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THE INTERNET AND TEACHING STRATEGIES

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The class-lesson system was established by Jan Amos Komensky three and a half centuries ago. This system dominates most schools even today. It is thought that the final shape of such a system was made possible by the most revolutionary invention of our era – the printing press and books. The report of Delors' commission (1998) appeared in a period of full bloom for the hypermedia educational technology materialized in the form of the Internet and multimedia software on CD. The members of Delors' commission are aware of that and they point out that 'teaching is a skill and nothing can completely replace face-to-face teaching. However, a media revolution has taken place and we should make use of it in the best possible way. New technology has created new tools to be used in the classroom, in laboratories, at home and on journeys. They come in the form of computers of all sizes and sophistication; cable and satellite educational television; multimedia equipment; interactive systems; information exchange, including e-mail and on-line libraries and public databases; computerized simulators; virtual reality systems. Using these tools *both students and teachers are equipped to become researchers.* (pointed out by M.M., Delors, 1996).

Experts compare the revolutionariness of the Internet and the CD to the appearance of books and the printing press. The appearance of hypermedia educational technology can and must be expected to influence the changes in educational strategies and in the internal organization of the teaching process and school. It is difficult to anticipate the nature and speed of these changes, but we ought to be prepared for them by becoming part of them and by offering active and creative evaluation.

At the beginning of the third millennium the following question has to be posed: *Can the system established by Komensky satisfy the needs of students and teachers at the end of the twentieth and at the threshold of the twenty-first century?*

Children who will get an education at the start of the new millennium will be surrounded by a different media and technological environment. Their lives will be characterized by greater mobility, by a higher level of information, by a greater possibility to communicate with known and unknown friends. Also, there is an open world commodity and information market. These facts should be accompanied by appropriate changes in every segment of the school curriculum.

The «new» teaching goals

In the last decades of the 20th century some 'new' goals of the teaching process have been bashfully pointed out alongside with the curricula: training students for independent learning, educating for changes, enabling students to search and select information, fostering enterprising spirit, nurturing and encouraging creativity, training students to observe and solve problems, etc.• These aims represented a challenge for some teachers, whereas others saw a mere increase of the list of goals that can but do not have to be realized. A particular problem for teachers was the question of which strategies to use in order to implement these goals. Those among them who ventured into a more thorough analysis of these goals realized that they could not be successfully implemented with a teacher-oriented teaching process (frontal teaching, teacher lecturing and presenting; students sitting, listening, watching). The interior school architecture did not provide the basic prerequisites for the implementation of the mentioned aims (classrooms organized and equipped in such a way that students look at each other's backs) and neither could didactic strategies and scenarios take place in such conditions.

Another question that raised dilemmas with the teachers was how to evaluate the implementation of these goals. How to assess somebody's creativity, enterprising spirit, readiness for changes or independence in learning on a scale from one to five? The assessment theory in school is not an end in itself, nor are the criteria of assessment a mere appendage to the basic stages of the curriculum. The criteria of assessment depend on the teaching goals, didactictic strategies and the global educational concept of school in the first place. Besides the enumerated goals the existing models of assessment of students should be thoroughly reconsidered.

In the age of the Internet and of the multimedia environment that accompanies it (CD, video, satellite television), the enumerated goals acquire a new meaning and a new place in students' lives, placing school experts in numerous dilemmas. It is obvious that these goals cannot remain a mere appendage to the list of goals for particular teaching areas, nor can they be a marginal task added to everyday teaching activities. A school which fills children's heads with facts cannot be the ideal for the 21st century, in a time when there are much better media for storing information than children's heads.

The main question to be answered by school experts of our age is: *How to organize school events in compulsory education to implement 'new' educational goals and to learn in a multimedia environment without jeopardizing the health and the normal and manifold development of young people?*•

• The adjective 'new' is put in quotation marks, as it does not refer to something really new. The aims we mention have been pointed out next to the teaching process in the 20th century. However, they have always remained in the margins of the teachers' concern for their successful realization.

• In the next two decades compulsory education will probably be extended to eleven or twelve years in most European countries.

Teaching strategies and computer strategies

By making use of the advantages of hypermedia educational technology in the near future it will be possible to dedicate part of the compulsory teaching process to research, problem and project teaching. Namely these didactic strategies imply that the students are assigned tasks that are to be completed within a school year or within a month, leaving them the freedom of choosing the time and place to complete them. This is, at the same time, a good way to prepare young people for the type of teaching situations that dominate at university level. Experts are concerned with the questions when to start with these strategies and how present they should be in all the teaching activities throughout the school year. A short answer to these questions could be: We should start from the first days of compulsory education, aiming at reducing the teacher's leading role day by day, year by year. Research on frequent cutting classes in the last years indicates that one of the more important reasons for doing so is the fact that the students have had enough of their passive role and the teacher-oriented approach.

Unfortunately, the ideal of the school of today is still 'a head full of facts'. That is how the curricula are designed and how textbooks are written. These textbooks are full of unnecessary facts, but, unfortunately, most teachers think that everything a textbook contains should be remembered. A way out of this view is in the change of the attitude saying the teaching process is supposed to 'implement the curriculum', which means orally present everything (or almost everything) a textbook contains, and then check on how much the students have remembered in oral or written form. Later in life, what is in demand are not only well-informed individuals but competent, resourceful and creative ones, willing to take risks. This cannot be accomplished in the existing educational situations which are closer to Komensky's period than to the time of Jacques Delors.

Framework curricula should really supply a 'framework' for planning numerous teaching activities during the school year. 'The implementation of the curriculum' should become individualized, or, in other words, determined individually. A framework curriculum should be the starting point for an *'educational agreement'* which will help design individual curricula for every student. Students should be prepared from the first day of their education to plan their own progress and to take responsibility for carrying out their work according to the previously arranged plan. The main subjects in the 'educational agreement' are the student, the teacher and the parents.

Computer software with built-in educational and computer strategies will have a strong impact on teaching activities in the near future (Hannafin & Peck, 1988). Software based on simulation, game, solving problems, research is offered on-line or on CD-s for school needs. These strategies will certainly contribute significantly to the implementation of the 'new' teaching goals, whereas the main obstacle to a more successful performance is in the stiff class-lesson system. The persistent attempts to 'squeeze' the Internet, personal computers and multimedia software into forty-five-minute lessons are a quixotic job. In order to make use of the advantages of the

mentioned media a different didactic framework from the class-lesson system should be searched for. A possible direction of search could be the transfer of the orientation of teaching activities from the classroom to the individual – from the class-lesson system to an individualized didactic model. Every student as an individual, not as an imaginary average student in his/her class, should constitute the subject to be considered when planning, implementing and assessing all the teaching activities.

Under a strong influence of fast changes in the area of teaching media traditional didactics acquires the characteristics of a multimedia didactics. Modern teaching theory cannot leave out or marginalize the area of teaching media and the teaching strategies that accompany them (Kinzer, 1986; Issing, 1994; Issing and Klimsa, 1995; Schulmeister, 1996, Gerdes, 1997).

Some twenty years ago distance education was reserved mainly for attenders of various schools for adults. The Internet made it possible to include all primary and secondary students. In other words, distance education has become an important complement of the school teaching events. Young people sometimes acquire more information by independent 'surfing' on-line than in their everyday school attendance. That is why students are sometimes better informed and computer literate than their teachers, and teachers learn from their students once in a while (e.g. on the Internet and multimedia software; more at: Matijević/Rijavec/Drandic, 1997).

A scenario for the future

It is the 1st of September – the first school day. The school is crowded with students. Everybody is looking for something. It is Luka's seventh year in this school. He is looking for his teacher-mentor. He wants to arrange this year's learning plan with him/her. He knows he has to take part in 400 school hours of joint activities from mother tongue, mathematics, music and recreational activities. He also knows he is supposed to choose 300 hours from the area of science or social sciences, and he has to register for individual projects for which he will need about 400 hours of individual work. He confirms his participation in joint and optional activities by inserting a card into an identification machine at the end of each activity of that kind. On previously determined days Luka has to file detailed reports about his individual activities which include specific materials (culture day, science day, ecology day, etc).

Luka adores practical activities and natural sciences. This year he wants to learn in greater detail about solar panels and the use of solar energy in the household. He decided to build a small solar panel and install it on his balcony which faces south-west and has a considerable number of solar hours per year. He enjoys making things with his own hands, and mum will be pleased to have free hot water in the kitchen.

Luka spent his summer holidays at his grandma's in the country. There he had the chance to walk through the wood and to get to know some wood animals. He showed special interest in squirrels. He decided to study their way of life more thoroughly this year (feeding, procreation, protection, etc). He hopes to find enough information about them on the Internet and at the school library. Next spring he would like to present the results of his research to his peers. That is why he would like to

spend a few autumn days at his grandma's in order to observe what squirrels do in autumn. Of course, he will also prepare a text for the book containing class projects.

Luka's mentor is a teacher of physics, but he has a lot of understanding for his interest in animals. There are already a few students waiting in front of his room. The students know each other well,as they have been together for two years. This year they are also planning to publish the classroom paper and the book of class projects. They greet each other friendly and wait for their first meeting with their mentor. At the end of the meeting, sitting in a circle, each of them will briefly present the project he/she is planning to work on individually during their meetings. In the course of the first week every student will try to contact his/her mentor in order to make arrangements for individual and optional activities.

The new role of the teacher

The appearance of the Internet and of multimedia software calls for a reconsideration of the role of the teacher in the teaching process. This has been observed by the authors of the abovementioned Delor's report who point out that the children of today do not need 'lecturers' and 'transmitters of knowledge' but mentors, organizers and leaders. The report states that «teachers must adjust their relationship to the students and change their role of 'soloists' into one of 'background vocal' (they are no longer a source of information, but they help their students **look for**, **organize** and **control** their knowledge – they **lead**, they do not **shape.»** (Delors, 1996, highlighted by M.M.). The youth of today and tomorrow expect their teachers to be their partners, friends and leaders. With a very pronounced non-personal communication in multimedia young people also need human (personal) communication. Multimedia software, presented in various way, can stimulate the emotional development of young people, but personal contact is irreplaceable in this sphere of education and development. The teachers of the 21st century should acquire new communication roles and new educational tasks. They will perform tasks in the teaching process which will give them a big advantage over electronic media, such as encouraging emotional development, empathy, socialization, personal communication, tutorial in project and research teaching, etc.

The way from teacher-lecturer to teacher-mentor is neither simple nor easy. The existing educational faculties still prepare teachers for a 'teacher-oriented model of teaching'. Training in methodology as well as pedagogical and psychological courses are just a marginal appendage at many teacher training faculties. Such faculties produce experts for sciences but not experts to assist the education and development of young people.

Conclusion

The appearance of the Internet and multimedia software on CD will thus determine certain changes in the area of the curricula, especially in the area of teaching strategies. This will also bring about changes in the position of students and

teachers in the teaching process, or, in other words, changes in the dominant forms of communication. These changes require good preparation in all the areas of school events in order to give the students of today and of tomorrow a school suitable for the present and future period, not for a period that is behind us. Changes in the models and strategies used in pre-service and in-service teacher training must be given special consideration. Since head teachers and school advisors are in a position to influence changes in schools, special attention should be paid to their preparation for our future in pedagogy and teaching.

The projects of school reforms at state level should include major changes in the interior organization of the teaching process and the school itself, since such changes do not occur by decree, but require a systematic and well-defined strategy of teacher training lasting several years. What changes most slowly in the area of education are the people, and people are the primary resource in schools, not buildings and the equipment they contain. These changes necessitate much less money than equipment and buildings, but they take much more effort, competence and understanding.

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