

Knowledge assessment by electronic learning systems

Pregledni znanstveni članek

UDK 37.091.26:004

KLJUČNE BESEDE: e-učenje, preverjanje znanja na daljavo, Moodle

POVZETEK – Avtorja razpravljata o vlogi in pomenu elektronskega izobraževanja. V prispevku ugotavljata možnosti in prednosti sistema za elektronsko izobraževanje z vidika preverjanja znanja v primerjavi s klasičnim načinom. Izobraževanje na daljavo prikazujeta v zgodovinskem kontekstu. V empiričnem delu predstavljata rezultate proučevanja, v okviru katerega sta ugotavljala zadovoljstvo študentov menedžmenta ob uporabi elektronskega izobraževanja pri preverjanju znanja, pa tudi prednosti, ki jih ta sistem ponuja učiteljem. Raziskava je bila usmerjena predvsem v proučevanje utemeljenosti uvajanja sistema za elektronsko izobraževanje z vidika preverjanja znanja, vendar pa rezultati odpirajo možnosti za nadaljnje raziskovanje tega področja, zato avtorja nakažeta nadaljnje korake pri realizaciji te naloge.

Review scientific paper

UDC 37.091.26:004

KEYWORDS: e-learning, computer aided assessment, Moodle

ABSTRACT – In this paper, the authors strive to show how important it is to include a distance learning system as one of contemporary educational processes in today's educational streams. The aim of this paper is to present the possibilities and advantages of a distance learning educational system during knowledge assessment. It presents a short historic review of distance learning education, from its beginnings to e-learning. The paper shows the results of empirical research. The aim of the research was to identify the satisfaction of management students with the use of a distance learning education system during knowledge assessment as well as the advantages that the distance learning system offers to professors. The result of the research has established that the respondents are satisfied with knowledge assessment using the distance learning education system.

1. Introduction

Although surviving for millions of years, classical education has some significant faults. One of the biggest is the necessity for attending lectures. That fact forces a participant to pay the costs of accommodation, travelling and other telecommunication services. There are also indirect costs of time spent on the travelling. Another important problem is teaching adjusted to the so-called average student, whereas others who do not belong to this category cannot be included, no matter if the process of learning is too slow or too fast for them. With the wide use of computers and the Internet, new techniques of learning have been developed, which are called e-learning and help us overcome the above mentioned problems.

From the viewpoint of contemporary education, LMSs (Learning Management Systems) have a great influence on many aspects of the learning process and the transfer of knowledge. They enable interface implementation based on the Web and support a large number of activities, including forums, electronic study material, tests for student assessment, surveys and other content. In other words, these platforms enable knowledge acquisition by performing different activities in the applications implemented in LMS surroundings and they promote team work (Moreno, Mayer, 2007; Cheng, Basu, Goebel, 2009).

Electronic universities are being created by uniting a large number of courses, and they can be completely independent or can serve as a support to the existing universities. When you pass the exams from the syllabi, you gain the same title as in any of the “real” faculties. However, here also applies the same rule as in the classical universities: the higher rating of the faculty, more easily the graduates find jobs and have a possibility to choose companies and jobs.

The courses mainly refer to higher education and some specialist needs of different industries. It should not be expected in the near future that e-learning will push back present primary and secondary schools, but faculties should remain the object of interest of investors in this area. Electronic learning is applied even in some industrial branches: for example, employers can inform themselves about new products, workers about new technologies, clients about the application of the delivered devices, etc. The common thing is better efficacy of economical systems by introducing new knowledge through technological processes.

The great flexibility of e-learning is a significant advantage in comparison to the classical forms of education. In the classical form of education it is not possible to attend a course at a time suitable for you, but at a time set by the institution. Secondly, you have to be present at a certain place, which can be a problem if the student does not live close to the classroom. Thirdly, students have to work at a pace determined by the institution and which cannot be changed. In addition, in classical education, students cannot choose the amount or the structure of the material used for gaining knowledge. For example, students may need to continue to study a certain field necessary for their profession even 10 years after their graduation. “Distance” learning provides that, and its great flexibility motivates students and improves their work satisfaction, which shows the efficacy of this type of learning.

Generally speaking, the researchers have concluded that there are no significant differences in the students’ achievements between online learning and traditional learning, but some of the online methods can lead to better learning results. (Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Waiet, Fiest, Huang, 2004; Fortune, Shiflett, Sibley, 2006; Herman, Banister, 2007; Koori, 2003; Talent-Runnels, Lan, Cooper, Ahern, Shaw, Liu, 2006; Warren, Holloman, 2005; Weber, Lennon, 2007).

There are some of the pedagogical variables that can have an impact, as follows:

- the use of problem based learning strategies;
- the possibility for students to take part in a discussion with the lecturer;

- students are familiar with the course content before it even starts;
- the use of video content.

Questions, tasks, activities and other methods of eliciting student responses are often called items in the assessment process. In the computer-based assessment, almost any type of interaction with a user can be considered an assessment item. An assessment item (when speaking in reference to technology) is defined as any interaction with a respondent which results in collecting information in order to make an inference about the respondent.

Given this definition, there are many ways of making innovative items of assessment when delivered by a computer. One organisational scheme describes innovative characteristics for computer-administered items, such as technological enhancements of sound, graphics, animation, video or other new media incorporated into the item stem, response options or both (Parshall, Davey, Pashley, 2000, p. 141). However, there are other numerous classification possibilities, including how items function. For some innovative formats, students can, for example, “click” on graphics, drag or move objects, reorder a series of statements or pictures, or construct a graph or some other presentation. Innovation does not necessarily have to be based on one single item, but on the way items flow, as in the case of branching through a changing series of items contingent on an examinee’s responses.

Much of the literature on item types is concerned with innovations of the observation – the stimulus and response (or cause and consequence) – and the focus is on the assessment of the degree of construction versus selection, or constraint versus open possibilities, in the response format. Certain characteristics are common to most constructed-response and performance formats.

First, and perhaps most obvious, these alternative formats require an examinee to supply, develop, perform or create something. And, typically, these tasks tend to be more demanding to the examinee than classical multiple-choice items. They often involve real problems that people of a comparable age and status may encounter in everyday life, such as asking schoolchildren to calculate from a grocery store purchase, or for secondary schoolchildren to complete a driver’s license application or examine an insurance policy. These tests are usually scored by comparing and contrasting an examinee’s responses to some developed criteria, sometimes with lengthy descriptions called “rubrics”.

The so-called open-ended items cover a lot of territory; however, organising schemes for the degree of constraint and other measurement aspects regarding items can be helpful (Bennett, 1993, p. 14).

One potential limitation for realising the benefits of computer-based assessments comes in designing questions and tasks with which computers can effectively interact (for example, including scoring and score reporting), while still gathering meaningful measurement evidence. The question type currently dominating large-scale computer-based testing and many e-learning assessments is the standard multiple-choice question which generally includes a question followed by a small set of responses

from which students are expected to select the best choice. This type of a task is easily scored by a variety of electronic means and offers some attractive characteristics as an assessment format. However, if e-learning authors adopt only this format as the main assessment format in this field, many potentials of computer-based assessment for qualitative and embedded assessment could be lost.

According to some researchers, ubiquitous multiple-choice testing sometimes encourages “poor attitude toward learning and incorrect conclusions about its purpose ... for example that there is only one right answer, that the right answer resides in the head of the professors or test authors, and that the job of a student is to get the answer by guessing” (Bennett, 1993, p. 15).

Movements toward authentic assessment, alternative assessment, performance assessment, dynamic assessment, portfolio systems, constructed responses, higher-order assessment and other approaches favouring richer assessment tasks are often based on consequential validity arguments about deleterious effects on teaching and learning of narrow assessments in the classroom (Osterlind, 1998). Some cognitive theorists argue that the multiple-choice format presumes, often without sufficient basis, that complex skills can be decomposed and decontextualised. Moreover, some critics maintain that in practice. This format relies on well-structured problems with algorithmic solutions and that in theory. In addition, it relies on a view of learning that knowledge is an additive rather than integrative part of developing knowledge structures (Glaser, 1991).

Potential use and constraints of computer-based assessment

Objectivity and standard consistency. Computers will always “follow” the rules of assessment built into their programs. However, in traditional “manual” assessment, subjectivity may interfere.

Automatic, prompt and detail feedback to all students. This is not possible to achieve with “manual” assessment with a large number of students.

Informative feedback for the examiner. A computer can note details of a student’s progress assessing all the questions, wasted time, history of attempts and all the grades while studying. A group feedback can be given in a form of messages placed on discussion forums. CAA improves accuracy in both testing and grading.

Saving time while grading. A student’s grades can be directly sent to the student’s portfolio, which is not possible to do in a manual grading system.

Self-assessment at a time determined by students, at a pace that is suitable for them and whenever they are ready. This is important for students who are employed.

The use of multimedia. The key element of CAA is its ability to involve graphics as part of a question and/or answer. Graphics, such as photos, diagrams, maps, musical partitions, equations and others, can be made and presented. Other types of multimedia, such as audio, video and animation, can be used in order to get excellent effects.

Computer-based online testing can provide prompt feedback from a computer or a lecturer. Tests available on demand enable lecturers and students flexibility in taking exams whenever it suits them. With this convenience at hand, at any time and any place, students can assess their knowledge, reanalyse their results and use them in further learning. The online test results can point out the constraints to lecturers. The use of assessment tools can help lecturers save time, since most of the test questions are automatically specified and students' results can be revised through different report types. On the other hand, students can benefit from receiving results and feedback immediately after exams, which can motivate and encourage them for further learning.

2. Research methodology

For the purpose of this work, a research has been made with the aim of examining the students' satisfaction with a distance learning system for knowledge assessment, and the advantages that this system offers to professors.

The empirical data for this research were gathered and processed by the following methods. A comparative method was used for analysing the grades of the students at the Faculty of Management from the English preliminary exam. The same group of 72 students took this exam in a classical way and in the "Moodle" system for distance learning. A questioning method was used to gather information regarding the students' attitudes about taking the exam in a distance learning system. The instrument for gathering information was a questionnaire with 23 questions.

3. Results and discussion

During this research, we had to determine the students' results achieved by taking the exam in a classical way and in a distance learning system, and the result showed that more than half of the examinees (61%) got the same grade in both ways, 20.8% of students did better in the distance learning system and 18.1% got better grades in the classical exam. The received results of taking the exam in a classical way show the average grade 7.90, while it is 7.94 in the distance learning system.

The T-test analysis shows that there are no statistically significant differences in the grades ($p=0.63$). Based on these results, we can conclude that most students (61%) got the same grade at both types of exams, and that there are no statistically significant differences between those two types of exams ($C=0,88$, $\alpha=0,00$), meaning that an examination type (classical or distance learning system) does not influence the results achieved by the students.

Table 1: Students' results achieved by taking the exam in a classical way and in a distance learning system

	Frequency (<i>f</i>)	<i>f</i> %	Cumulative <i>f</i> %
Lower grades	13	18.1	18.1
Same grades	44	61.1	79.2
Higher grades	15	20.8	100.0
Total	72	100.0	

The majority of the students (63%) finds this knowledge assessment less stressful, 18% claims it is not less stressful and 19% of the students remained indecisive. Further research examined the relation between the year of study of the students and their attitude if the knowledge assessment in a distance learning system is less stressful. Although we came to the result that only 33.3% of first-year students consider knowledge assessment in the distance learning system less stressful, we confirmed that most second-year students (73.9%) and third-year students (75%) agree with this statement. In addition to these findings, a small number of first-year students (33.3%) remained indecisive concerning this question and marked the answer "I don't know". Moreover, it should be considered that the first-year students find everything still new at the faculty, and that the concept of taking exams is stressful to them, so they cannot easily see the difference between classical exams and a distance learning system. They also cannot see the advantages of such a system.

Table 2: Stress in knowledge assessment in the distance learning system

			Year of study			Total
			1 st	2 nd	3 rd	
Stress	Yes	Count	7	17	21	45
		%	33.3%	73.9%	75.0%	62.5%
	No	Count	7	4	2	13
		%	33.3%	17.4%	7.1%	18.1%
	Don't know	Count	7	2	5	14
		%	33.3%	8.7%	17.9%	19.4%
Total		Count	21	23	28	72
		%	100.0%	100.0%	100.0%	100.0%

Remark: $\chi^2 = 12.09$, $N = 72$, $df = 4$, $\alpha = 0.02$

Regarding the relation between the grades and the examinees and their attitude if this kind of knowledge assessment is less stressful, the result analyses show that there are statistically significant differences between the students' grades (the differences are significant at the level $p=0.00$). In relation to the attitude if this kind of knowledge assessment is less stressful, the students with lower grades in this type of assessment became polarised. 53.8% of the students from this group find these types of examinations less stressful, and a little less than half (46.2%) does not find it less stressful. Students who got the same grades at both types of exams said that a distance learning system is less stressful (59.1%). Only 9.1% of the students from this group considered it less stressful, whereas a number of students (31.8%) remained undecided. The majority of students (80%) who got higher grades in these exams find it less stressful, whereas only 20% of them do not find it less stressful. The results of this analysis show that all three groups of students agree that a distance learning examination is less stressful than classical examinations. On the other hand, as it was expected, students who got lower grades at these examinations than other two groups of students said that this type of examination was not less stressful. We can assume that one of the reasons why students from this group got lower grades was the fact that for the majority of them this way of examination was very stressful. However, it is clear that students who got the same grades at both types of examinations remained indifferent and marked the answer "I don't know".

Since the subject of this research is also the empirical study of the students' satisfaction with the use of distance learning knowledge assessment, we found it necessary to ask the students to rate their satisfaction on a scale from 1 to 5, where 1 means "not satisfied" and 5 "satisfied". The average mark for the distance learning system was 4.03. The majority of the students (81.9%) marked this system positively.

When examining the relation between the year of study of the examinees and their satisfaction with a distance learning system, the analyses show that there are statistically significant differences among the students from different years (the differences are significant at the level $p=0.02$). The third-year students gave the best marks to the distance learning system, and their average mark is 4.39. The average mark of the second-year students is 4.22, whereas the first-year students gave the worst marks, whereby the average mark is 3.33. Statistically speaking, there is only the difference at the level $p<0.05$ between the first-year students on the one hand and the second- and third-year students on the other. These results lead us to the conclusion that older, and thus more mature, students are more interested in new informational techniques and new types of knowledge assessment. On the other hand, it was expected that the first-year students should fully adapt to a distance learning system, since the whole concept of studying is completely new to them.

Regarding the relation between the examinees' grades and their satisfaction with a distance learning system, the results of the analysis show the presence of statistically significant differences between the students' grades (the differences are significant at the level $p=0.00$). As it can be seen in the graph, students who got lower marks in

the distance learning system than in the classical examination gave lower marks to this system with the average mark of 3.08. Students who got the same grades in both examinations gave the distance learning system the average mark of 4.14. The majority of students from this group (56.8%) is partially satisfied with the distance learning system (they gave it 4), and none of the examinees from this group said that he or she was not satisfied with this system, and did not give 1.

Table 3: Relation between the examinees' grades and their satisfaction with a distance learning system

			Grades			Total
			Lower	Same	Higher	
Overall satisfaction	1	Count	3	0	0	3
		%	23.1%	0.0%	0.0%	4.2%
	2	Count	2	1	0	3
		%	15.4%	2.3%	0.0%	4.2%
	3	Count	2	5	0	7
		%	15.4%	11.4%	0.0%	9.7%
	4	Count	3	25	7	35
		%	23.1%	56.8%	46.7%	48.6%
	5	Count	3	13	8	24
		%	23.1%	29.5%	53.3%	33.3%
Total		Count	13	44	15	72
		%	100.0%	100.0%	100.0%	100.0%

Remark: $\chi^2=25.31$, $N=72$, $df=8$, $\alpha=0.00$

While analysing the relation between the students' grades and their attitude if they would agree to be distance learning students and were in the position to start their studies now, we got the results that showed the presence of a statistically significant difference between the students grades (the differences are significant at the level $p=0.02$). Most students who got lower grades in the distance learning system (53.8%) claimed they would not agree to be distance learning students. The answers of students who got the same grades are somewhat different, and there is an interesting thing that most of them (43.2%) told they would like to be distance learning students, whereas 20.5% of them would not like to study in that way. Only 6.7% of students who got better grades in the distance learning system would not like to be distance learning students.

It is interesting that in this analysis more students who got the same grades in both examinations (43.2%) would like to study in this system than students (33.3%) who got better grades in this system. It is also interesting that students who got lower

grades (30.8%) and those who got better (33.3%) equally expressed a wish to be distance learning students. On the other hand, it was predictable that more than half of students (53.8) who got lower grades in the distance learning system are categorically against this type of learning.

In addition to the thesis that most students are satisfied with the possibilities that a distance learning system offers, the results show that more than half of the students (63%) finds distance learning knowledge assessment more interesting and attractive, whereas only 15% of them does not think so. The majority of the students (90%) considers a distance learning system easy for use. Almost all the students agree that seeing their results immediately after completing an exam in a distance learning system is a real benefit (90% of them agree with this) and that the system points out their mistakes (88% agree with this).

Only 3% of the students find self-assessment tests in a distance learning system not useful, 39% of them find them of little use, whereas more than half of them (58%) believe they would be of great use for further education. Finally, we should not neglect the information that 53% of the students said they would like to have their next knowledge assessment done in a distance learning system and only 24% said they would like to be distance learning students if they were about to start their studies.

The analysis shows that the majority of the students (65%) believes that the professors' subjective attitudes are eliminated in a distance learning system, 24% remain undefined and only 11% does not agree with this statement.

Many students find this system more objective than classical examinations. It is important to emphasise that professors have no influence on the assessment and their subjective attitudes cannot influence grades, which means that the same rules apply to all students.

4. Conclusion

The research results show the students' satisfaction with a distance learning knowledge assessment system. Although students, on average, showed the same results in both assessments, more of them find the distance learning system less stressful, more interesting and attractive, since it eliminates the possibility of cheating and is easy to use. The students also find it important that they can see the time left for doing the test at all time, the fact they get the results immediately after completing the test and that they can see their mistakes. We assume that all those reasons encouraged the students to say that they would like to have their next knowledge assessment in this system and that they would like to be distance learning students if they could.

The aim of this research, only from the viewpoint of knowledge assessment, was to determine the validity of introducing a distance learning system. At the same time, the research results create possibilities for further research in this area. Due to the sample

limitations, these research results are only hypothetical. If they lead to further research studies, our aim would be fulfilled. The next step would be to examine the validity and efficacy of distance learning with the experimental-comparative method. Two similar groups of students would be determined (according to their gender, knowledge, psychological characteristics and intelligence). One group of students would be a control one and they would work in a classical way. The other, experimental group of students would spend one term working in a distance learning system. After the experiment, knowledge assessment would take place and this assessment would be done:

- immediately after lectures,
- a month after the end of lectures,
- six months after the end of lectures,
- a year after the end of lectures.

That would enable us to empirically determine the permanence of knowledge received in a distance learning system as opposed to classical teaching methods. If it proves that knowledge acquired in a distance learning system is more permanent than knowledge acquired in a classical teaching method, the research can result in introducing distance learning in the overall teaching process at the Faculty of Management, at first, and later at other educational institutions. This would mean that students would have their lectures organised with the help of a distance learning system.

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Preverjanje znanja s sistemi za elektronsko izobraževanje

Avtorja sta preko rezultatov raziskave pokazala, kako pomembno je, da v današnje izobraževalne trende v Srbiji kot enega od sodobnih izobraževalnih procesov vključijo sistem elektronskega izobraževanja. Namen raziskave je bil preučiti možnosti in prednosti elektronskega izobraževanja z vidika preverjanja znanja glede na klasične načine ocenjevanja. Ena od največjih pomanjkljivosti v tradicionalnih metodah izobraževanja je nujna prisotnost na kraju poučevanja. Druga velika težava je v tem, da je izobraževanje prilagojeno povprečnemu študentu, s tem pa so prikrajšani tisti, ki ne sodijo v to kategorijo, saj je učni proces zanje prepočasen ali prehitel.

S širitvijo uporabe računalnikov in interneta so se razvile nove tehnike izobraževanja, ki jim skupaj pravimo e-učenje (e-learning) in s katerimi se navedene težave uspešno premagajo. LMS (Learning Management Systems) omogoči uporabo vmesnika, ki temelji na spletu, in na splošno podpira širok spekter dejavnosti, saj vključuje forume, elektronsko učno gradivo, naloge, teste za ocenjevanje znanja, raziskave/ankete ipd.

Velika fleksibilnost e-izobraževanja ima precejšnjo prednost pred tradicionalnimi oblikami izobraževanja, saj spodbuja ustvarjalnost in vpliva na zadovoljstvo uporabnikov, to pa povečuje učinkovitost tovrstnega izobraževanja. Vendar pa so raziskovalci

prepričani, da ni bistvenih razlik v dosežkih študentov, ki uporabljajo spletno učenje, in tistimi, ki se učijo po tradicionalnih učnih metodah, pa tudi, da nekatere spletne metode le vodijo k boljšim rezultatom. Računalniški spletni testi lahko zagotovijo pravočasne povratne informacije, bodisi s strani računalničarja ali pa predavatelja.

Testi, dostopni na zahtevo, omogočajo predavateljem in študentom prožnost pri izpiti, da jih slednji opravijo, ko jim najbolj ustreza. Glede na to imajo študenti priložnost, da presodijo svojo pripravljenost, ponovno analizirajo svoje rezultate in jih uporabijo pri nadaljnjem učenju. Predavatelje pa lahko podatki iz spletnih testov pravočasno opozorijo na pomanjkljivosti v znanju študentov in na učna področja, ki jim je treba posvetiti več pozornosti. Uporaba orodja za ocenjevanje lahko predavateljem pomaga prihraniti čas, saj se večina testnih vprašanj samodejno označi in rezultate študentov je mogoče opazovati preko različnih vrst poročil. Po drugi strani pa je za študente prednost, ker dobijo rezultate in povratne informacije takoj po opravljenem izpitu, kar jih lahko motivira in spodbuja k nadaljnjemu učenju. Izvedli smo raziskavo, katere namen je bil preučiti zadovoljstvo študentov z izobraževanjem na daljavo in ocenjevalnimi testi, pa tudi koristi, ki jih tak sistem nudi profesorjem.

V vzorec so bili vključeni študentje Fakultete za menedžment. Skupina 72 študentov je opravljala kolokvij iz angleškega jezika na klasičen način in preko sistema na daljavo "moodle". S primerjalno metodo smo analizirali ocene, ki so jih študenti dobili pri obeh načinih opravljanja izpita, z metodo poizvedovanja (anketiranja) pa so bili zbrani podatki o odnosu študentov do preverjanja znanja s pomočjo sistema za izobraževanje na daljavo.

Rezultati so pokazali, da je več kot polovica anketirancev dobila enako oceno pri obeh vrstah izpita. Rezultati t-testa na parnih vzorcih niso pokazali statistično pomembne razlike v dobljenih rezultatih pri testiranju znanja študentov z uporabo konvencionalnih metod oz. preko sistema za izobraževanje na daljavo ($p = 0,63$).

Iz teh rezultatov lahko sklepamo, da način preverjanja znanja (običajni ali z uporabo izobraževanja na daljavo), ne vpliva na rezultate, ki jih študenti dosežajo, tj. ne vpliva na njihove ocene. Velika večina vprašanih meni, da je e-sistem preverjanja znanja manj stresen. Ko gre za razliko med dobljenimi ocenami in njihovim stališčem glede tega, ali je preverjanje znanja v okviru e-sistema manj stresno, rezultati analize kažejo, da obstajajo statistično pomembne razlike med obojima.

Poleg tega so v okviru raziskave študentje na lestvici od 1 do 5 ocenjevali, kako zadovoljni so s tovrstnim preverjanjem znanja, pri čemer je ocena 1 označevala izjavo "Nisem zadovoljen," ocena 5 pa "Zadovoljen sem." Povprečna ocena, s katero so študenti ocenili sistem izobraževanja na daljavo, je 4,03 oz. velika večina študentov je pozitivno ocenila opravljanje izpitov na ta način. Ko smo raziskovali vpliv letnika študija na zadovoljstvo anketirancev s sistemom izobraževanja na daljavo, so rezultati analize pokazali, da obstajajo statistično značilne razlike med študenti različnih starosti in da so študenti 3. letnika najboljše ocenili sistem izobraževanja na daljavo. Ko gre za razliko med ocenami študentov, pridobljenimi na izpiti, in njihovim zadovoljstvom s sistemom za izobraževanje na daljavo, rezultati analize kažejo, da obstajajo statistično pomembne razlike med obojima.

Rezultati so pokazali, da so študenti v glavnem zadovoljni z možnostmi, ki jih ponuja sistem za izobraževanje na daljavo, in več kot polovica študentov (63%) meni, da je preverjanje znanja preko sistema za izobraževanje na daljavo bolj zanimivo in privlačno. Veliki večini študentov se zdi sistem izobraževanja na daljavo enostaven za uporabo. Skoraj vsi anketiranci se strinjajo, da jim veliko pomeni, ker lahko prek tega sistema vidijo svoje rezultate takoj po izpitu in ker jim sistem takoj pokaže njihove napake. Več kot polovica študentov si želi, da bi bilo v bodoče vse preverjanje znanja preko sistema izobraževanja na daljavo.

Analiza je pokazala, da velika večina študentov meni, da je subjektivno stališče profesorjev odpravljeno pri testiranju znanja preko sistema izobraževanja na daljavo. Kot dodatek k temu mnenju lahko izpostavimo dejstvo, da pri takšnem sistemu preverjanja znanja profesorji sploh nimajo nobenega vpliva na pregled in ocenjevanje testov. V tem primeru ne more priti do napake pri pregledovanju ali da bi subjektivni odnos profesorjev vplival na izid ocenjevanja, saj za vse študente veljajo enaka pravila.

Čeprav je bil namen raziskave, da samo s stališča preverjanja znanja potrdi upravičenost uvedbe sistema za elektronsko izobraževanje, rezultati te študije odpirajo možnosti za nadaljnje raziskave na tem področju. Naslednji korak pri preučevanju te teme bi bil, da se z eksperimentalno-primerjalno metodo ugotovi veljavnost in učinkovitost sistemov za izobraževanje na daljavo. To bi ugotavljali z dvema uravnoteženima (glede na spol, znanje, psihološke značilnosti, sposobnosti) skupinama študentov. Ena skupina bi bila kontrolna, z njo bi delali na klasičen način. Druga, eksperimentalna skupina študentov bi en semester ali trimester enako učno gradivo usvajala preko sistema izobraževanja na daljavo. Po končanem poskusu bi preverili znanje v obeh skupinah:

- takoj po zaključku obravnave,
- en mesec po koncu pouka,
- 6 mesecev po koncu pouka,
- eno leto po koncu pouka.

Tako bi bilo mogoče empirično ugotoviti trajnost znanja, ki se pridobi s pomočjo sistema za izobraževanje na daljavo, in ga primerjati s tistim, ki je bilo pridobljeno v klasičnem izobraževanju.

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