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COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA

Introduction

It was a crisp morning in December 2003 in Bangalore, India. Mr. Dileep Ranjekar, Corporate Executive Vice President, Human Resources, at Wipro, a leader among Indian software companies and listed on the New York Stock Exchange, pondered the future challenges facing the Computer Assisted Learning Centers (CALC) project. This project had been launched in the southern Indian state of Karnataka by the not-for-profit Azim Premji Foundation¹, personally endowed by Wipro Chairman Mr. Azim Premji, of which Mr. Ranjekar was Chief Executive Officer. The vision of the Foundation was to “transform the lives of millions of children in India by catalyzing the universalization of elementary education”. Phases 1 to 3 of the CALC project had been completed successfully, with 225 schools and 80,000 children covered. This had been done in partnership with governmental agencies of the state and the local communities where the schools were located.

However, significant challenges remained. First, only 30-40% of the CALCs had been able to generate the US\$ 865 annual operating costs necessary to become self-supporting after the first year. What to do about the others? Second, most schools in Karnataka and India lacked even the basic infrastructure necessary to set up a CALC, such as classrooms and electricity connections. How to mobilize the resources that the setting up of this infrastructure would require? Third, how could the CALC model be scaled to cover all schools in Karnataka and the rest of India. Ranjekar wondered what steps could be taken to surmount these challenges.

¹ See **Exhibit 1** for information on the Foundation.

This case was prepared by Professor Krishnamurthy S. Raman, Ms. Atreyi Kankanhalli and Mr. Sibi Venkataraju, of the National University of Singapore, with the collaboration of S. Ramakrishna Velamuri, Professor at IESE Business School, to serve as a basis for discussion and not to approve or criticize the programs or decisions described. The preparation of this case was sponsored by the World Bank. Nevertheless, the points of view and interpretations in this document are attributable to its authors alone. The facts and figures presented in the case are real but the characters and their views are imaginary.

Bangalore, capital of Karnataka state, was known as the Silicon Valley of India. Here, software engineers in gleaming steel and glass air-conditioned offices worked with state-of-the art personal computers (PCs) and broadband networks. Not surprisingly, the city had a home PC penetration of 22 per 100 households and an Internet café for every 500 households. Schools in the city had computer laboratories where children learn to use computers and surf the Internet. Yet, villages within 50 to 70 kilometers from Bangalore were untouched by information technology (IT) and their schools used the age-old methods of black board teaching and rote learning. The dropout rate in these schools was nearly 35%. Only 42% of students continued to complete eight years of education and barely 16% eventually completed 10 years of schooling. These statistics were typical of Karnataka's 40,000 primary schools and their 8 million pupils. At the national level, the numbers were even more daunting: 700,000 villages, 733,000 primary schools, 89,000 secondary schools and 186 million children in the 6-14 age group. Attracting these millions to schools, and providing them quality primary education was key to bridging the rural-urban divide and appeared as one of the major challenges on India's socio-economic landscape.

This case tells the story of the Computer Assisted Learning Centers (CALCs), the initiative implemented to transform Mr. Premji's vision for India's children to reality. It starts by describing the circumstances and environment in which the initiative was conceptualized and launched. It traces and describes the implementation phases, the rationale for each phase, and the key decisions made at each phase. It concludes with a discussion of the impact of the CALCs on the education of rural children in Karnataka state and some lessons and issues regarding the extension of the initiative in Karnataka state and its replication at the national level.

Karnataka State's Rural IT Initiatives

Karnataka seemed the natural cradle for efforts at universalizing primary education through IT. Although the eighth largest state in the country in area (191,791 square kilometers) and population (52.73 million), it had the highest investment in infrastructure (740 billion rupees; US\$ 16 billion)². Karnataka, and particularly its capital Bangalore, had been at the forefront of IT in India. In the most recent fiscal year, Bangalore, which housed more than 1,180 domestic and global IT companies, earned 130 billion rupees (US\$ 2.83 billion) as revenues from software exports³. In fact, UNDP had ranked Bangalore fourth among global technology hubs⁴. **Exhibits 2 & 3** provide socio-economic and education data about the state.

Karnataka, government had played a proactive role in attracting IT industry to Bangalore. Additionally, the state government, particularly during the tenure of the current Chief Minister Mr. S.M. Krishna, had been highly aware of the potential of IT to improve the economic status of people. The government had implemented several initiatives to bring IT-enabled benefits to people in rural and semi-urban areas through providing both information content and hardware infrastructure. *Bhoomi*, *Raitha Mitra*, and *Yuva.com* were three examples of e-government systems that provide information content needed by rural people. The oldest of these, the *Bhoomi*⁵ (Land) e-government system, had started in 1991 and

² <http://www.karnataka.com/advantage/>

³ http://quickstart.clari.net/qs_se/webnews/wed/ab/Qindia-tech-exports.RVUc_DOT.html

⁴ <http://www.undp.org/hdr2001/pr3.pdf>

⁵ <http://www.revdept-01.kar.nic.in/>

provided information about land records that were required to establish ownership of land, record succession of ownership and agricultural crop details, and applications for loans from banks. The *Raitha Mitra* (“Farmers’ Friend”) initiative, launched in 2000, had set up 744 centers that extend the benefits of the latest technologies to farmers. Apart from the above schemes targeted at farmers, *Yuva.com*⁶ (Youth) was an IT training scheme (joint hardware and software initiative) for rural youth. Started in 2000, this scheme had established training centers in each of the 225 electoral constituencies in the state. The private sector participated in this program by setting up and running these centers.

Almost concurrent with the CALC program, the *Mahiti Sindhu*⁷ (Information Ocean) hardware infrastructure initiative was started in June 2001 to bring IT to higher secondary school children in all parts of the state in the form of training centers in 1,000 government-run schools. Karnataka’s government had awarded a five-year contract of about two-and-half million rupees (US\$ 53,700) per center to private companies to run the centers. The centers provided computer education as well as regular education in multimedia format for students of classes 8 to 10. The content was primarily teacher-centric to aid teachers in imparting the curriculum. The private companies were also allowed to use the same centers for commercial use before and after school hours in a profit-sharing agreement with the schools. The *Mahiti Sindhu* model was currently being replicated in Andhra Pradesh, a state neighboring Karnataka.

The CALC Story

In the beginning: When the Foundation began its preliminary planning, the officers realized that they did not have sufficient knowledge about the key issues and requirements for this initiative from the villagers’ perspective. As in the development of any new product or service, the first phase would have to be a study of the “market” and a requirements elicitation exercise. During the second half of 2000, APF officials visited close to 1,300 villages, and had extensive interaction with the schools and the parents of the children. While discussing the future of their children, a majority of parents articulated two main aspirations: 1) they wanted their children to learn and work on computers; 2) they wanted their children to speak English.

Since the Foundation was exploring alternatives that would facilitate the universalization of elementary education in the state, its immediate response was to experiment with the use of technology in some of these schools and evaluate its impact. Therefore, officials of the Foundation developed a proposal to introduce computer-assisted learning in selected rural government schools around Bangalore, where APF was headquartered. The proposal was intensely discussed by Mr. Premji, his wife Mrs. Yasmeen Premji (Director, APF), Mr. Ranjekar, and Mr. C.V. Madhukar (Head Technology Initiatives), who was also responsible for all the programs of APF at that time. The main debating points were the number and location of the schools. This would be a make-or-break pilot – the first of its kind, which would set the path for the rest of the initiative. Though in principle Mr. Premji had made a commitment to the proposed initiative on a larger scale, it was decided to pilot the initiative with about 50 rural government schools. Therefore, the decision was to start small and learn from these initial experiences.

⁶ <http://www.bangaloreit.com/Yuva/yuvahome.asp>

⁷ <http://www.educationinindia.net/html/karnatakagovt.htm>

Simultaneously, the core group of four realized that government buy-in was an important component in this endeavor. Wipro and APF already had enough evidence of the state government's commitment towards IT in education and other sectors (see previous section). Although the formal Memorandum of Understanding regarding Universal Elementary Education was sealed on June 12, 2001, the partnership between the Foundation and the government of Karnataka was already taking shape in late 2000. The partnership would have to clearly formulate the division of responsibility/funding, scalability, and withdrawal strategy for the initiative.

Based on these requirements, the Foundation decided that the important guiding principles of its partnership with the state government would be:

- Focus on rural government schools
- Focus on supplementing government efforts and not substituting them
- Scale as a valid proof of concept for later integration with the overall government structure
- Clearly laid down withdrawal strategy to hand over the ownership to relevant stakeholders

These principles provided the broad framework for developing detailed plans and action programs for implementing the initiative.

CALC action program: On December 2000, Mr. Madhukar and Mr. Ranjekar developed an action program to implement CALCs. The major obstacles identified were the lack of electricity/space/furniture, lack of teachers, teacher and school resistance, scheduling, and funding of the centers. Taking into account these requirements, the action items of the program were:

1. Ask the Government of Karnataka for a list of rural higher primary schools that had a legal electricity connection and an existing additional room in the school.
2. The rule of thumb to be followed for deciding the number of computers in a school would be 1 PC per 50 students. Since enrollment in each school was between 200 and 450 children, the average number of PCs in schools would range from 4 to 9 (could be fitted into a room).
3. Appropriate numbers of tables and chairs would be provided to ensure that about 3 children were able to work on one PC at a time.
4. Considering the power shortage and unreliability of the electricity supply, each CALC would be provided with an uninterrupted power supply (UPS) of the appropriate capacity to make it possible to run the PCs for 1-3 hours in the absence of mains electricity supply.
5. Software-based curricular content in the form of CDs was to be made available in CALCs. This content would be child-centric, interactive, story/puzzle/riddle-based so that the children found the learning interesting and joyful while being able to do a self-check on how much they had learned.
6. The focus of the student's time spent at CALCs should be on the regular curriculum and not on learning IT, which would merely be a side benefit of learning the curricular content.

7. The period at the CALC should be incorporated in the normal timetable of the school, and each student should be allowed two periods per week to work on the computer.
8. Appoint a local youth (called Young India Fellow) who had the basic technical qualifications and orientation to be able to manage and supervise each CALC. This was necessary considering that in many schools there was a shortage of teachers and it would be unfair to divert the attention of the teacher to the CALC. Besides, CALCs had to be operated outside school hours, which the teachers might find difficult.
9. Interact with the community, school and School Development Monitoring Committee members to impress upon them that:
 - CALCs were meant to improve children's learning, attract out-of-school children to schools, and improve the attendance of children already enrolled in schools.
 - CALCs were intended to supplement what the teachers were teaching in the classroom and not to substitute the teachers.
 - CALCs would be successful only if the communities and schools took ownership of their security, discipline, utilization, and above all their running expenses after an initial hand-holding period of 12 months.
 - It was important to operate CALCs outside school hours in order to earn revenue to support the recurring expenses of the Young India Fellow, annual maintenance of the computers, UPS, and any other maintenance that might come up.

Selection of schools: During January and February 2001, the Foundation, in consultation with the Karnataka State Education Department, identified 50 schools in 5 *taluks* in and around Bangalore for implementation of Phase 1 of the initiative. The then-Commissioner of Public Instruction, Mr. Vijay Bhaskar, evinced keen interest in the project and played an active part in removing any bureaucratic hurdles in the setting up of CALCs. Of the 50 schools identified, 35 had the necessary facilities of an extra room, reliable electricity supply, and regular attendance of 200 children. Officers of the Foundation visited these schools to make a preliminary assessment of the suitability of the rooms, informally gauge the interest level of the Headmaster and the community, and educate the communities regarding the potential benefits of CALCs and the need for community support in helping to run them. Agreements were signed with the Headmasters regarding the ownership and running of CALCs after the first year, though these agreements had no legal standing.

In Phase 1 of the initiative (March-August 2001), 35 CALCs were set up in 3 rural *taluks*⁸ in Kolar district (15 schools), 1 rural *taluk* in Mandya district (3 schools), and 2 semi-urban districts in Bangalore Rural (17 schools). Through this phase, nearly 10,000 children between classes 1 and 7 used the PCs on a regular basis. In Phase 2, 55 CALCs were added in 14 districts between August 2002 and January 2003. In Phase 3, a further 135 CALCs were operational from July 2003 onwards in other districts in Karnataka⁹, bringing the number of CALCs up to 225 and the number of children covered to 80,000.

From Phase 2 onwards, the Foundation approached the local *taluk* office to select approximately 20 schools in their *taluk*, based on the *taluk* officers' perception of potential community participation and interest among school staff members. The Foundation then held meetings with the community at the schools to gauge their level of interest. The selection was then pruned down to between 5 to 10 schools per *taluk* to implement the CALCs.

⁸ A subdivision of a district, a group of several villages.

⁹ The thirty-fifth CALC was implemented in August 2002 and technically can be considered part of phase 2.

Selection and training of Young India Fellows: The Young India Fellow was an important component of the CALC model and initiative. Young and educated (minimum class 10 qualifications and preferably a graduate with certified computer training) volunteers belonging to the community (residing within a radius of 5 km) were nominated as Young India Fellows (YIFs). The YIFs were given intensive training over a ten-day period by officials of the Foundation. The training package of 14 hours a day focused on the mission and goals of the Foundation, goals of the CALC, role of YIFs in achieving the goals of the CALC, generating income for the CALC and sustaining it, interacting with the community, school, government officials, and the Foundation, empathy and sensitivity, planning and monitoring, and self-confidence and positive thinking.

After this intensive training and orientation program, YIFs were equipped to supervise work at the CALCs. The training helped them to facilitate children's learning and to interact with the local community, teachers, and headmasters. The YIF either received a fellowship from the community or could earn income out of the utilization of the CALC after school hours. Interestingly, several YIFs had obtained computer education from the Karnataka Government Yuva.com scheme¹⁰. Training of YIFs was enhanced in the second and third phases with an emphasis on developing entrepreneurship skills to enable them to generate revenue from the CALCs.

Operation of CALCs: CALCs were used by the school students during school hours and by the community before and after school hours. The facility was available free of cost to children from the school, and to the community on a nominal pay-and-use basis. The educational software (22 CDs in all) provided by the Foundation consists of learn-it-yourself content. The YIF assisted only when there was a problem and played the role of enabler between the children and the content. The content was designed so that the children would use the PCs and the CDs to reinforce their understanding of concepts that had already been taught to them by their teachers. Typically, the children came to the CALC and seated themselves in random order in front of the computers (see **Exhibit 4**). For the first few weeks, the YIF inserted a CD and then demonstrated the use of the CD to the children. Thereafter the children explored the contents of the CD on their own, and asked the YIF for assistance as and when they had any difficulty. Children got to use the CALC for two to three class periods (of 40 minutes each) in a week, depending on their timetable. Apart from that, the children also used the CALCs during any free time available, such as when the teacher was absent or during lunch breaks, to get more time on the computers.

Financial aspects of CALCs: In Phase 1, financing of the CALCs was managed as follows (see **Exhibit 5** for details):

- The Foundation financed all costs incurred in setting up of each center, all software costs, and the training costs of the YIF. The setup costs included the purchase of new furniture, computers¹¹, uninterrupted power supply (UPS), and the cost of wiring the CALC.
- The Foundation paid the salary of the YIF for the first year of operation of the center.
- Beyond the first year of operation, the community adopted and assumed ownership of the CALC. The community was now held responsible for financing the operations of the CALC, including the salary of the YIF and the operating costs of the center.

¹⁰ See **Exhibit 2** for the location of the 225 CALCs and **Exhibit 5** for a time-line of events.

¹¹ The hardware and software configuration provided at each CALC is listed in **Exhibit 5**.

The community was expected to generate income through donations from affluent community members, local industries, the local *Panchayat*, or through community computer classes and community use of the center.

- In the second and subsequent phases, Karnataka Government financed the setup of the centers, including furnishing and all hardware costs. The government also provided the first years' running expenses, including the honorarium for the YIFs.
- The Foundation continued to interact with the communities to select the schools, provided training to the YIFs and provided educational software content.

Monitoring CALCs: Monitoring CALCs was the joint responsibility of the Foundation, the schools, and Block¹² Education Officers of the state Education Department (see **Exhibit 5** for details).

- During the first year of operation, the *taluk*-level coordinators from the Foundation visited the CALCs once a week and guided the YIF and school officials in managing the CALCs. Also, area coordinators visited each CALC once a month. An area coordinator took care of 3 *taluks* (usually around 15-17 CALCs). School officials and School Development and Monitoring Committee (SDMC) members were free to visit the CALCs and support their functioning.
- During the second year, *taluk* coordinators visited the CALCs once every two weeks. SDMC and school officials were encouraged to take a lead role in monitoring. Support was provided by the Foundation on technical issues.
- From the third year onwards, it was the total responsibility of the school to monitor the function and progress of the CALCs. The Foundation would play a support role in case of difficulties. By this time, the SDMC and the school management should have been empowered to manage the CALCs effectively.

Over a period of time, the Foundation intended to transfer full responsibility for managing the CALCs to a team consisting of representatives of the community, the school, and the Education Department of the Government of Karnataka.

Expected benefits: The Foundation and the state government visualized the following distinct immediate and long-term benefits of using technology at the elementary education level through initiatives such as CALCs:

Immediate Benefits:

- Attracting children to schools and improving enrollment
- Improving attendance
- Creating excitement in and around schools
- Simplifying difficult concepts, thereby making learning exciting and fundamentals strong
- Enhancing the learning environment

¹² The hardware and software configuration provided at each CALC is listed in **Exhibit 5**.

Long Term Benefits:

- Global access to knowledge for rural communities
- Sharing experiences and best practices on topics of relevance to rural communities
- Consistently higher quality education in rural primary schools
- Self-paced, interactive, and joyful learning in rural primary schools
- Effective learning of core fundamentals early in the learning life cycle in rural primary schools through:
 - Virtual world of information
 - Simulations
 - Experiential learning
 - Special learning for the disabled
- Cost effective learning, mass training, and distance education of rural communities
- Fundamental IT literacy for rural communities

Results

How far had the CALC initiative been successful in attaining its desired goals? Review of the CALCs implemented in Phase 1 showed that the initiative was well on its way to achieving its immediate goals. Comparison of the performance of 34 CALC schools and 34 non-CALC schools in geographic proximity to the CALC schools shows that the CALC schools had improved enrollment, attendance, and Kannada language and mathematics scores.

Enrollment: The transition rate, defined as the increase in the percentage of students moving from one class to the next, was used as a mechanism to determine the extent of dropouts and of out-of-school children returning to school. The transition rate was a good indicator of whether more children joined a particular school since it took into account how many children were not promoted and attributed any remaining change in enrollment in the next class to students dropping out or entering the school from outside. Table 1 shows the transition rate for classes 2-7 at the 34 CALC schools over the period 1999-2002.

Table 1. Transition Rate for Classes 2-7

Class	1999-2000	2000-2001	2001-2002
2	4%	1%	3%
3	8%	8%	6%
4	10%	5%	5%
5	34%	20%	14%
6	13%	21%	35%
7	6%	6%	0%

This data showed some improvement in enrollments in June-July 2001 and 2002, but it was not clear whether more children joined the schools because of the on-going efforts by the government to enroll all children or because they were attracted to schools by CALCs, or both. Interviews with several parents, teachers, and children revealed that a number of children came back to school because they were excited at the prospect of “playing” on the computer. Most of the educational content in the CALC software was provided in the form of educational games.

Attendance: Attendance rates in schools were also expected to show an improvement after the introduction of the CALC initiative. However, since attendance records maintained in many schools were not dependable, anecdotal evidence was gathered. This evidence suggests that children were attending school more regularly since the CALCs were set up.

Learning levels: The relative performance of children in CALC schools and non-CALC schools were compared between baseline and follow-up tests in Kannada and Mathematics. The baseline testing was conducted in August 2001. The follow-up to the baseline study was conducted in March-April 2002 (6-7 months after the baseline). Table 2 displays the percentage changes in Kannada and Mathematics marks for the non-CALC schools and the CALC schools from the pre (baseline) to the post (follow-up) test. Other confounding factors were controlled as far as possible.

Table 2. Change in Kannada and Mathematics scores for non-CALC and CALC schools

Class	Non-CALC schools		CALC schools	
	Change in Kannada scores (%)	Change in Maths scores (%)	Change in Kannada scores (%)	Change in Maths scores (%)
Class 3	18.32	55.74	22.60	26.28
Class 4	8.30	11.91	19.25	23.46
Class 5	3.83	9.04	11.74	16.44
Class 6	4.43	5.87	8.60	18.47

This table shows that for all classes, the increase in Kannada test scores in the case of CALC schools was greater than for the non-CALC schools. In the case of Mathematics, for all the classes except class 3, the CALC schools showed a greater proportionate increase in scores as compared to the non-CALC schools.

An important target group of the CALC initiative was the lowest-performing children in classes 3 to 6. Therefore, another measure to gauge the impact of the CALC initiative was the change in the number of students scoring in the lowest quarter of marks as a result of introducing CALCs. Table 3 shows the number of lowest quarter students for CALC and non-CALC schools at baseline and follow-up time periods.

Table-3. Number of Students in the Lowest Quarter of Marks in CALC and Non-CALC Schools

Subject	CALC schools		Non-CALC schools	
	Baseline	Follow-up	Baseline	Follow-up
Kannada	118	32	112	88
Maths	130	37	164	116

One can see a dramatic decrease in the number of children in the lowest quarter of scores between the baseline and follow-up assessment in CALC schools, as compared to only a marginal drop in the non-CALC schools.

Moving forward

The CALC model had so far proved to be a robust model and emerged as an exemplary case of partnership between Government, private sector, and rural communities. This success notwithstanding, several issues needed to be addressed regarding the future of CALCs. Some of these issues included sustainability of the CALCs that were in operation, infrastructure for their extension to more villages, alternative models, and replicability in other states.

Sustainability: The key issue in sustainability of CALCs was the ownership and management of the centers beyond the first year of operation, when the Foundation and the government withdraw their support. The annual operating cost of a CALC was Rs. 40,000 (US\$ 865). In some cases (see **Exhibit 6**), the village *panchayat*, a single individual, or private institution had taken up ownership and responsibility for managing the center. Only about 30% to 40% of CALCs had become self-supporting so far.

What should be done about the CALCs that do not become self-supporting?

Infrastructure for extension: The Foundation has planned for the extension of the CALC initiative to a number of schools in seven North-East Karnataka districts and to other states. However several constraints such as shortage of classrooms and unavailability of reliable power supply come into the equation. The following quote from Bill Gates provides a picture of the stark reality in India's villages:

“The percentage of growth that an IT firm like Hewlett Packard will get from people whose income is less than \$1 a day is not going to be that significant... do people have a clear view of what it means to live on \$1 a day? There's no electricity in that house, none. So is somebody creating computers that don't require electricity? ... No, there are no solar power systems for less than a dollar a day... You're just buying food, you're trying to stay alive ...” Bill Gates¹³ (Text edited for interjections.)

Who should build the basic infrastructure for CALCs in villages all over the country? Is solar power the answer to lack of electricity?

Replicability in other states: The CALC model was a proven model and its replication would jump-start the effort to improve the quality of elementary education in other states. However, each CALC involves a set-up cost of about Rs. 250,000 (US\$ 5,400) and an annual operating cost of Rs. 40,000 (US\$ 865). Funding would be a major issue in replicating the CALC model state-wide.

Should other states replicate the CALC model? Where should they look for financial support?

Alternative models: The CALC model required a computer room in rural primary schools where children enjoy computer-assisted self-paced learning. The room and the PCs in it were also used to bring IT to the village community and bridge the rural-urban digital divide. The CALC model also provided the opportunity for a village youth to become proficient in PCs and become a Young India Fellow.

¹³ A block consists of approximately 200 schools.

In the CALC model, should the YIF be employed as a regular school teacher?

In villages where computer kiosks already existed (for example the e-Seva kiosks in Andhra Pradesh), should schools use these kiosks under the guidance of a school teacher instead of setting up their own CALC computer rooms? In this model, what would be the role of the Foundation?

As Ranjekar prepared for a meeting in the New Year between his Foundation and representatives of the state government, he wondered what the priorities should be for the CALC project in 2004. □

Exhibit 1

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA**Azim Premji Foundation: Description****The Organization**

The Azim Premji Foundation¹⁴ was a not-for-profit professional organization funded with the personal resources of Mr. Azim Premji, Chairman of Wipro Corporation, one of India's leading IT companies. In 2004, the Foundation employed the equivalent of 75 full-time staff and 1,600 volunteers.

The Board

Members of the Foundation's board are:

Mr. Azim Premji (Chairman)

Mrs. Yasmeen Premji (Director, Azim Premji Foundation)

Mr. Vaughal (Chairman, ICICI Bank)

Mr. Nachiket Mor (Executive Director, ICICI Bank)

Mr. P. M. Sinha, (Former Chairman, Pepsi India)

Mr. S. C. Behar (Former Chief Secretary, Government of Madhya Pradesh)

The Vision

To transform the lives of millions of children in India by catalyzing the universalization of elementary education.

The Strategy

To work closely with the state governments and use IT creatively in elementary education to make village schools an exciting place for learning.

¹⁴ <http://www.azimpremjifoundation.org/>

Exhibit 2

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA**Karnataka State Background and Socio-economic Data**

Karnataka was situated in the southern part of India. It was the eighth largest state in India, covering an area of 191,791 sq. km. Bangalore was the capital of Karnataka. The main language spoken in the state was Kannada. Karnataka had a population of 52.73 million according to 2001 Census, with 964 females per 1,000 males. The rural population was 34.75 million and the urban population is 17.98 million. The state was organized into 27 administrative districts. Each district was organized into several *taluks* (or blocks). Karnataka has a total of 190 administrative *taluks*. The State Education Department had organized itself into 29 educational districts and 200 educational blocks. Each *taluk* or block was headed by a Block Education Officer, who was supported by a team of officers and teachers.

1 *taluk* = 200 villages, 1 block = 200 schools, 1 *panchayat* (local elected body) = 4-5 villages



Exhibit 2 (continued)

Inter-State Comparison of Social Indicators

State	Population (million)	Poverty Rate (%)	Per Capita Income (Rs. '000)	Growth In Net SDP (1993-1999) %	Health Facilities	Literacy Rate (%)	Infant Mortality (per 1000 live births)
Andhra Pradesh	75.7	15.8	14.7	5.4	VL	61.11	66
Gujarat	50.6	14.1	18.6	8.3	L	69.97	63
Haryana	21.1	8.7	21.1	5.8	L	68.59	68
Himachal Pradesh	6.1	7.6	15	6.7	H	77.13	NA
Karnataka	52.7	20	16.3	8.1	M	67.04	58
Kerala	31.8	12.7	18.3	5.9	M	90.92	14
Maharashtra	95.7	25	23.4	6.7	M	77.27	48
Punjab	24.3	6.2	23	NA	H	69.95	53
Rajasthan	56.5	15.3	12.5	6	VL	61.03	81
Tamil Nadu	62.1	21.1	19.1	7.2	H	73.47	52
West Bengal	80.2	27	15.6	6.9	L	69.22	52
Assam	26.6	36.1	9.6	2.6	VL	64.28	76
Bihar + Jharkhand	109.8	42.6	6.3	3.9	EL	47.53	63
M.P. + Chattisgarh	81.2	37.4	10.9	4.2	VL	64.11	90
Orissa	36.7	47.2	9.2	4.4	NA	63.61	97
U.P. + Uttaranchal	174.5	31.2	9.8	4.4	EL	57.36	84

State comparison legend: EL - extremely low; VL - very low; L - low; M - medium; H - high; NA - not available; SDP - state domestic product

Sources: Economic Survey, 2001-2002; Secretariat for Industrial Assistance Statistics, Ministry of Industry, May 2002; Food Insecurity Atlas of Rural India, M. S. Swaminathan Research Foundation, Chennai 2001.

Exhibit 3

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA**Karnataka Education Profile**

The literacy rate in Karnataka in the age group of seven years and above was 56.04% as compared to the national average of 52.21%. Estimated non-literate population in the 9-35 year age group in the state was about 8 million. The decadal growth rate of literacy of 10% in Karnataka was also marginally higher than the national growth rate of 9.6%. The male literacy rate was 67.26% and that of females is 44.34%. The total number of non-literates in the state was nearly 16.4 million.

Source: http://www.education.nic.in/htmlweb/state_edu_profiles/kar.htm

Educational Institutions:

Category	Total Number	Total Enrollment	Number of Teachers	Teachers -Student Ratio
Pre-Primary School	4,597	191,879	-	-
Primary School	23,690	6,501,200	60,540	32
Elementary School	24,142	2,417,210	142,580	49
Secondary School	8,216	979,615	61,725	20
Senior Secondary School	1,497	940,472	22,780	35
Pre Degree /Junior College	360	-		

Expenditure on Education (2000-2001): (in Millions of Rupees)

No.	Sector	Plan	Non-Plan	Total	Percentage
1.	Primary Education	3,747.37	13,425.75	17,173.12	49.21
2.	Secondary Education	964.10	8,923.75	9,887.85	28.03
3.	University & Higher Education	178.30	6,240.12	6,418.42	18.83
4.	Adult Education	32.98	31.15	64.13	0.18
5.	Language Development	48.02	122.38	170.40	0.48
6.	General	365.20	817.59	1,182.79	3.27
	Total General Education	5,335.97	29,560.74	34,896.71	100.00
B.	Technical Education	110.60	501.23	611.83	
Total Education (A+B)		5,446.57	30,001.97	35,448.54	17.67 of state budget

Exhibit 3 (continued)

Primary Education:

The total number of lower primary schools in existence in 1999-2000 was 22,340 and that of higher primary schools was 26,374. At the primary level, 209,837 teachers were working. The details of enrollment (in millions) are as shown below:

Classes 1-4	5,568
Classes 5-7	3,104

Drop Out Rate:

Drop Out Rates in Classes 1-5 for the year 1998-99						
	All India	Andhra Pradesh	Karnataka	Gujarat	Madhya Pradesh*	Kerala
Total	39.74	43.64	33.48	27.75	23.27	-7.29
Boys	38.62	42.69	33.5	22.52	19.79	-9.3
Girls	41.22	44.7	33.46	33.98	27.89	-5.2

* Drop out rates relate to the year 1997-98.

Source: Annual report 1999-2000, Department of Education, MHRD, Page 177.

Exhibit 4

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA

Children in a CALC



Exhibit 5

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA**CALC Initiative Implementation and Description****CALC Timeline**

- 2000 January-June:** Mr. Premji, Chairman of Wipro, charts the vision for this personally resourced not-for-profit Foundation: High quality primary education for every child in India.
- 2000 July-December:** Grass-roots work in about 1,300 villages, and extensive interaction with schools, parents, and children finds that parents want their children to work with computers and learn the English language.
- 2000 October–November:** The first proposal for 200 schools is submitted to Mr. Premji. After much deliberation, it is decided to start the first phase of the project in 35 rural government primary schools.
- 2001 January–February:** The Foundation approaches the Karnataka State Government to identify 50 schools in 5 *taluks* in and around Bangalore district. Of the 50 selected, only 34 schools have an extra room and physical conditions to support a CALC.
- 2001 March:** The first 12 CALCs are inaugurated simultaneously.
- 2001 March–August:** 34 of 35 schools from Phase 1 are implemented
- 2002 August:** 35th school is implemented at Batrayanapura through demand by school and local community.
- 2002 August–November:** Preparation for Phase 2 of the project, consisting of 55 CALCs, including selection of schools and training of YIFs and Headmasters.
- 2002 December–2003 January:** Physical implementation of 55 CALCs for the second phase.
- 2003 March–June:** Preparation for Phase 3, consisting of 135 CALCs.
- 2003 July onwards:** Physical implementation of 135 CALCs for the third phase.

Exhibit 5 (continued)

CALC Finances

Cost Component	Phase 1	Second and Subsequent Phases
Initial Setup of the Center	Azim Premji Foundation	Karnataka Government
Hardware	Azim Premji Foundation	Karnataka Government
Software – General	Azim Premji Foundation	Karnataka Government
Software – Education Content	Azim Premji Foundation	Azim Premji Foundation
YIF salary and day-to-day operating costs (first year)	Azim Premji Foundation	Karnataka Government
YIF Training	Azim Premji Foundation	Azim Premji Foundation
First Year Maintenance	Azim Premji Foundation	Karnataka Government
YIF salary and day-to-day operating costs (beyond the first year)	Local Community/Revenue Generation after school	Local Community/Revenue Generation after school

CALC Facilities*Hardware*

- 4-9 PCs (based on the strength of the school)
- All PCs equipped with a CPU, 15” monitor, keyboard, mouse, CDROM drive, speakers and mike
- Uninterrupted Power Supply system with battery storage to run up to 2 computers for 3 hours
- Dot Matrix Printer

Software

- Windows 98 (1st phase)
- Microsoft Office (1st phase)
- Linux (2nd and subsequent phases)
- StarOffice (2nd and subsequent phases)
- Educational software created by Azim Premji Foundation
- Kannada Nudi software (free word processing package in Kannada)

Exhibit 5 (continued)

CALC Monitoring

Guidelines for YIF/Coordinator:

1. YIF has to fill out reports everyday
2. YIF has to end reports on 15th and submit specified reports to *Taluk* Coordinator as on 15th of every month
 - a. YIF has to submit Format-1, Format-2, and Format-3 as on 15th of every month to the *Taluk* Coordinator before 17th of every month
 - b. Format-5 and Format-6 have to be submitted once every 2 months, e.g., 15th Jan, 15th March, 15th May, 15th July, 15th Sept, 15th Nov, along with Formats-1, 2 & 3.
 - c. Format-7, Format-8, Format-9 have to be filled and submitted to *Taluk* Coordinator together on or before 25th Dec. If there are any changes in these data, then they have to update it and give it to *Taluk* Coordinator as and when there is a change.
 - d. *Taluk* Coordinator has to collect Format-1, Format-2, and Format-3 from all the 5 CALCs of his/her *taluk* on 15th of every month and record these data in the consolidated sheet (Format-4) and send it along with Formats-1,2,3 to the Foundation office in Bangalore every month.
3. Keep one copy of these reports in CALC, another with the *Taluk* coordinator, and one copy has to be sent to the above address (APF, Bangalore).
4. Before sending monthly reports, Coordinator has to cross-check the information
5. Monthly reports have to reach the concerned in time as mentioned below
 - a. YIF to Coordinator, 17th of every month
 - b. Coordinator to Area Coordinator, 23rd of every month
6. Fellowships to YIFs/ coordinators will be disbursed only on receiving the reports in Bangalore from the respective *taluks*

Format 1: PC Utilization Report

Format 2: Consolidated Maintenance Report

Format 3: Revenue Generation Report

Format 4: Consolidated Report of 1, 2 & 3

Format 5: Consolidated Report of Visitors

Format 6: Teacher Participation Report

Format 7: Timetable Format

Format 8: School Enrollment Analysis

Format 9: Stock Records

Format 10: Basic School Data Format

Exhibit 6

COMPUTER ASSISTED LEARNING CENTERS (CALC)
IN THE INDIAN STATE OF KARNATAKA

Sample Data of CALCs Village Data (Sample size = 32)

Village	Population	No. of Households	Main Occupation	Male / Female ratio	No. of LPS	No. of HPS	Rural / Semi-Urban
Abbenahalli	1,158	292	Agriculture, Sericulture & Dairy Farming	100 / 95	0	1	Rural
Anoor	1,322	258	Agriculture	100 / 99	0	1	Rural
Attibele	7,944	1,636	Agriculture & Labor	100 / 105	0	3	Semi-Urban
Bannerghatta	3,241	692	Agriculture	100 / 83	0	1	Semi-Urban
Batrayanapura	7,326	3,426	Merchants, workers	100 / 60	0	0	Semi-Urban
C K Pura	1,728	335	Agriculture	100 / 94	0	1	Rural
Channasandra	3,323	733	Agricultural Laborers & Cultivators	100 / 94	0	1	Semi-Urban
Cottonpet	896	217	Coolies	100 / 35	1	0	Semi-Urban
Doddashivara	1,126	150	Agriculture, Sericulture & Dairy Farming	100 / 95	0	1	Rural
Domlur	4,385	874	Workers	100 / 96	0	1	Semi-Urban
Gandhinagar	2,600	976	Agriculture	100 / 67	0	1	Semi Urban
Hebbagodi	5,768	1,552	Agriculture & Labor	100 / 106	2	1	Semi-Urban
Hemmanahalli	1,986	427	Agriculture & Labor	100 / 100	0	1	Rural
Hongasandra	8,154	2,019	Merchants	100 / 88	0	0	Semi-Urban
Hungenalli	1,599	300	Agriculture, Sericulture & Dairy Farming	100 / 95	0	1	Rural
Jyothipura	916	171	Cultivators	100 / 97	0	1	Semi-Urban
Kattaripalya	2,100	765	Laborers	100 / 67	0	1	Semi Urban
Kotaguda	2,561	532	Agriculture	100 / 97	1	1	Rural
Maddur Town	23,539	5,282	Agriculture, Business & Labor	100 / 100	2	6	Semi Urban
Mallur	3,083	647	Agriculture	100 / 107	0	1	Rural
Malmachanahalli	2,025	426	Agriculture	100 / 83	0	1	Rural
Malur	21,037	8,500	Business, Agriculture	100 / 95	3	6	Semi Urban
Mandur	1,120	198	Cultivators	100 / 87	0	1	Semi-Urban
Nagavarapalya	189	34	Cultivators	100 / 84	0	1	Semi-Urban
Nelagadharanahalli	1,269	539	Agricultural Laborers & Cultivators	100 / 98	1	1	Semi-Urban
Nosagera	911	110	Agriculture, Sericulture & Dairy Farming	100 / 95	0	1	Rural
PC Extension	3,600	1,472	Officials	100 / 60	0	2	Semi Urban
Sheegehalli	1,313	250	Cultivators	100 / 92	0	1	Semi-Urban
Sommanahalli	1,633	508	Agriculture & Labor	100 / 100	1	1	Rural
Thindlu	953	172	Agriculture	100 / 99	1	1	Rural
Tummanahalli	652	194	Agriculture	100 / 104	0	1	Rural
Venkatapura	3,594	650	Blanket Weaving	100 / 80	1	1	Rural

LPS: Lower Primary Schools; HPS: Higher Primary Schools.

Exhibit 6 (continued)

CALC data (Sample size = 32)

Village / CALC	No. of Teachers	No. of Students	No. of PC's	Present Attendance (%)
Abbenahalli	7	219	6	79.35
Anoor	6	186	4	100
Attibele	7	304	6	100
Bannerghatta	8	344	8	98
Batrayanapura	10	677	8	100
C K Pura	7	285	6	97
Channasandra	9	274	5	100
Cottonpet	10	347	8	100
Doddashivara	8	297	5	90.8
Domlur	11	372	7	84.94
Gandhinagar	11	291	7	88.4
Hebbagodi	10	471	8	100
Hemmanahalli	7	239	6	48.4
Hongasandra	7	450	8	98
Hungenalli	6	252	4	85.58
Jyothipura	4	153	4	100
Kattaripalya	6	198	4	91.57
Kotaguda	10	386	8	100
Maddur Town	11	406	8	95.81
Mallur	6	227	5	100
Malmachanahalli	7	107	4	100
Malur	9	280	7	94.64
Mandur	4	162	4	91.97
Nagavarapalya	11	600	6	100
Nelagadharanahalli	17	693	8	100
Nosagera	5	165	4	95
PC Extension	11	353	7	90.93
Sheegehalli	5	223	4	79.82
Sommanahalli	8	212	6	69.8
Thindlu	20	865	8	100
Tummanahalli	6	182	4	100
Venkatapura	13	437	8	100

Exhibit 6 (continued)

Headmaster Statistics (Sample size = 20)

Characteristic	Frequency	Percentage
Gender		
Male	15	75%
Female	5	25%
Motivation for running CLC		
Students can obtain computer education	8	40%
Social Work	3	15%
Personal Interest	4	20%
None	5	25%
Location		
Rural	10	50%
Semi-urban	5	25%
Urban	5	25%

YIF Statistics (Sample size = 33)

Characteristic	Frequency	Percentage
Gender		
Male	10	30.3%
Female	23	69.7%
Highest Qualification		
PUC (class 10)	4	12.1%
SSLC (class 12)	2	6.1%
Bachelors	21	63.6%
Masters	6	18.2%
Computer Knowledge		
MS Office	33	100%
C	17	51.5%
C++	9	27.3%
TALLY	7	21.2%
DTP	5	15.2%
HTML	5	15.2%
Visual Basic	5	15.2%
Location		
Rural	20	60.6%
Semi-urban	7	21.2%
Urban	6	18.2%
Distance from School		
Native	17	51.5%
Nearby (< 2km)	9	27.3%
Further (> 2km)	7	21.2%

Exhibit 6 (continued)

CALC Sources of Income (Sample size = 32)

Note: 1 US\$ is approximately Rs. 44.

Place	Community use	Other sources of funding
Abbenahalli	A few college students to learn MS Office.	<i>Panchayat</i> support.
Anoor	Other high school students.	Voluntary donations from community members.
Attibele	10 students from other schools at Rs 10/hr. Earning approx Rs 70/day.	None (still in first year of operation).
Bannerghatta	1 student at Rs 100/mth and 1 factory worker at Rs 1000/3 month course. Earning about Rs 70/day from students' voluntary use after school.	Children's Club at Rs 50/ month. (still in first year of operation).
Batrayanapura	Officials from government, housewives, students and other community people at Rs 100/month basic course.	None. Community use sufficient.
C K Pura	10 high school students at Rs 50/month.	None (still in first year of operation).
Channasandra	Students and <i>Panchayat</i> members at Rs 500/3 month course.	YIF salary from <i>Panchayat</i> and other support from School Development and Monitoring Committee.
Cottonpet	College students at Rs 500/ 3 month course.	YIF employed by NGO.
Doddashivara	None.	Voluntary donations from parents and door-to-door collection by PE Teacher.
Domlur	None at present.	Support from councilor's office.
Gandhinagar	None.	Donations from voluntary organizations like the Lion's Club.
Hebbagodi	5 adults at Rs 800/3 mth course. For students Rs 500. 50 school students spend around Rs 15/day to play games in the evenings.	None. Community use sufficient.
Hemmanahalli	2 batches of students taking basic course.	<i>Zilla Parishad</i> chief support.
Hongasandra	4 students at Rs 200/month basic course.	PE Teacher obtains funds from various sources every month.

Exhibit 6 (continued)

Place	Community use	Other sources of funding
Hungenalli	2 students at Rs 500/mth basic course.	Voluntary donations from community members.
Jyothipura	2 batches of PUC students at Rs 500/3 month course for MS Office. High school students at Rs 10/hr for educational CDs.	Voluntary donations from community members and teaching staff.
Kattaripalya	A few people using to play games.	Voluntary donations from individuals and organizations.
Kotaguda	23 students from high school play games for Rs 50/mth for 1 hr/day	None (still in first year of operation).
Maddur	None.	Support from School Development and Monitoring Committee.
Malmachanahalli	Computer course in summer.	Support from local Milk Dairy.
Mallur	40-45 housewives and other school students at Rs 500/3 mth MS Office course.	Voluntary donations from community members.
Malur	Courses at Rs 450/3 month course.	Support from School Development and Monitoring Committee.
Mandur	None.	YIF's salary provided by a Trust. Rest from voluntary donations from parents and nursing college located in the area.
Nagavarapalya	12 members learning MS Office at Rs 500/3 month course.	Support from local organizations and School Development and Monitoring Committee.
Nelagadharanahalli	Previous YIF 10 members. Currently 20 members, basic course Rs 100/mth. Mainly students and housewives.	Adopted by ABB (a private company).

Exhibit 6 (continued)

Place	Community use	Other sources of funding
Nosagera	4 students took MS Office course at Rs 300/2 months.	Local MP and MLA support. Voluntary donations from community members.
PC Extension	10 community members learning MS Office at Rs 500/3 month course. New batch Rs 600.	Children's Club for school students.
Sheegehalli	Students learning MS Office at Rs 750/3 month course.	About Rs 500/month from Children's Club for school students. Voluntary donations from community members.
Somanahalli	None.	Voluntary donations from parents and community members. Children's Club for school students.
Thindlur	2 working people at Rs 250/mth basic course and 2 other school students at Rs 100/mth. 5-6 students from this school at Rs 10/hr once a week.	None (still in first year of operation).
Tummanahalli	None.	Support from Panchayat.
Venkatapura	Earned Rs 4,000 in 3 weeks. 26 High school students learn basics and games at Rs 50/mth and 22 college students learn Star Office at Rs 200/mth or Rs 1,000/6 mths. 3 batches of classes everyday.	None (still in first year of operation).