

Schools as Lifelong Learning institutions and the role of Information Technology

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Abstract: In this paper we focus on the role schools should play in lifelong learning and on the use of IT in school environment. We report on some activities in these directions taken in Polish schools and in the Polish education system in general.

Key words: formal learning, informal learning, Lifelong Learning, non-formal learning, school, student, teacher

INTRODUCTION

The declarations of the European Council show that the transformation to the knowledge society is very high on the political agenda. The knowledge-based economy relies mainly on the use of information and knowledge rather than physical power and on the application of technology rather than on the simple production of goods. In consequence, society expects new knowledge, skills and competences from citizens and for them to be self-motivated to pursue their own personal and professional development throughout life. Lifelong learning is the most important and promising way to empower citizens to meet these demands.

In the Commission of the European Communities Memorandum on Lifelong Learning (2000, 2001), lifelong learning is defined as *all learning activity undertaken throughout life, with the aim of improving knowledge, skills and competences, within a personal, civic, social and/or employment-related perspective*. Therefore, lifelong learning is not limited to an economic outlook and learning opportunities for adults, its objectives include active citizenship, social inclusion and personal fulfilment and realisation of individual needs. In the Memorandum's implementation, emphasis is put on the centrality of learner, equal opportunity, and learning needs. Such an approach to teaching and learning requires education institutions to become more learner-oriented than program (or curriculum or institution)-centred.

There are three main categories of learning activity, which are not entirely separate worlds of education:

- **formal learning** takes place in schools, universities, training institutions and leads to diplomas or recognized qualifications;
- **non-formal learning** takes place alongside the formal systems and usually does not lead to formal certification; it may be provided in the workplace, through group and organization activities; it complements formal systems; it stands outside formal institutions;
- **informal learning** – it takes place in everyday life, not necessarily intentionally, e.g. from family members, friends, community members and also through media channels (radio, TV, films, etc)

Lifelong learning places new demands on all types of learning activity and educational institutions, in particular on schools who must work in close cooperation with each other. Information based learning directed by teachers teaching in schools should be gradually replaced by a new type of learning, which promotes creativity, collaboration, and knowledge construction and application. Traditional education systems must become more open and flexible, so that learners can design individual learning strategies, suitable to their interests and needs. Learning what is taught in traditional education should be transformed to effective learning of what people need and are interested in.

INFORMATION TECHNOLOGY

Information technology (IT) plays an important role in lifelong learning due to its great potential for innovation in learning and in teaching methods, educational tools and environments. IT skills (i.e. digital literacy) are among the new basic skills identified in the Lisbon European Council conclusions as those required for active participation in the knowledge society and

economy. IT provides a technical environment for lifelong learning (a channel for information and education resources) which can easily adopt changes. The main features of IT in the context of lifelong learning include:

- Flexibility with regard to time and place – an **anytime and anywhere** approach to learning, online learning environments, distance education;
- Flexibility with regard to content, e.g. computer and web mediated environments in workplaces, schools, homes and communities;
- Easy access to information and people, to ideas and solutions to problems, to new developments;
- The change of education from supply (of information and knowledge) to demand (just in time, just fit) approach;
- Person-to-person communication and interaction, synchronous and asynchronous; also interaction with web resources;
- Learning by doing, for instance through computer modelling and simulation, e-learning in distance education;
- A new organisation of learning, e.g. planning individual and group learning, management of information;
- A major component in merging personal, work, private, and leisure activities.

In this paper we focus mainly on the role schools should play in lifelong learning and on the use of IT in the school environment for that purpose. The role of students' and teachers' are considered. We report on some activities in these directions taken in Polish schools and in the Polish education system in general. For this paper the school is understood as a primary and secondary formal education institution, with some consideration of the extension to tertiary education.

SCHOOLS AS LIFELONG LEARNING INSTITUTIONS

The school is the most important formal learning institution to all actors of the education system: students, teachers and local communities including parents, local policy makers, and local governments. The school is responsible for the general education of all young people up to age 18-19. Quite often students spent at least 12 years in the school system plus 3-5 years in a tertiary institution. For many people it is about 20% of their lifetime. Schools are spending public money and using public resources which society therefore expects schools to be a partner in implementing changes, especially providing a solid foundation for further learning.

The formal education system should provide access to basic skills and moreover develop a learning culture. Instead of only working as an instructional institution, teaching according to specific programmes within a

given time period, schools should be adapted to accommodate modular programs, non-sequential learning, open and distance education and self-directed learning programmes.

As noted in the European Communities Memorandum on Lifelong Learning (2000), the results of formal (school) learning do not last a lifetime; high quality basic education for all is the essential foundation. Students should learn how to learn and developing a positive attitude towards learning. People do not want to continue learning if their experiences in school was unsuccessful and negative, if they have been rather discouraged to learn because of, for instance, comparatively poor achievements.

As suggested in European Communities Memorandum on Lifelong Learning (2000), key message 6, lifelong learning opportunities should be provided as close to learners as possible, in their own communities, since learning happens locally. The World Bank (2002) calls for schools to be turned into multi-purpose local lifelong learning centres, linked to the Internet and accessible to people of all ages.

In fact, especially in the early stages of IT development, schools are often the main public learning institutions for local communities (not only for students), and they remain such for many learners when they finish school and stay with the same community. At the later stages of IT development schools may become e-learning institutions for local communities.

The IT environment in schools may provide up-dated information, offering opportunities for all students and members of a local community to learn, and to take part in decision making actively participating in everyday life of community. This is of great value to those who never leave the community, for instance disabled people.

The school, as a formal learning institution, should support lifelong learning at least in the following aspects:

- **Preparation of students to become lifelong learners** focusing on the learner to meet their personal learning needs; school should become more learner-centred than curriculum oriented; students should be prepared in school for expected changes to come in: learning environment, (information) technology, local community, environment, job market, society.
- **Lifelong learning workplace for teachers** where schools are learning institutions for teachers and other staff members, a place of their professional development.
- **Lifelong learning partner**, and in many cases learning centre for the local community; local schools know best expectations of citizens, their needs; schools can provide cost effective learning service to local communities.

- **IT delivery centre and window to the global village** where rapid developments in IT influence changes in almost all areas of personal and professional life, especially in personal and institutional learning.

The programmes and organization of education are changing from supplying content and instruction to students to delivering what they really demand, based on motivation for farther development. This new approach starts to influence design, implementation and organization of curricula and what is going on in the classrooms. In high school, when students think about their professional career, they start to build their own programme, which is used to develop their way through tertiary education and leads to the workplace. Learning takes place along an individual personalised path. Step by step students become responsible for their own learning process; it becomes the source of their motivation.

Learning is changing – a major shift is towards user-oriented learning and encouraging students to become active learners, by improving existing practice and developing new approaches to take advantage of the opportunities offered by IT. The aims of learning extend to the creation of a learning culture, elements of personal style in learning, variety of forms and delivery of learning. Formal educational institutions such as schools are key learning environments for new ideas and practice.

For pedagogical and technical issues related to this new role of educational institutions we refer to the Position Paper on Lifelong Learning (Kendall et al. 2004). Some implementation issues are discussed also in the next sections.

Students

With regard to lifelong learning and the use of IT students should learn in school how to:

- Learn and use IT in improving their lifelong learning style and outcomes;
- Adopt changes, brought especially by rapid development of IT;
- Make sense and use of vast amount of information, today available in the net.

The eLearning initiative (Commission of the European Communities, 2000) has set the target that by 2003 all students leaving school should be digitally literate. This means digital inclusion, as opposite to digital divide – students will be able to access resources that are (sometimes only) digitally available and also use methods, techniques, and environments related to digital resources.

If all students at a certain level have the same opportunity for learning then potentially there is a chance that any knowledge gap and digital divide

between them will decrease (e.g., it applies to IT in Polish schools). Then one of the goals in the learning which follows should be not to increase these threats.

Self-motivation is the driving force in lifelong learning, preparing students in schools for years to come. Students should be encouraged to take an active role in the learning process. One cannot expect such attitudes in the case of socially excluded students who cannot motivate themselves and cannot be motivated, also in the case of students excluded (by teachers or by parents) from further education because of insufficient achievement. In such cases lifelong learning is the right way to combat exclusion from society, school and learning in general. Learning process should lead to positive actions among students and motivate them to learn more in school and later.

Information technology changes so quickly that one has to be very active in accommodating changes in the technology. People working in IT-related fields are always learning about new hardware and software, new programming methodology, communication standards, etc. A new emerging skill is to prepare other people, including school students, to become lifelong learners of IT.

A new challenge to schools is how to stop changes in the so called media (zap) generation of students, to make them interested in the future, motivated for learning, prepared for lifelong learning, and encouraged to co-operate with other students, family members, and the local community.

The most important issue in lifelong learning is learning how to learn. Training students in this direction should begin as early in the formal education as possible. Individual and group projects are very promising methods of working towards developing such skills. Schools are the right places to begin with students' team work and knowledge creation.

Teachers

The role of school teachers, with regard to lifelong learning is twofold:

- They are lifelong learners themselves to develop their own professional knowledge;
- Developing their students as lifelong learners.

These two fields of activities need different skills and competencies.

Professional development of teachers is not a part of their everyday work, since a classroom, as a working place, contributes only a little to teachers' learning. They need an extra time and effort to learn something new.

To be prepared for lifelong learning and to promote lifelong learning to students teachers should:

- Be pedagogically literate in lifelong learning and know its role in changing the learning environment;
- Know how to promote and integrate innovations in learning;
- Be competent in using IT to support and manage learning process.

Moreover, in learner-centred environments, teachers become guides, mentors, mediators, who mainly help and support learners. Learners take charge of their own learning. There is also change in teachers' role when they are separated from their students by time and distance; Polish schools are still very traditional, in teaching and organizing learning and teaching.

In understanding and using IT in teaching and learning, and in education in general, schools, teachers, students go through four stages (UNESCO 2002): first they discover general functions and use of IT tools (emerging stage), second they learn how to use IT in different subjects (applying stage), then they learn how to recognise situations in which IT could be helpful in solving (real world) problems and how to choose appropriate methods and tools of IT (integrating stage), and finally IT becomes integral part of the professional practice in school (transformation stage). In fact, the fourth stage is the most important to lifelong learning – instruction is learner-centred, subjects are integrated with themselves and with real-world applications, and school becomes a centre of lifelong learning, also for local community.

These stages are very important to the teachers' personal preparation and professional practice with the use of IT: first they become IT literate (awareness stage), second, they begin to apply IT in their subjects, then different teachers begin to integrate and overlap different subjects, and finally they are able to design lessons on larger real-world projects using IT tools, methods, resources.

There are many teachers for whom information technology is still a frightening component of school today. Some of them have got some experience in IT, but they still feel incompetent. There is a natural move to an IT competent profession (Samways 2004), which needs constant support in all respects; technical, software, training, and status.

Teachers as lifelong learners often take part in in-service training in tertiary educational institutions. To ensure expected outcomes, they should be linked to on-going professional development in their workplace (i.e. in schools), to interest groups (e.g. on particular teaching subjects), to professional associations (which may be dispersed), and to their local communities. Quite often however teachers have no time to leave their workplace and students, so the most convenient arrangement is learning at their own workplace.

With regards to technology, the optimal vision of education is to combine the best practice of human and machine (e-learning) teaching and providing access to non-local instruction and resources. There is a good message to teachers – it is not advised to eliminate human relationship from teaching and learning environments (Sharda 2003).

SCHOOLS IN POLAND AND LIFELONG LEARNING

There are a number of examples of good practice, projects and initiatives that advance putting lifelong learning into practice in school, among teachers and in local communities in Poland. We shortly describe them here.

Formal education starts in Poland at the age of 7 (from 2004 it will be moved down to 6). The formal school system at primary and secondary levels consists of three stages:

- Primary school – 1-6 grades (age 7 to 13);
- Middle school (in Polish: gimnazjum) – 7-9 grades (from 13 to 16);
- High school – 10-12 grades (to 13 in certain vocational schools) – (from 16 to 19).

Information technology (IT) as a separate subject is taught in:

- 4-6 Grades, for at least 2 hours per week for one year;
- Middle school, for at least 2 hours per week for one year;
- High school, for at least 2 hours per week for one year.

Moreover, in high schools students may choose informatics as a special subject and take final examination (*matura* in Polish) in that subject.

The term *informatics* is used in the sense of computer science and the term *information technology* has recently been accepted in education in the sense of applications of informatics. For short, informatics deals with producing new products connected with computers (hardware, software, ideas, theories, etc.) and IT is on using informatics (computer related) products.

Today, the subject in primary and middle schools is still called informatics, but it will be changed for information technology in 2-3 years, since its curriculum is in fact on how to use information technology across curriculum in different subjects and applications.

The national project “Internet laboratory in every middle school”, initiated in 1998, provided a solid technical basis for IT education in middle schools in Poland; today all middle schools are equipped with at least 10 PCs and additional equipment. In 2001, a similar project was launched, “Internet laboratory in every high school” with 15 PCs for a computer laboratory and 5 PCs for a multimedia laboratory connected with a school library.

The European eLearning initiative set the target that by 2003 all students leaving school should be digitally literate. In Poland, this target has been met since 2002 by all students leaving middle school, when they are 16 years of age and will be met by graduates from high schools by 2005.

Students

In school, students learn to adapt to changes in IT, and to use and make sense of the vast amounts of information on the internet as they are included in the IT curriculum for different levels of education in Polish schools. Students have separate classes on IT in primary, middle and high schools, so they learn how to adapt to changes in the technology for 9 years of formal education.

Moreover in high schools, lessons on IT are connected to special subjects chosen by students and one of the curriculum goals is to start students preparing their own personal IT environments which then can be used by them in continuing education.

It is still not obvious to students and to teachers in schools, that lifelong learning starts at the very beginning of formal education in primary schools, and tertiary education, learning at a workplace, and adult education are just next stages of lifelong learning, based on the foundation laid down at the beginning of education.

Teachers

All teachers are prepared in IT and lifelong learning opportunities in this area, fitting into different levels of competence in IT, with all teachers in schools in Poland fitting into the following categories:

- Teachers of separate informatics subjects (under different names: informatics, information technology, computerisation, etc);
- Teachers of all other subjects, who use and integrate IT with different areas of education;
- School IT co-ordinators.

The Standards for Information Technology and Informatics in Teacher Preparation (Syslo 2003) determine what teachers in different groups should know about and be able to do with the information technology (and informatics).

The position (function) of school IT co-ordinator was introduced to schools in Poland by the author in 1998. He (or she) is supposed to be a teacher of the separate subject on IT or informatics and moreover he/she:

- Leads the continuous self-learning of IT of all teachers in the school; therefore a school IT co-ordinator is responsible for building the professional learning of IT into the workplace (school).
- Guides other teachers how to introduce IT to particular subjects and then integrates the technology with different subjects; in the beginning he/she may even help other teachers with the technology in the classroom.
- Promotes and co-ordinates all changes in the school which involve IT and its use in education and school management.

As mentioned above, the classroom, as a working place, contributes only a little to teachers' learning, so they have to find an extra time for their personal development: on the other hand, learning should happen locally. With respect to technology, school IT co-ordinators are to help other teachers in everyday working and learning in schools.

Higher (tertiary) education institutions are major resources for teachers' professional development. They offer post-graduate in-service courses and training to different interest groups of teachers, in IT and in other subjects. The standards (Syslo 2003) serve as guidelines for accreditation of such courses and are used by the National Accreditation Board of Higher Education Institutions for that purpose (the author is a member of the Board).

Finally, let us mention recent initiatives and projects related to professional development of teachers in IT, which contribute to lifelong learning picture of the education system in Poland, in which the author is involved (Syslo 1998-2003):

1. In 2000, **Association of IT Teachers (AITT)** has been founded by a group of school IT co-ordinators. The Association:
 - By removing or diminishing geographical and psychological barriers, brings learners closer together at local conferences and workshops, organized all over the country in local communities or in schools;
 - Contributes to organization of local learning centres for students and teachers;
 - Promotes continuous education, in particular lifelong learning of teachers,
 - Promotes examples of good practice from classrooms in other classrooms;
 - Helps in providing access to IT for disabled students in their homes; in general, puts special emphasis on special education
2. **Post-graduate in-service courses** (350 hours of instruction) **for school IT co-ordinators** are organized by University of **Wrocław** and sponsored by local governments in **Wrocław** and in the region of Lower Silesia.
3. **Educational Forum for Information Society** was founded in 2003 to co-ordinate and organizes continuous in-service training in IT for

- teachers from the region of Lower Silesia. The Forum will provide the infrastructure to access lifelong learning for teachers and will prepare projects for structural grants from the EU.
4. The Association (together with other parties) has applied to **the World Bank** for grant aid to train almost 10 000 teachers and education managers from rural areas in seven regions in Poland in the use of IT in education.

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