emotional engagement are as important as our ability to become technical experts. It suggests that our ability to imagine alternative futures and to solve open-ended problems, and our interpersonal skills, should all be included in our definition of intelligence in the future.

Thus, given the preceding considerations, standardised education reforms and rigid controls suppress the creativeness and flexibility that is needed for teachers to stimulate deep learning and creative social relationships (Hargreaves, 2003).

2. Teaching competencies for the knowledge society

From the point of view of teaching and learning there are two standpoints from which to consider this topic: what kind of learning does the knowledge society require and what competencies do teachers need in order to facilitate such learning. Both these standpoints assume that to find, evaluate and use knowledge as well as to manage complex knowledge systems is a target of this learning and that education is a key factor in developing the capacities needed. They also assume that acquiring more complex cultural competencies should be everybody’s right and exercised with people’s well being in view. Someone who is a participant in the knowledge society should be able to access and interact with “coded” knowledge, which is usually publicly available in various formats (Johnson and Lundvall, in Brunner and Elacqua, 2003). Even more importantly, he or she should be able to “do something” with knowledge, do it with others and for purposes related to issues or social situations in need of investigation and change. These capacities require development and in this sense are of concern to educators.

In relation to teacher education the underlying assumption of the set of case studies, of which this one is part, is in line with what has been said above. Possession of codified knowledge is not sufficient for a teacher. Such knowledge needs to be converted into representations and enacted in ways that make it possible for students to gain access, process and use it in different situations, preferably through cooperative forms of work. Using Castells’ terms it needs to become embodied knowledge. This suggests that teacher capacities have to extend along a continuum of basic understanding of content, through communication skills, sensitive attitudes toward students and their prior understandings and beliefs, strategies for representing and enacting contents as well as strategies for developing student involvement and cooperative work and for assessing results along these lines.

To a certain extent these assumptions have been considered in all of the reform programmes in Chile, and perhaps more specifically they have been addressed through the development of standards for initial teacher education (MINEDUC, 2000) and for the performance evaluation of serving teachers (MINEDUC, 2003). However, there is a distance between what is written in paper and what happens throughout the processes of teacher education and of classroom teaching. The standards described be-

30 In fact, when reforms of Chilean education began an important challenge for these reforms was “to place at everybody’s disposal those cultural competencies reserved formerly for the elite” (García-Huidobro and Cox, 2000, p. 8).
low, though subjected to widespread discussion and consultation, presumably will take time to become part of the repertoire of beliefs and practices of most teachers and teacher educators.

3. The standards for initial teacher education

It took the teacher education institutions over a year to agree on a framework and criteria (standards) to guide the assessment of future teacher competencies. This was achieved through various steps that included deciding on what should be considered desirable, considering other examples such as the British, USA, and South African standards and their relevance for the Chilean situation, deciding an appropriate structure and format, and getting feedback from external consultation. Once a reasonable draft was available it was discussed among teacher educators from all Faculties of Education, the Teachers’ Union, practicing teachers and student teachers. The Ministry of Education published the agreed set of standards. The concept of standards used refers to what a teacher needs to know and be able to do in relation to a given task, and its formulation is focused on the teaching process itself and on its four key dimensions\(^3\): preparing to teach, setting an appropriate classroom environment, classroom teaching and professional performance. To provide a meaningful context to the standard formulation an introductory section sets out the teaching mission and its general tasks as well as what are key components of the knowledge base for teaching. For each dimension there are four or five criteria (standards) each one with a short description of the kind of teaching performance that would accord with the standard, some indicators or teaching competencies in line with the standard, and suggested ways of assessing each standard. In total there are 21 standards (see Appendix 2).

4. The standards for serving teacher performance assessment

There was need to establish a system of teacher performance assessment that had been legislated in the early nineties but was postponed due to Teacher Union opposition\(^3\). The Ministry of Education, under heavy pressure from municipalities and political groups, appointed a tripartite committee of Union, Municipal and Ministry representatives to agree on a teacher evaluation and standards system. After a long period of discussions the committee proposed a formative teacher evaluation and similar standards to those developed for initial teacher education. These standards were sent out for consultation to teachers around the country, who after two rounds agreed to them as criteria for performance evaluation. The use of these standards was piloted; further adjustments were made and finally, they were published.

The “Framework for Good Teaching” as the standards are known, is structured in the same four dimensions as the initial teacher education framework. It includes 20 standards or criteria and for each one a set of descriptors (competencies). While some are different, most of the standards have the same content as those for initial teacher education (see Appendix 3). Using these standards, teacher competency is evaluated according to four possible levels of competency: outstanding, competent, basic and unsatisfactory.

5. The teaching competencies framework for this study

The competencies included in the materials developed for this case study (Marcelo García’s review of literature and Martinet, Raymond and Gauthier’ Roadmap, 2001) were compared to the Chilean standards and found to be similar. The list of 12 competences and sub-competencies in the Roadmap were equivalent to most of the competencies in the Chilean Standards, though organised under a slightly different structure. With the purpose of presenting a familiar form to the interviewees it was decided to use the

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\(^3\) Reasons for such opposition are explained in Avalos (2004).
Chilean structure of four domains with their main competencies, adding on competencies from the Roadmap that did not appear in the Chilean format. The resulting scheme is presented in the appendix 4, while the table below summarises how the Roadmap competencies fit into the four domains of the Chilean standards.

<table>
<thead>
<tr>
<th>Composite Framework of Competencies (Domains)</th>
<th>Competencies for Roadmap included in each domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preparing for Teaching</td>
<td>4. Designing teaching-learning situations for the subject-matter to be learned …</td>
</tr>
<tr>
<td>• Establishing an Appropriate Learning Environment</td>
<td>7. Planning, organising and supervising the way the classroom works…</td>
</tr>
<tr>
<td>• ICT</td>
<td>9. Integrating the technologies of learning</td>
</tr>
</tbody>
</table>

IV. TEACHER EDUCATION AND THE KNOWLEDGE SOCIETY

This section of the report presents the views of all stakeholders interviewed in relation to how they perceive the issues of concern: what teaching competencies for the knowledge society should be developed, how are teacher education programmes responding to these demands, what factors affect their provision and what could be done to improve in this direction. It also includes a section on policy needs.

1. Secondary teacher competencies. Evidence from interviews

Ministry of Education and Teachers’ Union respondents.

Responses of Ministry of Education professionals during interviews, including the Minister and Teachers’ Union representative, to the open-ended question of what competencies do teachers need to prepare their students for the knowledge society centred around the following generic types:  (a) personal, (b) social, (c) cognitive, (d) planning and teaching, (e) instrumental and (f) professional.

Personal competencies are expressed in terms of attitudes such as flexibility (2) creativity (1) and acceptance and expression of emotions (1). Social competencies are expressed as teamwork and networking, and are strongly endorsed as important by Ministry professionals (5), the Minister and Union representative. Cognitive capacities are described as solid understanding of subject matter and knowing how to teach the subject though not necessarily in the “pedagogical content knowledge” interpretation provided by Shulman (1987). The Minister notes the importance of knowing English and understanding mathematical concepts in terms of mental and logical organisation. The Union representative refers to the capacity for inquiry and reflection and the analysis of practice while another ministry professional involved in curriculum development signals out as important the capacity to generalise (“transit from the particular

33 Where relevant the number of interviewees or respondents agreeing to a statement or fact is put in brackets.
to the general”) and present knowledge in “layered forms”. In relation to planning and teaching the Minister notes the need for a planning culture, while another interviewee refers to skills such as whole year planning and knowledge management. Recognising students’ needs and prior situation in teaching and challenging them on the basis of high expectations reconsidered important by three interviewees. Use of ICT in teaching as an instrumental capacity is indicated by the Minister and the Union representative, while another respondent focuses on the ability to communicate clearly in writing. Finally the professional competence endorsed is the capacity to plan and reflect on results and in general to be capable of analysing practice (Minister, Union representative and one other interviewee).

University authorities, academic respondents and students.

Their responses to the question of needed competencies fall into the same categories as those of the Ministry group, though within a wider spectrum of competencies given the number of those interviewed.

Personal competencies are described in terms of flexibility, both in adapting to student capacities (using the concept of “human capital”) and being responsible for student results, as well as openness to change in the contents and forms of teaching (7). Emotional competencies, including “sensitivity” are needed to deal with the complex demands of teaching and of interaction with students and others (5). Similarly and for the same reasons there is need for competence in interpersonal relations. Also considered important is having a positive self-image and believing in his or her personal professional ability.

Social competencies are expressed as the capacity to collaborate, to work in teams (8 academics and one group of students), to be enterprising and capable of finding solutions to problems (3). Leadership is also recognised as a needed competency. While the exact term used is “moral” competencies, it is described as being democratically and ecologically sensitive (2).

Cognitive competencies are described as having clear and organised thinking skills (2), intellectual autonomy and knowing how to learn (2), capability of critical analysis, of contextualising learning and of decision-making based on solid knowledge and sound judgments (1), capacity to question, curiosity (2), capacity to find information for teaching (3), selecting and evaluating information and being able to see the difference between information and knowledge (7); being able practically to manage knowledge and learning capacity, and maintaining moral autonomy in relation to the use and interpretation of information given the enormity of information available (1). Good handling and deep understanding of content knowledge, but not in an encyclopaedic form, is recognised as a key competency (7), and should involve the willingness to re-discover the field of knowledge in which the teacher is a specialist (1). Equally most interviewees stress the importance of Pedagogic Content Knowledge, but describe it generally as knowing “how” to teach the subject. One respondent, however, explained it as: “learning about content, thinking of how to teach it and to whom”.

Planning and teaching competencies. Planning on the basis of knowing students and dealing with diversity is important (6). Teacher educators should be able to deal with the “traditional” pre-conceptions and views about teaching that student teachers have internalised as a result of their school experiences (2). In their classroom activities teachers need to “manage learning” rather than provide information (1), know how to use ICT in a pedagogic form, and have assessment competencies (1).

Instrumental competencies. Here the accent is on linguistic competency and in general on communication skills (2) as well as knowing another language, preferably English (2).

As can be seen from the above categorisation of competencies, these follow closely those included in Marcelo García’s (n/d) Literature Review. In fact, most of those brought by the German Delphi study (cited by Marcelo García) on competencies needed for the knowledge society accord in almost all categories with the ones above (they exclude those that are directly related to education). The knowledge competencies discussed in Marcelo García’s review are also very close in their meaning to what the different interviewees supported.
2. Degree of importance of selected competencies.

Using the adapted version of the Roadmap of competencies (referred to in Marcelo García’s review), 75 respondents (32 academics, 24 secondary teachers, 7 ministry of education professionals and 12 student teachers) were asked to rate the “direct” or “indirect” degree of importance (scale of 1 = no importance; 3 = direct importance) that developing each competency would have for secondary level teaching, and for organising teacher education activities accordingly. In processing the results few mean differences were found among types of respondents and so these results are presented as whole. Competencies with a mean of 2.75 or higher are considered “directly” important and those with a mean between 2.74 and 1.75 as “indirectly” important. Very few competencies from the entire list were rated as non-important. The results are presented below and are organised in four domains: preparation for teaching, creating an appropriate classroom environment, teaching for learning, and professionalism of teachers. All the competencies are conceptualised as what teachers need to know and be able to do in each domain.

**Preparing to Teach.** This covers both long-term and short-term preparation for teaching. It includes the knowledge base and criteria used to decide on the relevant activities. Ratings for the competencies are presented below.

<table>
<thead>
<tr>
<th>In preparing to teach, teachers</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start from students’ family and cultural background</td>
<td></td>
</tr>
<tr>
<td>Find out about student needs</td>
<td>X</td>
</tr>
<tr>
<td>Refer to the different learning styles of their students</td>
<td></td>
</tr>
<tr>
<td>Recognise the importance for learning of student prior knowledge, interests and experience</td>
<td>X</td>
</tr>
<tr>
<td>Design learning tasks adapted to students characteristics and possibilities</td>
<td>X</td>
</tr>
<tr>
<td>Establish relationships between the cultural background embedded in the national curriculum and that of the students</td>
<td></td>
</tr>
<tr>
<td>Propose goals that encompass a wide range of cognitive processes</td>
<td></td>
</tr>
<tr>
<td>Foresee situations of learning that enable integration of competencies in varied contexts</td>
<td>X</td>
</tr>
<tr>
<td>Know the contents of the subject matter and their relation to other subjects</td>
<td>X</td>
</tr>
<tr>
<td>Know about different perspectives and developments in the subject matter</td>
<td>X</td>
</tr>
<tr>
<td>Identify core issues and the axes (concepts, postulates and methods) of knowledge in the subject matter in order to facilitate students’ meaningful learning</td>
<td>X</td>
</tr>
<tr>
<td>Understand what makes the learning of specific topics easy or difficult and the conceptions and preconceptions that students of different ages and background bring with them to the learning of the most frequently taught topics</td>
<td>X</td>
</tr>
<tr>
<td>Master ways of representing and formulating the subject matter with the specific purpose of making it comprehensible to others</td>
<td>X</td>
</tr>
<tr>
<td>Analyse students’ misconceptions concerning the subject matter</td>
<td></td>
</tr>
<tr>
<td>Explain why certain teaching and learning activities were selected and describe them</td>
<td></td>
</tr>
<tr>
<td>Access sources on teaching and learning activities and others related to teaching resources for the support of learning</td>
<td>X</td>
</tr>
<tr>
<td>Plan sequences of teaching and evaluation bearing in mind the logic of the content and of the learning process</td>
<td>X</td>
</tr>
<tr>
<td>Plan assessment strategies that are coherent with the complexity of contents covered</td>
<td>X</td>
</tr>
<tr>
<td>Proposes assessment strategies that are coherent with the complexity of the content knowledge assessed</td>
<td>X</td>
</tr>
<tr>
<td>Explain how they will alter their teaching on the basis of feedback received</td>
<td></td>
</tr>
</tbody>
</table>

34 The full results of these ratings in terms of mean scores (1= no importance; 3 = direct importance) are contained in appendix 5. For the purposes of comparison they are organised following the structure of the Roadmap, including as sub-competencies under the relevant Roadmap ones, those that are only in the Chilean version.
As seen respondents judged as directly important practically all those competencies associated with having good content knowledge and deep understanding of subject matter, as well as skills for analysing the curriculum content in terms of student learning. Competences dealing with knowledge about student background (1, 5 and 14), and being able to explain why certain planning decisions were made (15 and 20) were rated as “indirectly important”.

**Establishing an appropriate classroom environment.** These are competencies that address the physical, social, emotional and learning environment in the classroom. Results are presented below:

<table>
<thead>
<tr>
<th>To establish an appropriate classroom environment, teachers:</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Offer all students the opportunity to learn</td>
<td>X</td>
</tr>
<tr>
<td>2. Deal pedagogically with student negative comments</td>
<td>X</td>
</tr>
<tr>
<td>3. Make the class open to multiple view points</td>
<td>X</td>
</tr>
<tr>
<td>4. Encourage democratic conduct in class. Give students due attention and support</td>
<td>X</td>
</tr>
<tr>
<td>5. Organize heterogeneous groups for students to work together</td>
<td></td>
</tr>
<tr>
<td>6. Establish emphatic relationships with students</td>
<td>X</td>
</tr>
<tr>
<td>7. Use communication skills such as smiles, humour, visual contact</td>
<td></td>
</tr>
<tr>
<td>8. Challenge students appropriately</td>
<td></td>
</tr>
<tr>
<td>9. Show motivation towards learning, research and inquiry</td>
<td>X</td>
</tr>
<tr>
<td>10. Show through their teaching that content learning is the central focus of activities</td>
<td></td>
</tr>
<tr>
<td>11. Take responsibility for teaching so that students succeed in learning</td>
<td>X</td>
</tr>
<tr>
<td>12. Agree that behavioural norms should be generated or at least known and understood by all students</td>
<td></td>
</tr>
<tr>
<td>13. Decide and apply an effective system for lesson development</td>
<td>X</td>
</tr>
<tr>
<td>14. Make available to students the resources necessary in the learning situations proposed</td>
<td>X</td>
</tr>
</tbody>
</table>

Respondents clearly supported as directly important those competences that signal a concern with learning by all students, favour a democratic type of classroom climate and allow multiple view points among students, though heterogeneous grouping is considered as only indirectly important. Empathy is rated as directly important but not necessarily external symbols such as smiles or humour.

**Teaching for learning.** These competencies directly affect the central focus of lessons and its diverse communication and feedback strategies. Results are below:

<table>
<thead>
<tr>
<th>In order to teach for learning, teachers:</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. State clearly the lesson objectives</td>
<td>X</td>
</tr>
<tr>
<td>2. Establish a learning orientation by starting lessons and activities with advanced organiser or previews</td>
<td></td>
</tr>
<tr>
<td>3. Respect language conventions in written notes</td>
<td></td>
</tr>
<tr>
<td>4. Communicate ideas rigorously, using precise vocabulary and correct syntax, correct errors made by students in their oral and written work, constantly seeking to improve written and oral expression</td>
<td></td>
</tr>
<tr>
<td>5. Use teaching strategies that stimulate students to recall prior learning</td>
<td>X</td>
</tr>
<tr>
<td>6. Create conditions for students to become involved in situations-problems and in significant topics or projects, bearing mind their cognitive, affective and social characteristics</td>
<td>X</td>
</tr>
<tr>
<td>7. Invite students to think and act independently, even risking to be at fault or in error</td>
<td>X</td>
</tr>
<tr>
<td>8. Use strategies that allow more than one response or that invite students to think about other possibilities</td>
<td>X</td>
</tr>
<tr>
<td>9. Ask questions that engage students in sustained discourse structured around power-</td>
<td></td>
</tr>
</tbody>
</table>
In order to teach for learning, teachers:

<table>
<thead>
<tr>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>ful ideas</td>
</tr>
<tr>
<td>10. Guide students in selecting, interpreting and understanding the information available</td>
</tr>
<tr>
<td>11. Use questions to stimulate students to process and reflect on content, recognise relationships among and implications of its key ideas, think critically about it, and use it in problem solving, decision making, and other higher-order applications</td>
</tr>
<tr>
<td>12. Monitor student understanding adequately</td>
</tr>
<tr>
<td>13. Provide correct, substantive and timely feedback</td>
</tr>
<tr>
<td>14. Are flexible to change a teaching approach as a result of feedback</td>
</tr>
<tr>
<td>15. Monitor students’ progress using both formal tests and performance evaluations and informal assessments of students’ contributions to lessons and work on assignments</td>
</tr>
<tr>
<td>16. State explicitly how lesson time will be distributed</td>
</tr>
<tr>
<td>17. Give students opportunity to learn, dedicating most of the available time to curriculum-activities</td>
</tr>
<tr>
<td>18. Adopt a critical and well-founded attitude to the advantages and limitations of ICT as medium for teaching and learning, and for society</td>
</tr>
<tr>
<td>19. Evaluate the pedagogical potential of ICT</td>
</tr>
<tr>
<td>20. Use a variety of multimedia tools for communication, using the ICT effectively to investigate, interpret, and communicate information, and to resolve problems</td>
</tr>
<tr>
<td>21. Use the ICT effectively to set up networks of exchange related with the subject taught and its pedagogical practice</td>
</tr>
<tr>
<td>22. Help students use the ICT in their learning activities, to evaluate such use, and to analyse critically the data gathered by these networks</td>
</tr>
</tbody>
</table>

Most of the competences considered directly important refer to constructivist learning approaches such as building on student prior knowledge, learning through problem-solving, stimulating autonomous and divergent thinking; direct importance is also given to monitoring student learning and to teachers learning from the results of such monitoring (14 and 15). Competencies related to feedback were only marginally excluded from being directly important (12 and 13), while competency 9 that also relates to the development of thinking was not included in the form provided to these respondents. More managerial competencies such as using time appropriately and linguistic competencies such as communicating in clear language are rated as indirectly important. In relation to the use of “advance organizers” several participants did not respond simply because they did not know its meaning as was learnt later. All the competencies related to integration in learning activities of ICT were considered directly important, even though they are not included in the standards for teacher education in Chile.

Teacher professionalism. These are competencies that affect what teachers do after their classroom duties, their relationship to colleagues, parents and other community members, their participation in school development activities and their awareness about professional duties and rights. Ratings resulted as follows

<table>
<thead>
<tr>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>As professionals, teachers:</td>
</tr>
<tr>
<td>1. Use adequate arguments to describe the degree to which their students achieved the proposed objectives</td>
</tr>
<tr>
<td>2. Reflect on their practice and put the results into practice</td>
</tr>
<tr>
<td>3. Evaluate their own competencies and adopt the means to develop them using available resources</td>
</tr>
<tr>
<td>4. Attribute teaching results to factors related to the teaching-learning process</td>
</tr>
<tr>
<td>5. Interpret student difficulties as challenges to search for solutions</td>
</tr>
</tbody>
</table>
As professionals, teachers:

<table>
<thead>
<tr>
<th>Competencies</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Cooperate with other school staff in defining goals and preparing and carrying out educational school projects</td>
<td>X</td>
</tr>
<tr>
<td>7. Exchange ideas with colleagues about the suitability of pedagogical and didactic options</td>
<td>X</td>
</tr>
<tr>
<td>8. Take part in teacher meetings and workshops and contribute to the Educational School Project</td>
<td>X</td>
</tr>
<tr>
<td>9. Know how to take a position, and maintain one’s ideas and discuss coherently, effectively, constructively, and respectfully</td>
<td>X</td>
</tr>
<tr>
<td>10. Promote participation and flow of relevant information to parents</td>
<td></td>
</tr>
<tr>
<td>11. Communicate explicitly and clearly to parents the results of their children and provide feedback on progress and achievement of competencies.</td>
<td></td>
</tr>
<tr>
<td>12. Know about national educational policies related to the curriculum, contractual obligations and quality management</td>
<td></td>
</tr>
<tr>
<td>13. Explain, in function of the public interest, the decisions taken concerning students’ learning and education</td>
<td></td>
</tr>
</tbody>
</table>

All those competencies related to analysing and assessing their work as teachers are considered important, as well as accepting difficulties as challenges rather than obstacles (1, 2, 3 and 5). Assuming responsibility for results (4) is rated as indirectly important but probably because its meaning as presented was not quite understood, given later requests for clarification. Also all those competencies related to school participation, team work and arguing personal positions in a coherent and constructive manner (6-9) are rated as directly important. On the other hand there is less agreement on keeping an open flow of information to parents, partly as it was explained later, because of fear of parent undue intervention in school affairs. This in fact reflects the traditional concept of professionalism that assigns to teachers the main role of creating conditions for and enabling learning.

3. How is teacher education preparing secondary teachers in these competencies?

The different groups of people interviewed were asked to voice their views on the current capacity of teacher education programmes and activities to address the preparation of secondary teachers in the competencies needed to teach in the knowledge society. These views are discussed in terms of CPD and of initial teacher education.

CPD activities.

Most of the visible CPD activities are those initiated and led by the Ministry of Education but few of them directly address secondary teachers, as shown in the first part of this paper. The most relevant CPD activities are those focused on content-knowledge upgrading and pedagogic content knowledge (PCK) that only recently have taken on a less “informative” approach and more of a mix of lecture formats and school/classroom follow-up of participant teachers. These courses are organised at ministry level but are taught by university teams selected on the basis of a bidding process. No evaluation of their quality has been undertaken to date. There is a criticism of university diploma courses for teachers, as they are not necessarily structured on what teachers need (especially content knowledge upgrading) but on what the university is equipped to offer. Teacher preparation in ICT by the ENLACES project has been going on for many years and it is also done by university teams. Some of the interviewees noted that these activities still do not manage to produce real changes in the way in which ICT is used in the schools, although undoubtedly there are good examples. The most innovative programme for secondary teachers referred to in the first part of this paper are the teacher subject-networks that provide opportunities for teachers to
meet and learn from each other developing their professional communication and learning from each other capacity. However, even though this is a well-structured programme that has functioned for almost 10 years in its diverse forms, it does not have sufficient visibility and support by the Ministry in time allocation for teachers to take part in these networks. Having to rely on university teams to support most secondary teacher continuing professional development activities is a necessary evil in the eyes of many ministry professionals, as they do not entirely trust their capacity to perform adequately. But there is no other alternative.

Recently, the importance of schools leadership has been recognised as crucial for improving learning in schools. The government is trying to push through a law in parliament that would make school principals appointable on the basis of merits for limited periods of time, and not for life as they are now. Parallel to this there is work on the development of principals’ standards to guide their selection and performance evaluation. Some of the municipal and private systems are piloting forms of school-based evaluation that should also assist in improvement, for which principal leadership is a key ingredient.

Interviewees including the Minister, ex-Minister and the Teachers’ Union representative and others not directly involved with teacher activities commented on the potential of existing CPD activities and on preferred formats for their structuring bearing in mind the demands of the knowledge society.

On existing activities, the Minister put teacher networks in the first place as did also the Union representative adding examples of networking that the Union develops with teachers. English language strengthening is a specific initiative of the current Minister as is also a programme on Digital Literacy and he considers both as a direct contribution to preparing for the knowledge society. The ex-Minister on the other hand put teacher networks in third place while preferring monetary rewards for teachers in good performing schools as an incentive to improve.

The following descriptions of CPD formats were shown to four academic interviewees not directly responsible for teacher education, and asked to rate them in order of their importance to develop competencies for the knowledge society:

- Structured courses on complex curricular topics
- School-based workshops with external assistance focused on the design of teaching activities
- PCK theoretical and practical course with school-based follow-up
- Subject-matter networks among secondary teachers
- Action-research focused on classroom work

Most agreed that school-based workshops and PCK activities were first in importance, although one other interviewee also considered the value of structured course. Networks were generally preferred as third in importance and action-research workshops had divided preferences, two considered them as first in importance, and the other two as last.

University teacher education programmes

The FFID intervention and support for change in 17 universities is considered by all those who were responsible for project implementation in their institutions as well as others not involved, as a crucial factor

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35 Secondary teachers have complicated schedules as many have to work in more than one school to complete at least a 44-hour (45 minutes) working week. This makes it difficult to maintain participation in regular school-based professional development. Their yearly salaries in 1999 US$ were around 19,000 at the top of end of the scale (after approximately 20 years of work) but subject to increases in relation to accredited in-service courses taken. This means that many teachers make personal efforts to pay for such courses whether or not they are useful or directly related to their teaching needs, as opposed to professional development that is not accredited.

36 Recently the Ministry of Education convened a national workshop on topics related to school leadership. Among the experiences considered was the British National College of School Leadership.
that initiated a new era: “a qualitative jump”, the mark of “a before and an afterwards”, “a salvation board” for programmes that were dying, “a great opportunity” as expressed by several of those interviewed. Among its overarching effects, those interviewed stated the following:

- setting of a foundation for communication among those involved in teacher education in the institution and developing a different consciousness regarding its importance (2);
- allowing the institutions to look at themselves and assess what they were doing (5);
- making resources available that moved the programmes out of their pre-ICT era into one in which new forms of communication, management and teaching became possible (3);
- installing the concept of professionalism and the importance of the teaching profession (4);
- greatly improving the number and quality of teacher education applicants (3);
- developing modern management and planning skills to make the projects function swiftly (2);
- installing new links with schools and the educational system that were practically absent (5);
- opening the institutions and its academic staff to the international world, through study visits to other universities and teacher education programmes as well as receiving many academic visits in their own institutions, thus helping to recognise that pedagogical knowledge is not “trivial” (3).

More specifically the programme as noted by the Rector of UMCE touched three important areas: the curriculum, the teaching methods and the provision of resources. Others added as significantly important the changes in the structure of practicum experiences. Many also considered that the changes that have taken place as the beginning steps in a longer process.

The curriculum

In relation to the teacher education curriculum and especially in its potential to develop capacity to deal with information, interviewees valued the effort to unburden it from unnecessary contents, to make it more coherent and focused on key knowledge areas, with less contact hours and more time for student independent learning (8). However, it was also noted that curriculum tightening has not been sufficient, that there still is a number of academics, especially on the discipline side, that would like the situation reversed to where it was before the reform or that are excessively attached to their personal “patch” of knowledge (4); that there is not enough integration and concentration on central topics and that there still are too many courses (5). Also noted is the fact that more time for independent work on the part of students requires supervision by their professors and this does not occur sufficiently (2). An important curricular process is bridging the distance between subject knowledge learning (that generally occurs in specialised Faculties and Institutes) and learning how to teach the subject - in other words what we know as “Pedagogical Content Knowledge” (PCK). Two specialists at UMCE recognised that this is a difficult area, still not sufficiently explored from a conceptual point of view. Others noted the same problem and attributed it mostly to the lack of communication between the two worlds of subject speciality and pedagogy.

Despite the acknowledgment of insufficiencies in the teacher education curriculum reform, some innovations stand out with good potential in the competencies needed for the knowledge society. One of these is the Problem Based Learning approach introduced at the University of Atacama. Problem-centred activities occur twice a year that integrate several curricular areas and allow students to investigate problems and reach conclusions on the basis of their learning (Iglesias, 2002). Initially, the problems are general such as drugs, school violence, dropping out; later they become specific to the subject matter specialisation of students. Of interest in this case is that this is a small university with a student body of lower social background, located in the desert mining area of the North of Chile. A singularly innovative Dean and the willingness of his staff to innovate made this radical change of the existing curriculum possible. The first group of secondary teacher trainees who have experienced the full five years of study of this curriculum will be graduating this year. Professors and students commented on the experience:

Regarding the PBL I like it because it allowed us to understand the reality of schools … to have to stand up and discuss our positions and hear those of others that could be similar or different
was a good experience. One of our specific PBLs dealt with diversity in the teaching of English, encountering pupils who know more than the teacher and others who have no background at all (Students).

I wasn’t very convinced initially. However, now I can see that the PBL curriculum has produced changes in our students … we now have much more alert students, who don’t find it difficult to look for materials they may need in their work. They used to be passive, expecting to have things provided for them, now they are concerned with finding their own information. … How they search for information, how they consider whether it will solve the problem is an important element in the preparation of our students … it will be important for their future work … they are more independent, tolerant, mature (Professors). 

Teaching approaches

As result of the FFID programme there were also changes in teaching methods both on the part of individual professors as in the delivery structures of the curriculum. Referring to their own university, two heads of department at UMCE estimated that about one third of staff changed their methods, and its Rector said there was a noticeable difference in ratings of students about their learning experience before the FFID programme and five years after it started. Other interviewees observed less dependence on pure lecture methods and more provision of opportunities for students to use inquiry methods (3). Among effective methods for developing autonomy, critical thinking, inquiry, teamwork and management of information among students, use of project methods was highlighted though unfortunately it is rarely used with an interdisciplinary approach (3). The extensive use of “power point” is considered as just a more technological form of lecturing, a “cosmetic” change. Others, which are embedded in the curriculum structure such as having elective “workshops” or activities that stimulate inquiry facilitate student autonomy and broaden the kinds of learning activities to which they have access (4).

Resources and ICT

Increased resources, both books and journals, and especially computer facilities and Internet connexions radically changed the teaching possibilities of the programmes affected by FFID, as noted by academics of both small and major institutions such as the University of Chile, UMCE and Atacama. They opened the way for more flexible modes of work instead of traditional courses. Use of ICT facilities increased student autonomy allowing them to engage in self- and peer-evaluation procedures (3). However, the potential in these forms of learning is not sufficiently utilized because professors often do not follow up on the students work and build new knowledge on this learning. One of the interesting changes, once it became evident that students arrived at the university with computer skills, was to move from providing ICT courses to using it in other learning contexts.

The practicum

The format for practicum experiences changed in all the institutions under FFID and many others outside of this programme. Years of criticism about the late introduction of students into school realities and teaching (usually the last year of a four or five-year programme) led to beginning these experiences gradually from the first or second year of study. Institutions established formal links with schools and municipalities (that run schools) increasing the settings for students to learn. The experience is recognised as valuable by all the interviewees. However, while two groups of students (Universities of Tarapacá and Atacama) had much to say in pro of the system, students at the University of Concepción considered that their introduction to schools not only came too late (in the third year) but that they were inadequately supervised both by teachers in the schools and by their university supervisors. It is clear from these views, that there is need for greater effort at secondary level teacher education to improve both the quality of practicum experiences and the links with schools. This means continuing the trend to establish agreements with school authorities (municipalities or private ones) in order that certain schools are selected as learning centres and teachers in these schools adequately prepared as mentors.
Evaluation of student teacher performance using standards and competencies is the new element introduced into teacher education through the practicum. However, while all the teacher education authorities interviewed noted their use at this stage of preparation, and how the standards have helped to consolidate among students their sense of learning a profession, there were doubts as to whether all academic staff, especially subject specialists, had really recognised and understood their importance as an evaluation instrument. It would be desirable in this respect that the Ministry of Education consider the establishment of a system of evaluation of newly trained teachers based on these standards as a requirement for contracts in publicly funded schools. This should stimulate teacher education programmes to work harder in the direction of preparing teachers to meet these performance standards.

Institutional structures

“An archipelago, not yet one island”

The structures that hold secondary teacher education programmes together affect how teachers learn to teach and to perform competently. Discipline departments located in Faculties or Institutes that serve other forms of academic and professional preparation as well departments of Education jointly deliver most programmes. Only one of the academic authorities interviewed was fully satisfied that at his institution there was a common understanding about teacher preparation and that working relationships between all those involved were good. He attributed this mostly to the academic staff’s common background as former secondary teachers. Others noted progress in some areas such as interdisciplinary planning of school-based activities for student teachers, or links at individual level such as a strong dean of education winning the respect of the others. Interviewees from the bigger universities such as the University of Chile, Concepción and Catholic University described the preparation of secondary teachers as occurring in two worlds: learning the subject-matter in specialised departments or institutes and learning how to teach at the faculty or department of education. Students at Concepción University described their discipline learning as fragmented and as difficult to apply in practice. The rector of UMCE, the teacher training university, explained the distance between its discipline faculties and the education faculty as inherited from its former status in the University of Chile, in which, separately, both groups of academics regarded each of their worlds as good.

Several interviewees provided further reasons for the distance between the discipline and the pedagogy worlds of training. Subject-matter specialists do not regard the academic in charge of teaching methods as a member of their own knowledge camp. But, they do regard secondary teacher students as “one of their own” and encourage their allegiance first to their subject specialist condition and then to their educator condition. These sentiments were expressed by a young teacher interviewed for another study who valued as his primary teaching reference what he learnt from the Language and Literature department at his university (Avalos, Carlson and Aylwin, 2004). On the other hand, as explained by a mathematician interviewed, pedagogues mistrust specialists who move into the field of pedagogic learning and often maintain the rift between them.

The separation between discipline knowledge and pedagogy is a structural condition in consecutive teacher education programmes. There are few of those in Chile, but they are considered to affect the teaching competency of their graduates. One methodology professor interviewed stated that the teacher education programme at the Catholic university is not able to change the experience of traditionalist teaching to which students are exposed during their time at discipline faculties. A member of the history department of that university agreed that his colleagues have no interest in pedagogical matters and focus exclusively on their own historical interests. The time limitations of consecutive programmes forces student teachers “to trade the possibility of learning to innovate for a survival tool-kit”. Teacher graduates from a similar programme at the University of Chile criticise their preparation for providing less than what is needed to teach competently (Fleming and Liñero, 2003).

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37 The case of the University of Atacama that originated from the Normal and Mining Schools in the city of Copiapó.
While in other systems such as the British and American, consecutive secondary teacher education programs are predominant; this is not the case in Chile as shown in the first part of the paper. There are several drawbacks to such programs one of them being the fact that they do not attract graduates in all the specializations but only those for which it is difficult to get jobs. (i.e. the humanities and the arts). Also these programs tend to recruit school- teachers as methodology specialists to conduct courses in subject teaching and supervise practicum experiences. While these teachers may be good practitioners they do not necessarily have the understanding of pedagogic content knowledge needed to assist student teachers in making links between the subject knowledge learned in their undergraduate courses and the new methods that they will need to teach. Given this situation while having a few consecutive programmes offers alternative training paths to graduates or professionals interested in going into teaching, it should be recommended as a widespread policy in countries where teaching is still not a well-paid profession and where conditions still are not ripe for a quality teacher educator corps within such programs.

Pedagogic Content Knowledge (PCK)

References to the relations between discipline and pedagogy touch what we are calling Pedagogic Content Knowledge, an area of learning that is crucial for a secondary teacher. Shulman (1987) developed the concept but it is well embedded within the tradition of didactics, the science of instruction. To be equipped with PCK means to know and understand the core concepts of a discipline field, its relations to other fields, and its mode of building new knowledge and how it can be represented and communicated to be meaningful to particular groups of learners. This learning requires the use of strategies to examine personal content knowledge frameworks (for example, how fragmented are they due to learning in multiple courses) and to consider practical knowledge on how to represent the curricular topics in teaching. Not much building of specialisation in this field occurred during the FFID projects partly, as one of the interviewees said, because of particular characteristics of the persons concerned, traditions and compartments within the university halls. The new curricula also did not give due importance to the subject. Several programs, especially the consecutive ones, contracted secondary teachers on a part-time basis to handle the special-subject methodology teaching without further preparation. There has been little thinking, updating and research in the different PCK fields. Intuitively when asked whether teaching a subject or caring for pupils was more important, students at the University of Tarapacá said: “with maths one can also educate”, -the issue is how competently can they do it if opportunities to learn are not sufficiently good.

If things were to change and greater importance was to be given to the development of a sound basis in pedagogical content knowledge, then several options could be considered. One of these, which is being included in a recent research proposal, is to build a research capacity among teacher educators charged with teaching subject methodology and mentoring student teachers in order for them to examine what are key concepts and relations in their subjects that require special pedagogic attention; because they are difficult to teach or simply because they are key for understanding the subject matter. In this respect, the experience at the University of Atacama of problem-based learning (PBL) offers a good possibility for developing research capacity geared to producing a desirable integration between content and teaching of content. The nature of the comments of students and teacher educators interviewed at this institution shows that as a result of PBL they were advancing in the right direction.

Teacher educators

In the case of secondary teacher preparation, all those who have a part in their education should be considered as “teacher educators”. This is not the case for those academics that provide discipline knowledge and do not see their students as future teachers but as “historians”, “mathematicians” or “linguists”. The FFID programme offered opportunities for further preparation to its academics in all of the universities and they were valued as an important form of opening to other worlds and other possibilities. But, the perception among those interviewed is that there is still a long way to go to improve the teacher edu-
cator quality of those involved in these tasks: “there is not sufficient modelling of competencies”, “there is still too much lecturing”, “constructivism is used with a 50s approach”, there is learning about new methods “but without acquiring ownership over them”. Students complain:

Few of our university professors have worked in a school, they teach in abstract. They teach using old forms. We do not have teacher models that show us new things. They are cornered within the same teaching form: whiteboard, markers … We need teachers with new ideas, new ways of teaching. The exceptions are the “didactics” teachers because they work with interesting materials and strategies such as mathematical puzzles to motivate students. But we would like all professors, not just the methodologists to use these forms.

Interestingly, most of the interviewees had suggestions for improvement of teacher educators such as assisting them in facing change, especially as for many of them change means the crumbling of past certainties. Time for reflection, staff-development opportunities, providing opportunities for young teachers to prepare as university lecturers, selecting them on the basis of their personal and teaching competency; these were some of the suggestions offered.

4. Policy support
“A Christmas tree of programmes”

The question of policy coordination and policy support arises from the Minister of Education’s estimation that programmes have grown throughout the 13 years of government since the return to democracy in 1990 in a somewhat disorderly manner: “a Christmas tree of initiatives”. Almost all interviewees from the ministry and the academic world (15) coincide in the fact that there does not seem to be a clear policy addressing the issues of concern to teacher education and certainly not a policy that articulates initial and continuing teacher activities and all the stakeholders and institutions concerned (Ministry, universities and education system). There has not been enough building on what is achieved before one programme replaces the other or adds on to the existing tree, not enough time to evaluate results. CPD is delivered in a variety of forms and through multiple agents and despite the fact that there is a central institution charged with CPD, its director also shares this criticism of its delivery. It is his view also, that initial teacher education and CPD are last priority in terms of budget allocations. While the FFID programme is considered to have had an important effect, its lack of continued support is another piece of evidence of the lack of policy. To have discontinued its support before changes had become more strongly anchored is working against the changes and stimulating those who did not want reform in the first place to demand reversals (8).

Accreditation is the only policy in place for assuring quality in initial teacher education. All interviewees value its importance for institutional assessment, but consider that it is an insufficient mechanism for dealing with the uncontrolled growth of new teacher education programmes (6). More regulation is needed to insure all teachers are well prepared for their tasks.

CONCLUSION

This survey of teacher education in Chile and its potential for preparing teachers who are responsive to the demands of the knowledge society yields a fairly optimistic picture if comparison is made with other developing countries. There is a solid institutional structure for the preparation of secondary teachers that is university based; there have been changes geared to improving its delivery conditions after the long period of decay and inadequate financial support suffered during and immediately after the Military government. There is a system of accreditation based on standards for assessing the competence of teachers and the quality of institutions that should eventually cause incompetent programmes either to improve or close down. However, there is also widespread dissatisfaction with the current quality of teaching in schools and the suspicion that teacher education institutions may not yet be producing the kind of teacher
required to increase learning results in a system where secondary education is now compulsory. The Minister of Education is strongly concerned about this and, following the advice of the OECD team, wishes to establish a system of certification of teachers based on examination of their capacity to teach.

The survey of stakeholders from the ministry of education and academic institutions suggests that there is vision about what is needed and concern about what is lacking. It also highlights the absence of a clear mid-term or long-term policy that could pick up some of these views and jointly address initial and continuing teacher education, and link initiatives with real needs.

There is widespread agreement by stakeholders on the competencies to be furthered by teacher education. From a generic point of view, stakeholders refer to personal, social, emotional, cognitive and instrumental competencies (including linguistic, mathematical and ICT) that clearly can only be developed when those involved fine tune their curriculum, delivery strategies and teaching environment to make these conducive to such preparation. More specifically, most stakeholders, including students and school teachers, agree on key teaching competencies that favour solid content knowledge and pedagogical content knowledge, knowledge and skills to recognise student differences and the importance of their preconceptions in learning, capacity to create democratic learning environments and to stimulate thinking, deep learning, management and use of information as well as moral judgment among students. Equally recognised is the importance of developing as professionals with skills for interacting with colleagues, parents and others, willingness to contribute to school quality and be reflective and critical about their own work.

There were examples given of types of curriculum organisation that favour the development of some of these competencies, such as the Problem Based Learning structure in place at one of the universities, greater links and involvement of students teachers in schools and communities during their training at many institutions, and CPD activities using subject-based networks and combinations of content knowledge improvement followed by regular school-based support\(^{38}\). However, for a number of reasons partly to do with institutional structures and partly with inadequate expertise, teachers are not sufficiently prepared in what we have called Pedagogical Content Knowledge, neither in initial or continuing education. Nor is preparation always adequate to meet different realities. Students and graduates struggling with teaching diverse school populations did not accept the assumption that university preparation in the subject is sufficient\(^{39}\).

All in all, this survey provides a sense of there being a base upon which to build, some indication of where the trigger points might be, and a very urgent call for ministerial action in pro of a coordinated policy for teacher education that involves the government (national and municipal), the teacher education providers (public and private), teachers, and the school system.

Besides the need for a mid-term policy on teacher initial education and continuous professional development, the following actions would contribute to more solid advances towards educating teacher for the knowledge society:

1. Maintain at Ministry level a more proactive entity charged with initial teacher education, able to discern needs, review policies, stimulate research and especially support collaboration and innovation in all teacher education programmes (not just those under the umbrella of “traditional institutions”). The model would be the kind of coordinating entity that operated for the FFID programme and its focus could be “improving teacher education for the knowledge society”.

\(^{38}\) Given the success that the secondary network programme has had until recently as documented by Noguera et al (2002) it would seem this is the way to go in the future. However, for these networks to strengthen their activities there is need for continued Ministry of Education support. This may or may not happen.

\(^{39}\) One of the criticisms of a young secondary teacher to his university preparation was not that he did not know the literature to be taught, but that he could not deal with the unmotivated young students in his poor neighbourhood school; they were far from the middle-class students for which he had been prepared (Avalos, Carlson and Aylwin, 2004).
2. Establish minimal support requirements for beginning teachers to be enacted at school level, such as reasonable workloads, information on school operation system, opportunities for mentorship, etc.

3. Support research teams that mix teacher educators and subject specialists who engage in projects related to improving the knowledge base of future teachers, through the established government research and development funds.

4. Provide greater visibility and support to the experience of the secondary teacher subject-matter networks, widening its scope and evaluating some of its effects.
REFERENCES


APPENDIX 1

List of persons interviewed

Ministry of Education
Sergio Bitar, Minister of Education
Mariana Aylwin, ex- minister of education
Carlos Eugenio Beca, Director of CPEIP (Centre for In-Service Training, Experimentation and Educational Research):
Ana María Cerda, Coordinator of Continuing Professional Development Programmes:
Liliana Vaccaro, Coordinator of Curricular Updating Programmes:
Jacqueline Gysling, Sub-Coordinator of the Curriculum and Evaluation Unit:
María Inés Noguera, English Teaching Project and Former coordinator of Secondary Teacher Development:
Carlos Concha, Sub-Coordinator of Chile Califica (Further and Continuing Education Programme).

Teachers Union
Guillermo Sherping, Head of the Education Department.

Academic Authorities
Raúl Navarro: Rector, Universidad Metropolitana de Ciencias de la Educación:
Jaime Labra, Academic Vice-Rector, Universidad Católica Cardenal Raúl Silva Henríquez.
Arturo Flores, Academic Vice-Rector, Universidad de Tarapacá.
Juan Iglesias, Dean of the Faculty of Education, Universidad de Atacama
Abelardo Castro, Dean of the Faculty of Education, Universidad de Concepción

Academics involved in teacher education
Katty Oblinovic, Head of the English Department, U. C. Raúl Silva Henríquez, Santiago
Diana Veneros, Head of the History Department, Universidad Diego Portales, Santiago
Lucy Fleming, Education, University of Chile, Santiago
Julia Romeo, Education, University of Chile, Santiago
Lino Cubillos, ICT Education, University of Chile, Santiago
Juan Yañez, Head of the Mathematics Department, U. M de Ciencias de la Educación, Santiago
Claudio Pérez, Head of the Physics Department, U.M. de Ciencias de la Educación, Santiago
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Rafael Sagredo, History, Catholic University of Chile, Santiago
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Liliana Hernández, Mathematics Education, University of Tarapacá, Arica
Arnaldo Araya, Biology Education, University of Tarapacá, Arica
Ricardo Vera, Head of English Teacher Education, University of Atacama, Copiapó
Enrique Valenzuela, Head of Physical Education, University of Atacama, Copiapó
Claudio Figueroa, Head of CENLADC, University of Playa Ancha, Valparaíso
María Cecilia Núñez, Head of Science Education, University of Concepción
Hernán Morales, Physics Education, University of Concepción
Carlos Muñoz, History Education, University of Concepción
Galván Paredes, Education, University of Concepción

Other academics
José Joaquín Brunner, Professor of Education Policy (U. Adolfo Ibáñez) and Head of Education (Fundación Chile).
Juan Eduardo García Huidobro, Head of Basic Teacher Education, Universidad Alberto Hurtado
Lucía Invernizzi, Language Professor University of Chile
Roberto Araya, Director Automind Chile

**Teacher educator groups:** University of Tarapacá, University of Atacama and University of San Sebastián.

- **Secondary school teachers (24)**
- **Student groups:** University of Tarapacá, University of Atacama and University of Concepción.
### APPENDIX 2

*Performance Standards for Initial Teacher Education*

#### Facet A  Preparing for teaching: Content organisation in order to achieve learning

1. The new teacher is familiar with students’ prior knowledge experiences
2. The new teacher sets learning targets that are clear, appropriate for all students and coherent with the national curriculum
3. Shows full knowledge of the contents to be taught. Is able to indicate relationships between known contents, those that are being studied and that will be studied
4. Develops or selects materials, methods and teaching activities that are appropriate for the students and coherent with the lesson targets
5. The future teacher develops or selects assessment strategies that are appropriate for the students and congruent with the learning targets

#### Facet B  Creates an appropriate learning environment for students

6. The teacher encourages a climate of equity, trust, freedom and respect in the interaction with students and of students amongst themselves
7. The future teacher establishes emphatic relations with students
8. Proposes challenging learning expectations for students
9. Establishes and maintains agreed and consistent norms of discipline for the classroom
10. Tries to ensure that the physical environment is secure and conducive to learning

#### Facet C  Teaching for learning

11. The new teacher endeavours to make clear the targets and procedures that will be used for learning
12. The new teacher tries to make knowledge comprehensible to students
13. Beyond knowledge of facts the teacher encourages students to widen their way of thinking
14. The teacher checks for student understanding of contents through feedback or information processes that assist in learning
15. The teacher uses the available time for effective teaching

#### Facet D  Professionalism

16. The new teacher assesses the degree to which learning targets were achieved
17. The future teacher assesses his or her responsibility in the achievement of results
18. Shows interest in building professional relationships with colleagues and takes part in school activities
19. Takes on responsibility for pastoral care of students
20. The future teacher communicates with parents or guardians
21. Shows understanding of national educational policies and how his or her school contribute to such policies

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40 Each of these standards has suggested competencies to be developed
## APPENDIX 3

*A Framework for Good Teaching*

<table>
<thead>
<tr>
<th>Domain A</th>
<th>Preparing for teaching: Content organisation in order to achieve learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Has full knowledge of the subject-matter contents and the national curriculum</td>
</tr>
<tr>
<td>2.</td>
<td>Knows about student characteristics, knowledge and experience</td>
</tr>
<tr>
<td>3.</td>
<td>Manages fully the teaching methodology of the subjects taught</td>
</tr>
<tr>
<td>4.</td>
<td>Organises objectives and contents in a way that is coherent with the national curriculum and student characteristics</td>
</tr>
<tr>
<td>5.</td>
<td>The assessment strategies used are coherent with the learning objectives, the subject matter, the national curriculum, allowing all students to show evidence of their learning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain B</th>
<th>Creates an appropriate learning environment for students</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.</td>
<td>The teacher encourages a climate of equity, acceptance, trust, solidarity and respect</td>
</tr>
<tr>
<td>7.</td>
<td>Proposes challenging learning expectations for students</td>
</tr>
<tr>
<td>8.</td>
<td>Establishes and maintains agreed and consistent norms of discipline for the classroom</td>
</tr>
<tr>
<td>9.</td>
<td>Establishes an organised working environment and arranges physical space and resource in view of learning requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain C</th>
<th>Teaching for learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Communicates clearly and precisely the learning targets for the class</td>
</tr>
<tr>
<td>11.</td>
<td>Uses challenging teaching strategies that are coherent and meaningful for students</td>
</tr>
<tr>
<td>12.</td>
<td>The knowledge content is presented with conceptual rigour and is comprehensible to students</td>
</tr>
<tr>
<td>13.</td>
<td>The teacher uses the available time for effective teaching</td>
</tr>
<tr>
<td>14.</td>
<td>Encourages thinking</td>
</tr>
<tr>
<td>15.</td>
<td>Evaluates and monitors student learning and understanding of contents</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Domain D</th>
<th>Professionalism</th>
</tr>
</thead>
<tbody>
<tr>
<td>16.</td>
<td>Reflects systematically about his or her practice</td>
</tr>
<tr>
<td>17.</td>
<td>Builds professional and team relationships with colleagues</td>
</tr>
<tr>
<td>18.</td>
<td>Encourages collaboration and interacts respectfully with parents</td>
</tr>
<tr>
<td>19.</td>
<td>Takes on responsibility for pastoral care of students</td>
</tr>
<tr>
<td>20.</td>
<td>Has up-to-date information about the profession, the education system and current policies. national educational policies</td>
</tr>
</tbody>
</table>
### APPENDIX 4

Mean degree of importance of Competencies for Knowledge Society \( (N = 75) \)

<table>
<thead>
<tr>
<th>Teaching Domain Competencies</th>
<th>Indirectly important</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Designing teaching-learning situations for the subject-matter to be learned, and doing so in function of the students and of the development of competencies included in the curriculum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastering ways of representing and formulating the subject matter with the specific purpose of making it comprehensible to others</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Understanding of what makes the learning of specific topics easy or difficult; and the conceptions and preconceptions that students of different ages and backgrounds bring with them to the learning of the most-frequently taught topics and issues.</td>
<td>2.85</td>
<td></td>
</tr>
<tr>
<td><strong>Analyzing students’ misconceptions concerning the subject matter</strong></td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>Planning sequences of teaching and evaluation bearing in mind the logic of the content and of the learning process</td>
<td>2.84</td>
<td></td>
</tr>
<tr>
<td>• Knowing the contents of the subject matter and its relation to other subjects</td>
<td>2.88</td>
<td></td>
</tr>
<tr>
<td>• Knowing about different perspectives and developments in subject matter</td>
<td>2.87</td>
<td></td>
</tr>
<tr>
<td>• Knowing of sources that provide information on teaching strategies and resources</td>
<td>2.81</td>
<td></td>
</tr>
<tr>
<td>Identifying key elements of the subject matter (concepts, postulates and methods) in order to facilitate meaningful learning for students</td>
<td>2.93</td>
<td></td>
</tr>
<tr>
<td>Bearing in mind representations, social differences (sex, ethnic origin, socio-economic, and cultural), needs and special interests of the students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choosing varied and appropriate didactic approaches when developing the competencies included in the curriculum</td>
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</tr>
<tr>
<td>• Explaining why certain teaching approaches were selected and is able to describe them</td>
<td>2.57</td>
<td></td>
</tr>
<tr>
<td>Foreseeing situations of learning that enable integration of competencies in varied contexts.</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td>Recognising the importance for learning of student prior knowledge, interests and experiences</td>
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<td></td>
</tr>
<tr>
<td>• Knowing about family and cultural background of students</td>
<td>2.61</td>
<td></td>
</tr>
<tr>
<td>• Being able to describe the different ways of learning of their students</td>
<td>2.82</td>
<td></td>
</tr>
<tr>
<td>• Uses strategies to put into action student prior knowledge</td>
<td>2.88</td>
<td></td>
</tr>
<tr>
<td><strong>2. Steering teaching-learning situations in order for the content to be learned, and doing so in function of the students and of the development of the competencies included in the curriculum</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creating the conditions for students to become involved in situations-problems</td>
<td>2.84</td>
<td></td>
</tr>
</tbody>
</table>

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41 1 = not important; 2 = indirectly important; 3 = directly important. Ratings of 2.75 and above are classified as directly important, those between 2.5 and 1.75 as indirectly important. Competencies in italics are those that are part of the Roadmap.
<table>
<thead>
<tr>
<th>Teaching Domain Competencies</th>
<th>Indirectly important</th>
<th>Directly important</th>
</tr>
</thead>
<tbody>
<tr>
<td>and in significant topics or projects, bearing in mind their cognitive, affective, and social characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establishing a learning orientation by starting lessons and activities with advance organizers or previews</td>
<td>2.65</td>
<td></td>
</tr>
<tr>
<td>Presenting the subject matter in networks of knowledge structured around powerful ideas</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Making it obvious that learning of subject matter is essential</td>
<td>2.17</td>
<td></td>
</tr>
<tr>
<td>• Establishing a learning environment that invites students to thinks and act autonomously, even at the risk of error</td>
<td>2.88</td>
<td></td>
</tr>
<tr>
<td>• Using teaching approaches that allow for more than one response or that invite thinking about different possibilities</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Making available to students the resources necessary in the learning situations proposed</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>Giving students opportunity to learn, dedicating most of the available time to curriculum activities</td>
<td>2.59</td>
<td></td>
</tr>
<tr>
<td>Questioning to engage students in sustained discourse structured around powerful ideas</td>
<td>2.68</td>
<td></td>
</tr>
<tr>
<td>Guiding students in selecting, interpreting, and understanding the information available</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Shaping students’ learning by means of frequent and pertinent strategies, steps, questions, and feedback, so as to help the integration and transfer of learning</td>
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<td></td>
</tr>
<tr>
<td>• Providing correct, substantive and timely feedback to students</td>
<td>2.74</td>
<td></td>
</tr>
<tr>
<td>• Adequate monitoring of student understanding</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>Giving the students sufficient opportunities to practice and apply what they are learning and to receive improvement-oriented feedback</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Providing all students with opportunities to learn</td>
<td>2.96</td>
<td></td>
</tr>
<tr>
<td>3. Evaluating learning progress and the degree of acquisition of students’ competencies in the subject matter to be learned:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In a learning situation, managing information in order to overcome student’s problems and difficulties, and to modify and adapt teaching to sustain students’ progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Flexibly altering learning activities according to feedback received</td>
<td>2.87</td>
<td></td>
</tr>
<tr>
<td>• Explaining how teaching will be changed according to feedback received</td>
<td>2.72</td>
<td></td>
</tr>
<tr>
<td>Monitoring students’ progress using both formal tests and performance evaluations and informal assessments of students’ contributions to lessons and work on assignments</td>
<td></td>
<td>2.78</td>
</tr>
<tr>
<td>Constructing or employing instruments to enable evaluation of progress and acquisition of competencies and skills</td>
<td></td>
<td>2.84</td>
</tr>
<tr>
<td>• Planning learning sequences and assessment procedures taking into account both subject matter and learning processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communicating to students and parents, clearly and explicitly, the results achieved and the feedback concerning progress in learning and acquisition of competence</td>
<td></td>
<td>2.66</td>
</tr>
<tr>
<td>Co-operating with the teaching staff to determine the desirable rhythm and stages of progress in the training cycle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teaching Domain Competencies</td>
<td>Indirectly important</td>
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<tr>
<td>• Exchanging ideas with colleagues regarding the appropriateness of the available pedagogical and didactic options</td>
<td></td>
<td>2.93</td>
</tr>
<tr>
<td>4. <strong>Planning, organizing, and supervising the way the group-class works, in order to help students learning and socialization processes:</strong></td>
<td></td>
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<tr>
<td>Defining and applying an effective working system for normal class activities</td>
<td></td>
<td>2.78</td>
</tr>
<tr>
<td>• Providing students with explicit information on how lesson time will be distributed</td>
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<td>2.18</td>
</tr>
<tr>
<td>Communicating clearly to students the requirements of correct school and social behaviour ensuring that they adopt them</td>
<td></td>
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<tr>
<td>Fostering students’ participation – as a group and as individuals – in establishing the norms to work and live together in the classroom</td>
<td></td>
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<tr>
<td>• Fostering student participation by having everyone participate in the generation of behavioural norms, or at least insuring they are known by all</td>
<td></td>
<td>2.74</td>
</tr>
<tr>
<td>Adopting strategies to prevent incorrect behaviour cropping up, and intervening effectively when it does</td>
<td></td>
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<tr>
<td>5. <strong>Adopting teaching to student diversity</strong></td>
<td></td>
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<tr>
<td>Designing learning tasks adapted to students’ possibilities and characteristics</td>
<td></td>
<td>2.89</td>
</tr>
<tr>
<td>Foreseeing learning situations that allow for an integration of competencies in different contexts</td>
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<td>2.76</td>
</tr>
<tr>
<td>Organising different learning rhythms adapted to students’ possibilities and characteristics</td>
<td></td>
<td></td>
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<tr>
<td>• Setting learning objectives that allow for a wide spectrum of cognitive processes</td>
<td></td>
<td>2.73</td>
</tr>
<tr>
<td>Organising heterogeneous groups for students to work together</td>
<td></td>
<td>2.54</td>
</tr>
<tr>
<td>Helping the social integration of students with learning or behavioural difficulties</td>
<td></td>
<td></td>
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<tr>
<td>Seeking pertinent information regarding students’ needs</td>
<td></td>
<td>2.74</td>
</tr>
<tr>
<td>Participating in the preparation and implementation of a plan of adapted performance</td>
<td></td>
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<tr>
<td>6. <strong>Integrating the technologies of information and communication into the preparation and development of teaching-learning activities, classroom management, and professional development.</strong></td>
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<tr>
<td>Adopting a critical and well-founded attitude to the advantages and limitation of ICT as medium for teaching and learning for society</td>
<td></td>
<td>2.7</td>
</tr>
<tr>
<td>Evaluating the pedagogical potential of ICT</td>
<td></td>
<td>2.86</td>
</tr>
<tr>
<td>Using a variety of multimedia tools for communication, using the ICT effectively to investigate, interpret, and communicate information, and to resolve problems</td>
<td></td>
<td>2.81</td>
</tr>
<tr>
<td>Using the ICT effectively to set up networks of exchange related with the subject taught and its pedagogical practice</td>
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<td>2.81</td>
</tr>
<tr>
<td>Helping students use the ICT in their learning activities, to evaluate such use, and to analyse critically the data gathered by these networks</td>
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<td>2.86</td>
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<tr>
<td>7. <strong>Communicating clearly and correctly, both oral and written, in the different contexts related with the teaching profession:</strong></td>
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<tr>
<td>Using the appropriate oral language when addressing students, parents, or colleagues</td>
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<tr>
<td>• Presenting clearly the purposes of each lesson</td>
<td></td>
<td>2.85</td>
</tr>
<tr>
<td>Teaching Domain Competencies</td>
<td>Indirectly important</td>
<td>Directly important</td>
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<tr>
<td>--------------------------------------------------------------------------------------------</td>
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<tr>
<td>Respecting the rules of written language in documents aimed at students, parents and colleagues</td>
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<td>2.54</td>
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<tr>
<td>Knowing how to take a position, and maintain one’s ideas and discuss coherently, effectively, constructively and respectfully.</td>
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<td>2.80</td>
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<tr>
<td>Using questions to stimulate students to process and reflect on content, recognise relationships among and implications of its key ideas, think critically about it, and use it in problem solving, decision making, and other higher-order applications</td>
<td></td>
<td>2.96</td>
</tr>
<tr>
<td>Communicating ideas rigorously, using precise vocabulary and correct syntax; correcting errors made by students in their oral and written work; constantly, seeking to improve oral and written experience</td>
<td></td>
<td>2.54</td>
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<table>
<thead>
<tr>
<th>School Domain Competencies</th>
<th>Indirectly important</th>
<th>Directly important</th>
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</thead>
<tbody>
<tr>
<td>1. Co-operating with the school staff, with parents, and with the various social agents to achieve the school’s educational targets:</td>
<td></td>
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<tr>
<td>Co-operating with the other members of the school staff in defining targets, and in the preparation and putting into effect of projects on educational services</td>
<td></td>
<td>2.83</td>
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<tr>
<td>Promoting participation and the flow of relevant information to parents</td>
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<td>2.62</td>
</tr>
<tr>
<td>Encouraging student participation in the management of the school and its activities and projects</td>
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<tr>
<td>2. Working in co-operation with the other members of the teaching staff in tasks enabling the development and evaluation of the explicit competencies of the training plan, and doing so in function of the students:</td>
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<tr>
<td>Knowing which are the situations requiring collaboration with other members of the pedagogical team for the design and adaptation of teaching-learning situations and the evaluation of learning</td>
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<td>2.93</td>
</tr>
<tr>
<td>Working to achieve the required consensus among the members of the teaching staff</td>
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<table>
<thead>
<tr>
<th>Professional Domain Competencies</th>
<th>Indirectly important</th>
<th>Directly important</th>
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<tbody>
<tr>
<td>1. Acting critically as a professional, interpreting the objects of knowledge or culture in performing one’s functions:</td>
<td></td>
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</tr>
<tr>
<td>Identifying the core issues and the axes (concepts, postulates, and methods) of knowledge in the subject in order to facilitate students’ meaningful learning</td>
<td></td>
<td>2.93</td>
</tr>
<tr>
<td>Critically distancing oneself from the subject taught</td>
<td></td>
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<tr>
<td>• Reflecting about practice and acting upon the results of such reflection</td>
<td></td>
<td>2.88</td>
</tr>
<tr>
<td>Explaining adequately the degree to which students achieved desired learning targets</td>
<td></td>
<td>2.75</td>
</tr>
<tr>
<td>Establishing relationships between the cultural background embed-</td>
<td></td>
<td>2.6</td>
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<td>------------------------------------------------------------------------------------</td>
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<tr>
<td>Making the class a place open to multiple viewpoints</td>
<td>2.82</td>
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<tr>
<td>Taking a critical look at one’s own origins and cultural practices, and at one’s</td>
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<tr>
<td>social role</td>
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<tr>
<td>Establishing relationships among different fields of the subject matter knowledge.</td>
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<td></td>
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<tr>
<td>2. Becoming involved in an individual and collective project of professional</td>
<td></td>
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<tr>
<td>development:</td>
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<tr>
<td>Evaluating one’s own competencies and adopting the means to develop them using</td>
<td>2.87</td>
<td></td>
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<tr>
<td>available resources</td>
<td></td>
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<tr>
<td>Exchanging ideas with colleagues about the suitability of pedagogical and didactic</td>
<td>2.93</td>
<td></td>
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<tr>
<td>options</td>
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<td></td>
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<tr>
<td>Reflecting on one’s practice, and putting the results into practice</td>
<td>2.88</td>
<td></td>
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<tr>
<td>Encouraging colleagues to participate in research aimed at the acquisition of</td>
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<tr>
<td>competencies set out in the training plan and educational targets of the school</td>
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<tr>
<td>3. Acting ethically and responsibly in the performance of functions:</td>
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<tr>
<td>Being aware of the values at stake in one’s performance</td>
<td></td>
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<tr>
<td>• Attributing learning mainly to factors related to the teaching-learning process</td>
<td>2.56</td>
<td></td>
</tr>
<tr>
<td>• Interpreting student learning difficulties as a challenge to be met</td>
<td>2.91</td>
<td></td>
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<tr>
<td>Dealing pedagogically with student negative comments</td>
<td></td>
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<tr>
<td>Encouraging democratic conduct in class. Giving students due attention and support</td>
<td>2.85</td>
<td></td>
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<tr>
<td>• Allowing for differences in postures and points of view among students</td>
<td>2.82</td>
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<tr>
<td>Keeping high expectations: believing that the students are capable of learning and</td>
<td></td>
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<tr>
<td>that they are capable of and responsible for teaching them successfully</td>
<td>2.74</td>
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<tr>
<td>Explaining, in function of the public interest, the decisions taken concerning</td>
<td></td>
<td></td>
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<tr>
<td>students’ learning and education</td>
<td>2.58</td>
<td></td>
</tr>
<tr>
<td>Respecting the confidential aspects of the profession</td>
<td></td>
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<tr>
<td>Avoiding all forms of discrimination by students, parents, and colleagues</td>
<td></td>
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<tr>
<td>Making judicious use of the legal and authorized framework governing the profession</td>
<td></td>
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</tr>
<tr>
<td>• Knowing about national educational policies related to the curriculum, contractual obligations of teachers and quality management</td>
<td>2.67</td>
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</tbody>
</table>
8. Learning to Teach in the Knowledge Society:  
The case of Mexico

Lucrecia Santibañez

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42 I am grateful to Sue Bodilly, Sheila Kirby, Charles Goldman, and Andres Camilo Rodriguez for helpful comments and suggestions. I would also like to thank the people in Mexico who graciously agreed to be interviewed for this paper, as well as Margarita Zorrilla F. who invited me to participate in the COMIE Congress. All of these individuals’ input was central to shaping the ideas expressed in this paper. These individuals and institutions are not responsible for any errors or interpretations. The research was prepared for The World Bank.
I. INTRODUCTION

While primary education has achieved nearly universal coverage in Mexico, universal secondary schooling remains an elusive goal. Secondary school (grades 7th-9th) became compulsory in Mexico after 1993 and is now part of the country’s “basic education.” However, considerable numbers of students either fail to enter this level or dropout of it before completion. On average, out of every 100 students who begin their basic education (grades 1-9) in Mexico, only about 60 will complete it (SEByN, 2002; SEP 2002). Moreover, a recent report by the Instituto Nacional para la Evaluación Educativa (INEE) found that only about 50% of the 9th graders in public secondary schools achieved satisfactory levels of competency in mathematics. The figure is higher for reading, where 75% of the 9th graders achieve satisfactory levels. The proportions of 9th graders achieving satisfactory levels of competency in mathematics and reading are lower for students in technical secondary schools (48% and 74%) and distance-education secondary schools (40% and 62%) (INEE, 2003).

The low competency achievement levels of secondary school students, particularly in mathematics, pose a problem for the Mexican education system. In his book on teaching in the knowledge society, Hargreaves (2003) defines the knowledge society as a changing society in which information expands and circulates rapidly, organizations frequently restructure themselves, and creativity, innovation and flexibility play a key role. In this society knowledge is capital, and the best corporations in the knowledge economy operate as learning organizations that are able to continuously generate and implement new ideas. All of this requires an education system that is able to instil in students the ability to operate successfully in such a complex, and rapidly changing environment.

There is also growing empirical evidence in education that teachers, and particularly teacher ability and subject preparation, are a key component of student outcomes, even after controlling for student and school characteristics (McCaffrey et al., 2003; Rivkin, Hanushek, and Kain, 2000; Sanders and Rivers, 1996; Wright, Horn, and Sanders, 1997; Ehrenberg and Brewer, 1995). Teachers matter for students and they are recognized as key actors in the formation of future professionals. In the context of building professionals for the knowledge society, quality teachers are those with the skills to, among others, promote deep cognitive learning, learn to teach in different ways, work in teams, build a capacity for change, and commit to continuous professional development (Hargreaves, 2003).

The literature on the importance of continuous professional development seems to suggest that if we provide enough support to teachers via professional development, teaching quality is bound to improve (Darling-Hammond and McLaughlin, 1995; Christina et al., 2003). Mexico’s education policy appears to have supported this belief. Beginning in 1993, Mexico has placed significant emphasis on teacher training, as the means to improve student achievement, and the country has made significant advances towards constructing a system of continuous professional development (CPD) and strengthening its teacher education institutions. Although not empirically tested, it is generally perceived that these recent teacher training efforts in Mexico, both pre-service and in-service, have not been successful in elevating teacher quality or in enabling secondary school teachers to develop certain key competencies in students in reading and mathematics (Tatto, 1999; Tattoo and Velez, 1999).

As we will see later on, Mexican policymakers acknowledge the importance of teachers and have spent a great deal of time delineating what the “ideal” secondary school teacher should look like and what competencies she should have (SEP, 2002). While there seems to be a good degree of consensus about the profile, the evidence to show us how well current teachers fit the profile is substantially vaguer. In addition, few papers have reviewed Mexico’s training efforts and the impact of training on teacher quality and student outcomes (see for example, Tattoo and Velez, 1999).
The purpose of this paper is to review Mexico’s experience with secondary school teacher training through a review of the literature and the opinions of various stakeholders in the Mexican education system. The main goal is to identify the degree to which there is a mismatch (or not) between the competencies demanded from students and the teaching skills that secondary school teachers are equipped with after their passage through pre-service and in-service teacher training. In doing so, this paper attempts to answer the following research questions: (1) What kinds of pre-service and in-service training are available to secondary school teachers in Mexico? (2) What are the competencies that the education system is trying to develop in teachers? And, (3) is there a gap between the desired competencies and current teacher training programs?

Background on secondary schooling in Mexico

Before discussing the methods, scope, and limitations of this work, I will briefly review the context under which secondary schooling takes place in Mexico. There are currently 5.7 million secondary school students in the country, of whom 91% are in public secondary schools. The secondary school curriculum is organized around academic disciplines and students take 10 subjects over the course of a year. Each period is 50 minutes long and the school day is about 7 hours, including some time for activities like art and physical education.

There are three kinds of secondary schools in Mexico: general or “academic,” technical, and distance-education or “tele-secundaria” (a distance-education model). The majority of the students (52%) are enrolled in the general schools, while technical schools and telesecundarias enroll 28% and 20% of the students respectively. Because it is 20% less expensive for the government than the general model, and 40% less expensive than the technical model, the tele-secundaria has experienced a dramatic expansion in the past decade (SEByN, 2002). Out of every 100 students who entered secondary school between 1993 and 2001, 43 entered a tele-secundaria.

Secondary students are taught by more than 300,000 secondary school teachers in 30,000 schools across the country. In 1998, the average urban public secondary school teacher in Mexico was male, had on average 15.2 years of education, worked 31 hours per week, had 16 years of experience, and earned about $7,400 pesos per month (about US$740) (Santibañez, 2002). Currently beginning secondary school teachers teaching 19 hours a week earn close to $5,500 pesos per month (about US$550) (Tabulador de Sueldos del Personal Docente de Educación Básica, 2004). By law, public school teachers in Mexico have to join the national teacher’s union (Sindicato Nacional de Trabajadores de la Educación, SNTE) and contribute about 1% of their salary to it.

43 In the first year of secondary school these subjects are Spanish and mathematics (5 hours per week); universal history, general geography, civics, biology, introduction to physics and chemistry, and English (3 hours per week). In the second year they take mathematics and Spanish and Mathematics (5 hours per week), universal history, geography of Mexico, physics, chemistry and English (3 hours per week), and biology and civics (2 hours per week). In the third year students take mathematics and Spanish and Mathematics (5 hours per week), history of Mexico, counseling and orientation, physics, chemistry, English, and an optional course decided by each state (3 hours per week). Students in all years take art appreciation and physical education (2 hours per week) and technological education (3 hours per week).

44 The general secondary schools are also called “academic” because they focus on the traditional secondary school curriculum that covers all academic subjects during the course of the school year. The technical secondary schools also provide students with the opportunity to learn a craft (i.e. mechanics, electronics, etc.) The tele-secundarias follow the distance-education model and are Mexico’s main solution to expanding coverage in rural areas and among indigenous populations. Students gather in one classroom to watch videos of each class, they receive materials (in addition to the textbook) to guide their learning process, and are assisted by a teacher aide who is there physically to help students and answer questions.

45 This includes all bonuses and premiums (e.g. Christmas bonus and vacation premiums) and is slightly lower than the salary earned by beginning primary teachers, which is close to $5,700 pesos per month (about US$570). Although primary teachers are expected to work 20 hours per week in the classroom and get 5 paid weekly hours for class preparation. All wage information for SEP employees can be found at: http://www.sep.gob.mx/wb2/sep/sep_tabuladores.
Average pupil/teacher ratios are difficult to calculate because the official statistics do not refer to individual teachers but to teacher positions, and these are not all full time. In general, secondary school teachers face difficult working conditions. A large proportion (43%) are hired on hourly contracts and have to spend every one of those hours teaching in front of a classroom (SEByN, 2002). A secondary school teacher teaching full time in an urban area (where class sizes tend to be higher) can end up with up to 600 students per week (SEByN, 2002). Moreover, at least one third of secondary school teachers have to work at more than one school to complete a full load, sometimes teaching at three or four schools in any given week (SEByN, 2002). All of this leaves little paid time for class preparation, student monitoring and interacting with students, other teachers and parents. As we will discuss later on, these working conditions pose challenges to teacher training efforts in Mexico, particularly for training approaches that are school-based and emphasize collaborative methods.

A large proportion of secondary school teachers (40% on average, and as many as 60% in areas like Mexico City) never attended a teacher education institution. These are mainly university graduates or pasantes (all but thesis) who have gone into teaching. Out-of-field teaching is thought to be widespread in Mexico, although there is no empirical evidence to support this. This is a source of concern for educational authorities in Mexico, because basic common sense as well as some empirical evidence has suggested that out-of-field teaching has negative effects on student outcomes (Hawk, Coble, and Swanson, 1985; Goldhaber and Brewer, 2000; Monk, 1994).

Methods

The paper’s findings stem primarily from three sources: a review of the literature on teacher education and professional development in Mexico, interviews conducted in November of 2003 and January of 2004, and additional opinions and ideas gathered from attending the national education research congress organized by the Consejo Mexicano de Investigación Educativa (COMIE) and held during November of 2003 in Guadalajara, Mexico.

The literature review included academic papers, book chapters, and working papers from research and international institutions (e.g. RAND and The World Bank) published in Mexico and in the U.S. In addition, I reviewed internal documents from the Secretaría de Educación Pública (SEP) that refer to the planned 2005 reform of secondary schools, as well as publicly available SEP documents and statistics. One of these documents includes the findings from a national survey of training programs conducted in all 32 Mexican states. This exercise took place during 2002 and surveyed teacher college directors, teachers, and state authorities for their opinions about pre-service and in-service programs and what kinds of training teachers needed. All of their findings are documented in “memoirs” that are available by state in SEP’s website.

The interviews included federal and state authorities, researchers, and heads of teacher colleges. Fourteen in-person interviews were conducted in Mexico City and two states (Jalisco and Estado de México), and three telephone interviews with state authorities and researchers in two additional states. At the COMIE

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46 Even though the official statistics often do not make an explicit note of this, when the Secretaría de Educación Pública (SEP) reports “number of teachers” it is actually reporting “plazas” not individual teachers. A plaza is defined as a teaching position and it can be temporary or permanent. A permanent plaza (or “Plaza de base”) is a teaching position with tenure. Once a teacher holds a plaza de base, she has a legal right to remain a teacher in the Mexican school system for life. In fact, teachers own their plazas, and can inherit them or even sell them (in some extreme cases). Many secondary teachers are on hourly contracts, and may hold 5, 10, 20 or up to 42-hour plazas, which entitle them to teach at particular secondary school for the number of hours specified in their contract. A teacher may hold two or more plazas in the same school or in a different school altogether. If a teacher holds a morning plaza in one school and an evening plaza in the same school, she is officially counted as two teachers. Informal reports from the Mexican Ministry of Education suggest the proportion of teachers in the Mexican public school system with double-contracts in primary schools is somewhere between 60-75%. This figure might even be higher for secondary school teachers who work by hours and thus, usually have a few plazas for a different number of hours each.
congress I attended a roundtable on teacher training and recorded the comments made by roundtable participants and the audience (composed of mostly teachers and school administrators), and refer to some of them throughout the paper.

**Scope and research limitations**

The work focuses on secondary school teachers in Mexico. It should be noted that the small number of stakeholder interviews (N=17) limits the degree to which these findings can be generalized to all stakeholders in all regions of the country. The interviews represent a mix of states (e.g. very urban states vs. very rural states), level of authority (e.g. state and federal), and affiliation (e.g. researchers from public and private institutions). Despite the wide mix of interviewees, the interviewee responses were surprisingly homogeneous and fairly closely aligned with literature findings on this topic. This suggests that the limited sample size notwithstanding, these findings represent widely held perceptions about teacher training and teacher competencies in Mexico.

**Organization of the paper**

This paper will provide, first, an overview of Mexico’s recent experience in providing teacher training, both pre-service (teacher education) and in-service (continuous professional development). Second, it will delineate a map of student competencies that Mexican policymakers and other stakeholders assert all secondary school students should have, and describe how these have been (or not) incorporated into the teacher education curriculum as well as in the content of continuous professional development efforts. Third, it will describe what some stakeholders believe to be good training practices as well as the gaps between what the literature and stakeholders believe to be important teaching competencies and the competencies teacher training institutions are teaching. Fourth, it will explore the relevant policy issues involved in responding to questions of how teacher training should be reformed in Mexico to ensure that teachers promote a desired set of competencies in their students, and how teachers’ professional knowledge can be built and transferred through national teacher education systems.

Because the context in which professional development and teacher education activities take place is crucial in understanding their potential scope and impact, the paper includes an Appendix with background information on secondary education in Mexico, a review of the general characteristics of the secondary school level, and a description of secondary teachers’ characteristics and working conditions.

**II. REVIEW OF MEXICO’S EXPERIENCE WITH TEACHER TRAINING: WHAT IS AVAILABLE**

This section reviews training opportunities available to Mexican secondary school teachers, including a review of the teacher education options open to prospective secondary school teachers in Mexico and a review the options for continuous professional development offered at the federal, state and private level. As this section will discuss, most training options in Mexico seem to follow a uniform approach and are often centrally designed and implemented.

**II.1 Review of available pre-service teacher training opportunities in Mexico**

In order to obtain a secondary school teaching credential, prospective teachers may attend secondary teacher colleges or *normales superiores*, which can be either public or private.47 The most common career path for public school teachers is to obtain teacher certification through attending one of the public

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47 Private *normales* offer comparable degrees and follow a similar curriculum. Enrollment at the public teacher colleges is capped. The result of this practice is that several prospective teachers are not accepted to these colleges. This unmet demand provides the private teacher colleges with a market niche, even though their graduates will not have guaranteed teaching posts.
teacher colleges or Normales. Upon graduation, most students at public teacher colleges will obtain a guaranteed teaching position in a public secondary school. There is no formal competitive appointment process in place for these positions, although this is expected to change in the near future. These positions usually lead to full tenured contracts (plaza base) after only a few months. Graduates of private teacher colleges do not have any guarantees upon graduation and have to apply for a public school teaching position directly to state-level SEP offices. They are usually hired on temporary contracts or interinos, which have to be renewed every six months. In 1991, an informal evaluation of the 335 existing public teaching colleges in Mexico concluded that academic quality levels at the public Normales were very poor, mostly due to faculty that focused solely on teaching and not on research, and low levels of support and resources for tutoring, academic exchange, curriculum development, and evaluation (Tatto and Velez, 1999).

Secondary teaching colleges offer one university-equivalent degree: Licenciado en Educación Superior Plan 1999 (Bachelor’s in secondary school teaching, 1999 plan). The 1999 plan was implemented as a response to the 1993 reform of the secondary school curriculum which changed the secondary school organization from broad subject areas like “natural sciences” to specific subject disciplines like chemistry and biology (Acuerdo No. 177, Diario Oficial de la Federación).

To train these new kinds of teachers, Mexico reformed its secondary teacher education curriculum in 1999. In addition to providing more specific content knowledge and teaching practice in each academic field, the new teacher education curriculum changed the definition of teachers from “teacher-researchers” to “educators of adolescents” and focuses on the school as the locus of learning (SEByN, 2002). In addition, it acknowledges that teacher education is a pre-service component only, and that some of these skills, e.g. mastery of subject matter, will only be achieved through both pre-service and continuous professional development.

The 1999 plan has three main thematic lines: subject-matter training, pedagogical training, and observation/practice. Some courses cut across thematic lines, e.g. courses about mathematical content are also designed to teach pedagogic techniques. The plan stipulates that students must complete their degree in 4 years, and take 5-6 courses each semester, as well as spend time on practice and observation. On average, students are expected to attend courses for 32 hours per week during their first three years of college, and 16 hours per week during the last year.

Teaching practice and observation of more senior teachers are seen as key components of teacher education and prospective teachers are introduced to these as early as the second semester. The 1999 teacher education plan includes four observation and two practice courses. The first two courses in the observation series begin during the student’s second year in the program. During these courses, students engage in two week-long observation periods at a secondary school for periods of up to 5 hours (depending on the grade and subject being observed). Students design hypothetical lesson plans, make recommendations regarding teaching strategies to teach more effectively, deal with unexpected situations and manage the classroom. The last two courses in the observation series take place in the third year. Here, students spend three weeks in the classroom actually teaching students, under the observation of the mentor teacher. The idea is that students can put in practice what they learned from their previous observation courses.

The 1999 plan also includes two practice courses during the fourth and final year of the program. First, student-teachers spend two weeks at the teacher college planning their lessons and strategies for the upcoming semester. Then, student-teachers spend 10 hours per week teaching a course in a secondary school under the supervision of a mentor teacher. They then return to their normal to reflect on their ex-

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The teacher education curriculum can be found at [http://normalista.ilce.edu.mx/normalista/](http://normalista.ilce.edu.mx/normalista/)

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periences and plan ahead for the next semester. In all observation and practice courses, students are assessed based on self-evaluations of their performance. It is not clear whether other measures (e.g. students’ grades or evaluations from mentor teachers or students) play a role.

With its new emphasis on content, pedagogical content knowledge, and practice, the 1999 reform was welcomed among policymakers, teachers and researchers. However, the fact that the teacher education reform was implemented years after the reform and reorganization of the secondary school curriculum meant that between 1993 and 1999, there were no formally trained subject teachers to teach the new secondary school curriculum. In other words, teachers in 1993 were expected to learn new materials and teach more specialized subjects without any formal support.

Teachers may also obtain a teaching degree through the Universidad Pedagógica Nacional (UPN) or National Pedagogic University, although this institution does not offer specific degrees for secondary school teachers. Finally, individuals holding B.A. degrees from other institutions may also apply for teaching positions in both primary and secondary schools.

II.2 Review of available in-service teacher training opportunities in Mexico

Even though the normales capture most of the spotlight, around 40% of secondary school teachers did not attend one (SEByN, 2002). The figure can be as high as 60% in very urban areas like Mexico City. This means that in-service teacher training or continuous professional development (CPD) is particularly important. Moreover, it is believed that graduates from the normales, although familiar with pedagogic techniques and the theory behind teaching and learning, are deficient in subject-matter knowledge (Tatto and Velez, 1999). One of our interviewees mentioned that this resulted in the expectation that CPD would serve a dual function: training some teachers about pedagogy and how to adapt their teaching to the particular needs (and issues) of adolescents, and training other teachers on their subject’s content. As we will later see, it is unclear that CPD is meeting either of these two objectives.

CPD in Mexico takes the form of either courses or workshops. All national courses and workshops fall under the umbrella of PRONAP (Programa Nacional de Actualización del Profesorado), created in 1997 and managed and overseen by the federal SEP authorities. Both training alternatives are short-term and follow a “cascade” approach, i.e. central authorities train selected state individuals to train local trainers, who then train the teachers. Courses can be provided by the national SEP authorities or by each state’s educational authority. SEP’s reliance on short-term courses has frequently come under fire for not paying enough attention to what teachers actually need to improve their teaching practice (SEByN 2002). Responding to these criticisms, SEP redesigned the teacher workshops to follow a constructivist approach emphasizing school-based professional development, collaborative work among teachers in the same school, peer learning, critical reflection on the teaching practices, and self-evaluation.

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49 The UPN was founded in 1978 as an alternative for individuals pursuing undergraduate and graduate degrees in teaching. Currently UPN has 74 units distributed across the country with one central unit in Mexico City. The UPN grew out of a project that SNTE had originally developed, but the Mexican government made the project its own and substantially changed its focus. The SNTE project focused on pedagogy with very close links to the existing normales. The government project wanted to keep the UPN separate from the teaching colleges, and emphasized a new kind of pedagogy with more innovative techniques (Pescador and Torres 1985 cited in Tatto and Velez 1999). Consequently, SNTE withdrew its support for graduates of the UPN and did not guarantee these teachers tenured positions upon graduation. Some researchers argue that UPN has never held the level of professional appeal to prospective teachers as the traditional teaching colleges have and its initial goal of competing with teaching colleges and raising the overall quality of the system was undermined by struggles between the union and the Mexican government (Tatto and Velez 1999). However, Carrera Magisterial may have somewhat reversed the situation as it offers incentives for teachers to obtain graduate degrees at UPN or the option of attending UPN training courses.

50 These teachers are graduates in various fields from traditional universities that apply for teaching positions.
The people we interviewed for this study thought that national courses were better-designed and of higher quality. There are currently three national training courses developed centrally by SEP to train secondary teachers over a period of up to 120 hours. The three courses are on how to teach physics, environmental education, and basic characteristics of secondary schools. All courses are self-study, i.e. teachers sign up online to receive reading materials and study guides and complete the courses on their own, or in groups. To receive credit for the course, teachers must take a written evaluation (which can be taken up to three times). In addition to the national courses, there are also brief “general” courses provided by SEP on various topics.

State courses began in 1992 and require the physical presence of the teacher at the training center (which can be the school) for 30-40 hours per year. In 2002 there were 485 state-level professional development courses, and although they are designed and administered by state education authorities, they have to be authorized by the central SEP training department. Our interviewees thought that the quality of state-level courses was very heterogeneous. Some states base their design on actual teacher needs, while others simply follow trends such as a recent state course on “neural programming.”

Both national and state CPD courses are uniform for all secondary school teachers, meaning that independent of seniority, educational background or type of school (rural/urban, general/distance), all teachers in the same subject take the same course. The one-size-fits-all approach has been one of the main criticisms of the national CPD system.

In addition to the national and state in-service training courses, there are two kinds of workshops, yearly “general” teacher workshops and “brief” teacher workshops, which take place in the Teacher Centers (Centros de Maestros). The yearly workshops (Talleres Generales de Actualización) are required for all teachers and they are compensated for their time. The workshops are designed by PRONAP, take 12 hours to complete, and take place during the three days prior to the beginning of the school year. The topics vary from year to year. For example, this year’s workshop for secondary teachers is called “The Adolescents And The Secondary School” and it is designed so teachers can “analyze and reflect on the significance and formative function of secondary schooling for teachers and adolescents” (Guía Nacionales para los TGA 2004-2005, from http://pronap.ilce.edu.mx). Often, the national workshops are led by other teachers, school administrators or technical advisors (asesores técnico pedagógicos). Brief workshops take place from time to time at the Teacher Centers and are also designed to promote collaborative work, reflection, and learning among peers.

In addition to the “official” government-provided alternatives, there are courses offered by other organizations, mainly by private textbook editorial houses. These are designed to familiarize teachers with the textbook contents and help them use them in a more effective manner.

Carrera Magisterial

Before we continue, it is important to say a few words about Carrera Magisterial (CM) the national teacher incentive which rewards teachers for participating in CPD activities. CM, a large national reform implemented in 1993 and geared towards teachers, had an enormous impact on professional development

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51 Secondary teachers can receive national courses in basic characteristics of secondary schools, physics teaching, and environmental education. There are additional national courses for school administrators. To this date, SEP has not yet developed any national courses for history, civics, art education or physical education teachers. For more information visit PRONAP’s website at http://pronap.ilce.edu.mx

52 In 2002 there were 537 functioning regional teaching centers across the country with libraries and staff to support teachers in their professional development effort. In addition, SEP is contemplating the creation of 80 additional rural and indigenous teaching centers (SEP, 2002).
efforts in the country. Each year teachers voluntarily sign up for the program and consent to a year-long process that evaluates them in five different “factors”: education, seniority, professional development, teacher knowledge, and teacher performance. Teachers who receive enough points to place them above a certain cutoff are promoted into one of the program’s five levels, and receive salary bonuses of around 30% (for the program’s first level). The program places considerable weight on professional development, awarding teachers 17 points out of a possible 100 points for taking national and state training courses (almost as many points as it awards the “student achievement” factor).

After CM began tying professional development to salary increases, teachers rushed to sign up for professional development courses. The general perception expressed by the people interviewed for this study is that teachers will sign up for any course that offers CM recognition (e.g. points) regardless of the course’s content or relevance.

III. DESIRED STUDENT AND TEACHER COMPETENCIES

The purpose of this study was to identify gaps between the skills and knowledge required of secondary school students in the knowledge society and teacher training. Prior to discussing the gaps among opinions held by Mexican policy makers, education authorities and researchers on teacher competencies, let me begin by describing the map of desired student and describing how these have been (or not) incorporated into the teacher education curriculum and the content of CPD efforts.

*Desired Student Competencies*

In his book on teaching in the knowledge society, Hargreaves (2003) argues that to succeed in the knowledge society, individuals must be equipped with higher-order thinking skills, flexibility in their reasoning, the ability to create knowledge, apply it to unfamiliar problems, and communicate it effectively, and the ability to gain access to information and learn independently (Hargreaves, 2003).

The Mexican authorities have delineated their own profile of what a secondary school graduate should look like in terms of her knowledge and skills. This profile, developed in the base document for the new reform of secondary schools (due to take effect in 2005) by a technical committee composed of state authorities, academics and other educational stakeholders, is largely aligned to the student competencies described by Hargreaves (2003) and include: competencies for permanent learning (e.g. critical thinking skills and higher-order writing and reading competencies); competencies for the resourceful and analytic use of information; competencies for the management of situations (e.g. ability to make decisions, manage time and uncertainty, and design a life project); and competencies for social life (e.g. value and respect for human rights, diversity and the environment) (SEP, 2002).

All of these emphasize higher-order thinking skills, flexibility, and the capacity for independent, lifelong learning. They are to a large extent the kinds of competencies that Hargreaves (2003) argues need to be

53 The goal of CM, as stated in the original 1993 program guidelines was to “improve the quality of education in Mexico through recognizing and supporting the teaching profession and improving their working and living conditions” (Subsecretaría de Planeación y Coordinación, 2001). Not every teacher is eligible to participate in CM, in fact secondary teachers have to have a minimum contract of 20 hours per week to participate. This requirement excludes a large number of secondary school teachers who are on part-time contracts. This group probably includes a large number of semi-professionals who hold other jobs, or teachers that graduated from universities (as opposed to those graduating from teacher colleges), and who usually do not get priority or preference for permanent contracts.

54 Interestingly enough, for the first four years of the program there was no national infrastructure to provide professional development courses, even though the program guidelines stated that teachers would be evaluated on the number of national and state-level professional development courses they took during the course of the school year. The national professional development program (PRONAP) began operating only after 1998.
developed for students to be able to succeed in the knowledge society. The question is whether teachers are being trained effectively to develop students with these characteristics.

It is unclear whether the new secondary curricular reform slated to go into effect in 2005, will result in yet another reform of the teacher education curriculum. However, as we will see in the next section, the teaching competencies specified in the 1999 secondary teacher education plan are aligned with the student competencies previously described.

**Desired Teacher Competencies**

Mexican education authorities and academics have spent a great deal of time thinking about how to reform school and teacher education curricula to incorporate what they believe to be “key” competencies. The 1999 teacher education curriculum (developed by SEP in conjunction with researchers and other educational stakeholders) explicitly outlines them:

**Table 1. Map of Desired Teacher Competencies**

<table>
<thead>
<tr>
<th>Competency Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Individual</strong></td>
<td>High levels of reading comprehension and problem-solving skills; highly-developed reading habits, a critical approach to reading; ability to express thoughts in a clear and coherent way both orally and written; Ability to locate, select and use diverse kinds of information and sources</td>
</tr>
<tr>
<td></td>
<td>Research skills that can be applied to improve teaching practice</td>
</tr>
<tr>
<td></td>
<td>Complete dominion of the subject matter knowledge; ability to tailor the teaching of this subject matter to the specific cognitive processes and level of the students</td>
</tr>
<tr>
<td><strong>Teaching</strong></td>
<td>Ability to plan, design and organize didactical activities that are tailored to students’ social and cultural characteristics as well as the current context; is able to conduct evaluations that provide useful information to re-shape and improve these teaching strategies</td>
</tr>
<tr>
<td></td>
<td>Recognition of individual student differences that affect their learning processes and ability to apply pedagogic strategies to encourage them and pay special attention to at-risk students</td>
</tr>
<tr>
<td></td>
<td>Values teamwork and collaborative peer learning</td>
</tr>
<tr>
<td></td>
<td>Values the educational function of families; establishes relationships with mothers and fathers in a cooperative, receptive and respectful manner; promotes parental involvement; promotes community involvement in education</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td>Values democracy, solidarity, tolerance, honesty and truth; promotes the public nature of schooling, including that it should be national, free, and non-religious</td>
</tr>
<tr>
<td></td>
<td>Sees teaching as a life career and recognizes the social value of teaching</td>
</tr>
<tr>
<td></td>
<td>Appreciates the country’s regional, social, cultural and ethnic diversity as a valuable component of our nationality. Encourages the rational use of our natural resources and is able to teach students to protect the environment, both individually and collectively</td>
</tr>
</tbody>
</table>
SEP’s profile of the “ideal” secondary school teacher expects teachers to know the subject they teach, use information in a resourceful and analytic manner, have higher-order reading, writing, critical thinking and problem-solving skills, are able to implement effective teaching practices to recognize that different students need different teaching approaches, and value teamwork, democracy, and diversity. These are not very different from what the international literature finds to be the ideal competencies that teacher education programs should promote (Marcelo, 2003). And they are largely aligned with the student competencies described previously.

The issue here is whether the teacher competencies described in Table 1 are attainable given (1) the characteristics of current teachers, (2) the structure of teacher education and CPD efforts and, (3) the context in which teachers are expected to develop and apply these competencies. In the next section we will identify teacher education and CPD programs that appear to be completely aligned with the competencies outlined above, as well as gaps that occur in practice.

IV. GAPS BETWEEN DESIRED TEACHING COMPETENCIES AND CURRENT TEACHER EDUCATION PROGRAMS AND INSTITUTIONS

A review of the literature as well as our interview findings revealed several recent positive experiences with teacher education in Mexico as well as major problems with current pre-service teacher education and CPD arrangements in Mexico. This section begins with a review of some of the policies that were positively received by the stakeholders’ interviewed for this study. Then, it explores the gaps between the teaching competencies described in Section 3 and current training efforts. We have grouped these gaps according to the three teacher competency categories discussed in the previous section (individual, teaching and social competencies).

IV.1 Positive aspects of current teacher training efforts

Our interviewees welcomed the new emphasis on school-based CPD, and the inclusion of practice and observation in the teacher education curriculum. Interview respondents, also welcomed the new emphasis (in certain SEP programs such as gestión escolar, programa escuelas de calidad, and in most compensatory and rural education programs) on collaborative learning strategies (for teachers and students). One teacher from Puebla pointed out that her school’s professional development strategy started out with a group exercise of helping each other identify common problems. She mentioned that this collaborative learning strategy worked out well because it helped them develop a strategy for the school as a whole. However, she also mentioned that it was hard, because many teachers did not want to learn from each other.

Both education authorities and teacher college directors thought that the practice component of the 1999 curriculum helped open the schools to prospective teachers, and open the colleges to more experienced teachers that never attended one, or had long since left and not returned. This was seen as a way to build a base of practicing teachers’ knowledge that could be transferred back to teacher education institutions.

SEP has conducted a qualitative evaluation of the Programa Escuelas de Calidad that includes a wealth of information about teacher practices, collaboration, leadership, etc. The results on the teacher collaboration section of the survey administered to close to 500 schools across the country. Teachers and principals, found that 82% of teachers felt that they were satisfied with the levels of collaboration in their schools. Because the online version of the report has little information on its methodology it is difficult, however, to be certain of what this means and how reliable these results are. In addition, the evaluation has little to say about secondary schools, because the survey was only administered to primary school teachers. For more information see www.escuelasdecalidad.net.
One state educational authority mentioned that CPD that responded to teacher’s practical needs in the classroom was important and teachers responded to these courses regardless of the incentives offered.

“The courses that are really useful for secondary teachers, and they actually seek out even though they don’t get any CM credit for them, are the private courses offered by the textbook publishing houses. Teachers really like these courses because they are well organized, free, provide coffee, cookies, etc., and most of all, deal with things that they actually need and are useful for them in teaching the content of their subject.” (Education authority, GST1)

This interviewee mentioned that it is likely that these short courses are helpful because they help teachers sort through new textbooks and understand some of the concepts and exercises better. This, however, was not echoed by most of the interviewees for this study, and would necessitate further research to be confirmed.

Overall, Mexico has made tremendous advances in expanding coverage of its professional development activities in the past 10 years and trying to follow a more practically oriented, school-based approach that responds to teacher needs. As we previously discussed, Mexico created PRONAP in 1997 to provide national CPD courses to teachers in all 32 Mexican states. In addition, state-level courses began to operate in 1995 to meet the local training needs of teachers. In 2002, 580,000 elementary and secondary teachers and school administrators took one of the 15 national training courses (SEP, 2002). The number is around 170,000 for secondary teachers (about 66% of the secondary teacher workforce). Roughly 90,000 took the evaluation and only about 60% of them passed (after having taken the examination 2.5 times on average). This might suggest that a large proportion of teachers are not able to absorb all of the information provided by the course, and many fail to do so the first time around.

It is difficult to know what percentage of total secondary teachers are taking courses because the total SEP numbers refer to positions as opposed to individual teachers. But the figures suggest that by 2002 the vast majority of secondary school teachers had taken some form of professional development. In addition the official recognition that *Carrera Magisterial* (CM) has given to professional development by tying it to salaries has made CPD a constant priority for teachers of all levels. The question that remains is whether this CPD is useful to teachers (beyond the bonuses they might receive), and has in fact been effective at developing desired teacher competencies and improving student outcomes.

IV.2. Development of personal teacher competencies: Gaps between teacher education and CPD efforts

Overall, the stakeholders that were interviewed for this study did not believe that pre-service institutions or in-service programs guarantee that teachers have the individual competencies described in Section 3.

“Our curriculum reform was very similar to other countries’ and centered on developing skills and abilities to read, write, mathematical reasoning, etc. However, I think in Mexico we don’t really have a curriculum that is centered on competencies. One of the problems is that the curriculum is by subject. Suppose that one of the objectives of the curriculum is to train students to be proficient in reading and writing, and that all teachers should share this responsibility, but teachers in physics or biology think “the Spanish teacher should teach writing and reading, that’s not what I should be doing.” This shared responsibility is not really understood by teachers, because the subject barriers seem to be more important.” (Education authority, GFP2)

There seem to be a variety of problems related to quality of training as well as others that seem to be more closely tied to the structure of the Mexican education system, how it has responded to increasing demands
for coverage, as well as the role of the union. In the next paragraphs we will review these issues one by one as they relate to the individual teacher competencies discussed in Section 3.

**Issues hindering the acquisition of high reading, oral and written competency, critical thinking skills and problem-solving abilities**

The overwhelming sense of the interviews was that in general, Mexican secondary school teachers have not acquired competency in this area. This seems to be a factor related to poor quality of training at the normales and the fact that many university graduates who go into teaching are not perceived to be the more able ones.

A survey of teacher education in all states found that teachers did not read and were thus not able to foster this habit with their students (See for example the case of the state of Campeche). Others expressed that teachers, even in large urban areas such as Mexico City, lacked the ability to structure coherent texts. The following quote exemplifies what appeared to be the general perception:

“A huge problem is that teachers do not know how to write, they do not know how to express their ideas in a logical sequence, to order their thoughts and put them into concrete ideas. I was the director of a master’s program at [teacher training institute] and we had some selection criteria to admit each year’s class. The criteria included an interview, a statement of goals, and a short exam. The exam was really basic, it had something like four questions and one of them was “tell us about your day’s work”. Many teachers couldn’t structure a concrete story about their own day’s work. Many didn’t even understand the question and instead, gave us a job description. Our teachers simply don’t know how to write.” (Academic, AFP5)

**Even teachers recognize that this is a problem:**

“Teachers need to be self-critical…for example, it has been difficult for us to recognize that we don’t know how to read and write well. Acknowledging this is very important.” (Teacher from Puebla at COMIE Congress)

Teacher education institutions are largely trapped in rigid regulations that give them little leeway to reform their institutions and improve quality. Faculty at the teacher colleges are primarily engaged in teaching, even though the official discourse describes them as “academic researchers” (Tatto and Velez, 1996). The fact that a large proportion of the faculty at the colleges are tenured limits the number of new professors that can be hired and does not allow inefficient professors to be removed. While tenure need not be a problem in-and-of-itself, the problem seems to lie in the fact that faculty hiring decisions are not made through a competitive appointment process, and are often thought to be the product of the union’s influence. In addition, tenure comes almost automatically to teacher college faculty without any formal evaluation or review process. One of our interviewees noted:

“I’m really worried that all of this investment that has gone into making the new plan is really going to go to waste. Let me give you an example. Of the 330 graduates we had last year, I can probably guarantee that about 60-70 will be excellent teachers. Why can’t I guarantee the rest? It has to do with our professors, with the teachers that train teachers. The vast majority of Normal teachers don’t have any formal training to be Normal professors. And I don’t have any legal resources to force Normal teachers to get training. Because of the tenure issue I have no means to remove bad teachers, even a simple thing like changing a teacher’s schedule it becomes a big deal.” (Head of training institution, DSP3)

56 http://www.formaciondocente.sep.gob.mx/dgn/formaciondocente/estados/inf_edos.htm
Another interviewee echoed this opinion:

“*A crucial step in teacher training reform should be to renovate the faculty of teacher colleges. Right now, there is a lot of in-breeding in those schools, and the quality is very, very low, the skills very obsolete. We should try, by offering early retirement or other incentives, to really get better quality professors to those institutions. There should be more interactions with universities as well.*” (Educational authority, GFP8)

Relationships with universities, research centers or other academic institutions are limited or practically non-existent in most teacher colleges. The three teacher college directors interviewed for this study said they would like to have more collaboration with universities in order to take advantage of faculty resources. But they also agreed that this was impossible as long as faculty positions were given on an hourly basis. As is the case with secondary teachers in general, teacher educators at the *normales* are often hired on hourly contracts, so that heads of teacher colleges cannot offer fulltime professorships, but only a handful of hours every semester, if at all.

Moreover, they felt that the effort to improve faculty at the colleges could be futile without a competitive appointment process, the lack of which most saw as being the result of union influence. Currently, some colleges can submit new hourly positions to a competitive appointment process. However, in return for this concession, the union demanded that the evaluation be open only to existing teachers in the school or that only lower-level positions are subjected to this process.57

The problem of lacking sufficiently qualified teacher educators is not a problem exclusive to pre-service institutions. In-service training appears to have missed the crucial first step in its cascade approach: training the trainers. SEP relies on school personnel, state authorities or staff known as "*asesores técnico-pedagógicos*" or technical teacher advisors to facilitate the workshops and deliver the state-level training without paying any attention to their level of competency.

“*Another big gap is in the training of “asesores técnico-pedagógicos”. These advisors are supposed to be the trainers that are in most contact with teachers and their needs. But, who trains them? Nobody, they just do it on their own, they are multi-thematic. If a teacher needs mathematics training, the advisor comes in. If she needs training in biology or origami the same advisor comes in. This is not possible!*” (Academic interview AST1)

The education authorities interviewed for this study acknowledged that they were running a considerable risk betting that there would be qualified people at the local level (school administrators, other teachers, technical advisors) to deliver the training. And they acknowledged that the actual quality of training was very “heterogeneous” and that they had come to realize that the bet was not paying off and that they would eventually “have to do something about training the leaders” (Education authority, GFP2). Overall, all of our interviewees believed that the trainers themselves (be it teacher educators at the colleges or in-service training providers) did not have the competencies they were trying to develop in teachers.

**Issues preventing mastery of subject matter knowledge**

Much of the Mexican debate on teacher education still centers on the issue of subject-matter vs. pedagogy. One possible reason for why this debate has apparently stalled, is the lack of empirical evidence on the level of subject-matter and pedagogical competency in teachers. Although some of the training authorities we interviewed for this study mentioned that they had data available and were analyzing it, there seems to be a general lack of systematic information that can show us the extent of this problem. To my knowledge, there are no publicly available statistics on even basic information such as teachers’ educa-

57 See for example the case of Yucatan in:  
http://www.formaciondocente.sep.gob.mx/dgn/formaciondocente/estados/inf_edos.htm
tional background by major studied and institution attended. Anecdotal reports, however, support the belief that teachers do not have sufficient dominion of their subjects.

“During the past decade the underlying assumption was that teachers knew their subject matter and teacher education institutions only had to teach them how to teach. Now we know that a lot of teachers don’t master their subject matter. And we have some evidence of this. For example, we have an exchange program with Fulbright to give scholarships to English teachers to go to the U.S. So we said, ok, let’s choose the teachers with the highest grades on the national English course and have them apply to the Fulbright scholarships. Turns out when they took the Fulbright English test, many of them didn’t pass. So it turns out that once they had to write, read and speak English during their tests and interviews these teachers didn’t really know the language.” (Education authority, GFP2)

There is some available evidence that focuses on a subset of teachers. Results on the teacher knowledge exam of CM for secondary school teachers in Mexico City showed that, on average, teachers got 56% of their answers correct on the subject-matter section of the test (Santibañez, 2003). While this would suggest that on average teachers do not master their subject’s content knowledge, these results should be taken with caution since only about half of secondary school teachers in Mexico City participate in CM and the numbers might not be representative of the whole country. Still, the fact that Mexico City is the most highly educated region in the country, suggests these figures might be an upper bound and that teachers in other parts of the country might have even lower levels of subject-matter knowledge. A study by the World Bank (1991) supports this conclusion with its finding that only about 50% of Mexican teachers had the qualifications required to teach. Many seemed to lack the basic knowledge of their subject as well as the pedagogical skills to appropriately teach it (World Bank, 1991, cited in Tattó and Velez, 1999). The finding is striking, but the authors do not describe how the World Bank collected this information and what was the context that led to this conclusion.

The issue of faulty subject-matter preparation is accentuated by a teacher education curriculum that not necessarily leads to achievement of complete dominion of the subject-matter. During their four years in teacher college prospective mathematics teachers, for example, spend approximately 32 hours per week, or 15% of their total pre-service education, taking 8 courses (out of a total of 40) that actually teach them mathematics (e.g. geometry, analytical geometry, probability, number theory, etc.).58 The same is true for Spanish teachers. In general, the teacher education curriculum is distributed as follows: 15% of the time spent on subject-matter, 13% on learning about adolescent development, 28% on theory and research, 21% on teaching methods and pedagogy, and 22% in teaching practice and observation.59

During the first semester, 80% of total weekly school hours are devoted to theory courses (e.g. legal and philosophical bases for the Mexican education system, problems and policies in basic education, the school and its context, etc.). Training in the subject matter doesn’t begin in earnest until the third semester and continues until the sixth semester with an average of 25%-40% weekly time spent on learning about the particular discipline.

58 I’m not including some courses that are described as being part of the “specialized training of mathematics teachers in the discipline” but are in fact courses that deal with pedagogy. For example: introduction to the teaching of mathematics, planning and evaluation of mathematics learning, cognitive processes in the learning of mathematics and a seminar to review mathematics research. The full teacher education curriculum is available at http://normalista.ilce.edu.mx/normalista/

59 Although the plan is designed to root the teaching of subject-matter into practice (including several courses on how to teach mathematics or Spanish), it is not clear whether this actually is happening inside the normales. Several people I interviewed suggested that because professors at the normales were used to the traditional frontal style of teaching, they mostly taught subject-matter content per se, without any links to the classroom and without emphasizing pedagogical content knowledge. And even the teaching of the subject matter was faulty in many cases. In a qualitative study of how the 1997 Primary Teacher Education curriculum was implemented, Mercado (2000) concludes that most professors at the normales gave very uneven treatments of the subject-matter courses. In many cases, the actual content (and how to teach it) was given only minimal attention, while students spent most of their time reading materials or doing research projects that were not related to the primary school curriculum. In other words, prospective teachers spent a great deal of time doing activities that would have no relationship to what they would have to teach in the classroom. For the case of secondary schools, I am not aware of a similar study of the 1999 plan. However, the issue is important and deserves further consideration.
While the new teacher education curriculum’s emphasis on teaching practices and on linking teacher education with actual teaching practice is praiseworthy, the belief (and limited evidence to suggest) that teachers don’t have complete knowledge of their subject matter raises concerns about the current distribution of content vs. theory courses in the teacher education curriculum. Even if the content courses focused on pedagogical content knowledge (rather than content knowledge per se) we should still be concerned about the apparent lack of mastery of the subject matter.

A mathematics undergraduate major at the Universidad Nacional Autónoma de México (UNAM), for example, takes 4 mandatory courses in algebra, 4 in calculus, a course in differential equations, and various optional courses ranging from stochastic methods to linear programming and real analysis (UNAM, Plan de Estudios para Licenciado en Matemáticas). And a Spanish Literature and Linguistics student at UNAM takes more than 10 courses in literature, two linguistics courses, and several electives in poetry, phonics, literary criticism, and essay writing (UNAM, Plan de Estudios para Licenciado en Literatura y Lengua Hispánica).

It can be argued, and in fact there is some research to suggest this, that secondary school mathematics teachers do not need to know extremely advanced mathematical concepts in order to be effective mathematics teachers (RAND Mathematics Study Panel, 2003). In fact it is not even clear that an undergraduate degree in the discipline is the best preparation for teaching that discipline, particularly if this is not accompanied by pedagogy and other components of a comprehensive teacher education system (Marcelo, 2003). Nonetheless, there is some evidence in the U.S. to suggest that teachers that take more courses on the subject they teach are associated with higher student achievement (Monk, 1994; Goldhaber and Brewer, 2000; Hawk, Coble, and Swanson, 1985).

In the Mexican case, we would need more research to provide a more definitive analysis of whether teachers are receiving enough subject-matter training as well as training related to pedagogical content knowledge to become effective teachers. Nonetheless, it is difficult to comprehend how the current teacher education curriculum would achieve its goal of “mastery of subject-matter knowledge” when teachers take only a handful of courses on the subject they will teach.

Even university-trained teachers, who in general fare better in this respect, might not be able to put their content knowledge to good use, because they often have to teach something completely different than what they were trained in. According to SEP in any given secondary school we can find dentists teaching English, psychologists teaching history, and engineering students teaching any technical subject that is even loosely related to their background (SEByN, 2002). All of this makes the issue of subject-matter knowledge a constant concern for both pre-service and in-service training policies:

“This is the main problem (e.g. they are not qualified to teach, and not qualified to teach what they’re teaching). There are a lot of secondary teachers working in schools teaching something that they were not trained in. That’s a pre-service training problem, but it’s related to in-service training because it dictates what we need to train them in.” (Education authority, GFP2)

Complicating the issue even further is the reluctance on the part of some teachers to acknowledge deficiencies in their subject matter knowledge and seek CPD to remedy them. Because teachers see themselves as “specialists,” they are not likely to recognize lack of knowledge about their subject.

“We have the problem of what teachers are willing to acknowledge. I did a study about primary teachers and found that there are unspoken rules about what can and cannot be said. One of the things teachers can’t talk about is the dominion of their course. This is even more so in the case of secondary teachers because they are supposed to be “specialists.” All teachers talk about are issues on the periphery that don’t deal directly with the teaching and learning: school violence, discipline, lack of parental involvement, poor nutrition, etc. Hardly do teachers ask for training on subject-matter. In the schools it’s almost prohibited for a teacher to acknowledge that they don’t know their subject or how to teach it. So it becomes very difficult (because of the culture) to really know what teachers need (in terms of training).” (Education authority, GFP2)
In sum, the limited number of subject-matter courses that are part of the teacher education curriculum might not provide prospective teachers with sufficient knowledge of their subject-matter. Unfortunately, because of the lack of empirical evidence, it becomes challenging to design policies to attack a problem that we can’t measure nor are able to completely understand. The problem of out-of-field teaching in secondary schools also poses challenges for CPD, because there is only so much that a few days of training can do to improve teachers’ knowledge of a completely new discipline.

**Issues preventing the resourceful search for and analytical use of information**

Even though the education master plan contemplates building teacher competencies to seek out various kinds of information from different sources and be able to use it in a critical manner, the extent to which this has been achieved remains a concern. First of all, it is difficult to imagine that a teacher who has not achieved high levels of critical thinking skills and reading comprehension will be able to use information analytically. Second, teacher education institutions suffer from a longstanding neglect in terms of infrastructure and information technologies. Not all colleges have computers, and access to the Internet, for example. Third, teachers in the schools also have limited access to various sources of information such as newspapers, magazines, and computers. Currently less than 5% of the schools in Mexico have access to the Internet (SEP, 2002). Fourth, the teacher centers, established to serve as information and resource hubs for teachers, sometimes lack some of this infrastructure themselves and in general are not perceived to be very effective resources for teachers. All of the above suggests that schools and teacher education institutions have limited resources to develop in teachers the competency to use various sources of information in a resourceful and analytical manner.

**Issues preventing the development of research skills**

Although the new teacher education policy has practically abandoned the focus of training “teacher-researchers,” the people interviewed for this study continued to think that teachers should have research tools to analyze their teaching from various perspectives, seek literature or other sources of evidence to inform the questions, critically reflect and analyze the issue at hand, and devise reasonable alternatives to improve their practice.

However, all of the problems delineated above hinder the successful attainment of these skills. The faculty at teacher colleges do little research themselves, making them not ideally suited to instill in their students these kinds of competencies (Tatto and Velez, 1999). And, the low levels of infrastructure available at the teacher colleges (in terms of libraries, software, computers, internet), significantly complicates the research endeavour.

**IV.3. Development of teaching competencies: Gaps between teacher education and CPD Efforts**

In general, stakeholders do not think teacher training policy in Mexico is enabling teachers to develop the teaching competencies described in Section 3. One of the main issues is related to the fact that a large proportion of secondary school teachers in Mexico have no pre-service training in education. In addition, it is perceived that the vertical, authoritarian style of teaching at the normales and the CPD programs runs contrary to the autonomous, creative, flexible teacher that the competencies in Section 3 illustrate. Lastly, the difficult working conditions that most secondary school teachers in Mexico face might hinder these teachers’ abilities to develop these competencies through CPD efforts.

**Issues hindering acquisition of highly developed pedagogical and teaching abilities**

The fact that close to 40% of secondary school teachers in Mexico have no teacher education background poses a key challenge for the acquisition of teaching skills. Some interviewers didn’t think the problem
had to do with hiring university graduates to become teachers, but with the complete lack of any formal or informal training to introduce them to the school setting, provide mentoring and help them devise effective teaching techniques. Most public universities don’t offer teacher certification programs because of political arrangements between SEP and the teachers’ union.

Even for the case of teachers who had been trained at the normales, the literature and comments from the interviewees suggest that the past disconnect between theory and practice limits the ability of teachers to put in practice what they learned at the colleges and use this theory to become better teachers. They were concerned that the present structure of in-service training remains largely disconnected from what actually goes on in the schools and is thus rendered irrelevant for many teachers even though SEP has made significant efforts in recent years to move towards a more school-based model (SEBYN, 2002). There is general consensus that Mexico’s teacher education and CPD strategy suffers from a lack of consistent or systematic planning.

Despite all the research showing that practice was a central component of teacher education (Marcelo, 2003) it was not until the 1999 plan that it became part of the teacher education curriculum. Because the first generation from that new plan is only now entering teaching, it is hard to conclude whether the new emphasis on practice will bear fruit. Although enthusiastic about the new emphasis on observation and practice, the reform presented new challenges to heads of teacher colleges who were now expected to forge close relationships with schools in their surrounding areas. Initially, there was some resistance on the part of schools and teachers to participate in these practices:

“Teachers have a lot of work, not just classroom work, but a lot of administrative work. So they don’t really want to be interrupted by our students, or have to do additional work, or even have to face the fact that, with all due respect, some of our students are better prepared than they are. Our students usually have to perform systematic planning, systematic work to develop teaching plans, etc. and this collides with the traditional teaching methods of teachers, because the teacher has already a routine, and having foreign people come to their classroom and show them new techniques, well, they just don’t like it.” (Head of training institution, DSP2)

Another interviewee added:

“There was this idea that the students were coming not only to observe, but to judge and evaluate them, and they couldn’t be sure that this would not have any negative consequences for them. But as always happens, there’s good people, good teachers and principals who were glad that we were coming into their school, who opened it to us. I’ve tried always to establish direct links with the schools and the authorities and always keep a low-key profile and ensure them that we’re not here to judge or evaluate them, that this is merely a learning exercise.” (Head of training institution, DSP3)

Moreover, teacher college directors usually tried to offer something in return to cooperating teachers. Because they often could not offer them any financial incentive, they tried to invite them to workshops or courses at the college or to offer their facilities (i.e. library, computer lab, etc.) for teachers to use.

An issue affecting the acquisition of effective teaching skills is the teaching style and the organization of teacher education and CPD programs. The normales have little autonomy over what they teach, what rules govern their institutions, or even over which students to select for admission. The comments from one of our interviewees summed up the situation:

60 Many of our interviewees mentioned that teachers often complain about the many reforms and changes in policies that have been occurring since the early 1980s. When asked to contribute to the debate, the first thing teachers often ask the authorities is “is this for real?” One of our interviewees mentioned “every six years everything changes. There’s no real long-term commitment to teacher education in this country, it’s all for showing off.” (Academic interview AST1).

61 It used to be that the union had a large say in who was admitted into the teacher colleges. Because admission virtually guaranteed a teaching job, teacher college slots were highly prized. Recently, SEP has begun requiring, as the main admissions criteria, that all applicants take a standardized exam administered by the national testing center, CENEVAL. Teacher college di-
“The authorities tell teachers and the normales what to do and then simply put in place monitoring and evaluating mechanisms to make sure they comply with the mandate. I agree that there should be a general curriculum that all teacher education institutions should follow, but I don’t agree that SEP should be telling the normales what to teach and even what books to buy! I tell them (the authorities), you want creative autonomous students, but you give them teachers who are told what to do from the moment they begin their day to the moment they finish working. It’s inconsistent.” (Head of training institution, DFP1)

Underlying this is an issue of trust that seems to be rooted in the power that the teachers’ union had over the normales. Various people we interviewed mentioned that for decades, the normales were hotspots of union activity, with union leaders handpicking directors and influencing admissions. One interviewee noted:

“(the new curriculum can’t solve) the fact that the normales, at least in this state, are still battle grounds, so to speak. I personally experienced threats from union-supported students (when I was a professor here) because they wanted a certain grade in class, for example. And there was no support from the heads of the college, no support from the authorities to try to deal with these students or to get behind the professors. So my first challenge when I assumed the directorship of this college, was not to implement the new curriculum. A more pressing challenge was to normalize the life of the college and get it to resemble a real school. To have students attend classes for the time they’re supposed to be there, etc.” (Head of training institution, DSP3)

It appears that through the establishment of rules and procedures that limit their autonomy and in essence tie their hands, SEP tries to exert control over what have traditionally been union-influenced teacher colleges.

Another frequent concern with pre-service education is that the style of teaching is inconsistent with what the new curriculum tries to accomplish, i.e. abilities to adapt to different teaching situations, flexible and collaborative approaches to teaching and learning. Most of the classes at the Normal are taught in a traditional “frontal” style, teachers have few electives to choose from, and there is little collaborative group learning or seminar-style classes.

“(We at the Normales, get the programs and policies from SEP that will rule pre-service training. The attitude from SEP is “don’t think, everything is already decided for you.” We need to rethink the normalismo (pre-service training) after the changes made to the curriculum in 1997 and 1999. It is not enough to provide “elements of reflection” about methods or subjects that we don’t know anything about and about which we have no points of reference.” (Normal professor at COMIE Congress)

Because it is widely believed that teachers tend to teach in the same way they’ve been taught and that teachers need to learn in the same way as they will teach their pupils (Tatto, 1999), all of this suggests that the teacher education reform might have very little effects on what actually goes on inside the classroom.

Factors that hinder the ability to tailor teaching practices to recognize individual student differences

All of our interviewees agreed that Mexico’s teacher education and in-service training efforts suffered from an over reliance on a one-size-fits-all model that did not build on teachers’ prior knowledge and experience, and did not give them the necessary tools to deal with students in different situations. As one of the interviewers said:

“Our teachers have been trained to teach homogeneous groups. We cannot give out sensible instructions and just expect that this in and of itself will improve educational quality. Teachers need to understand what it means to have a culture so we can reach a kind of respect for what is different. There are no pedagogical strategies to use diversity as an advantage.” (Education authority, GFP8)

rectors have to admit only those that passed the exam above a certain cutoff, until they fill the allotted spots for each subject specialty (enrollments are usually capped at 25-30 for specialty, depending on supply and demand in the state).
Unfortunately, neither the training that goes on at the teacher colleges nor the CPD programs have devised effective ways to enable teachers to tailor their teaching to different kinds of students, particularly students in rural areas and indigenous communities. Furthermore, it is believed that teacher training does not give teachers enough tools to be able to teach and understand adolescents. The 1999 plan tries to correct this by including courses to facilitate teachers’ understanding of adolescent development and issues related to their age.

**Factors hindering teamwork and collaborative peer learning approaches**

The new CPD approach in Mexico places considerable weight on collaborative work and peer learning in the schools. The collaborative model of teacher training, although lauded by the literature (Peacock and Rawson, 2001; Marcelo, 2003) faces serious challenges in the Mexican secondary school context. The following quote exemplifies the general perception:

“It is very hard to talk about a teacher collective in secondary schools, that simply does not exist. The secondary school is characterized by very high levels of teacher separation, i.e. isolation. Teachers don’t even know each other. So we do not find many teachers developing any collaborations or any kind of relationship within a school. So this complicates a lot the professional development job.” (Education authority, GFP3)

Another interviewee agreed:

“I would say that yeah...the literature says you should promote collaborative work in schools, because it is important to increase student achievement. Nobody doubts that this is a good thing. But I would ask, how viable is this in the secondary schools? There are institutional barriers to collective work. Most important is time, secondary teachers have no time to meet with other teachers and do a school-wide effort of this type. When are they going to meet? I can’t think of a school with more than 100 teachers to even hold the meeting in the first place. And even if the meeting takes place, what kind of teacher participation are you going to find with 100 teachers?” (Education authority, GFP2)

A work situation as the one described in Section 2, where teachers teach a large number of students in multiple schools for a few hours each day, poses challenges to the feasibility of the collaborative training model in Mexico. A school “community” in which teachers hardly know each other, have little time to interact with one another, and belong (as it happens in some cases) to opposing union sections, makes it extremely hard to speak of an environment conducive to collaboration. Moreover, conducting a critical analysis of teachers’ own practices or those of their peers is a relatively new concept in the official training policies, and the perception that secondary teachers need to be “specialists” limits the degree to which teachers can acknowledge deficiencies in their teaching and content knowledge.

The influence of the union in the school might also hinder the extent to which teachers can be critical of one another. This culture of control over teachers is very difficult to break, and more than one of the people interviewed for this study mentioned the union as a potential obstacle for teacher training reform.62 Their sentiments are exemplified by the following comment:

“The problem is that the authorities don’t want schools engaging in this type of (collaborative) thinking and working because it invites confrontation, it could lead to unrest and to problems inside the schools. Many principals and educational authorities want a maximum of control and don’t want any problems. Every school is a universe and we shouldn’t underestimate the coercive power of the union. For example, if a union representative is a teacher in the school, perhaps other teachers won’t want to criticize her for fear of getting punished by the union for example by not getting a transfer or additional teaching hours, or a schedule change. All of this undermines the school’s abilities to engage in self-criticism.” (Education authority, GST1)

62 However, there were some people that felt that the union had to be included in any reform effort, in order to produce credibility and teacher buy-in. One state educational authority said: “we haven’t yet encountered a situation in which the union blocked our proposals or were not involved. But you know, teachers want the union there. Because if the union is not involved (in the project) then teachers don’t think it’s going to be for real. It doesn’t become feasible, if the union doesn’t buy into it (Education authority, GFP4).
All of the above suggests that peer learning approaches, although supported by teachers and endorsed by the literature, face important challenges in Mexico due to the way schools are organized and teachers’ time is structured.

Factors hindering the educational involvement of families

The Mexican education system’s vision of developing teaching competencies involves a strong component of family and parental involvement. Unfortunately, the working conditions that most secondary school teachers face render this kind of collaboration between parents and teachers extremely difficult.

IV.4. Development of social competencies: Gaps between teacher education and CPD Efforts

Although a significant number of the key competencies that Mexico believes its secondary school teachers should have deal with social aspects and value systems, these are not explicitly addressed by any of the CPD or teacher education programs. It could be argued that moving towards a more collaborative model of teacher training and learning amongst peers could instill in teachers the value of democracy, tolerance, and honesty. However, it can also be argued that the way the Mexican government has operated in the past has actually contradicted most of the values the education system is now trying to develop in teachers. Perhaps the clearest example of this is the teachers’ union historical influence over the education system in Mexico. For decades Mexican authorities allowed the union to shape education policy in Mexico in exchange for the political benefits that the then very powerful (and anti-democratic) union consistently delivered (Bayardo, 1993; Cook, 1996).

It is also interesting to see that the proposed secondary school reform considers that teachers should, as a basic competency, value free and public education. The intermingling of standard or more “objective” competencies (e.g. reading skills, problem-solving, etc.) with more “subjective” values (e.g. valuing national free and public education) might illustrate the extent to which teacher education reforms in Mexico are immersed in a broader political agenda.

V. CONCLUSIONS AND POLICY RECOMMENDATIONS

This review of the available teacher training alternatives in Mexico and interviews with 17 education stakeholders (researchers, education authorities involved with training programs, and heads of teacher colleges) suggest that, great advances in the past decade notwithstanding, there are still gaps in what training is accomplishing to ensure teachers, at the very least, develop sufficient competencies in reading, writing, problem-solving, subject-matter, and teaching practices. The findings of this study can be summarized as follows:

63 SNTE was founded in the 40s and it emerged as an organization from and for the State; furthermore, it was conceived and served as a real political arm. Its objective was to provide material benefits as well as a voice for teachers but only under the existing State framework and guidelines. In exchange for its political endorsement, the government passed a law by which only one union could exist per bureaucratic entity. In addition, any teacher who wanted to work in a public school had to apply for union membership. Under these monopolistic conditions, SNTE’s leaders seemed to serve only their own political interests even when teachers’ salaries and working conditions were worsening (Santibañez, 2002; Bayardo, 1993; Cook, 1996).

64 During the 1970s and 80s under the leadership of a dominant union faction known as Vanguardia Revolucionaria and its leader Carlos Jonguitud Barrios, SNTE developed strong, repressive and often violent methods of dealing with oppositional groups. Membership to Vanguardia and allegiance to its leaders was practically a prerequisite for anyone who wished to hold an official political or administrative position within the union. Senior positions in the union’s hierarchy had to be approved by Jonguitud himself. Vanguardia leaders often exchanged teaching posts and other benefits for “favors” of economic and non-economic nature (Santibañez, 2002; Bayardo, 1993; Cook, 1996).
Secondary teachers’ working conditions are difficult. Often teachers teach large numbers of students in more than one school. Teachers have little paid time left for interacting with other teachers, students and parents.

A large proportion of secondary school teachers (40% on average, but as high as 60% in places like Mexico City) have not received any pre-service teacher education. In addition, a large proportion of secondary teachers (although it is not exactly known how large) teach out-of-field.

Pre-service training is taught to be of poor quality. It is concentrated in the normales which offer one national, centrally-designed teacher education curriculum. Enrolments at the normales are capped because of the unofficial agreement between the union and SEP that all normal students will have guaranteed teaching positions upon graduation.

Continuous professional development (CPD) consists mainly of national courses, state-level courses (which have to be centrally approved), general training workshops (designed centrally), and brief workshops conducted in the Teacher Centers. CPD in Mexico follows a one-size-fits-all approach (all teachers regardless of whether they teach in an urban area or a rural area, an academic or a distance secondary school, or have 2 years or 20 years of experience) receive the same training.

The people interviewed for this study welcomed the new emphasis on school-based CPD and the inclusion of practice and observation components into the teacher education curriculum. They felt that through practice and observation teacher education institutions “opened-up” and were able to build on the professional knowledge of more experienced teachers.

Regarding the gaps, interviewees revealed that they did not think teacher education or CPD was enough to develop the competencies described in the official discourse. Some of the issues mentioned had to do with poor quality at the normales; lack of competitive appointment or evaluation of teacher college faculty; uniform CPD; vertical and authoritarian teaching style at the teacher colleges and the CPD courses, lack of information resources at the teacher colleges and at the school site; and working conditions that made school-based, collaborative and peer-learning approaches very difficult.

How, then, can training efforts in Mexico be reformed to ensure that they help develop desired teacher competencies? The answer is not simple, and the scope of this study limits the degree to which we can make specific policy recommendations.

As a starting-point, Table 2 provides a summary of the main policy alternatives (following the framework for teacher education policy choices established by this project) and some of the caveats that could limit the scope and success of these policies that should be taken into consideration.
Table 2. Policy Recommendations and Caveats/Considerations by Policy Dimension

<table>
<thead>
<tr>
<th>Policy Dimension</th>
<th>Policy Recommendation</th>
<th>Caveats and/or Considerations</th>
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<tbody>
<tr>
<td>Focus of Training</td>
<td>- Focus of training should be student learning. Training <em>per se</em> is less valuable than training that prioritizes student outcomes.</td>
<td>- Largest professional development incentive program (CM) sees professional development as an end in and of itself</td>
</tr>
</tbody>
</table>
| Institutions for Teacher Training| - There should be more participation from other institutions of higher education or academic centers and collaboration among these and teacher colleges  
  - A mixed teacher college-university model (3 years university plus 1 or 2 years teacher college) could provide the best of both worlds  | - Political agreements might hinder the role that universities could play  
  - Lack of formal appointment process is needed to improve teacher education faculty  
  - The perceived poor quality of teacher colleges (and some public universities) could undermine the probability of success |
| Contents of Training             | - Training needs to continue to focus on subject-matter knowledge (incl. pedagogical content knowledge) to ensure that teachers have sufficient levels of competency in their subject  
  - Might need to increase time spent on subject matter to more than 15 percent of the teacher education curriculum  
  - Practice and theory should be integrated (as in the 1999 teacher education plan) | - The prevalence of out-of-field teaching might hinder the ability for teachers to master their subject matter even if they receive adequate preparation during pre-service  
  - Curriculum changes alone might not be able to overcome poor quality of the faculty at the *normales*  
  - The fact that many teachers receive no formal teacher education training makes this an important component of in-service programs |
| Modes of Training                | - There seems to be support for school-based training that responds to school needs and that invites active participation on the part of teachers | - Current working conditions for secondary teacher pose challenges to school-based collaborative models  
  - Distance options provide large coverage, but might have failed to connect teachers to their practice |
| Teacher Educators for Teacher Training | - Faculty positions at the *normales* should be open to academic competition  
  - More collaboration with universities and research or other academic centers might improve training of the trainers | - Current political arrangements might make impossible to institute competitive appointment processes, and remove current faculty  
  - Significant financial investments might be needed |
| Evaluation of Training           | - Training should be evaluated to focus on student outcomes | - CM evaluates professional development as an end in-and-of- itself and would require reforms to focus on teacher competencies and student outcomes |

These recommendations lean towards a school-based model of CPD that targets teachers’ needs and focuses on student learning. Moreover, it leans towards a system of teacher education that ensures mastery of subject-matter, provides pedagogical content knowledge, integrates practice (as it is now the case), and is open to all higher education institutions. Although I emphasize that the ultimate objective of teacher training should be student learning, it is true that improvements to teacher learning systems could them-
selves create the conditions and the culture where student learning could be given serious consideration. The emphasis on student learning here is not meant to dismiss teacher learning. Rather, it is meant to highlight the belief that any education improvement efforts should always keep students at the forefront.

As our findings suggest, many of the gaps between training and competencies are not entirely due to faults in training, but to the contextual circumstances surrounding the secondary school system in Mexico. Even if all of these training gaps could be resolved, there appear to be some baseline and structural conditions that could limit the success of training efforts, even of very high-quality training efforts. For example, school-based collaborative approaches have little promise in an education system in which teachers hardly know each other and have school leaders that more often than not discourage teacher collaboration in favor of exerting control. If policymakers want to promote stronger school communities, one first step could be to reorganize the workforce so that teachers with very fragmented hourly contracts could concentrate in just one or two schools. Leadership is crucial, and important steps would have to be taken to make sure school principals work to build community instead of focusing on obtaining political solidarity with the union’s agenda. This includes better selection and training of principals, and delegating more autonomy to them. Schools have traditionally been closed spaces in Mexico. Any policy that opens up the school to parents and other community stakeholders might contribute to building a sense of community.

There also exists an inherent contradiction in a system that wants to foster creative, autonomous teachers through a teacher education system that is highly politicized and controlled. And, the fact that most of the interlocution between teachers and SEP happens through the teachers’ union makes it somewhat difficult for teachers to have dissenting opinions that they can voice to SEP (or others). This also complicates SEP’s ability to reform the system and introduce change.

Two of the reasons people interviewed for this study gave for why teachers in Mexico did not have sufficient teaching competencies were (1) the fact that a large proportion had never received any pre-service teacher education and (2) the fact that many were teaching out-of-field. Both of these reasons are closely related to the rapid expansion of the school system during the 80s and 90s that required large increases in the teacher workforce. On the one hand, teacher colleges could not meet the growing demand for teachers because the government capped their enrollments to ensure guaranteed jobs for all graduates. On the other hand, there was no policy in place to afford university graduates equal opportunity employment and encourage universities to have their own teacher education programs.

The reform of these structural conditions is hindered by the lack some of basic information needed for planning and policymaking. Mexico spends a great deal of time reforming its teacher education curriculum, investing in small-scale programs to improve teacher practice or student learning, or defining and redefining what the ideal teacher should look like. It spends considerably less time actually finding out what teachers in Mexico look like, what they know, and what they are capable of doing. There are few rigorous evaluations of training programs, no publicly available statistics on teacher backgrounds, working conditions, or the number of teachers working out-of-field.

The case of telesecundaria provides an interesting example of the importance of improving teachers’ working conditions. Although, 9th graders in telesecundarias have lower overall achievement levels than students in general and technical schools, some research suggests that telesecundarias provide higher value-added for students that begin their studies far behind those in general or technical schools (De Moura Castro, Wolff and Garcia, 1999). Moreover, a report by CONAFE (2000) suggests that in 1998 overall terminal efficiency was higher at the telesecundarias (77 percent) than at the general (67 percent) and technical secondary schools (62 percent). Data from SEP suggest that in 2001 dropout rates at the telesecundarias were slightly higher than those at the general or technical secondary schools, but repetition rates were significantly lower (contributing to better overall terminal efficiency after three years).
These were surprising findings because after all, education at the telesecundarias is targeted to low-income rural areas, delivered via videotapes, and the teacher is not really a specialist but a generalist who knows a little bit of everything. Telesecundaria teachers often receive what is considered to be poor in-service training because there are no courses or workshops specifically tailored to them. However, if we consider that the telesecundaria teacher gets to spend the entire school year with the same 20-30 students, monitor the progress of a single cohort, and interact with parents, the positive efficiency findings appear less unexpected. If we take these results at face value, they have important implications for training efforts, because they suggest that teacher working conditions play an important role in student outcomes.

In order to relieve teachers of some of the workload, SEP would have to provide paid time for class preparation and student monitoring, and hire additional teachers. In addition, it would have to modify the tenure system to be able to reorganize teachers to teach in their field, remove ineffective teachers, and be able to hire full-time teachers not only from the teacher colleges but from other institutions as well. All of this is expensive, not only financially, but politically as well. It would imply a considerable investment in teacher salaries (to pay teachers for time off), and the hiring of additional teachers. Mexico could implement a set of early retirement incentives (such as those used in Chile) to phase out ineffective teachers and replace them with better-qualified teachers who can be offered full-time contracts. Although possible, this would imply a considerable financial effort. Since about 90% of the education budget is spent on the salaries of a mostly tenured teacher workforce, any change that involves a financial expense is bound to put severe strains on the budget. On the other hand, the fact that many teachers at the secondary level are on part-time or interim contracts, or did not receive “automatic” tenured positions (because they are not graduates from the teacher colleges), might actually make it easier to implement these kinds of workforce reforms than it would be at the primary level.

Of course, the costs are not only financial. SEP would also have to pay the political costs of taking tenure away from teachers and teacher college professors, a “right” that would surely be staunchly defended by the union. One cost-effective training possibility might be to use the telesecundaria model to impart training to teachers in schools located in rural or isolated areas. Given the low penetration of internet at the school-level, this distance model using videotapes and supporting materials could be based in the schools, and involve guided collaboration among small groups of teachers.

In sum, a review of the literature and a small number of interviews with stakeholders suggest that there are gaps between desired teaching competencies and teacher training efforts in Mexico. However, even if it were possible to remedy those gaps, certain conditions and characteristics of Mexico’s education system limit the extent to which teacher training by itself can deliver considerable benefits. Changing the structural barriers to improving teacher effectiveness is much more costly and requires considerably more effort and time than investing in re-designing the curriculum or organizing a national “debate” on teacher education and training. However, unless these barriers are addressed, efforts to provide teacher training are likely to meet with only limited success.
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9. Conclusion: A Synthesis of Policy Issues and Recommendations

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“Teaching beyond the knowledge economy entails developing the values and emotions of young people’s character, emphasizing emotional as well as cognitive learning, building commitments to group life and not just short-term teamwork; and cultivating a cosmopolitan identity that shows tolerance for race and gender differences…” (Hargreaves, A. 2003: 4).

The knowledge society and lifelong learning; what does it really mean?

For teachers and schools all over the world and, certainly, in the developing countries, it means that knowledge has become the main source of wealth for countries, communities, families and individuals. Knowledge is the most precious commodity of all, in such a way that the production, transfer, accumulation and use of knowledge turn to be the most significant and relevant activities for national development and competitiveness in a global economy. As a result, teachers and schools are coming back to play a central role in contemporary societies; as central as it was in the 50’s and 60’s in the XX century, the previous golden age of public education systems all over the world.

For teacher education systems (both pre-service and in-service): Pre-service teacher education is, almost everywhere, in great need of thorough reform and transformation. This is even more so as far as the training of secondary school teachers is concerned, since it relies almost exclusively on specialized knowledge training at universities, with very little, if any, practical training on teaching and learning processes. The overall lack of political and public confidence in teacher training systems can hardly be denied.

In such context, it becomes an extraordinary challenge to design policies which enable developing countries to select and train teachers to help students acquire the new competencies that are now demanded by society and required by labor markets. These new competencies overtly require for teachers to behave in classrooms in very different ways as the ones they were taught to. The central answer to the challenge lies in the system of teacher education and professional development. Conservative and strongly academically oriented systems of teacher training are unable to facilitate such a shift; but less spending in pre-service teacher training on the grounds of its inefficiency and high cost does not seem to be a good path to follow either.

For students: The knowledge society has brought about a true explosion of aspirations and expectations from the school system coming from students and their families. They seem to be quite aware of the fact that employability depends on the acquisition and mastery of a set of key competences, as mentioned above. If we were to explain what lifelong learning is about to a group of secondary school students, we would need to tell them that the otherwise – in the past – pleasant experience of learning one new thing every day has now turned for them into a matter of intellectual and professional survival.

Secondary School Teachers: Shortage, Professional Identity and Professional Development Issues

Qualified secondary school teachers are becoming a precious commodity in many developed and developing countries. They tend to be the hardest segment for the teaching profession to attract, the most expensive to educate and the most difficult to retain in schools. The numbers of unqualified teachers tend to
be much higher for secondary than for primary education in almost every developing country. And the attrition rates of secondary education teachers are the highest in the teaching profession, especially for male teachers and for those in high-demand areas, such as mathematics, science and technology (OECD, 2004).

Furthermore, since pre-service teacher education for secondary school tends to be consecutive in virtually every country (i.e., they are educated first in a curriculum area or specialized discipline, and then go on to receive some pedagogical training), the professional identity of secondary teachers is not constructed around teaching but rather around their discipline of specialization. In a context of mass secondary education, increasingly more teachers who thought of themselves as pre-tertiary teachers at the start of their careers, are faced now with the hard fact that they are rather post-primary teachers. Contrary to what it was during the times when secondary education had elite status, student motivation can no longer be taken for granted. This fact entirely changes the conditions of daily teaching for secondary school teachers. Instead of being trained to develop new competencies required to deal with today’s students, secondary teachers see their professional identity questioned, and experience a loss of control over their own professional practice. And, insofar as training needs are concerned, secondary teachers seem to be increasingly tempted to trade off the opportunities for learning to innovate for survival toolkits.

As a result, the pressing issues for education decision-makers today are how to attract able graduates into the teaching profession, and how to retain them there. In developing countries, and especially in Africa, shortage of teachers, particularly in areas such as mathematics, science and technology, is a major threat to the goals of expanding and increasing the quality of education. For example, while in some African countries, such as Uganda, there are qualified teachers who are unemployed (Lewin, 2002), in Zambia, the 1996 national education policy estimated that the numbers of teachers retiring, dying or chronically ill would equal the entire output of teacher training colleges in the years to follow. The shortage of teachers will continue to be the main challenge for teacher policies in the near future. This will be the case worldwide, despite varying reasons in different countries and regions: demography, labor market trends, the impact of HIV-AIDS, etc. Comprehensive incentive policies to attract and retain high quality teachers need to be designed towards the effective and dynamic integration of teacher professional development and career issues, teacher deployment policies and class size, and monitoring and evaluation practices.

Such policies could commence with measures to make the teaching profession more attractive by increasing secondary school teacher salary and compensation (the case of Chile is probably the best illustration of success in this regard). Alternatively, or in addition to the above, measures to alleviate teacher shortage could be through investments in teacher education and changes in teacher certification and recruitment policies. Broadly speaking, solutions to the issue of teacher shortage in developing countries have taken two directions: the trend to accelerate pre-service teacher training, thus reducing the duration and the cost of training. In some countries, the reduction has gone as far as training a teacher in three months. Another trend is in new teacher recruitment policies which enable countries to recruit teachers (unemployed graduates with no formal teacher training, graduates from teacher colleges, or just secondary school graduates fresh from the classroom) on a contract basis and paying them a lower monthly salary compared to what is being paid to regular teachers.

The accelerated pre-service education policy has greatly reduced the cost of pre-service teacher education, and has helped to place more teachers in classrooms in a relatively short time. In some cases, however, it has negatively affected teaching quality, particularly when the academic background of students is weak. Accelerated pre-service education policy can also lead to increased regional disparities, since contract teachers tend to be deployed to rural and remote areas, thus becoming a source of inequality in the provision of education for many students in those areas. More empirical evidence is needed about the effects of the aforementioned policies, and governments need to weigh the options carefully before putting them into practice. There are no easy short-cuts to achieving the goal of an appropriately trained teaching force, particularly at the secondary education level.
Developed countries are also attempting to respond to the issue of secondary education teacher shortages, in some cases, with imaginative and innovative solutions. For example, in the Netherlands, the Unqualified Teaching Interim Act makes it possible for professionals with a higher education degree to choose a career in education. Interested professionals are required to go through an assessment process before they can commence teaching in a school. Over the course of two years, they undergo a tailor-made training program. Upon successful completion, they earn the formal qualification to teach.

Profound changes in the structure, the curriculum and, most of all, the student population of secondary education, are leading to a crisis of professional identity of teachers. The lack of the relevant competencies to deal with the new situation leads many teachers to perceive that their professional identity is under siege. Moreover, external pressure for them to assume “new responsibilities” may be seen as a rupture with their previous know-how, which deepens the identity crisis even further. Therefore, there is an urgent need to reconstruct the professional identity of secondary school teachers. If we want them to be in control of their own professional practice, they can no longer be trained solely as a subject specialist at the university.

**Training and retaining secondary school teachers in the Knowledge Society**

*What teachers should know and be able to do: Matching Teaching Skills with Required Key Competences for Secondary School Graduates*

The school curriculum, particularly at the secondary level, has traditionally been a political battlefield, where different and opposing interests clash with each other, often turning curriculum reform efforts into political nightmares for Ministers of Education. It is therefore quite remarkable that our knowledge society – or late modernity, in Giddens’ vocabulary – has produced such a wide consensus on a number of new skills and competencies which are said to be crucial for individual socialization and national competitiveness in the 21st century. All over the world, government reports and white papers cluster around the need to implement a competency-based curriculum in secondary education, where emphasis is made on problem solving, teamwork, peaceful conflict resolution, dealing with complexity and living with ambiguity, thrive with change, be life-long learners, etc. Nevertheless, it has to be recognized that, while there seems to be consensus around the competencies, there is still profound disagreement as to which is the right balance of disciplines and pedagogical approaches for students to acquire such competencies. Be it as it may, the fundamental issue – and corresponding hypothesis – suggested and dealt with by this research project is that, particularly in developing countries, secondary students can hardly be expected to acquire these 21st Century competencies if the teachers in charge of their education simply do not have them.

The issue of teaching competencies beyond or across different knowledge areas and disciplines becomes a critical one in the context of the overall consensus around the 21st century competencies. At the macro level, what teachers *should know and be able to do* continue to be country-specific, although it appears to be increasingly shaped by world trends. The six national studies carried out by this project show quite a remarkable convergence in terms of the stakeholders’ views as to the teaching competencies that teachers should acquire and display in the classroom. However, the institutional arrangements for both pre-service and in-service training of secondary school teachers are still anchored in the past; and this includes, in all countries studied, the curriculum of teacher training programs.

A teaching skill or competency alludes to the capacity to mobilize a variety of cognitive resources to face and deal with a specific type of teaching situation. Rather than a particular content or type of knowledge, teaching competencies and skills integrate, and articulate cognitive resources which are relevant to a given situation, and are constructed both through training and daily practice in the classroom. Teaching
competencies are common to every curriculum area and school level, as they cut across subjects and disciplines in primary, secondary or tertiary education.

The debate about the professional, non-professional or semi-professional nature of school teaching has been ongoing for decades. The issue has become more controversial and crucial than ever before. In the contemporary knowledge economy, knowledge management is seen as the key for the flexibility of operations, the training and professional development of employees, and even the overall productivity of the institution. The implicit challenge is that the knowledge of teaching, at least most of it is tacit, difficult to articulate and systematize, and be strictly practical and context-based in nature. This adds to the traditional isolation of teachers and schools, thus generating a picture in which knowledge transfer and full utilization is simply not possible. In short, teacher education institutions, schools as organizations, and educational systems at large, are still very far from attaining such a goal. And this is why the curriculum of teacher education, especially pre-service, remains an open, controversial and puzzling issue (with contradicting evaluation results and research evidence).

Teachers’ Professional development as a Lifelong Learning Activity

Teachers’ professional development needs to be conceptualized as a process, and has to be designed as a process, so that the dividing line between pre-service and in-service is purely and merely artificial. No sound policy of teacher development can be set up without a holistic approach that goes beyond that old differentiation. The national experience of the countries involved in this study shows that having two separate administrations to carry out both tasks in a separate way can put a heavy toll on the system and its capacity to deliver what the country needs.

Very specific attention should be paid to teachers, their initial training, the period of their professional induction, and their professional development. Life-long learning is not only a good axiom. A change is required in the way the teaching profession is seen: a professional who does not spend his or her whole professional life in just one educational system or even in a single country, a worker in knowledge. Furthermore, in the same way as the students, teachers must be prepared to work in a changing and unpredictable environment, in which knowledge is constructed from different sources and viewpoints.

Teaching challenging content to learners who bring very different experiences and conceptions would depend on the capacity of practitioners to create powerful and diverse learning experiences that connect to what students know and how they most effectively learn. In addition to addressing pedagogical and subject matter knowledge and skills, secondary school teachers are expected to develop skills for teacher-parent communication, dealing with dropouts, grade repetition and poor-attendance, and developing skills to work in disadvantaged communities. Teacher education programs should enable teachers to teach in multiple contexts and to diverse groups of children, and should help them understand how to build effective school-community partnerships.

The linkage between curriculum reforms and in-service teacher training

The implementation of curriculum reforms is basically a problem of in-service teacher training. And in-service training is a challenge, particularly with respect to the stickiness (resilience) of the implicit know-how of teachers. Other professions have constructed highly specialized knowledge capital to the extent that it has been possible for them to establish a considerable distance between the professional and the customer (and this is the key to the classic sociological category of professional prestige). Professional knowledge of teaching cannot be constructed in the same manner. Teachers and teaching are also about being close to and caring about students’ lives, and about building learning communities capable of responding to the needs of students, as citizens who have the right to learn. An entirely new approach to professional knowledge needs to be developed for the teaching profession (Hiebert & Gallimore 2001),
one which allows for the conceptualization of teacher education and teacher professional development in terms of *lifelong learning*.

The debate about the curriculum of teacher education programs has taken place around two fundamental and conflicting stands: Firstly, that the emphasis should be on subject-related or so-called *content knowledge*. Second, that the most pertinent knowledge for teaching is obviously *teaching and learning-related knowledge*—professional knowledge about pupils themselves (in secondary education, understanding adolescence is vital), classroom management, pedagogy and evaluation, and the school as a learning and knowledge producing institution. Pedagogical Content Knowledge is a teacher’s understanding of how to help students understand a specific subject matter. It includes specialized knowledge of how particular subject-matter topics can be organized, represented and adapted to the diverse interests of learner, and then presented for instruction.

Contrary to common wisdom in education, there is strong research evidence that knowledge about teaching and learning processes is even more related to student achievement than content knowledge of the discipline (Darling-Hammond 2000). Educational research in several related fields has pointed out that there is a third category of knowledge which would be at least as relevant for teacher education as the previous two: *Pedagogical content knowledge* (PCK) is the specific and specialized knowledge about teaching and learning processes of a particular discipline. According to some recent reviews, PCK is the type most clearly linked to student achievement and the one with the strongest potential vis-à-vis the professional development of teachers. Pedagogical Content Knowledge is not only a renewed and advanced source for a new identity for the teaching profession; it can also favor and promote better student results and a more equitable school system. Emphasis on PCK results in more productive and inclusive secondary schools.

*Linkage between school improvement and in-service teacher training*

Setting up a system of Teachers Professional Development and aiming at decentralized planning for school quality improvement are two different ways of stating the same policy goal. The former emphasizes the individual teacher as the unit for change and improvement, the latter takes the whole school as the protagonist of quality improvement efforts. In any case, promoting local (district and individual school) school improvement plans not only requires in-service teacher training, it is rather that such plans consist of – are equal to – in-service teacher training and, therefore, are a very defined way of approaching the professional development of teachers.

Teacher’s professional development should take place – and therefore be conceived and planned – in the framework of an overall System of External Support to Schools (SEES). This system should integrate all the institutional and professional instances that have to do with technical assistance, evaluation, supervision and, indeed, training of school management teams, individual teachers and schools as a whole. Having a dynamic system of external support to schools is crucial with regard to the promotion, monitorization and sustainability of school improvement initiatives. This, in turn, facilitates the networking of schools and the dissemination of good practice throughout the school system. But external support can also play a crucial role in terms of in-service teacher training and, therefore, raising teachers’ qualifications. *School-based in-service teacher training*, a concept that allows for the emergence and utilization of teachers’ practical knowledge, has proved to be highly effective not only for school improvement and development purposes, but also for a meaningful professional development of teachers.

**Which are the policy issues and where are the policy choices in teacher development**
It should be admitted from the outset that teacher education and professional development in itself is a soft instrument and, taken in isolation, will not be enough to make a difference. Only a systemic approach, creating synergy between teacher development, teacher management at the system and school level, together with a cogent set of incentives, can open a way forward. Every developing country that has recently initiated reforms in teacher training is finding that they also need to strengthen their quality assurance system, modify the career and incentive structure, and rethink the way schools operate if they are to obtain the deep and lasting change sought in teacher behaviors and values.

This holistic approach to develop and implement a policy for strengthening the teaching profession may be indispensable to set the foundations of a solid and quality education system. The basic policy issues that need to be considered concurrently and in terms of its mutual implications can be seen in Table 1 and Table 2, expressed in different ways. This way of setting up the issues can facilitate both policy dialogue and policy learning, on the one hand, and project design, on the other.

Table 1. Teacher education and professional development

<table>
<thead>
<tr>
<th>Recruiting</th>
<th>Retaining</th>
<th>Retraining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attracting teachers</td>
<td>Compensation and benefits</td>
<td>Professional Development</td>
</tr>
<tr>
<td>Pre-service Education</td>
<td>Incentives</td>
<td>Performance Evaluation</td>
</tr>
<tr>
<td>Selecting teachers</td>
<td>Working conditions</td>
<td></td>
</tr>
<tr>
<td>Accrediting teachers</td>
<td>Promotion/career paths</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Teacher education and professional development

<table>
<thead>
<tr>
<th>Teacher Supply</th>
<th>Teacher competence</th>
<th>Teacher Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recruitment strategies</td>
<td>• Minimum standards and competences</td>
<td>• Teacher development and external support</td>
</tr>
<tr>
<td>• Retention strategies</td>
<td>• Pre-service teacher training and accreditation</td>
<td>• In-service training</td>
</tr>
<tr>
<td></td>
<td>• Strengthening outcomes-based teacher assessment and inspection.</td>
<td>• Professional Associations and Teachers’ Unions</td>
</tr>
</tbody>
</table>
A more operational – and certainly more sophisticated – approach to the universe of teacher education policy issues can be seen in Table 3. In this case, there is a fundamental element and differentiation, namely, between teacher preparation and entry into the profession. This is critical in some developing and in many post-conflict countries where the percentage of unqualified contract teachers in the teaching force reaches as much as two thirds and beyond. In addition, quality assurance and incentive issues are put together with the more “classical” elements of teacher education policy. Again, this policy framework could be a good tool to observe the current situation in a given country, and to identify the areas and sectors where a new policy needs to be agreed upon and put in place.
<table>
<thead>
<tr>
<th>Teacher Preparation</th>
<th>Quality Assurance (QA)</th>
<th>Teacher Professional Development</th>
<th>Management</th>
<th>Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Instruments to control the quality of TTIs (accreditation, program evaluation)</td>
<td>Conditions for successful initial teacher education reform (ISE or other)</td>
<td>Deployment of staff and Supervision of interns</td>
<td>Competitive Fund Local recruitment of Teachers</td>
</tr>
<tr>
<td>Entry into the Profession</td>
<td>Instruments to clarify what is a good teacher and to screen entrants into the profession (certification)</td>
<td>Mentoring and tutoring</td>
<td>School leadership and Supervision of inductees</td>
<td>Incentives for hardship posts (remote, rural and post-conflict)</td>
</tr>
<tr>
<td>Teacher Career</td>
<td>Instruments to guide continuous school performance and teaching improvement (census-based testing, school reviews, teacher periodic evaluation and re-certification)</td>
<td>Structures and processes that promote continuous teacher learning (support, networks) School Development Plan</td>
<td>MIS/GIS SDP/QA teams (School Council) (Community relations)</td>
<td>Selective salary incentives Merit Awards to schools Non-monetary rewards Pension policy</td>
</tr>
</tbody>
</table>

The holistic approach that we are proposing should at least address and make specific choices concerning the following issues:

1. The articulation between pre-service and in-service teacher training.
2. The articulation between pre-service training of primary and secondary school teachers.
3. The articulation between teacher training as a whole and the higher education system.
4. The arrangement of a set of coherent and mutually reinforcing policy measures which will make the teaching profession more attractive, both for secondary school graduates and for teachers in service.
5. The existence of an external support system (resource centers, school advisors) and its relationship with in-service training, school supervision and the implementation of school grants and school improvement programs or policies.
6. The mechanisms in place for teacher certification and accreditation and its relationship with teacher recruitment and deployment policies.
7. The viability and potential characteristics of induction programs for novice teachers (be it contract teachers or graduates).
8. The design of a teaching career in terms of professional development: putting together a system of incentives, both salary and non-salary.
9. Delivery modes of teacher training (both pre- and in-service). Diversification and use of distance education methodologies and ICT.
10. National definition of teacher education curricula (competency-based and content-based; emphasis in standards).
Annex 1: Searching for a model of Teacher Education (Training and development)

As a specific outcome of this Project, we are suggesting a basic set of categories concerning teacher training (pre-service and in-service, although adaptations could be needed). Each category contains several policy alternatives or choices which, taken together, can point to the different scenarios possible in a given country. These categories would be valid to analyze and characterize any sort of pre-service or in-service teacher training program, and would also help as a tool for policy making.

A. Overarching principles:

1. Centralization-Decentralization
2. Regulation – Deregulation
3. Internal Motivation – External Motivation
4. Supply driven – Demand driven
5. Teacher as a civil servant – Teacher as a customer

B. Institutions for Teacher Training

6. Single Permanent Structure – Multiple Institutional & provisional supports
7. Secondary Level – University Level – Mixed secondary and university
8. C. Contents of Training
9. Isolated contents – Wide, long-term training itineraries
10. Integration of theory and practice – Focusing more on theory or on practice
11. Focus on content knowledge – Teaching professional knowledge – Pedagogical content knowledge.

D. Modes of training (Student support, methodology and delivery system)

12. Seminar-oriented – Balance between different contents and modes of training
13. Face-to-face and Residential – Distance education and On-line options

E. Training and Career development: Who is in the focus of training?

14. Individuals – Groups of teachers (by subject, innovation projects) – Whole school
15. Training Credit-hours piggy-bank – Professional and Staff development

F. Teachers educators for teacher training:

16. Managers of Training – External support agents
17. University academics – Experienced teachers and administrators
18. Ad-hoc and Provisional – Stable and professionals

G. Planning Teacher Training

19. Participation of the teachers in the planning process (Unions, Prof. Associations)
20. Links and relations with other related elements of the educational system

H. Evaluation of Training

21. Increasing the teaching force – Increasing the quality of teaching
22. Student performance – Effects on teachers’ classroom practice
Table 4: Searching for a model of Teacher Education (Training and development)

This would be the result if we cross each of the policy choices with the three basic types of implications: Financial, Political, and Quality implications (in terms of effectiveness and efficiency). Different scenarios should be drawn for different countries.

<table>
<thead>
<tr>
<th>Category</th>
<th>Policy Choices</th>
<th>Financial Implications</th>
<th>Political Implications</th>
<th>Quality Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Overarching principles:</td>
<td>1. Centralization-Decentralization</td>
<td>Increasing cost</td>
<td>Local-Regional-National educational competences at stake</td>
<td>Local needs and quality</td>
</tr>
<tr>
<td></td>
<td>2. Regulation – Deregulation</td>
<td>Decreasing cost</td>
<td>Social status and social reward of teachers. Civil servants or not</td>
<td>Teachers’ responsibility of their own training</td>
</tr>
<tr>
<td></td>
<td>3. Internal Motivation – External Motivation</td>
<td>Cost sharing among the different ed. administrations</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Supply driven – Demand driven</td>
<td>Incentives linked to in-service training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Teacher as a civil servant – Teacher as a customer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Single Permanent Structure – Multiple Institutional &amp; provisional supports</td>
<td>Public financing alone versus Public and Private financing (PPTs).</td>
<td>Locus of control of access to the teaching profession and of valid professional knowledge.</td>
<td>Quality and Standards are particularly needed if multiple institutions are to be involved.</td>
</tr>
<tr>
<td></td>
<td>7. Secondary Level – University Level – Mixed secondary and university</td>
<td></td>
<td>Locus of control shifting or being shared between universities and school.</td>
<td>Quality traditionally associated with University dominance.</td>
</tr>
<tr>
<td>B. Institutions for Teacher Training</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8. Isolated contents – Wide, long-term training itineraries</td>
<td>Cost increase with long-term training itineraries</td>
<td>Changes in what count as valid content for teacher training and in the way of sequencing and articulating it have profound implications for education policy and the role of the different actors involved in the training of teachers.</td>
<td>Quality is enhanced when a professional knowledge base is created and promoted through pre- and in-service training.</td>
</tr>
<tr>
<td></td>
<td>9. Integration of theory and practice – Focusing more on theory or on practice</td>
<td>Increasing practical training implies higher costs.</td>
<td></td>
<td>Focus on PCK reshapes teachers’ professional identity and creates a different conception/perception of quality teaching.</td>
</tr>
<tr>
<td></td>
<td>10. Focus on content knowledge – Teaching professional knowledge – Pedagogical content knowledge.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Contents of Training</td>
<td>11. Seminar-oriented – Balance between different contents and modes of training</td>
<td>Non-traditional modes are less scalable and therefore initially more expensive.</td>
<td>Practitioners gain more influence and control of the profession when non-traditional modes of delivery are promoted.</td>
<td>School-based training and horizontal/lateral communication between schools and among teachers can lead to enhanced quality of teaching.</td>
</tr>
<tr>
<td></td>
<td>12. Face-to-face and Residential – Distance education and On-line options</td>
<td>Distance education, on-line training and, most of all, on-line networks and communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Policy Choices</td>
<td>Financial Implications</td>
<td>Political Implications</td>
<td>Quality Implications</td>
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<td>E. Training and Career development: Who is in the focus of training</td>
<td>13. Individuals – Groups of teachers (by subject, innovation projects) – Whole school</td>
<td>Growing trend to link salary incentives to both individual and school-based training.</td>
<td>Linking incentives only to individual performance is less risky and controversial.</td>
<td>Figuring out the triangle Training-Incentives-Quality assessment is probably the crucial and most difficult challenge in teacher policy.</td>
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<td>14. Training Credit-hours piggy-bank – Professional and Staff development</td>
<td>Growing trend to link career-related incentives to both individual and school-based training.</td>
<td>In-service training perceived by teachers as a right and an enabling tool, or as bureaucratic requirement linked to professional advancement.</td>
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<td>F. Teachers educators for teacher training:</td>
<td>15. Managers of Training – External support agents</td>
<td>There are potential savings in a more flexible choice and distribution of trainers.</td>
<td>It is a difficult political challenge to find the right balance between academics and experienced teachers, provisionality and stability, managers and external support agents.</td>
<td>Quality implications can be quite different depending on whether it is pre-service training, induction to the profession, in-service training or certification of unqualified teachers.</td>
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<td>16. University academics – Experienced teachers and administrators</td>
<td>Participation and Consensus-building is, at the end of the day, the best way to avoid wasting financial and human resources.</td>
<td>See Table 3 for a list of Ten policy issues involved in the planning of Teacher Training.</td>
<td>Participation and consensus-building has strong implications on quality of training and, more particularly, on relevance.</td>
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<td>17. Ad-hoc and Provisional – Stable and professionals</td>
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<td>G. Planning Teacher Training</td>
<td>18. Participation of the teachers in the planning process (Unions, Prof. Associations)</td>
<td>Monitoring and Impact evaluation are costly. So is policy analysis to deal with and fully take advantage of monitoring and evaluation results and data.</td>
<td>Impact studies of training are needed, both with regard to changes in teaching practice and desired competences, and with regard to student performance.</td>
<td>Strong relationship with quality assurance and quality enhancement of teacher training.</td>
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<td>19. Links and relations with other related elements of the educational system</td>
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<td>H. Evaluation of Training</td>
<td>20. Increasing the teaching force – Increasing the quality of teaching</td>
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</table>

See Table 3 for a list of Ten policy issues involved in the planning of Teacher Training.
References


