

EFFECTIVENESS OF E-TEACHING IMPLEMENTATION AND PROSPECTS OF ITS ADVANCEMENTS FOR DISTRIBUTED GROUPS OF LEARNERS

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Abstract

Process of teaching is considered as interaction of complicated intellectual systems. Properties of classical classroom teaching and computer-based teaching (E-Teaching) are compared in respect of interrelated systems involved to teaching/learning process. It is shown that on the base of adoptive character of classical classroom teaching lies “slow” and “quick” feedbacks between teacher from one side and groups of learners and individual learners from other side. These feedbacks are not inherent to eLearning and E-Teaching. Viewpoints of paper’s authors regarding problems of eLearning/E-Teaching and possible ways of these problems eliminating are presented. Experience of paper’s authors in application of F-Teaching directed to different types of distributed learners groups, namely, young people with special needs, teachers of Informatics from rural secondary schools and representatives of rural municipal offices, is described.

Keywords

CBL, Classroom training, Distance education, E-learning, Internet access, Training network, Virtual classroom, Web-based courses

Introduction

The aim of this paper is to acquaint the reader with essential from our point of view differences that distinguish properties of traditional and computer-based studies as well as with our observations obtained during implementation of computer-based teaching (E-teaching) for different groups of learners. Despite of the fact that this paper does not give answers to risen questions and does not explain in full measure given results it could be in a certain way in some interest both for advocates and opponents of E-teaching.

Comparison of properties of traditional teaching and E-teaching

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Characters of traditional teaching

Traditional forms and methods of learning were developed during centuries influencing society including sensations of learner, his/her emotional comfort during lessons, and his /her ability to assimilate teaching materials. Before now two basic forms of traditional learning are developed: using a book; face-to-face classroom lessons.

Both forms supplement each other – alternation of book reading with attendance on classroom lessons, face-to-face consultations after independent familiarization of a course. Despite of long co-existence traditional forms of learning do not interflow because first process (self-

learning using a book) is individual, but integral part of second one is a group of learners with all characters inherent both to a group as whole and to each individual (Fig. 1). As a rule a learning process is investigated from pedagogical point of view, however this process is in interest for consideration as interactions of intellectual systems with complex structures [1].

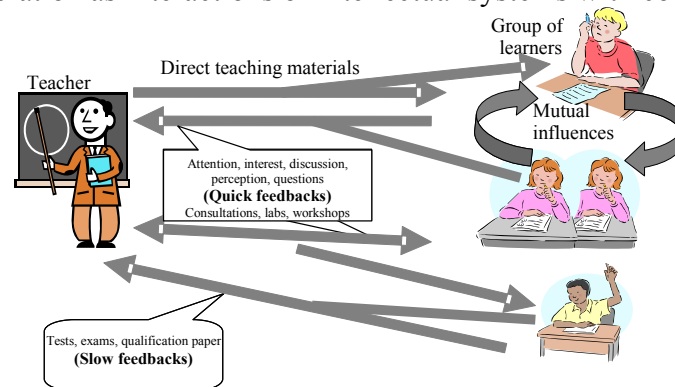


Fig. 1. Basic influences during traditional classroom's lessons.

Observations. Traditional classroom teaching generally is effective and emotionally comfortable both for learners and teachers.

Traditional classroom teaching is a complex multi-elements self-tuning system. Self-tuning of traditional teaching is conducted by quick and slow feedbacks, which allow teacher to optimize teaching process with regard to both current lesson and to the whole studies [1].

Deviations from patterns of traditional teaching often do not allow to quick and slow feedbacks to operate valuable and as a result a teaching process cannot specialized neither to current lesson nor in long-term outlook. Besides it causes discomfort both for teacher and learners and sharply reduces quality of studies.

Despite of traditional teaching effectiveness implementation of it in several cases could be problematic:

- if group of learners is dispersed over a large territory;
- when is necessary to retrain or raise the level of skills of large group of learners within the conditions of limited number of appropriate trainers;
- for provision of equal educational opportunities both in metropolis and in regions.

Computer-based education

Application of achievements of Information Technologies into the all areas of life makes Computer-Based Education (CBE) an integral part of studies. CBE is rapidly extended giving new educational opportunities including distance education. However concurrently with positive results a set of challenges remains unresolved.

Computer as repository of information can in full measure substitute a book. In Internet and not only electronic publications are widely used by particular areas' experts.

Creation of computerized environments for teaching materials development, and what is the most important – realization of studies using computers opens up new possibilities - quick search of information by keywords, accumulation of data regarding errors both of individuals and group of learners as a whole. On the other hand computer-based environment could influence to learners negatively since in the case of individual learning the process is conducted not by learner, but by computer.

Realization of CBE often was done by particular areas' experts who had not neither specific pedagogical knowledge nor teaching experience. Main consideration at that was given to

particular subjects that look important from teaching materials developer's point of view, but not to organization of studies orientated to particular target group of learners [1].

CBE generally does not use quick feedbacks for adaptation to learners, but envisages just fixed scenario of teaching. Within scenario could be embedded ability of adjustment to learner to a certain extent on the base of recognition of previously envisaged situations (by asking additional question, explaining particular term, using vocabulary). Attempts to simulate particular learner by a model generally do not give desired results, as development of learner's model is a task more complicated than teaching by itself, but cases of successful practical application of learner's models are unknown for us as well.

In our opinion application of computers in education has following lacks caused by the absence of quick feedbacks typical for traditional teaching:

- it is difficult for "virtual" lecturer to provide necessary level of details and the most appropriate pace of teaching materials' setting out;
- listener cannot "enter into" the lesson because of the absence of audience (absence of interested listeners, no dialog with a teacher, lack of auditorium's "aura" – the group of learners);
- listener cannot ask a question for lecturer if necessary that could burden familiarization of further content.

Assumptions. Qualitative leap in CBE should be provided by achievements in such sciences as artificial intelligence, theory of algorithms, theory of systems [1]. There are necessary very large computational powers as well.

There are two possible directions of CBE evolution:

- bringing of properties of CBE near properties of traditional classroom's teaching;
- independent development as a new form of education that is characterized by scattered group of learners (with what teacher does not meet face-to-face), automatic registration of mastered themes etc., that is evolution as new focused on informational society form of education.

Practical experience of ESF projects' implementation

Realizing within European Social Fund's (ESF) initiatives in short space of time three projects CBE was applied for three different target groups of learners. Simultaneously with achievement of projects' primary objectives (teaching as such) potentiality of teaching process observations (in regards with mentioned above) was used. Teaching materials' perception against of forms of their representation was examined with a following assessment of teaching effectiveness in different conditions/circumstances.

2.1. People with special needs teaching on computers application basics

The project [4] envisages work with a very specific target group – people with disabilities whom due to characteristics of their lifestyle are problematically regularly attend classroom lessons. Learners had very different motivation of learning, different levels of readiness and different degrees of capabilities. Working with such a group, especially approbating teaching materials is very important to observe computerized teaching process and eliminate possible discomfort situations. Taking into account mentioned above developed training materials were approved in two stages:

- primarily training materials were approved by teachers of specialized school for disabled youth „Social Integration Centre (SIC)“;
- after revision the same materials was approved by SIC's pupil.

Only after second approbation and following second revision these materials were used by target group at their place of adobe. Learners were dispersed within distance easily reached by project's performers. Computerized training materials were delivered via Internet or on CDs.

Observations. In spite of the fact that during development of training materials special attention was devoted to exclusion of discomfort situation learners had a questions answers on that either were lacking or hardly (if even possible) found.

Pupil of SIC as well as members of dispersed group of learners had different motivation of learning. Learners whose motivation was high from the very beginning became familiar with training materials fairly fast and gave additional motivation right up to desire to get education on Information Technology at SIC. However less motivated learners were concerned with training material just for shot time and under fist difficulties loose motivation at all.

It is the CIS teachers' opinion that during classroom face-to-face lessons motivation succeeds to hold more successfully. Obviously in the case of traditional teaching it is due to quick feedbacks working.

2.2. Raising the level of teacher's in Informatics skills

The project [2] envisages raising the level of skills of teacher's in Informatics from rural schools. Within framework of this project was developed recognized by Ministry of Education and Science a course that provide all trainings as virtual lessons via Internet.

Learners were motivated participate in the project because from one hand this endeavor was interesting for them as for IT experts, on other hand they have opportunity to fulfill on their place of adobe a requirement to rise once a three year they level of competence. It is necessary to stress that it was a single chance to them complete legal course without leaving home. Taking into account behavior of target group and necessity to work on whole territory of country an important role in the project played organization of work by itself [2]:

- selection of tools for virtual lectures' delivery to listeners in on-line mode (during the lesson to bring the behavior of virtual lessons near traditional classroom's lessons);
- collaboration with learners during the lesson;
- creation and maintenance of environment for carrying out lessons over the whole territory of country.

Observations. Learners understood well organization of distance lessons; therefore some technical problems like Internet broadband's low capacity, imperfection of tools for virtual lectures delivery, even lector's inexperience in online distance teaching, practically did not disturb lessons.

Opportunity to ask a question during virtual lectures was used only by one third part of participants. Even professional IT experts are not psychologically ready to communicate via cyberspace.

To provide prompt collaboration with listeners simultaneously with lecturing additional presentation materials supporting answers to questions coming during the lesson were created – pictures, diagrams, fragments of programs' code. To these materials since a lack of a time was impossible to provide high quality performance, nevertheless audience perceived materials very well because were filling that these materials were created expressly for asked questions that meant expressly to current participants.

With some learners were hard to communicate due to the lack of their Internet broadband capacity. In this case records of carried out lessons were rendered and learners also did not nave problems with mastering of new knowledge and skills.

2.3. Training of rural inhabitants for development of ESF means

The target group of the project [3] was inhabitants of Latvian regions, basically employees of local governments. Participants of target group were motivated to get new skills and knowledge how to attract new means to their region.

Main distinguish from previous project was the fact that participants of target group in the majority were not IT experts and could not independently to work in virtual environment.

To help employees of local government to master the computerized program, and also for supervision over process of training, in the project have been involved as coordinators the teachers of Informatics who already had experience of working in virtual environment [3]. The organization of training, as a whole, coincided with the previous project, except for the following:

- studies were carried out in supporting points - usually computer classes of schools where coordinators work;
- only coordinators directly collaborated with virtual studies' organizers;
- end-users (trainees) participated in virtual lessons, but questions could ask only using mediation of coordinator.

Observations. To target group of the project the feeling of a classical audience to a certain extend has been created due to supporting points and coordinators. Coordinators observed lessons and:

- have appreciably helped both to the teacher and listeners "to absorbed" into the lesson;
- provided quick feedbacks "teacher-learner-teacher";

Teamwork of learners in computer classes, in the case of nonprofessional IT users has completely justified itself:

- quality of virtual lessons has been technically provided;
- the feeling of an audience in direct remote training has been provided as well;
- improvement of professional skills of the dispersed group of learners has practically been done; to solve this problem by other methods would be rather complicated.

Conclusion

Computerized training is effective only for already beforehand motivated learners. We did not manage to raise motivation of learners by means of the virtual environment. Probably motivation is a result of work of the skilled teacher in a classroom, but to transfer properties of traditional teaching to the virtual environment we are not able.

Very labor-consuming and expensive development of a teaching material could not be justified as motivated already trainees interact with the teacher, thus they restore a quick feedback, and therefore help to adapt a teaching material for a concrete audience and to correct made in teaching materials errors and incompleteness.

Teachers of Informatics perceive virtual educational process as natural. They are the most suitable target group for approbation of new techniques in the computerized training as they unite in themselves a professional IT knowledge with practical pedagogical experience.

Realizing training of distributed group of learners, specially created software-technically-organizational environment was applied to support studies in regions. In our opinion, such approach can gradually approach non IT- skilled inhabitants of the regions to independent work in the virtual training environment.

Working with three target groups we have not managed essentially to approach the computerized training to classical. However, reasonably operating, we could approach some trainees to the computerized training. This training does not try to repeat behavior of classical training in general, and does not simulate separate properties of traditional teaching.

In our opinion, the computerized training should be developed as the new form of training to which it is necessary to approach potential users.

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