EUROPEAN GRANT PROJECTS | RESULTS | RESEARCH & DEVELOPMENT | SCIENCE

Interest in Distance Learning and Assessment of Internet Sources of Information in the View of Polish Students Majoring in Economic Sciences

Marcin Komańda[1]
Helena Kajanová[2]

[1] University of Economics in Katowice; 1 Maja 50, 40-287 Katowice, Republic of Poland; marcin.komanda@ue.katowice.pl
[2] Alexander Dubček University of Trenčín; Študentská 2, 911 50 Trenčín, Slovak Republic; helena.kajanova@tnuni.sk

Abstract Nowadays, development of e-learning primarily moves towards ensuring wider availability and mobility of the contents of the courses offered. However, the importance of taking into account personal needs of students in the didactic process, choosing right methods of organisation and conducting courses (which are supposed to increase students' involvement), and finally, integrating courses with accessible sources of information on the Internet is pointed out at the same time. The research objectives in this article are: firstly, to define whether there is a relationship between the level of interest of Polish students majoring in the selected faculties of economic sciences in independent work and their interest in participation in e-learning classes; and secondly, to establish the opinion of the surveyed students about Internet sources of information used by them in the didactic process. The obtained results point out that there is a distinct but weak relationship between students' interest in independent work and their interest in participation in e-learning classes. Simultaneously, there is a rather common belief among the surveyed students that Internet sources of information offer contents which are sufficient for the didactic process and do not need to be worked out any further. It is worth recollecting indications of persons who declared high level of interest in independent work in the didactic process which state that the notion of e-learning encapsulates, apart from the contents passed within the framework of university courses, sources of information of the broadly defined Internet. These arrangements may create a number of challenges for higher education facilities which are related to organising and conducting classes with the use of distance learning methods.

Keywords e-learning, Internet, students, opinion

1. E-LEARNING AS A SUBJECT OF INTEREST IN THE SCIENTIFIC LITERATURE

The issue of distance learning is not a new subject of interest for didactic practitioners and researchers which address it from the perspective of description and scientific cognition. E-learning should therefore be regarded as a permanent element of the didactic process at all levels of education, including higher education [Vasconcelos and others 2013, p.142,143]. It seems, however, that nowadays new aspects of the process of organising, conducting as well as analysing such classes at a university level may be pointed out.

Firstly, both practitioners and researchers begin to focus on formal aspects of organisation and realisation of e-learning in particular countries. The array of legal regulations established due to the necessity to ensure quality of education and establish maximum duration of such classes creates with this regard such challenges for universities as planning, organisational, controlling [Komańda, Kajanová 2013, p. 69-71] as well as financial ones [Skrzypek 2012, p. 231].

Secondly, the necessity of considering the issue of increasing students' motivation to manifest active attitude towards learning process within the framework of distance learning is more and more often raised. What is important, at the same time it is emphasized that this issue must be considered in close connection with another one, namely the level of motivation of university teachers themselves to develop their own didactic competences, and preparation of courses in the most appropriate forms [Nakajima 2013, p. 359]. It is also highlighted that appropriate preparation of teachers, students and the whole infrastructure used for the purposes of realisation of e-learning is supposed to contribute to the fact that distance learning methods will not be perceived as of lesser value when compared to traditional ways of conducting studies [Penkowska 2007, p. 38].

Thirdly, the need to implement changes in traditional e-learning aimed at broader accessibility of the contents of courses and mobility is more and more often pointed out, which resulted in the appearance of the concept of m-learning [Pocatilu 2013, p.77]. Therefore, changes in distance learning must take into consideration the needs to develop options of individual methods of work and to adjust to learners' personal needs to a larger extent as well as the necessity of changing methods of group work [Lubina 2007, p. 27].

Fourthly, it is being argued nowadays that tools for distance learning due to the prerequisite of mobility of the didactic process as well as individual adjustment to the student's needs require both the integrity with the Internet and application of the so called social solutions. The issue of trust in the course of communication between participants of the didactic process becomes an important matter in this context [Morrison and others 2012, p. 80]. Another essential

problem is the use of available portals that offer materials which may be recognized as having educational value such as, for example, YouTube or Wikipedia [Kajanová, Kajan 2013, p. 58,59].

2. COMMUNICATION TOOLS IN DISTANCE LEARNING

Communication tools should therefore be carefully taken into consideration: they should be easy to deploy and easy to use to meet non-digital natives' needs and, at the same time, new communication tools and phenomena (social networking, the Semantic Web & WEB 3.0) should be embraced to meet digital natives (Generation Y) expectations and needs [Montes, Gea 2011, pp. 1-9).

Facebook, YouTube, Twitter, blogging and podcasting are the tools of choice for US institutions of higher education. All of them have realized double-digit increases in adoption in the past year. Video continues to be strong with 41% using it. YouTube made its first appearance in this new study and debuted at 86% using the relatively new tools. It is interesting to note that podcasting now highlights faculty, students, lecture series etc. to create the experience of being on their campus. Even relatively new tools such as the location based Foursquare are being utilized by 20% of the schools studied in an attempt to bring prospective students to the campus (Barnes, Lescault, 2011, p. 3).

One area where faculty adoption is almost universal is in the use of video for classes. More than 80 percent of survey respondents tapped into online sites such as YouTube for video to use in their teaching (Tinit-Kane, 2013). Whether using it in class sessions or assigning it for outside viewing, many faculty members are enthusiastically bringing video into their teaching. Also, some faculty members — weary of the vast array of YouTube content that is not relevant to teaching — are using EduTube.org or TeacherTube.com, educator and student-friendly sites for sharing the best content with their classes.

86 percent of survey respondents use Facebook in education and 82 percent of survey respondents use Wikipedia in education (Kajanová, H. 2012). Results of the research (Kajanová 2014, pp. 84 –98) indicate that 3,9 % respondents not use Wikipedia in education. Results of the survey confirmed interest in virtual game worlds (Kajanová, Kajan, 2012, pp. 64 – 72). 27,5 % of respondents not pursue training courses on YouTube, but did only 1,5 % of respondents not pursue speedruns.

3. RESEARCH OBJECTIVES AND METHOD

The presented outline of conditions of functioning and development of distance learning tools along with personal experience of the author of this paper gained through the realisation of didactic processes at higher education facilities made it possible to notice the need to concentrate research interest on two aspects in the perspective of higher education within the scope of faculties of economic sciences. These aspects are: students' involvement in the educational process (in the perspective of the use of e-learning tools) as well as the issue of using Internet resources by students and its role in the institutional educational process within the framework of university classes. Therefore, two major objectives of the conducted research have been established. Firstly, establishing whether there is a relationship between the level of interest of students of the selected faculties of economic sciences in independent work and their interest in participation in e-learning classes (which expresses the issue of students' involvement in the distance learning process).

Secondly, establishing the students' opinion about the role and usefulness of Internet sources in education at the academic level. Research results have been devised on the basis of 133 survey questionnaires (including both open and closed questions). The group of respondents was comprised of students at four higher education facilities situated in the Silesian Voivodeship: University of Economics in Katowice, The Silesian University of Technology in Gliwice, Higher School of Labour Safety Management in Katowice and The Karol Godula Upper Silesian Academy of Entrepreneurship in Chorzów. First and second degree students (at least in the second year of the bachelor degree course) majoring in management and logistics were asked to express their opinion. The choice of higher education facility was justified by the possibility to conduct the research among students, however, the clearly marked context of the research does not put paid to the exploratory nature of the research [Miles, Huberman 2000, p. 11].

4. RESEARCH RESULTS

Table 1 shows actual counts of distribution of the students' answers concerning their level of interest in independent work in the educational process and level of interest in participation in e-learning classes.

Table 1: Actual counts of answers of the surveyed students

Qualitative features	I am interested in independent work (1)				
I am interested in e-learning classes (2)	Data	hardly	averagely	very	total
	hardly	21	31	1	53
	averagely	5	57	5	67
	very	2	6	5	13
	total	28	94	11	133

In order to estimate the strength of relationship between these two qualitative variables the Czuprow's coefficient of the convergence for qualitative features was used. Its calculation requires establishing the value of statistics χ2 according to the formula presented below:

$$\chi^2 = \sum_{i=1} \frac{(n_i - \hat{n}_i)^2}{\hat{n}_i}$$

With this end in view calculations with the use of formulas and copies of the contingency table according to the appropriate procedure were conducted [Rubach 2008, p. 212-214]. The first step is to calculate expected counts $\hat{n}_i$.

Table 2: Table of expected counts $\hat{n}_i$

Qualitative feature 1/ Qualitative feature 2	hardly	averagely	very
hardly	11,15	37,45	4,38
averagely	14,1	47,35	5,54
very	2,73	9,18	1,07

The next step is to calculate the square of the difference between actual and expected counts.

Table 3: Table of values of the squares of the difference between actual and expected counts

Qualitative feature 1/ Qualitative feature 2	hardly	averagely	very
hardly	97,02	41,6	11,42
averagely	82,81	93,12	0,29
very	0,53	10,11	15,44

Then, the obtained squares of the difference shall be divided by expected counts and the sum of all values in the table should be derived. The sum is the chi-square value ($\chi2$).

Table 4: Table of the quotients of the squares of the difference and expected counts showing the chi-square value

Qualitative feature 1/ Qualitative feature 2	hardly	averagely	very	total
hardly	8,7	1,11	2,6	12,41
averagely	5,87	1,96	0,05	7,88
very	0,19	1,1	14,42	15,71
total	14,76	4,17	17,07	36

The calculated chi-square value equals 36. The following formula should be used in order to calculate the Czuprow's coefficient of the convergence:

$$T = \sqrt{\frac{\chi^2}{n\sqrt{(k-1)(i-1)}}}$$

After substituting data the obtained value of the Czuprow's coefficient of the convergence equals 0,3679.

$$T = \sqrt{\frac{36}{133\sqrt{(3-1)(3-1)}}} = 0,3679$$

The obtained result shows that there is a clear but weak relationship between the variables which appear in the research question. It is worth pointing out that the Czuprow's coefficient of the convergence does not enable to interpret the direction of this relationship. It is a coefficient for nominal variables, the value of which depends on the value of the difference between expected and actual counts [Balcerowicz-Szkutnik and others 2014, p. 72].

The respondents were also asked to say whether they use Internet sources of information in the realised didactic process. As many as 132 in 133 people (99,25% of respondents) claimed to use the Internet for the purposes connected with the current didactic process. Only 1 person denied the fact (0,75% of respondents).

The decision to check how people who declared a particular level of interest in independent work within the framework of the didactic process assess the Internet sources of information resulted from the obtained indications which show how commonly the Internet is used by the surveyed students in search of the appropriate contents.

Table 5: Level of interest in independent work versus assessment of Internet sources of information

Assessment of Internet sources of information	Interest in independent work			Total (counts)	Total (percent)
	hardly	averagely	very		
reliable	6	9	1	16	12,03%
ready to use	4	31	1	36	27,07%
sufficient for what I need to learn	17	38	6	61	45,86%
more interesting than the contents presented during classes	0	7	0	7	5,26%
they supplement classes	0	5	3	8	6,02%
unreliable	1	4	0	5	3,76%
total	28	94	11	133	100%

The results presented in Table 5 have been devised on the basis of the answers of students asked to give one indication. In case of 18 people the answers pointed out several aspects concerning the

assessment of Internet sources. Their first indications have been taken into consideration for the information purposes of the table. The diagram below (drawn up with the aid of Cmap Tools version 5.05.01) shows the order of these indications. The following indications have been assigned to particular elements of the diagram: E1- contents more interesting than those presented during classes, E2- they supplement classes, E3- ready to use, E4-reliable, E5- unreliable, E6 - sufficient for what I need to learn.

Diagram. The order of students' multiple indications in case of the assessment of Internet sources of information
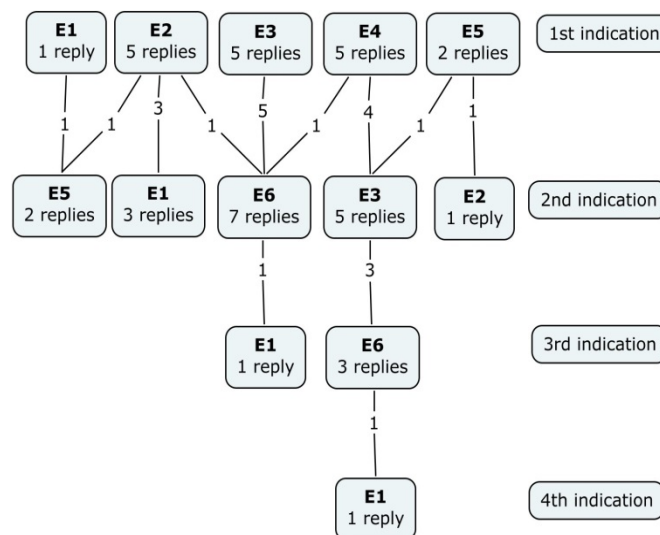
As it may be noticed, the students, in the first place, pointed out the possibility of immediate use of information found on the Internet, its reliability, as well as supplementary nature of the information with regard to the realised course (each of these answers was given by 5 people). The second most common answer was indication that information retrieved from the Internet may be regarded as sufficient for learning (7 answers).

In the view of the fact that the Internet is commonly used in the didactic process, it has been decided that the surveyed students should determine whether, in their opinion, the scope of e-learning refers only to classes organised by the university and realised via available university platform, or to classes organised by the university as well as the independent use of the Internet resources in the same didactic process.

Table 6:Level of interest in independent work versus idea of the scope of e-learning

Scope of e-learning	Level of interest in independent work			Total (percent)
	Hardly [a]	Averagely [b]	Very [c]	
Within the framework of the university platform	14 (50% [a])	50 (53,19%[b])	0 (0% [c])	64 (48,12%)
Within the framework of the university platform plus students' own use of the Internet	14 (50% [a])	44 (46,81%[b])	11 (100%[c])	69 (51,88%)
Total (percent)	28 (100%[a])	94 (100%[b])	11 (100%[c])	133 (100%)

The first option (e-learning is limited to classes organised in this form by the university) was chosen by 64 respondents (48,12%). Whereas, the second option (e-learning stands for classes organised by the university as well as for the individual use of the Internet) was chosen by 69 respondents (51,88%).

5. CONCLUSIONS

The clear but weak relationship between students' interest in independent work and their interest in participation in e-learning classes that has been presented may serve as a significant hint for Polish higher education facilities in the perspective of determining the availability of such classes as well as their organisation. First of all, from the point of view of the availability of such classes (possibility of their organisation in Poland is regulated by article 164 section 3 of the Higher Education Act [Act on Law... (Ustawa z dnia 27 lipca 2005 o prawie o szkolnictwie wyższym) 2005], obeying the participation in distance learning classes throughout the whole course of studies, as well as other additional requirements which the university must meet (these issues, in turn, are regulated by the Ordinance of the Minister of Science and Higher Education on the conditions which must be met for the didactic classes during studies to be conducted with the use of distance learning methods and techniques [Ordinance of the Minister... (Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego) 2011]. Among these requirements there are such issues as the need for constant contact between students and a person conducting the course, ensuring contact between students themselves, current supervision over students' progress as well as contact between a student and a lecturer. What is more, the university must prepare appropriate infrastructure for conducting such classes and prepare (train) both lecturers and students [Dąbrowski 2013, p. 207,208]. Secondly, lack of strong pressure from students on realisation of such classes allows universities to save organisational effort and reduce costs connected with the implementation of e-learning solutions in accordance with legal regulations in force. Moreover, it is worth remembering that in the view of drop in the birth rate and decreasing number of students organisation of mostly traditional didactic classes suits many universities (especially state universities) due to the need to provide their employees with didactic workload.

The issue of the use of Internet sources of information in the didactic process seems to be interesting. As many as 99,25% of respondents admitted that they use them. Almost 46% of them assessed these sources of information, in the first place, as sufficient for learning the scope of material of the realised didactic process. What is important, this indication prevailed in all the distinguished groups of students due to their level of interest in independent work. The second most popular indication was the fact that Internet sources of information were regarded as ready to use in the didactic process without the need for further developing (27,07% of indications). These facts seem to show that in a time when information tools are used for dissemination and exchange of didactic materials and, as often intended by those who conduct the classes, for students' independent developing of detailed problematic issues, there is a need to think about the form, scope and usefulness of e-learning classes conducted within the framework of the academic didactic process. It seems that this issue should be considered, above all, in the perspective of students' motivation to manifest an active attitude in the educational process. This aspect has its expression also in the answers of the surveyed students. All the students who are very interested in independent work within the framework of the didactic process at the university pointed out that the notion of e-learning is not limited to distance learning classes, but also includes independent use of the Internet for the purposes of the academic educational process. If the role of these two components in education of students is skillfully determined, students may become more involved in the process of acquiring knowledge. They may also change their prevailing opinion about Internet sources of information.

Finally, it should be emphasized that the obtained research results may be interpreted only in the context of the surveyed group of students and higher education facilities they attended. All the intentions of potential generalization for the population of Polish students majoring in economic sciences as well as Polish higher education requires conducting research on a representative sample of respondents.

Sources

1. BALCEROWICZ-SZKUTNIK M., SOJKA E., SZKUTNIK W., *Statystyka opisowa dla ekonomistów. Przykłady i zadania*, Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach, Katowice 2014. ISBN 978-83-7875-172-4.
2. BARNES, N.G., LESCAULT, A.M., *Social Media Adoption Soars as Higher-Ed Experiments and Reevaluates Its Use of New Communications Tools*, 2011 [Online, 2014-09-30], http://www.sncr.org/sites/default/files/higherEd.pdf
3. DĄBROWSKI M., *E-learning w szkolnictwie wyższym*, „Studia BAS", Vol. 35, No. 3, 2013. 203-211 p. ISSN 2082-0658.
4. KAJANOVA, H., *Používanie wiki vo vzdelávaní*, „Sociálno-ekonomická revue" 02-2014. 84 – 98 pp. 2014. ISSN 1336-3727.
5. KAJANOVA, H., *The Use of social Media in Education*. In: *Personalmanagement in bewegten Zeiten*. Plauen: M&S Verlag/OHG, 2012. 247-260 pp.. ISBN 978-3-938590-38-6.
6. KAJANOVA, H., KAJAN, B., *M-learning a digitálnagramotnosť*. Zborník z medzinárodnej vedeckej konferencie: *Mobile learning ako nástroj skvalitňovania vzdelávania*. 64 – 72 pp. 2012. ISBN 978-80-8075-568-3.
7. KAJANOVA H., KAJAN B., *Vyuzivanie YouTube vo Vzdelavani*, Zborník príspevkov z medzinárodnej vedeckej konferencie: *Prístupy k manažmentu v novej ekonomike*, Trenčianska Univerzita Alexandra Dubčeka v Trenčíne, Trenčín 2013. 55-60 p. ISBN 978-80-8075-626-0.
8. KOMAŃDA M., KAJANOVA H, *E-learning in the system of higher education in Poland and Slovakia*, Zborník príspevkov z medzinárodnej vedeckej konferencie: *Prístupy k manažmentu v novej ekonomike*, Trenčianska Univerzita Alexandra Dubčeka v Trenčíne, Trenčín 2013. 68-76 p. ISBN 978-80-8075-626-0.
9. LUBINA E., *M-learning w strukturze metodycznej e-learningu*, „E-mentor", Vol. 22, No. 5, 2007. 27-30 p. ISSN 1731-6758.
10. MILES M., HUBERMAN A.M., *Analiza danych jakościowych*, Trans Humana Wydawnictwo Uniwersyteckie, Białystok 2000. ISBN 83-86696-59-1.
11. MONTES, R., GEA, M., *Virtual Mobility: the Value of Inter-cultural Exchange*. „eLearning Papers", April 2011. 1-9 pp. ISSN: 1887-1542 [Online, 2014-09-25] http://www.openeducationeuropa.eu/en/download/file/fid/22291
12. MORRISON R., CEGIELSKI C.G., KELLY RAINER R., *Trust, Avatars, and Electronic Communications: Implications for E-learning*, „Journal of Computer Information Systems", Vol. 53, Iss. 1, 2012. 80-89 p. ISSN 0887-4417.
13. NAKAJIMA K., *Innovations of „E-teaching ties" on learner performance and faculty development*, „International Journal of Electronic Commerce Studies", Vol. 4, No. 2, 2013. 359-365 p. ISSN 2073-9729.
14. PENKOWSKA G., *Polski e-learning w opiniach ekspertów*, „E-mentor", Vol. 21, No. 4, 2007. 34-38 p. ISSN 1731-6758.
15. 15. POCATILU P., *Developing an M-learning Application for iOS*, „Informatica Economica", Vol. 17, No. 4, 2013. 77-86 p. ISSN 1453-1305.
16. *Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 2 listopada 2011 zmieniające rozporządzenie w sprawie warunków, jakie muszą być spełnione, aby zajęcia dydaktyczne na studiach mogły być prowadzone z wykorzystaniem metod i technik kształcenia na odległość* (Dz. U. 2011 r. Nr 246, Poz. 1470).

17. RUBACHA K., *Metodologia badań nad edukacją*, Wydawnictwa Akademickie i Profesjonalne, Warszawa 2008. ISBN 978-83-60501-11-5.

18. SKRZYPEK J., *Finansowa i ekonomiczna efektywność projektów e-learningowych a wartość organizacji*, In: *E-learning – narzędzia i praktyka*, Dąbrowski M., Zając M. (ed.), Fundacja Promocji i Akredytacji Kierunków Ekonomicznych, Warszawa 2012. 231-240 p. ISBN 978-83-63127-06-0.

19. TINIT-KANE, H., *Overcoming Hurdles to Social Media in Education*. „Educause Review Online", April 1, 2013 [Online, 2014-09-27],http://www.educause.edu/ero/article/overcoming-hurdles-social-media-education.

20. *Ustawa z dnia 27 lipca 2005 o prawie o szkolnictwie wyższym* (Dz. U. 2005 r. Nr 164, poz. 1365 ze zmianami).

21. VASCONCELOS S.V., BALULA A., ALMEIDA P., *E-and blearning in European Tourism Higher Education courses: benefits, barriers and challenges*, „International Journal of Management Cases", Vol. 15, No. 4, 2013. 141-151 p. ISSN 1741-6264.