

*information technology, e-learning validation,
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PEDAGOGICAL ASPECTS OF AN E-LEARNING TECHNIQUES IMPLEMENTATION

In recent times one can observe remarkable increase of e-learning courses offered not only by University units but also by various training institutions. Unlimited access into Internet services and professionally prepared platforms for an e-content development enables to construct the user-friendly training packages that are used within distance learning systems. Thanks to a wide range of educational resources the e-learning technologies became a new effective environment of an education process. The paper shows several results of a field testing that has been introduced at the University of Silesia computer laboratories.

1. INTRODUCTION

Growing demands for different forms of an open education idea development (i.e. education accessible to every individual user, who wants to learn by himself via computer network) and flexible education (i.e. education highly individualized) leads to a greater interest in the Internet that is treated as an important support of the educational processes.

In intensive learning the Internet technology supports all forms of education, professional training, adult pupils continuous education.

These specific learning resources are used at any time, with remarkable decrease of the educational costs [1]. The individual computer terminal and competitive form of a work in a group of pupils motivate those who participate in this training process. This learning forms are not always possible to acquire then the blended learning complex approach can be applied [2]. Handling with the computer and abilities to use all available tools and services is a key solution of the e-learning effective usage.

2. METHODOLOGICAL ASPECTS OF DISTANCE LEARNING

The computer terminals power used as a communication interface of distance learning are often found as an important feature of the contemporary education realised by the user. This form of education should also be designed in accordance with all cognitive teaching theories with conscious interactions of the application user, solving real problems, using their knowledge in practice, becoming active participants of the educational process [1].

The e-learning various conditions must be fulfilled in turn, enabling support for the learners active works. The assumed conditions produce new specific learning environment, as: a new role of

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the teacher, practical usage of knowledge, learning in groups and examining a current knowledge of every user.

In time of the educational resources development various pedagogical principles have to be considered and implemented. The above remarks enable to navigate through the communication theories and in accordance with all distinguished rules [5]:

- student abilities; with his present knowledge controlling the education level of the course,
- the didactic purpose; defining the skills creation,
- a way of learning, with all needed additions (information that has to be studied traditionally – from literature),
- defining all requirements for passing the given subjects,
- considering and defining the learning unit structure (units, lessons),
- connections between particular units of the syllabus and references
- an appropriate educational content selection,
- selecting an appropriate question and tasks formats,
- supplementary, curricula and resources (dictionary, complementary reference books).

Special attention should be paid to the necessity of supporting the process of consolidating and enriching the knowledge acquired [12]. For better knowledge acquisition it is recommendable to show the connection between the knowledge being currently acquired with the prior knowledge and also to show learners the manner in which they can expand currently presented educational content.

Carefully prepared resources make the courses run easier, used many times [10]. The role of a teacher in distance learning is not rejected, although it was placed in another form [6].

Although the frequent activity and reaction speed check-up are possible it should be used in needed periods of education. Anyhow the studying person should feel a someone interest of their activities and knowledge progress.

A teacher is not personally controlling the learning process, but his work concerns coordination methods.

3. THE OF E-LEARNING SYSTEM EVALUATION

There seems to be a direct dependence between the quality and effectiveness of e-learning. However, the relations between them have not been fully examined yet. Effectiveness of e-learning means that the graduate achieves certain effects as a result of didactic processes carried out by an educational institution. In this context, the quality of e-learning is just the compilation of the following properties:

- educational and methodological value of the materials used in e-learning,
- consistency of the intended educational goals with the selected model of learning and applied methodological solutions,
- technical infallibility of applied computer solutions,
- ability to adjust the educational offer to the learner's needs.

One of the standards widely recognized in the world are the eCC (e-Learning Courseware Certification) criteria signed by the American Society for Training and Development – the institution which judges and certifies trainings at a distance in many countries. They were designed as guidelines for judging practical, technical and methodological values of e-learning. [7] Practical criteria measure to what extent the methodological solutions are friendly to their user – to what extent his navigation is intuitional, to what extent the menu is clear, to what extent the feedback information is helpful to him and if the text published is clear and correctly edited etc.

Course methodology according to eCC standard is evaluated in respect of the way in which the educational goals are indicated and if the goals include the practical use of the knowledge acquired during the course. Techniques used to maintain the learner’s interest and motivation, strategies for integrating information, the way the educational content is illustrated and if the course includes the system for measuring the learner’s progress are also evaluated. It should be noted, not having to state it clearly now which of the above mentioned factors plays a decisive role in the quality of education, that also the educational institution and the way it works has an impact on how this form of education is perceived by its users. I mean the elements of the organization of studies via the Internet which directly influence the work comfort of both students and teachers. Summing up, we can emphasize that in e-learning good done works are the most important factor, which remarkably affects the learning quality [8].

4. THE MAMS PLATFORM ANALYSIS AS A PILOT SOLUTION FOR DISTANCE LEARNING

Each distance learning platform must follow the verification procedure which evaluates its effectiveness. The study of the opinion of distant learners is an action which enables to evaluate the prototype. The distance learning platform elaborated at the University of Silesia was submitted to the pilot research programme.

MAMS&QRU packet is an integral part of the Distance Learning Centre, worked out at the Faculty of Informatics widely described in several papers [13]. It is an engine controlling interactions of multimedia resources including an in-built mechanism evaluating the user’s interactions with the application.

The MAMS&QRU consists of two “collaborative” applications:

- **MAMS** – Multimedia Application Management Shell
- **DLIE Server** – Distance Learning Interactivity Evaluating Server – it is a special program which evaluates the user’s interaction with multimedia applications activated by MAMS. The DLIE Server, monitoring the learning process, sends adequate navigating instructions to MAMS on the basis of the evaluation of user’s interactivity.

Factors defining the learners’ satisfaction level of distance learning were measured by several tests done for 25 students at the University of Silesia laboratory – lasted 1 term.

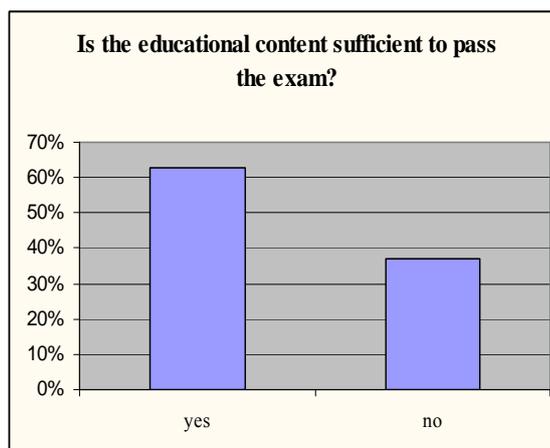


Fig. 1. Is the educational content sufficient

To pass the exam?

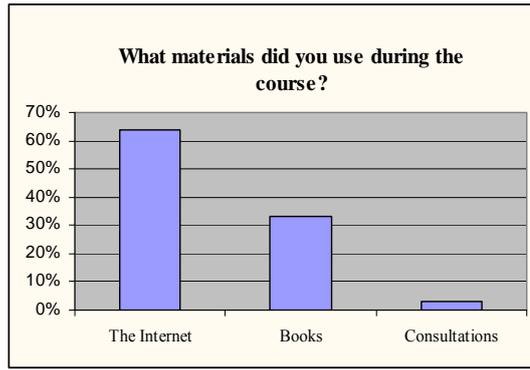


Fig. 2. What materials did you use during the course?

Completeness?

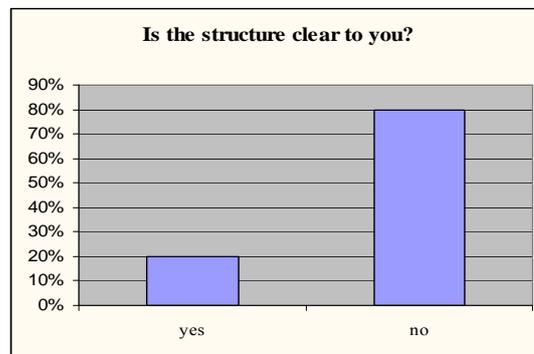


Fig. 3. Is the structure of presentations clear to you?

The given question for the educational content estimation; if it is sufficient load for passing it in form of exam (Fig.1) where 63% of respondents decided that that it is satisfactory data load, while 37% were not satisfied with this packages. The majority of students were satisfied with the materials; anyway they were using other resources for the content understanding (Fig.2).

In Fig. 4 the opinion on the pattern platform usage (Fig.4), 35% stated that it is convenient and easy to use; 28% said that the platform is clear and 37% answered that DLC is user-friendly.

In spite several mistakes found in resources (experimental version) general opinion of the platform was positive.

Quality?

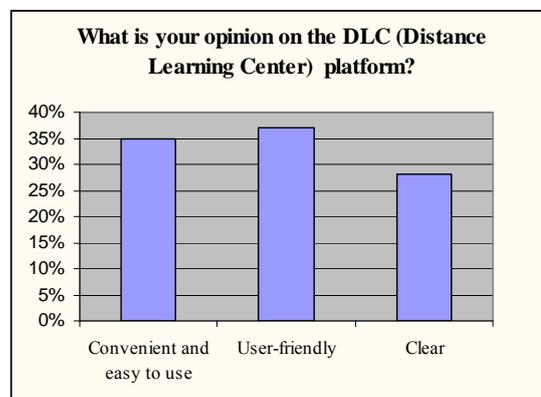


Fig. 4. What is your opinion on the DLC (Distance Learning Center) platform?

Students asked for the course pace (Fig. 5) 91% answers found the pace suitable. 6% said that it was too intensive. There were also students (3%) who expected the course to be more intensive.

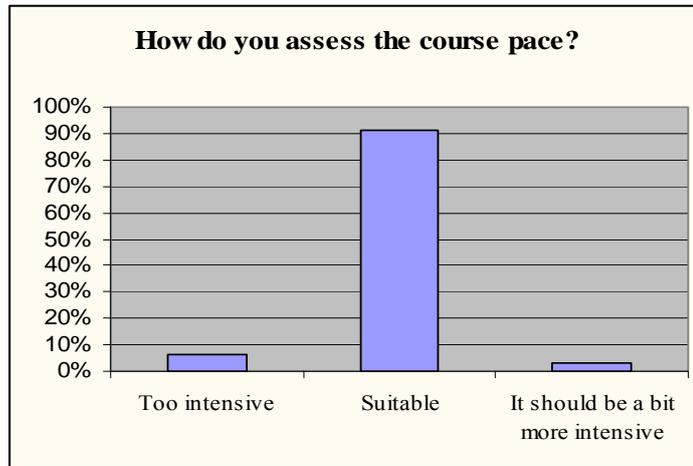


Fig. 5. How do you assess the course pace?

Students could also try their hand at group projects during the course (Fig. 6) solving the tasks together. Unfortunately, not all students took part in this form of learning. When asked whether they participated in group projects, 70 % of respondents answered that they did whereas 30% did not.



Fig. 6. Did you participate in group projects?

The discussion in the forum won the least attention of students. When asked whether they took advantage of the forum (Fig. 7), 97% answered that they did not. Only 3% of respondents used the forum and had regular discussions on it. It is worth noticing that the 3% of the students were very satisfied they could share their opinions in the forum and discuss the problem arising in the learning process.

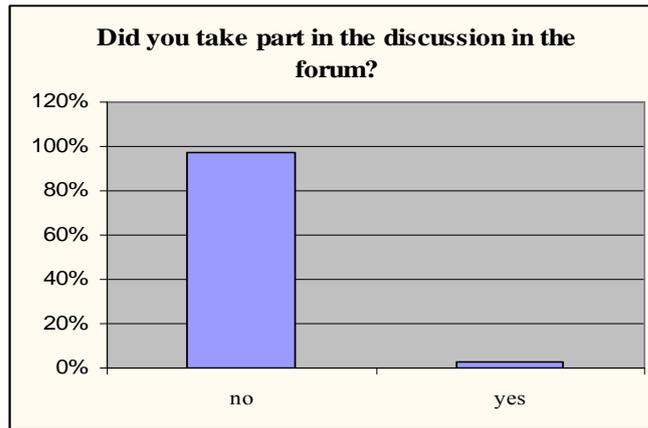


Fig. 7. Did you take part in the discussion in the forum?

When asked to what extent the additional materials and control tasks were useful (Fig. 8), 60% of respondents said that they were partly useful. 35% admitted that the additional materials and tasks were not useful at all and only 5% answered that they were very useful.

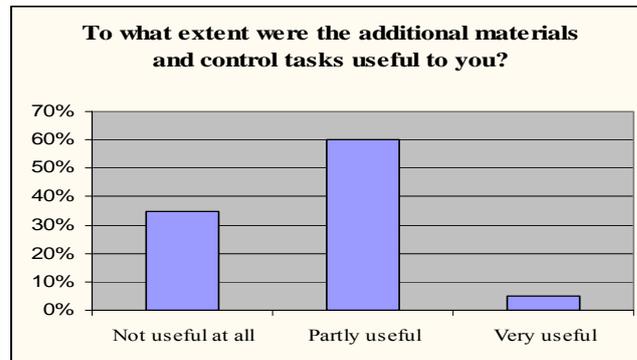


Fig. 8. Usefulness of additional materials and control tasks

When the students were asked what they liked most about the course (Fig. 9), 40% of them answered that the possibility of working partly at home was a great advantage; 35% of respondents liked on-line check-ups most and 25% of them said that the possibility of learning in their free time and not in fixed hours suited them most.

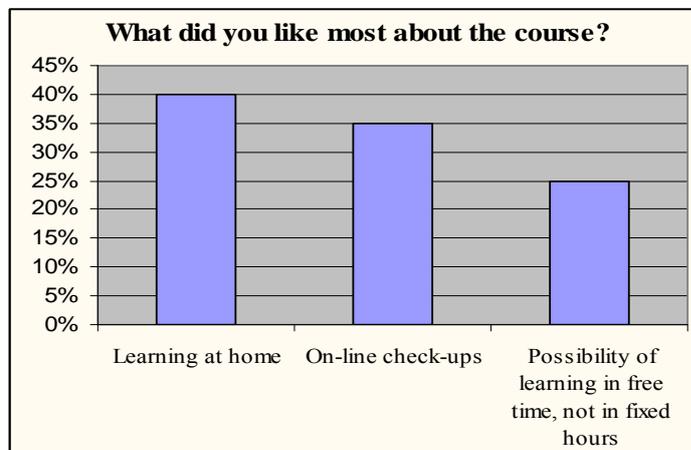


Fig. 9. What did you like most about the course?

The last question referred to the students' opinion on distance learning (graph 10). Only 3% of respondents admitted that such a form of education was useless. 35% of students had mixed feelings about it. On the one hand it suited them but on the other hand they were wondering whether such a form of learning was reliable. 62% of respondents said that distance learning was very useful and necessary.

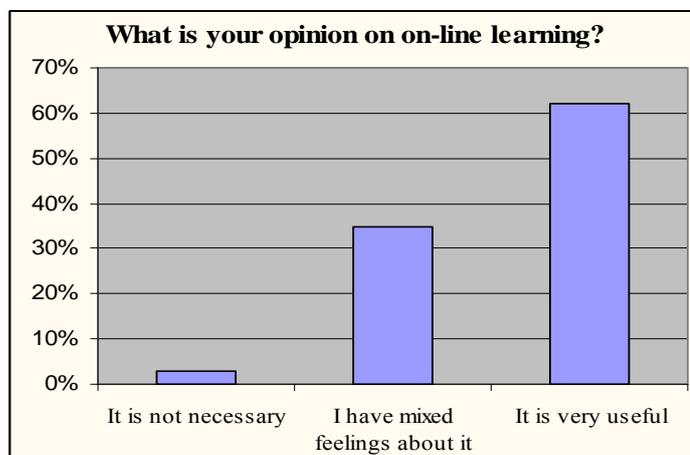


Fig. 10. The evaluation of this form of education

5. CONCLUSIONS

Analysing the findings of the study, one may draw the following conclusion – e-learning is gaining more and more popularity among students. Websites resources are in majority cases sufficient to pass a final exam. The MAMS platform is convenient and easy tool to use it for applications development. The learning pace during the course was suitable for remarkable majority students.

The users appreciated the fact that they could learn at home. The possibility of checking up students' performance and progress via the Internet was yet another advantage. It is clear from the study that there is a widespread acceptance for distance learning among students who are of interest in further development of the DL system load.

BIBLIOGRAPHY

- [1] JUSZCZYK S.: Distance learning. Codification of concepts, rules and processes. Published by A. Marszałek, Toruń 2002.
- [2] STANISŁAWSKA A., In search of optimal e-learning system. Methods of designing on-line courses. [http://www.puw.pl/elearning.html?akcja=elearning&P\[aid\]=271](http://www.puw.pl/elearning.html?akcja=elearning&P[aid]=271).
- [3] LIGHTFOOT J. M., *Designing and implementing a "full-service" classpage on the internet*, Journal of Educational Multimedia and Hypermedia, 9(1), 2000
- [4] MERRILL D., *First principles of instruction*, Educational Technology Research and Development, 50(3), 2000.
- [5] DĄBROWSKI M., Standards for designing and running on-line classes, e-mentor [online], 2004, nr 4 (6). www.e-mentor.edu.pl, 20.10.2004
- [6] DRYDEN G., VOS J., *Revolutionary ideas in learning*, Published by Zysk i S-ka, Poznań 2000.
- [7] KSER: Internet studies. "PC FORMAT" No. 4.
- [8] HYLĄ M.: *E-learning. From an idea to its implementation*, Kraków: Solidem 2003

- [9] MORAŃSKA D., The computer educational systems with reference to contemporary pedagogical theories, "Journal of Medical Informatics & Technologies", Published by: Dept. Of Computer Systems, University of Silesia, Vol.6, November 2003, pp. 19 – 25.
- [10] MORAŃSKA D., Selected problems of the optimization of multimedia presentation in distance learning systems, In: Techers' computer competence. Distance learning – conditions, barriers, prospects. Edited by J. Migdałek, B. Kędzierska, Published by Rabid, Kraków 2003, pp. 273-283.
- [11] WIECZORKOWSKI K.: Distance learning. Current situation and development prospects. In: B. Siemieniecki, edited: Prospect of e-learning. Toruń-Płock 1995.
- [12] REPORT „Poland on the way to global information society”, Report on the Social Development made under the United Nations Development Program, Warszawa 2002.
- [13] PIECHA J. KRÓL R. The MAMS an interactive applications management engine,. *Proc. of Int. Distance Learning Workshop' 04*, June 2004, Katowice, Poland ISBN 83-909518-6-X pp. 25-37