Karolina Chrabąszcz*

Using e-learning in the process of students' education

K e y   w o r d s: e-learning, distance learning, t-learning, e-learning platform, research

S u m m a r y: The paper presents the activities undertaken by the Małopolska School of Economics in Tarnów (MSET) in order to develop distance learning in students' education. Diversity of distance teaching forms has been outlined. The author has analysed advantages and shortcomings of distance teaching which may have major bearing on the future of e-learning in higher-level teaching. The possibility of adjusting time dedicated for learning and the rate of assimilating knowledge to individual needs of a student is an important advantage. E-learning allows minimising fear or shyness in some students during traditional lessons. The worst shortcoming of this system is lack of direct contact of a student with a teacher and other class participants. Another problem is lack of motivation and self-discipline in the learning person, so important in case of distant teaching.

The Małopolska School of Economics in Tarnów has its own e-learning platform based on the Moodle program. Similar types of platforms are already in use by academic facilities all over the world. The MSET e-learning platform was first used in teaching in the academic year 2009/2010. The classes with this tool were attended by 458 full- and part-time students. The paper presents initial research after the pilot classes in the blended learning system. The research results indicate that students support development of the college facility towards distant teaching, but without resignation of direct contact with the teacher. The experience of MSET may be helpful for other entities which have not undertaken actions related to distance teaching.

1. Preliminary notes

The form of teaching with the use of network and computer is increasingly spreading in university-level education in Poland. More and more university-level education facilities decide to implement distant teaching, thus more and more students may

* Karolina Chrabąszcz, MA—assistant at the Chair of Real Estate and Insurance, Małopolska School of Economics in Tarnów.

have their own opinion whether this form of teaching is suitable for them. At the time of the Internet and lack of time, the distant teaching form is becoming increasingly important. Many forms of this type of teaching are in existence for years. The higher school facilities should decide which form to select and which one will be best for their students, because the decision "whether" to opt for it should not be a question any more. This tool introduces a new way of thinking in university-level education. If the Polish college facilities should like to compare with the best ones in Europe or in the USA, they must invest in development of distance learning. E-learning is proven as a method supplementary or replacing the traditional didactic process (t-learning). Interest in e-learning is also increasing as a disciplinary field of science, which numerous publications prove.

The objective of this paper is presentation of possibilities offered by distant teaching in university-level education, with the example of the Małopolska School of Economics in Tarnów. Valuable information is provided from the questionnaire research in a group of students who have taken advantage of classes in the MSET e-learning platform.[1]

2. Diversity of distance teaching forms. E-learning

Distance teaching (d-learning) is a method of teaching with indirect (opposite to direct as in t-learning) contact of a student and a teacher. Three groups of participants of this process may be named: teachers, pupils/ students and administrators. D-learning occurs in different forms such as: mail education, teleconference education, Internet (online) education or mixed education combining the above forms.

Mail education means periodical meetings of a student with a teacher to verify knowledge acquired independently on the basis of the material made available. Printed materials, course books, manuals or lessons broadcast on TV or radio are used here. The e-mail model is also called the "first generation model". Teleconference education makes use of satellite television. With this method, students have the opportunity of getting feedback from the teacher with telephone, e-mail, television or radio. This model, called the "second generation model," consists in using printed materials, lessons on audio and video tapes, computer floppies, interactive video tapes and disks. The "third generation model" is the so-called teleeducational synchronous model. It consists in the use of audio and video conferences, and radio and TV lessons. Online education is the "fourth generation model". It consists in uploading courses to a website with materials for students. Feedback in this form of education is based on e-mail or chat communication. Mixed education may have the form combining all the above forms, that is simultaneous sending of printed materials, tele-discourses, online classes, etc. (1, pp. 12–13; 2). All in all, d-learning is a training technique which

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[1] The research has been conducted in cooperation with Łukasz Kowalski, MA, assistant at the Computer Laboratory of the Małopolska School of Economics in Tarnów.

makes use of all the possible media electronic, such as the Internet, Intranet, Extranet, audio/ video tapes, satellite messages, interactive television or CD-ROMs. The whole sense of distance teaching is in shifting centre of gravity in teaching from the teacher to the student.

E - l e a r n i n g is one of distance teaching forms. Due to the existence of several criteria of classification, e-learning is broken down into many forms. Table 1 presents selected forms of e-learning.

T a b l e 1

E-learning classification

Criterion of classification	Form of e-learning
Accessibility in time	* **Synchronous mode**—simultaneous presence of the learners and the teacher * **Asynchronous mode**—does not require the presence of the teacher at the time of the course participants taking advantage of the training
Student–teacher relation	* **Courses with the teacher**—executed in any mode of the described above * **Courses without the teacher**— with the use of prepared, dedicated multimedia materials * **Independent self-learning**—with the use of various materials and forms of teaching
Relation to traditional teaching	* **Supplementary to traditional teaching**—electronic teaching supports traditional didactic processes * **Replacement of traditional teaching**—the whole programme is executed with e-learning methods

S o u r c e: (3).

E-learning is a broad and non-uniform field. The term of "e-learning" includes all the processes related to teaching and learning in the environment and with modern information technology, mostly with the Internet. E-learning is an "interactive educational process" which allows execution of specific relationships between teacher and student as well as between individual students in the group with the available technical measures (4, p. 7). E-learning is not only course materials sent over a computer network. E-learning systems are not limited to LMS or LCMS class solutions. Starting up the LMS (Learning Management System) is associated as a synonym to implementation of e-learning. This system is the most popular e-learning solution in the world (5, p. 68). LCMS is a system for management over educational materials (Learning Content Management System). More and more often, these terms are replaced with more general, like virtual learning environment (VLE). The above terms are helpful in defining the e-learning platform. It is an expanded application, a set of tools which facilitates creating, managing, and administration of educational courses (6, p. 9). Very often, the e-learning term is associated with education over the Inter-

net, yet e-learning means all activities in support of the training process which use various tele-IT technologies (7, p. 28).

3. Advantages and shortcomings of distance teaching

Distance teaching at a higher level is not a new concept. Oxford University is believed to be its forerunner, where the first forms of distance teaching were introduced as early as in 1780. This form of teaching developed in the 19th century (1, p. 39). At present, the best developed higher education facilities in Poland in terms of e-learning are the AGH University of Science and Technology in Krakow and the Nicolaus Copernicus University in Toruń. However, with every new year more and more university-level education facilities reach for the possibilities offered by e-learning, thus the analysis of advantages and shortcomings of this form of education. The possibility of adjusting time dedicated for learning and the rate of assimilating knowledge to individual needs of the student is clearly a major advantage. The student alone decides when and where he/ she will learn (*anytime*, *anywhere*). It is especially important for persons employed, living in families or having other obligations. E-learning allows minimising fear or shyness in some students during traditional lessons. It gives the possibility of asking questions by e-mail, chat, discussion forum or blogs, thus giving students distance to teachers and letting them not be shy. Using various forms of message (video or text materials) is another advantage. The video technique allows the student to pause, rewind and view again the video material at any time. Remote teaching is a method of gaining education by people for whom the traditional form of teaching is impossible due to different limitations, e.g. high costs of commuting, living costs in the place of the classes or due to the fact that quality of teaching in the local centres is too low. It is also an alternative form of learning for the disabled. Relatively low cost of functioning of the system is another advantage of e-learning. Education with e-learning may reduce costs of teaching, especially in non-stationary and postgraduate studies. The highest costs go to development and implementation of the system. After that, the course may be used for many years without major financial expenditures. With implementation of the distant teaching system, academic facilities may minimise costs by reducing occupation of buildings or didactic rooms. It is of special importance in case of these entities which have insufficient number of didactic rooms against the number of their students. Moreover, the content of e-learning materials may be checked many times, thus making errors occur much less frequently than in case of traditional lecture notes. E-learning may be an important advantage of the educational offer of any educational facility going in this direction. Apart from many advantages of applying for e-learning, continuous increase in attractiveness of the teaching system and materials made available to training participants is an important aspect (8, p. 2).

The worst shortcoming of this system is lack of direct contact of the student with the teacher and other class participants. Another problem is lack of motivation and self-discipline in the learning person, so important in case of distant teaching. The research shows that a high percentage of those starting e-learning courses do not complete them. Nowadays there are also persons sceptical about using computer hardware or who have problems with operation of this hardware, which constitutes another barrier to the development of the system (9, p. 83; 5, pp. 25–27; 10).

Additional problem is the issue of protection of copyright for the materials included in the learning courses and the issue whether the e-learning course is a multimedia work subject to protection by a number of acts. These issues, in the view of the Polish intellectual property rights, are regulated not only with the provisions of the copyright law, but also with the legal acts such as the Act of 27 July 2001 on database protection (Dz. U. 2001, no. 128, Item 1402), the Act of 18 July 2002 on providing services with electronic means (Dz. U. 2002, no. 144, Item 1204), the Act of 16 April 1993 on suppression of unfair competition (Dz. U. 2003, no. 153, Item 1503) (11, p. 1). Every higher education facility offering e-learning methods must face the issue of copyright. The issue of copyright and e-learning is not legally settled in the Polish legislation. The considerations related to e-education and use of technology in university-level education from the view point of protection of the author's rights are possible with the Act of 4 February 1994 on copyright and related rights (Dz. U. 2000, no. 80, Item 904 as amended) (12, p. 21).

4. MSET e-learning platform in Tarnów

For didactic purposes, the e-learning platform was developed at the Małopolska School of Economics in Tarnów, following thus the current trend in university-level education.[2] It is based on the Moodle program (version 1.9.5+build of 17 June 2009). Moodle (Modular Object-Oriented Dynamic Learning Environment) is one of the most popular e-learning platforms used by many Polish university-level education facilities. It is *open-source* software made available for free under the GNU GPL public license. The Moodle platform is used by such facilities as Open University of the United Kingdom, Ohio State University, the University of York, Athabasca University—Canada's Open University, Open Polytechnic of New Zealand, the University of Iceland, etc., and the leading Polish academic facilities such as the Jagiellonian University, Cracow University of Economics, Maria Curie-Skłodowska University, Adam Mickiewicz University in Poznań and many other (6, p. 12).

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[2] The MSET platform is supervised by Paweł Bełzowski, MA, Head of the Computer Laboratory and employee of the Independent Department of Computer Science and Quantitative Methods of the MSET.
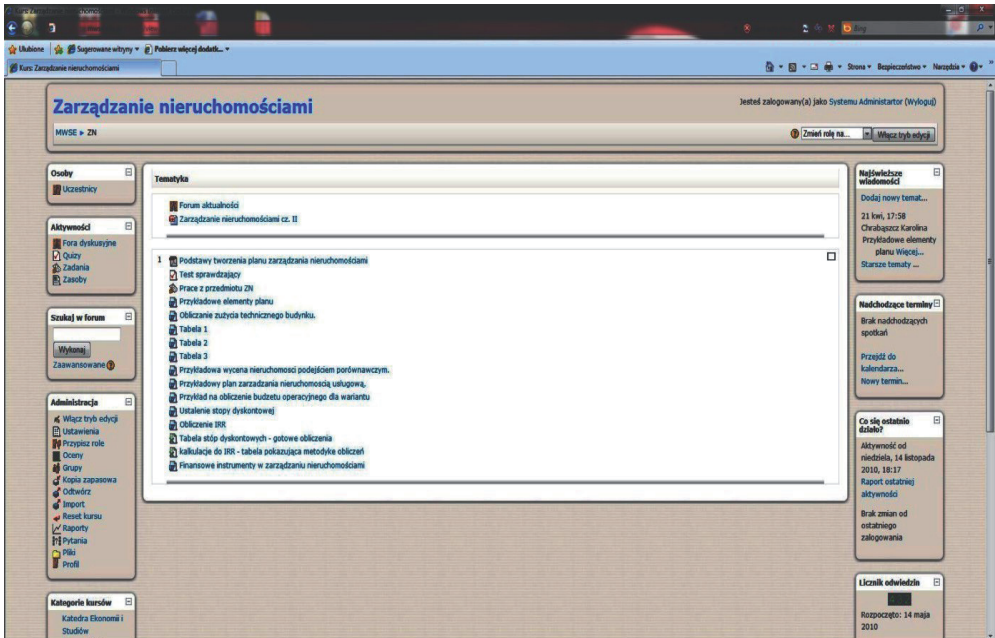
Figure 1. The MSET platform, the "Estate property management" course in the 6th term
of stationary and non-stationary studies of the 1st degree in Management,
with Estate property management specialisation

S o u r c e: Internal materials of MSET.

The MSET e-learning platform was first used in teaching in the academic year 2009/2010. The classes with this tool were attended by 458 full- and part-time students. During the classes with the MWSE e-learning platform, the students had personal contact with the teacher, thus the mixed form was adopted, between e-learning and t-learning, the so-called blended learning. The necessary materials were uploaded to the platform which the students were to prepare, read and assimilate. These materials were in the form of videos, quizzes and documents in the Word or PDF formats. In case of the "Estate property management" course, full-time students who have access to computers were filling in multimedia tests in presence of teachers during the classes. Extension students were to fill in the test uploaded to the platform off their duties, at the defined date and time.

After completion of their classes, the students were to fill in the questionnaire on their opinions on teaching in the distance learning system in the e-learning platform. The answers to the questions in the questionnaire were given by 158 students in the Management and Tourism and Recreation faculties. The questionnaire consists of 20 questions, 2 on the imprint, 3 on using the Internet in teaching, 11 on opinions on the e-learning system education in general and 4 on opinions on the MSET plat-

form. 97% of the responders (152 persons) have permanent Internet access at home. 69 respondents (44%) who gave answers to the questions asked in the questionnaire can use the Internet several times a day, 65 persons (41%) at least once a day, 11% of the respondents (18 persons) 2–3 times a week, and 5 persons (3%) several times a month. The research shows that over a half of the respondents (64%) occasionally print text material which they have to learn if it is more than three pages. This proves that more and more students are getting used to reading text directly from the screen. Only 20% of the respondents always print text material and 15% always read it directly from the screen.

The research shows that the students mostly accept forms of distance teaching, but at the same time do not want to resign from direct contact with the teacher and with other participants in the course. A definite majority of persons participating in the research (89%) support this form of teaching. Only 11% persons are definitely against it. Among the answers there are comments that this form of teaching is appropriate only for selected subjects.
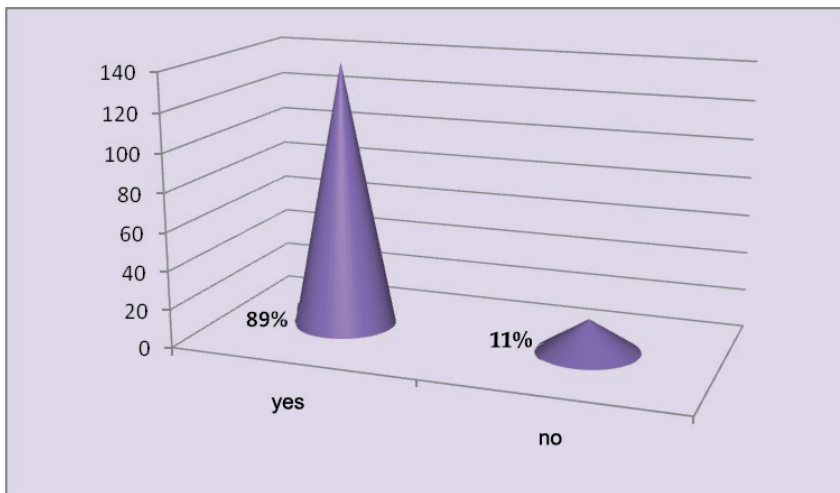

Figure 2. Answers to the question whether the e-learning platform is suitable for the person

S o u r c e: authors' own study

At the same time, 75% of the respondents are willing to continue education in the mixed mode, that is following the blended learning way (in the traditional way with the use of the e-learning platform). 15% of the respondents would like to educate solely with e-learning, and 10% solely in the traditional way. 86% of the respondents (135 persons) are willing to use the e-learning system for a larger number of subjects in further terms. The attitude to e-learning could be expected to be differentiated depending on the mode of study. The needs of stationary and non-stationary students

depend on family situation, work, etc. Extramural studies students work in regular hours, are more bound to their work places than full-time students. Family obligations are further limitations, therefore extramural students would be expected to support d-learning more than full-time students. The research shows that there are no differences in the views on this issue between full-time and part-time students. 89% (90 out of 101) extramural students and 88% (50 out of 57) full-time students like this form of managing classes.

The most important benefits from using e-learning were found to be freedom of learning (place and time)—85%, individualisation (custom rate, automatic adjusting of material to gaps in knowledge)—50%, savings (no commuting costs and loss of time)—41%, the possibility of joining the process of teaching those who had no opportunity to take part (the disabled, living farther away)—37%, easy, although distant contact with the teacher—26%.
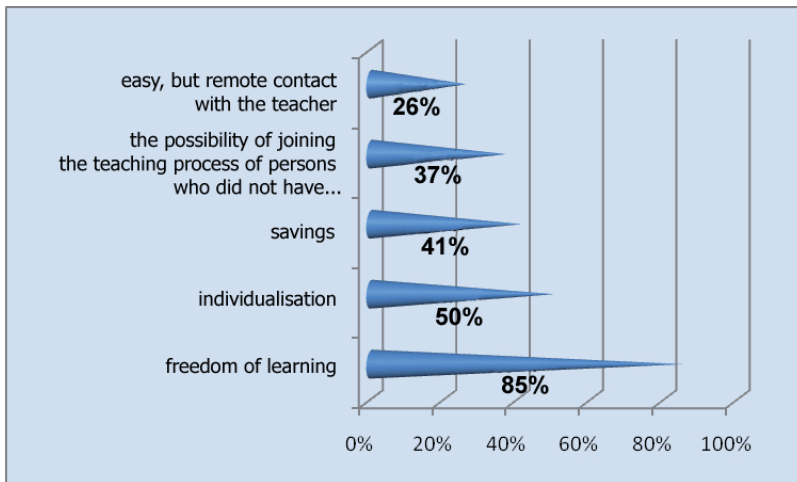

Figure 3. Answers to the question about the most important benefits from using e-learning

S o u r c e: authors' own study

The respondents named the worst shortcomings of this system: lack of possibility of direct contact with the teacher (64%), small possibility of cooperation with other participants (42%), the necessity of having high motivation (36%), the necessity of having optimum equipment and Internet connection (33%).
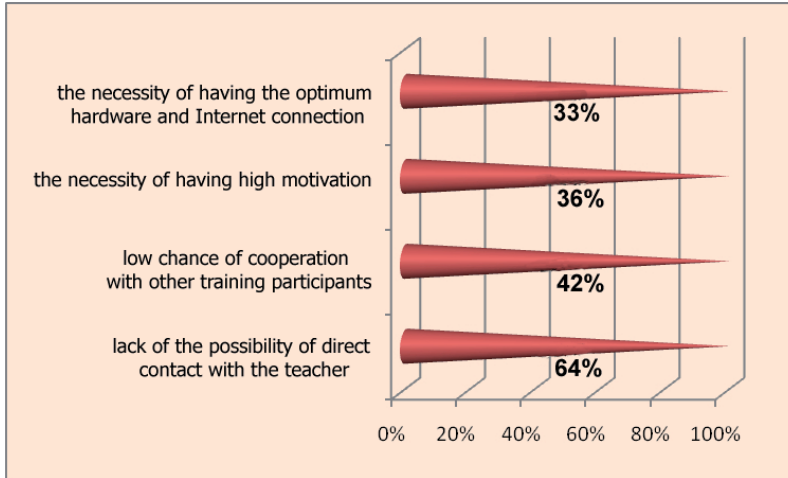
the necessity of having the optimum
hardware and Internet connection — **33%**

the necessity of having high motivation — **36%**

low chance of cooperation
with other training participants — **42%**

lack of the possibility of direct
contact with the teacher — **64%**

0%   20%   40%   60%   80%   100%

Figure 4. Answers to the question about the most important shortcomings in using e-learning

S o u r c e: authors' own study

The respondents have considered as the most effective forms of communication during the e-learning course: text messengers (64% of the respondents), discussion forums (63%), electronic mail (40%), video talks (37%), chat (27%), telephone talks (18%) and blog (14%). The respondents considered multimedia files (66%), prepared text documents (29%), forum statements (4%) the best forms of handing over knowledge during the course. To the question about the best methods of verification of knowledge in the e-learning course, the respondents stated online tests (76%), exercises, interactive lessons and quizzes (66%) and written statements (13%).

The respondents (81%) are of the opinion that e-learning will be the main source of gaining knowledge in the future. According to the respondents (90%), the MSET platform has been prepared professionally.

5. Final remarks and conclusions

Distance teaching is nothing new. Various forms of this teaching have developed for years, all with progress in technology, changing attitudes in people, and changing civilisation. The disputes about effectiveness and need of such form of learning have continued for a long time and will continue. The rich variety of methods and forms of d-learning allows selection of the most suitable form for the given individual, for the organisation or for the educational facility. Blended learning gains many positive opinions. The role of teaching in the mixed system, in the traditional way with the e-learning platform, that is the so-called blended learning, is strengthening

with the research which shows that this form of teaching brings about much better results than online teaching alone or the traditional mode alone, in the building of the college facility, with the teacher. The research shows that combination of these two forms of teaching makes the students learn in the most effective way (13, pp. 41–43). They have direct contact with the teacher, additional contact over the platform, chat, discussion forum, e-mail, and the possibility of discussion with other students and unlimited access to materials. The research conducted with participation of students from the Małopolska School of Economics in Tarnów confirms this thesis. Students support development of the educational facility with distance learning, but do not want to give up direct contact with the teacher which they highly value. Every important educational facility in Poland which pursuits modern technology must invest in distance teaching systems, at the same time not depriving their students of direct contact with the teacher and with other students in traditional classes. The Małopolska School of Economics in Tarnów intends to continue growing with distance learning and expand the scope of its subjects supported with the e-learning platform.

The educational facilities which have not undertaken attempts at implementation of e-learning systems should initiate their activities with creation of their own e-learning platform. The platform may be developed on the basis of the free Moodle program, which is successfully used all over the world. In the first period of work on the implementation of distant teaching, motivation is very important, and it may be aroused in many ways. All types of training events are useful which eliminates barriers that teachers have to face when preparing to the first tests of work with the e-learning platform. Each educational facility should prepare its own student training system for operation of the platform. Obligatory training of 1st year students in e-learning platform operation is a good idea. The "self-learning manual" allows becoming independently acquainted with operation of the platform at any place and time. The research shows that using the e-learning platform as a tool for giving variety in the traditional system of teaching, that is blended learning, is the most effective way of its use.

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Wykorzystanie e-learningu w procesie kształcenia studentów

S t r e s z c z e n i e: W artykule opisane zostały działania, jakie podjęła Małopolska Wyższa Szkoła Ekonomiczna w Tarnowie (MWSE) w celu rozwinięcia distance learningu w kształceniu studentów. Przedstawiono różnorodność form nauczania na odległość. Autorka artykułu przeanalizowała wady i zalety nauczania na odległość, które mogą mieć znaczącą wagę dla przyszłości e-learningu w nauczaniu na poziomie wyższym. Ważnym atutem jest możliwość dostosowania czasu poświęconego na naukę, jak i tempa przyswajania wiedzy do indywidualnych potrzeb ucznia. E-learning pozwala zminimalizować strach czy nieśmiałość uczniów, jaką przejawiają oni względem nauczyciela podczas tradycyjnej lekcji. Największą wadą tego systemu jest brak bezpośredniego kontaktu studenta z wykładowcą i innymi uczestnikami zajęć. Inny problem to zdarzający się brak motywacji i samodyscypliny uczącego się, tak ważny w przypadku zdalnego nauczania.

MWSE w Tarnowie posiada własną platformę e-learningową, bazującą na programie „Moodle". Podobnego typu platformy wykorzystują uczelnie wyższe na całym świecie. Po raz pierwszy platforma e-learningowa MWSE została zastosowana w nauczaniu w roku akademickim 2009/2010. Zajęcia za pomocą tego narzędzia odbyło w sumie 458 studentów studiów dziennych, jak i zaocznych. W artykule zaprezentowano wstępne badania po przeprowadzeniu pilotażowych zajęć w systemie blended learning. Wyniki badań wskazują, iż studenci popierają rozwój uczelni w kierunku zdalnego nauczania, ale bez rezygnacji z bezpo-

średniego kontaktu z wykładowcą. Doświadczenia Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie mogą być pomocne dla innych podmiotów, które jeszcze nie podjęły działań w kierunku nauczania na odległość.