

## 4 Education

### 4.1 Domain description

The concept of "education" is changing. From the formal and predefined curriculum of the industrial society, education today is redefined as lifelong learning in the information society. Lifelong learning certainly reflects a new comprehension of the need for education in society. The "redefinition" seems to be the conceptual answer to the increasingly complex needs and possibilities for development and learning in the information society. The concept lifelong learning also corresponds to the broad political efforts and initiatives on developing education related to ICT in individual countries, the European Commission, and other supranational organisations.

As lifelong learning appears to be an important key concept for education in national action plans, it is also evident that a change of focus in education policy has taken place, i.e. emphasis is shifting away from the system to the learner.

In this context, education is understood as a formal institutionalised process of knowledge transfer and knowledge development, focusing on institutional structures and activities of education, preparing individuals before they enter the labour market for the first time. This contrasts with informal learning arrangements that take place through various communities of practice arrangements, i.e. on-the-job-training and peer learning. These informal learning arrangements are discussed in the next chapter which deals with the SIBIS Topic "Work, skills and employment".

SIBIS divides the Topic "education" into three general and seven specific issues. These issues are interdependent and interwoven, but separated for analytical reasons. The three general issues are lifelong learning, e-learning, and evaluation and research. The seven specific issues are all related to the eEurope action plan and are found to be issues for statistical indication of development of the information society in education:

- ÿ ICT infrastructure of the educational system
- ÿ Support services and educational resources - software (pre-conditions for e-learning)
- ÿ Integration of ICT in curricula
- ÿ Training of teachers – teachers' qualifications
- ÿ Digital literacy
- ÿ Flexible educational institutions and virtual mobility
- ÿ Networking between educational institutions and public/private collaboration

The analysis of existing indicators and outlining of gaps in statistical coverage is related to these seven specific issues only. Statistical indicators already available as well as indicators under development have been collected from various sources. The sources have been at supranational level, especially the EU and OECD as well as at a national level, especially Denmark, Sweden, Finland, Canada and the UK.

## **4.2 Description of major problems and gaps in statistical coverage**

The review of indicators and surveys covering the topic showed that within most of the seven issues a huge number of indicators and survey based data already exists. The very wide variety in institutional structures within in the formal educational system across the European countries has, however, important consequences for the coverage of data. Some supranational indicators and surveys exist, but most indicators and data are closely related to specific national educational structures. Some of the “existing” indicators on the educational topic are therefore limited to being accepted and used in one or a few European countries, as the survey data is delimited to these countries.

In two of the issues (Flexible institutions and virtual mobility, and Networking between educational institutions and public/private cooperation) very few indicators existed. A few indicators, mainly at the level of “strategy and infrastructure”, were proposed to be surveyed by qualitative and very targeted methods.

Furthermore, the shift of focus in education from system to learner opens up a gap between existing and needed indicators on education and ICT. So far, the focus has mainly been on indicators as infrastructure, counting computers, net access, etc. In the near future, the central focus is going to be on use and competencies. The technological developments as well as the increasing distribution of hardware tends to decrease the importance of the hardware/infrastructure relative to the use/competence indicators. Therefore, there is a need for generic, statistical information on citizen and employee behaviour when working and learning in the information society as well as indicators outlining the availability of competencies in the information society.

## **4.3 New indicators overview**

The analysis has shown that a number of education themes need to be better covered by statistics in order to provide a complete picture of the main relevant issues in present-day education. Development of new indicators was partly determined by the data gathering methods which are available to the SIBIS project, i.e. telephone based surveys. The definition of indicators which suit this approach will supposedly also facilitate an implementation of the new indicators into existing surveys conducted by supranational statistical institutions such as EUROSTAT, or the National Statistical Institutions.

Furthermore, indicators were selected on the basis of policy relevance, which means, in particular, that they should reflect the shift of focus from infrastructure towards use and competencies.

Two main sets of indicators are suggested:

- Ÿ In relation to indicators for measuring support services and educational resources, integration of ICT in curricula and training of teachers, five questions are proposed to be implemented in future teacher/head teacher surveys similar to the Eurobarometer flash survey conducted in late 2001. A module on e-learning is being piloted in the SIBIS General Population Survey (GPS);
- Ÿ In relation to digital literacy, a number of questions are piloted in the SIBIS GPS to test their quality for assessing digital skills among students as well as adults at different ages (as indicators of educational level).

Future work in SIBIS on the Topic "education" will include suggestions for two composite indices, one attempting to show a country's readiness for using ICT in education and a second one aiming at mapping the outcomes of a country's educational system with regard to digital literacy, e.g. the digital skills among pupils and students at the time they leave school or university. These indices will be suggested for benchmarking the standing of a country's educational system in the Information Society.

<b>Thematic Domain</b>	<b>Sub-domain</b>	<b>Selected new level 1 indicators</b>	<b>Piloting in SIBIS</b>
<b>Support services and educational resources (Content)</b>	Barriers to e-learning: networks/platforms	Lack of satisfactory e-learning /networking platforms as reason for teachers not using internet in education (to be broken down by educational level: first, secondary, tertiary)	proposed for Eurobarometer flash survey
	Barriers to e-learning: content	Lack of satisfactory content in educational ICT resources as reason for teachers not using Internet in education (to be broken down by educational level: first, secondary, tertiary)	proposed for Eurobarometer flash survey
<b>Integration of ICT in Curricula</b>	Change in pedagogical practices	Development in pedagogical methods resulting from new possibilities offered by ICT (teachers assessment) (to be broken down by educational level: first, secondary, tertiary)	proposed for Eurobarometer flash survey
	ICT as a tool in other subjects	Use of e-learning by students	SIBIS GPS
<b>Training of teachers – teachers qualifications</b>	Training of practising teachers	Teachers ICT training. (to be broken down by educational level: first, secondary, tertiary)	proposed for Eurobarometer flash survey
	Training of practising teachers	The content of teachers ICT training (Technical or pedagogical skills) (to be broken down by educational level: first, secondary, tertiary)	proposed for Eurobarometer flash survey
<b>Digital literacy</b>	Capability to communicate	Confidence in getting in touch with others through the Internet (average & distribution) Confidence in creating a personal web page (average & distribution)	SIBIS GPS SIBIS GPS
	Capability to find and install software programs	Confidence in downloading and installing software (average & distribution)	SIBIS GPS SIBIS GPS
	Capability to search and use information	Confidence in use of search engines(average & distribution)	SIBIS GPS
	Capability to use digital services	Confidence in locating information on the Internet (average & distribution) Confidence in questioning the reliability of digital information on the internet (average & distribution)	SIBIS GPS —
	Overall digital literacy	Composite measure of the above, broken down by (a) age bands (b) occupational status (c) other independent variables (see also section)	SIBIS GPS