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Session: What is the role of tertiary education in the knowledge economy?

The Finnish Education System and its Role in Knowledge based, Innovation-driven Economy.
Lessons to be learned?

In Lisbon summit 2000, governments and heads of European Union set the goal of making Europe "the most competitive and dynamic knowledge based economy in the world." At that point Finland had already advanced well in building knowledge based economy. Finland had good reputation of advancement in information and communication technologies (ICT) and in the early adaptation of GSM and internet. In the beginning of 21st century, Finland was ranked highest several times in the World Economic Forum's (WEF) competitiveness index as well as in World Banks Knowledge Economy Index (by countries and regions).

Slide, Routti et al, World Banks Knowledge Economy Index

During recent years Finland has received good results/reputation for the education system. Finland was ranked to the top in OECDs Program for International Student Assessment studies (PISA 2001 and 2003 surveys) in learning skills and educational attainment. The skills of the Finnish students in basic education were among the best in all domains including mathematics, reading literacy, sciences and problem solving. According to this survey, Finland does not have schools with bad reputation.

Human capital and skilled labour are the prerequisites of technological advances in knowledge-based, innovation-driven economies. It is worth remembering that the development of a modern knowledge economy It is evident that the countries and continents that invest heavily in education and skills, benefit economically and socially from that choice. Finland has been one of these.

According to Human Capital theory education and training increase labour productivity. Please see the slide., where labor productivity has increased most in Korea, in Ireland and Finland.

Slide Growth (indexes)

reflects a larger transition from an economy based on land, labour and capital to one in which the main component consist of information and knowledge. (Theses principles were emphasized ...)

In the long term education is one of the most important background factors for Finnish success story. As an historian, I will analyse the long term trends behind the success of Finland and those factors that explain the success of Finland in her way to knowledge based economy First I will look at the Finnish school system as a whole, then at the tertiary education.. In the second part of my presentation the focus is on the African countries and their problems in capacity building especially within higher education. (for me the tertiary education and higher education mean almost the same) At last, we have to ask if there are anything to be learned from the Finnish model.

Finland was part of the Swedish Kingdom until 1809, and after that became an autonomous state in the Russian Empire. Finland could keep its religion (99 % Lutheran, its languages, Finnish and Swedish) but laws originated from Sweden and its education system.

The Finnish School System

The strength of Finnish schooling lies in good teachers, efficient teaching methods and uniform quality. Human capacity-building has and will be maintained and nurtured in Finland by means of the high standard education system that is open for all citizens. Education impacts human capital, which in turn increases productivity. We can argue that education is a key factor from the point of view of economic growth in the knowledge-based, innovation-driven economy of Finland.

The central objective of the Finnish education policy is to provide all citizens with equal opportunities (the nine-year long comprehensive school) to receive education, irrespective of age, domicile, economic situation, sex or mother tongue.

Slide The Finnish School System

Education is considered to be a fundamental right for all citizens. In Finland, basic education is based on the following principles:

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- **Regional accessibility of education**
- **Equal opportunities for education for both language groups (Swedish and Finnish)**
- **No separation of the sexes**
- **Instruction is free of charge**
- **State financial aid scheme for students**

The principles of regional and gender equality is realised also eg. in music education with good results (Finnish conductors and singers) Music schools and conservatories are widely spread. What concerns the tertiary sector the same principles of equality are realised. Social background has no meaning in entering to university. After the secondary school every student has an equal chance to apply to universities and if accepted, study without any fees.

In Finland the Ministry of Education is responsible for the education system as a whole and especially for the high education. The general guidelines and aims for primary and secondary education are formulated by the National Board for Education, but the schools and local authorities have possibility to arrange fruitful learning environments (computers).

University teachers have close contacts with teachers at schools. Eg. National matriculation board consists of both group. Gender equality has become true; already 1901 14 % of the students were women and 38% in 1938. Today female students are in majority in the Finnish universities.

Slide Pictures from Finnish Schools (female students from 1920s)

This is no wonder as Finland was the first in the world where a suffrage and franchise for women was accepted in 1906. Altogether 19 women were elected to the first parliament.

The Main principles in the Finnish primary and secondary education :

- Decentralised system (schools and teachers can quite freely choose teaching material and teachers can choose the best methods to teach)

- Good teachers and excellent teachers training
- Emphasis on capacity building (Curriculas and plans on all levels; cooperation with local communities)
- Monitoring and steering of results
- Inclusion of the weakest students, special education are arranged
- School meals and school health care organised
- Nationally controlled matriculation exams on the last year of a school school, after the upper secondary level

Tertiary education

After the compulsory school more than 80 per cent of the age group from 20 to 34 have either upper secondary or tertiary level education. In national politics and regional policies an answer to the problem of equal opportunities in education has been the establishment of universities across Finland, all of which are state universities and where the teaching is virtually free.

Slide Finnish Universities and Polytechnics (Map)

Slide Main principles in the Finnish High Education system

- **Students are chosen equally with similar criteria to all of the universities: both the matriculation examination and the success in the entrance examination are taken into account.**
- **No gender disparities**
- **24% of all professors female**
- **During their studies students have obligatory language tests both in Swedish which is Finland´s second official language and in English**
- **Wide language skills (two domestic languages +English, German, French, Russian)**
- **No fee**

Slide: Research and Teaching at the Finnish Universities

- **In Finnish universities research and teaching are closely linked. The main emphasis lies to raise the quality of both.**
- **The evaluation of teaching and research at universities has been organised every third year by an international expert group.**

- **Both teaching and research of each faculty are targets for continuing monitoring and evaluation.**
- **Strategic planning; Good government**
- **Regional Networks for graduate training and research**
- **Mobility; studying abroad**

In the 1990s, the Finnish higher education system was organized into two sectors, the university sector and the non-university sector. The latter category includes polytechnics which have been developed from the highest vocationally oriented educational institutions. Much discussion is going on with co-operation with universities and polytechnics. One of the hottest questions concerns Ph D. Education in Polytechnics. The most negative attitudes against the potential Ph training in Polytechnics come from the universities side.

Slide Science Policy

- **Effective science policy during last two decades (the Finnish Academy, the National Technology Agency). The Finnish Government has systematically raised financing for research on all levels, both for universities as well as for firms (R&D).**
- **Focus on Science and Technology studies/ Strong humanistic and social science tradition at Finnish Universities**
- **Private - Public Partnership**

Slide R et D expenditures as a share of GDP (%). 3,6% of BKT

Academic career has attracted and attracts young people.

See slide. Number of researches per thousand employed.

Slide Academic Patenting (Manuscript of Sampsa Kaatajas Ph.D)

Long term trends and roots of knowledge based society

Background for the Finnish education system and study opportunities in Finland can be found historically in several factors:

The Finnish Lutheran clergy encouraged literacy and a reasonable level was reached quite early. Already during 17th and 18th centuries people learned to read. (estimation: 30% of the population could read) In 1880, according to Official Statistics, literacy rate of the whole Finnish population was 86.3 %.

Education was appreciated by all social groups of the society. Since the Middle Ages (from 14th century) Finnish students have studied in foreign universities at first in Europa later also in USA. Education was almost the only channel for upward mobility, when the country was relatively poor (not much natural resources regardless forests) Education was something where several social professional groups participated.

- **Literacy Lutheran church had schools schools and controlled literacy) Church used the language of people)**
- **Common libraries were founded already two hundred years ago and everyone could use those without a fee; people learned to read books and newspapers. Already in 1900 there was 2000 libraries in Finland (the amount of population approximately 3 millions)**
- **Newspapers. In 2003 there was 203 newspapers (published at least four time in a week)**
- **The communicative skills of common people were developed in civic societies and associations (like temperance movement, labour movement, co-operative movements)**
- **The motivation of various professional groups to invest their human capital in building the Finnish nation state (national spirit and civic pride) especially before Finland became independent 1917**
- **Public education as an objective and as a challenge not only for teachers but for engineers as well as for doctors of medicine**
- **The important role of public sector in building infrastructure.**
- **Active following up system for the newest know how in all sectors (from communication to health care and medicine, from good governance to best practices in schooling and education)**
- **Strong financial support from public authorities (Finnish government as well as local governments) for experts in various fields for acquaintance the latest know how from abroad**

- **“The Finnish Model” for following the latest know how. 1. at first acquaintance with the information from books and statistical sources, comparative analyses. 2. Study tours, personal observation 3. inviting experts from abroad.**
- **Brain drain in minimum when building the nation-state Finland**
- **Gender equality**
Finland is one of the least corrupted countries in the world.

African case

Problems in primary education (towards EFA 2015) : Illiteracy, HIV/Aids, quality problems, (ineffective schools), strong demand for trained teachers; ratio of teachers , regional disparity, gender disparity. Primary pupil teacher ratio, in Mozambique 67 pupils per a teacher, in Ethiopia 65 students per a teacher, Tanzania 53 per a teacher and in Zambia 53. (in the whole Sub Saharan Africa ratio is 45; Compare Finland 16, UK 17 and France 19.)

Slide: Education Input and pupil/teacher ratio in some countries

Slide: Map on illiteracy (UNESCO Yearbook from 1999)

Slide: Table on Adult Literacy rates and youth Literary rates in UNESCO regions.

As you can see from the table¹ literate rates are lowest among female adults in Northern Africa (Literacy rate in 2000-2004 48.9%)and Sub Saharan Africa(51,7%). The case is much more promising among youth. (73% on f female young in Northern Africa and 67,6% in Sub Saharan Africa) E.g. The flow of information via newspapers must have been slower – because of illiteracy.

Slide: Map on Distribution of Newspapers (UNESCO Yearbook 1999)

Before we'll go to tertiary sector in education, some basic indicators² on Africa. Life expectancy is very low, lowest in Zambia, where HIV/Aids has spread widely. Gross national income per capita in Current prices \$ is lowest in Ethiopia, Zambia, Tanzania and average annual growth 1999-03 of GNI per capita is the lowest in Kenya and Zambia. In spite of this, the long term growth prospects in Sub-Saharan Africa are fairly positive (according to Global Insight).

¹ Unesco, Institute for Statistics, May 2005 Assessment

² African Economic Outlook 2004/2005, OECD

Slide. Some Basic Indicators

Enrolment to tertiary education. There is not possibility to receive net enrolment estimates for the tertiary education, only Gross enrolment ratios. Enclosed some examples on countries with which Finland has development co-operation. It is much to do with tertiary sector beginning attainment to Universities.

Slide Gross enrolment ratio

Slide Some problems in Higher Education:

- **Gender disparities**
- **Brain Drain**
- **Language problems (bilingualism recommended)**
- **Low focus in Science and Technology**
- **Lack of databases**
- **Underpaid professors**

During recent years there has been much activities among various organisations for capacity building of Education in Africa. (ADEA)

The main target is according to Jontien and Dakar agreements education for all (EFA) That is why there is need for trained teachers during the next ten years.

Recommendations for African higher education³

- **Enhance the links between various actors in higher education and their community for sustainable development**
- **Integrate allowances of private education to national system**
- **Integrate higher education to other sectoral policies**
- **Regulation: accountability instead of control**
- **Strengthening the national infrastructure in policy development, ICT and exchange programmes**
- **Increase commitment by governments for developing ICT at Universities; e-learning**

³ Some remarks based on presentations and discussions in Tampere, Finland. The seminar on educational development in Africa – Capacity Building Perspectives, Department of Education, University of Tampere, April 27-28th, 2006

- **Mobility programmes are needed**
- **Dialogue between different cultures are needed (Southern- Northern; Eastern- Western)**
- **Strengthening of cultural consciousness. National spirit/civic pride is needed (comp Finnish case)**
- **Personal trust and commitment on all levels needed; organisational confidence**

Slide Picture of a Promotion at the University of Helsinki, professor Eeva Tapio.