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Tourism graduate students' satisfaction with online learning

Abstract

The aim of this paper is to present the benefits and problems when introducing e-learning in study processes, to present and analyse several dimensions of students' satisfaction with online learning and to contribute to a clear overview of this topic. Many academics in the fields of tourism are not very favourable disposed to introduce online learning into their courses and modules. With this paper we would like to encourage them, as students are mostly satisfied with the use of virtual environment for their lessons. The primary question is "what are the factors that influence the students' satisfaction with learning in the online environment?" In this study, the explored factors were (1) Personality of students, (2) E-learning properties, and (3) E-classroom properties. A survey methodology was used and validated items from previous relevant research work were adopted. First, the exploratory factor analysis (EFA) was performed, and second the results of the EFA were confirmed by CFA, using a structural equation modelling. We empirically developed and tested a new model, which identifies predictors of students' satisfaction with online learning. These results signify a valuable feedback to institutions offering online classes and to educators evaluating satisfaction of their students and help them to planning to offer an efficient and flexible online education courses. Identifying the most relevant factors of students' satisfaction entails important issues for educators.

Key words: e-learning; blended learning; student satisfaction; Slovenia

Introduction

The development of the information and communication technology has marked everyday life for all of us. Our work, or even our day, usually begins by switching on the computer, checking the e-mail box and news on the internet. We mainly communicate with friends via social networks, and the business contacts are transferred to the Internet. These changes could not be avoided in the field of education. Also in this area an innovative new form of education has emerged. This is distance learning or, as it is often called, e-learning (or even online learning).

The use of information technology has led to a solution for educational institutions or multinational organizations in the sense of expense and quality issues (Malik, 2009). The concept of e-learning is not a new thing since it has been used worldwide for several decades, and, as the development of technology for e-learning, it is one of the greatest advances of information and communication technologies (Wang, 2003). Distance education has been developing the last 30 years and it is well recognised today. As it

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is becoming increasingly important and represents a phenomenon, it is a topic of many discussions (Hannum, 2009). Selim (2007) argues that many university programs have included e-learning into their programs as it has emerged from information technology. In the last decades the institutions in the higher education area are making significant efforts in this field. Therefore, students have modified their learning and teachers their teaching methods (Malik 2009).

Under the classical or traditional way of learning, also called the »bucket theory« (Freire, 1994), we understand the classroom as being where the teacher is central to all activities. This method is becoming, both for students and for effective education, less relevant. White (2005) argues that in sense of technological and pedagogical shift, distance education represents new challenges in the transition from face to face teaching to more flexible mode of education. Many authors stress out, that one of the most modern methods is e-learning. By e-learning, the teacher and students participate in the work at different places and usually at different times. Collopy and Arnold (2009) indicate that many studies show that the content of the same lectures can be understood in the online environment, similarly as in the case of conventional lectures in the classroom (Aragon, Johnson & Shaik, 2002; Meyer, 2003).

As the trend of e-learning is rising, educators should consider student satisfaction with it as it is a very important issue as well as to identify the essential factors/predictors which affect student satisfaction with e-learning. Therefore the purpose of the study is to clarify different determinants of the students' satisfaction with e-learning with the aim of developing a student satisfaction model.

The main objectives of the research are (1) to develop and empirically examine the model that links the influence (through hypotheses) of 'Personality of students', 'E-learning properties', and 'E-classroom properties' to the students' satisfaction with online learning and (2) to verify the model empirically on a sample of students in tourism. Researches on online learning in the tourism studies, especially in Slovenia, are missing therefore we will try to fill this gap with our research.

The paper is organised as follows. In the next section the paper reviews a number of studies performed in the area of the use of new technologies (as Internet) for teaching in order to identify different definitions of online learning and different pedagogical practices. This is followed with a presentation of e-class at UP Faculty of Tourism Studies Portorož - Turistica, and then discussion about student satisfaction with on line learning is presented. A Methodology section, including variables and measurement description, data collection process, sample specification and methods of analysis, is coming after. Then the findings on students' satisfaction model are presented. The final section discusses the main results and implications for educators as also for future research.

Theoretical framework

The term e-learning (electronic learning) refers to methods of learning through the use of any electronic medium. It is also known as virtual education, online training, open training/open-learning, open-courseware and web-based learning. The Internet is the main tool in implementing e-learning (Davoud, 2006). In 1988, when the Internet use became massively, many universities started including it in their teaching process (Latchem, 2009). The virtual classroom is regarded as the learning environment where the teacher and student exchange knowledge live by connecting to an internet connection, instead of travelling to a physical classroom (Cruthers, 2008). Stager (2004) adds that by

e-learning, computers offer students a rich intellectual laboratory and vehicle for self-expression. In addition, e-learning focuses on students: here the teacher assumes the role of facilitator and the students implement peer learning (Maor, 2003). The e-learning can be implemented as synchronous (real time) or asynchronous (anytime and anywhere) training (Selim, 2007; Bernard, 2004). Asynchronous education is education in which communication, cooperation and learning take place with a time lag and spatial difference. In this form of education, the users by themselves decide when they want to communicate. This form of education is very useful when the teacher is managing a large number of students. However, synchronous learning allows students to cooperate at the same time, but with the spatial difference of students (Ashley, 2003; Frazee, 2003).

E-learning is one of the possible advantages of distance learning. We can find some elements of distance learning already in the eighteenth century. In remote areas of North America, people had the possibility to learn and train independently using prepared printed materials. They did not need to attend traditional, remote schools. The knowledge gained in this way was formally recognized. In the second half of the nineteenth century, so-called correspondence schools began to emerge in the U.S., Germany, UK and Sweden. Distance learning reached its peak in the 1970s, when the UK Open University was founded. The primary purpose of such universities is to provide access to education for all who, due to whatever reason (distance, social or of medical reasons, etc.), cannot attend traditional education institutions. In recent decades the technological development, particularly in the field of modern information technologies, has opened up new education possibilities (Gerlič, 2000). The facts that speak in favour of a more flexible mode of education in higher education institutions are also the habits and needs of students. Plenty of regularly enrolled students have to work during their studies. The research Eurostudent SI 2005 (2005), a project organized by the Ministry of higher education, science and technology of the Republic of Slovenia, shows that the percentage of students who are doing student work during their studies is 66%. However, the proportion of duties increases with age. The percentage of students who work during their studies in Slovenia is most comparable with Austria (67%), Germany (66%), Finland (65%), Ireland (69%) and the Netherlands (91%). Students, who study and evaluate their workload as poor or unacceptable (26%), study and work on average 61 hours per week. According to research Eurostudent SI 2007, 65% of student population in Slovenia work. 57% of those students work on average more than 5 hours per week (Eurostudent SI, 2007). In addition, many students who are studying are even full-time employed. Therefore, e-learning is an attractive option for students who work during their study period. When choosing a method of education, teachers should consider flexibility as a means of achieving the best expected learning outcomes.

Various authors attribute to e-learning different strengths and weaknesses. A key advantage of e-learning is the flexibility for students. By e-learning students have the opportunity to fulfil their academic requirements when they have the time for them. Discussions in the e-classrooms are passing through a significant period of time, so students have a lot of time to think before they submit their comments or opinions. They can read the contributions of colleagues, reflect on them, compare them and comment. This is especially appropriate for students who do not feel comfortable to be involved in discussion in the traditional way of study (Moore & Kearsley, 1996). E-learning is a method of study that is very suitable for students who live far from their faculty and for whom coming to college represents a lot of the time and money. The distance of students' place of residence and place of study is now becoming irrelevant (Bolliger & Martindale, 2004).

E-learning has many advantages, but it also has weaknesses that may adversely affect the study results. Deperlioglu and Kose (2010) in their work refer to the previous researches (Berge & Yi-Ping, 2004; Kemery & Aggarwal, 2000), which show that the progress advancement of students in educational programs who use e-learning is lower than for students who are involved in the classical methods of education. Another major weakness of e-learning is the problem of socialization among students and teachers. This may cause a special problem if participants are uncomfortable with using information and communication technology. However, for modern students this problem does not actually occur often. Sometimes for teachers it is very difficult to organize work and motivate all students in such a way that all participate in virtual classroom activities and in all discussions. The problem with technology can be a major weakness (Belanger & Jordan, 2000). The authors state that occasional problems in connection with the e-classroom can be very disruptive for the students, and also very demotivating. McLaren (2004) disapproves of distance education as he states that students' experience is at lower levels of satisfaction.

Nevertheless, many researchers have shown that students are generally satisfied with e-learning (Navarro, 2000; Hiltz, 1993; Wernet, Olliges & Delicath, 2000; Allen, 2005). Basile and D'Aquila (2002) found that distance education students report a greater level of satisfaction when taking online courses. McLaren (2004) investigated satisfaction with online traditional courses and online courses. He found that the satisfaction level is the same in both modes of study. Sahin and Shelley (2008) point out that e-learning must be focused on students, because only thus does it lead to their satisfaction with it.

The mentioned disadvantages of e-learning can be eliminated to a large extent by combining traditional and e-learning, known as blended learning. This kind of learning is usually defined as the integration of traditional classroom methods with online activities (Garrison & Kanuka, 2004; Graham, 2006). Pituch and Lee (2006) contend that the development of information and communications technology encouraged people to look for other solutions that would eliminate the above-mentioned disadvantages of e-learning.

Garrison and Kanuka (2004) emphasize that no blended learning is identical, and that creates major challenges in designing and implementing such a process. As ICT is being developed, blended learning is becoming increasingly meaningful to complement only, but not to replace all the traditional forms of learning (Mitchell & Forer, 2010). Bliuc, Goodyear and Ellis (2007) argue that evaluating the blended learning from a more holistic perspective is necessary. Authors suggest analyzing the components of blended learning in interaction in the form of an appropriate model, instead of evaluating the components separately. To become a diagnostic instrument, e-learning has to be analyzed from different aspects of e-learner satisfaction (Wang, 2003).

In the sense of increasingly availability of distance education, student satisfaction is an important element in successfully marketing higher education (Hermans, Haytko & Mott-Stenerson, 2009). Overall, Sahin and Shelley (2008) added that the literature highlights the fact that variables which influence student satisfaction with e-learning need to be better understood. Therefore, investigating the components of these models is necessary to improve satisfaction (Shraim & Khaif, 2010).

Online learning at Turistica

At UP Faculty of Tourism Studies Portorož - Turistica, the e-learning via Open Source Course Management System "Moodle" has been taking place since 2008/2009. Two e-classrooms were used in 2008/2009, eleven of them in 2009/2010 and 42 in 2010/2011. By 2010/2011, the number of e-learning or blended learning courses at the faculty has significantly increased. Some of the e-classrooms were used more or less as the place for the course material (a kind of bulletin board), while others were implemented as real active classrooms, where some lessons were performed.

In our case, we have used e-learning in the course of Marketing in tourism research. The course comprises 60 hours, of which 30 hours of lectures and 30 hours of seminar work. Lectures are organized in 15 meetings of two hours. All the course materials, as also all the instructions for students' work and all the information, were appended in the e-classroom, organized week per week. We decided to carry out two meetings in the e-classroom, the rest were held in the standard manner, physically in the classroom.

The reasons for this decision were primarily of conceptual and practical nature. The contents of these two lectures were devised so that students had a lot of independent work (in groups), while requiring various materials. It is this material that was the main reason for our decision. Indeed, it was not possible to make all this material available at the lectures, as it was a really a huge amount of literature. Therefore, we conducted a lecture in an e-classroom. In one case it took 12 working days, and in the second one even 18. Students were given precise instructions in our face-to-face lecture, and the instructions were published in the e-classroom as well. Students formed groups with 4 to 5 participants and they selected a group leader. Students' work consisted of a literature review, literature analyses and their published contributions in the e-classroom. For their participation and activity in the e-classroom, students were rewarded in the same manner as for their active presence at lectures. The professor and the assistant were very active too. They joined the e-classroom every day (or even many times a day) and answered all the students' questions daily. They regularly commented on students work and their posts or contributions. Harasim (1990) stressed the importance of the instructor in mediating online collaboration. Without an active facilitator of e-classroom a lesson may transform to a disorganised quantity of course material and students can really get confused and lately bored as well. .

Students were generally very active. Some of them participated daily in the e-classroom, and commented and posted their contributions for the common task of their group. The environment (e-classroom itself) was, according to the providers, interesting and enjoyable. Students had the opportunity to discuss also on topics that were not related to the course. Even in these discussions, the students were actively involved. The purpose of this paper is to analyze the opinion of students on both organized modes of study.

Students satisfaction with e-learning

Many authors have researched components affecting student satisfaction with e-learning or blended learning (e.g. Askar, Altun & Ilgaz, 2008; Sahin & Shelley, 2008; Hermans et al., 2009; Wang, 2003; Akkoyunlu & Soyly, 2008; Hagel & Shaw, 2006). However, in searching for literature in the area of online learning in tourism studies we had some difficulties. We did not find many researches in this topic. Namely, the use of internet tools in the field of tourism education has been studied by different authors, but we did not find any study dealing with tourism students' satisfaction with online learning.

Sigala (2001) proposed how to create a virtual classroom for teaching tourism and Kasavana (1999) described a possibility to use e-learning platforms as a knowledge sharing and collaboration platform. Later on Sigala (2002) reviewed and evaluated the evolution of e-learning models for tourism and hospitality education and mapped them in three eras. Lominé (2002) tried to explain why many academics in the fields of Tourism are so reluctant to introduce online learning and teaching activities into their courses and modules. He found, that technological, pedagogical and practical problems are the main reasons for this situation. Talking to academics he identified their opinions, that (1) tourism is not suitable subject area for online learning and teaching, (2) they do not feel to have highly developed IT skills, (3) there miss support and (4) students do not need it anyway. The students' opinion was found to be quite different. They have reported advantages, as they affirmed that online work enables them to develop their IT skills, they found it as a welcome, different and very flexible way of learning, and a majority of students did not have any problems to work online. As the difference exist between academics and student opinion, more evaluations need to be conducted at institutional level in order to establish staff and student will power to use the online learning environment (Haven & Botterill, 2003). This will highlight key benefits and problems regarding online learning as well. The Egyptian government launched the initiative in 2008 reforming the education system through the use of ICT. Consequently in his study Afifi (2011) presented a state of art of the status of tourism e-learning in Egypt and discussed the potential advantages and disadvantages of applying tourism e-learning. Cantoni, Kalbaska and Inversini (2009) noted, that tourism industry has already recognised the importance and the impact of IT on their business, but not enough attention has been paid on introducing new media and new innovative methods in the education area. In their study they performed a literature review and they identified the absence of an extensive research on e-learning in hospitality and tourism field. With our research we tried to fill a part of this gap by performing the analysis about tourism student satisfaction with online learning.

In our research we statistically analyzed and developed a model which defines the relationship between different constructs and satisfaction. To investigate the predictors of student satisfaction with online learning we used a several variables.

Usefulness

The main purpose of an intention-based TAM model is to explain how users accept and use the information system. It provides a basis to explain the impact of variables such as beliefs, attitudes, and intentions on using a technological application. With the introduction of the new technology to users, factors such as perceived usefulness and perceived ease of use influence their behaviour in a way of decision about how and when they will use it. **Perceived usefulness** is defined as the level to which a user of technology believes that his or her performance of job would be increased (Davis, Bagozzi & Warshaw, 1989).

Sahin and Shelley (2008) explain usefulness with items which describe the usefulness of e-learning from the students' perspective. Authors found that students who consider e-learning as useful were more satisfied with it. Additionally, in his study Arbaugh (2005) found a positive relationship between perceived usefulness and student satisfaction with e-learning on MBA courses. We adopted and applied Davis et al. (1989) definition of perceived usefulness, and investigate the role of satisfaction with information technology, as suggested by Sahin and Shalley (2008).

Flexibility and computer expertise

Straub (1994) identified social presence and information richness as motivators for intention to use the Internet. In our study, social presence is defined by the flexibility of e-learning computer knowledge represents the information richness, adopted by Sahin and Shelley (2008). Authors explain **flexibility** as indicating how students find e-learning flexibility characteristic (Sahin & Shelley, 2008). In their study they found that students who perceive e-learning as useful are more likely to be satisfied with it. Hermans et al. (2009) argues that flexibility of e-learning means time and place independence, as students can choose when and where they will access an online course. Authors have found a positive relationship between satisfaction with class and flexibility. Additionally, Arbaugh (2005) found a positive association between flexibility and student satisfaction with an Internet-based course. Sahin and Shelley (2008) describe **computer expertise** in the context of e-learning as a variable which explains students' computer skills and use of the Internet. In their study they found that computer expertise influences e-learning satisfaction both directly and indirectly. Students who have more computer knowledge consider e-learning to be more flexible and useful, and consequently are more satisfied with it.

Commitment

Tinto (1993) describes students' individual **goals and commitment** as the results of students' attributes (e.g. skills and abilities, prior schooling). Lee (2001) argues that the intrinsic motivation and commitment of the faculty and support from institutions are affecting their satisfaction with teaching at a distance. Hermans et al. (2009) found that commitment is positively related to satisfaction with school and satisfaction with the instructor, and has a negative relationship with acceptance of technology. In our study, we divided the items measuring commitment into two groups, i.e. commitment and ambition.

E-material and e-environment

In our study, e-material factors include items which measured the intelligibility, transparency and interactivity of e-material in the e-classroom. To measure the e-environment, we used items which refer to ease of use, transparency and environmental friendliness of the e-classroom. Both scales were adapted from Sulčić, Lesjak and Trunk Širca (2006). We named those two factors as the e-classroom properties construct.

Toward the research hypotheses

As mentioned above, our model is adapted by Sahin and Shelley's (2008) study based on contemporary literature, which includes integrated variables that predict student satisfaction with e-learning, such as computer expertise, perceived usefulness and flexibility. In the proposed model, we added three additional variables: commitment, e-environment and e-material. At the end, a new model was designed based on three identified factors: personality of students (explained by computer expertise and commitment), e-learning properties (explained by flexibility and usefulness) and e-classroom properties (explained by e-material and e-environment), which is the main contribution of our study.

According to the literature review we identified three factors of students' satisfaction, i.e. (1) Personality of students, (2) E-learning properties and (3) E-classroom properties and decided to verify the model determined with these factors.

In our study, we were particularly interested in developing the students' satisfaction model. Therefore, we have formulated the following hypothesis:

Hypothesis 1a: The 'Personality of students' dimension has a positive effect on students' satisfaction.

Hypothesis 1b: The 'E-learning properties' dimension has a positive effect on students' satisfaction.

Hypothesis 1c: The 'E-classroom properties' dimension has a positive effect on students' satisfaction.

Research methodology

The methodology is discussed in terms of the variables and measurement, data collection process, sample description, and data analysis.

Variables and measurement

A survey instrument was developed, including several dimensions which predict e-learning student satisfaction explained above. Before performing the survey, the research focus group was conducted by 12 students, and minor modifications to the order and wording of the items were made. The instrument was pre-tested by a random sample of 15 students. The questionnaire contained several scales to measure each dimension: personality of students (computer expertise and commitment), e-learning properties (flexibility and usefulness), e-classroom properties (e-material and e-environment) and satisfaction.

These dimensions were measured with several variables, among others four computer expertise indicators (e.g. increasing use of computer after taking class) adapted from Straub (1994) and six commitment indicators (e.g. active interest in all scholarly things), adapted from Hermans et al. (2009) to explain the Personality of students. According to Straub (1994) we used four flexibility indicators (e.g. in terms of time and location) and four usefulness indicators (e.g. belief in usefulness of e-learning) adapted by TAM (Davis et al., 1989) for E-learning properties. E-classroom properties are explained by three e-material indicators (e.g. interactivity of the e-classroom) and three e-environment indicators (e.g. transparency of the e-classroom), both adapted from Sulčič et al. (2006).

The satisfaction dimension included four satisfaction indicators adapted from Sahin's and Shelley's research (2008). A 5 point Likert scale was used for all the items (except for the demographic data), ranging from 1 (strongly disagree) to 5 (strongly agree).

Data collection and sample description

Data were collected at the end of the winter semester 2010/2011. The anonymous survey instrument was conducted among 60 undergraduate students of the UP Faculty of tourism studies Portorož - Turistica (Slovenia). Students that had participated in a blended learning based course Marketing in tourism research during the Winter semester of 2010/2011 were included. Traditional lectures required regular student participation, where the students were constantly given all the needed instructions for e-learning, which was conducted synchronously. The course materials were delivered by the professor/assistant via Open Source Course Management System called "Moodle", where the e-learning took place. Of the 60 participants, 22% were male (n = 13) and 78 % female (n = 47). The average age of participants was 22 years. Out of the 60 respondents, 45 students (37,8%) were full time students and 15 part time students (24,6%).

Methods of analysis

Firstly, descriptive analysis was performed. The value of skewness and kurtosis of all variables were above |2| therefore no variable was eliminated as their distribution is similar to a normal one. Among each factor, t-test was conducted according to demographic data of respondents (gender, mode of study). The results in the Table 2 indicate that there is no statistically significant difference among gender of respondents referring to each component/factor. However, there exists a statistically significant difference among full and part time student in 3 factors: usefulness of e-learning, e-environment and satisfaction with e-learning. The results indicate, that part time students consider e-learning as more useful, they have more positive attitude toward e-environment and are more satisfied with the e-learning as full time students.

Table 1
Descriptive statistics and t-test according to demographical data

Construct	Gender				Mode of study			
	M	F	T-test		Full time (age up to 23)	Part time (age over 24)	T-test	
	Mean		t-value	Sig	Mean		t-value	Sig
Personality of students								
Computer expertise	2.73	2.89	-0.623	0.536	2.87	2.81	0.237	0.813
Commitment	3.88	3.62	1.715	0.092	3.6	3.93	-1.326	0.201
Ambition	3.53	3.87	-1.534	0.253	3.74	3.96	-1.062	0.292
E-learning properties								
Flexibility	3.65	3.55	0.377	0.707	3.48	3.85	-1.530	0.131
Usefulness	3.27	2.99	1.395		2.92	3.45	-2.903	0.05
Properties of e-classroom								
E-environment	3.76	3.80	-0.196	0.846	3.68	4.13	-2.443	0.018
E-material	3.71	3.60	0.469	0.641	3.57	3.8	-1.021	0.312
Satisfaction								
Satisfaction	3.63	3.18	1.715	0.092	3.01	4.1	-5.157	0.000

Note: $p < 0.05$.

Afterwards, the explorative analysis was carried out. The initial number of selected dimensions was consistent with our expectations based on theory. Exploratory factor analysis was performed to verify the validity of constructs. The principal component extraction technique was employed for each dimension, based on one factor, as we adapted statistically verified scales from prior researchers. At the factors for commitment and ambition, one item was eliminated at each dimension, as the communalities were smaller than 0.3. For all other items the loadings ranged from 0.6 to 0.915. The factors are interpreted as computer expertise, commitment, ambition, flexibility, usefulness and satisfaction. All the correlations between the above mentioned factors are high and all significant ($p < 0.001$).

KMO value is between 0 and 1, the minimum acceptable level is 0.50. The higher the KMO value is, the better are the results (Sipahi, Yurtkoru & Cinko, 2008). In our case the KMO values for each dimension ranged from 0.500 to 0.758. The results of Barlett's test of each dimension were 0.000 and significant at the level of $p < 0.001$. Cronbach's alpha was used by assessing the internal consistency of the items representing each factor. Coefficients ranged from 0.830 for satisfaction and 0.530 for ambition. The value of Cronbach's alpha measure between the level 0.5–0.6 is barely, but still acceptable (Ferligoj, Leskovšek & Kogovšek, 1995).

The results of the factor analysis are shown in Table 2.

Table 2
Results of principal component factor analysis and reliability analyses

Construct	Factor loadings	KMO	Barlett's test	Cronbach alpha
Personality of students				
Computer expertise				
CE1	0.862	0.773	80.675	0.778
CE2	0.853			
CE3	0.818			
CE4	0.629			
Commitment				
C1	0.796	0.500	25.324	0.744
C2	0.796			
Ambition				
A1	0.840	0.500	10.764	0.530
A2	0.840			
E-learning properties				
Flexibility				
F1	0.915	0.707	97.552	0.783
F2	0.895			
F3	0.684			
F4	0.644			
Usefulness				
U1	0.845	0.734	77.546	0.755
U2	0.740			
U3	0.735			
U4	0.669			
U5	0.578			

Table 2 Continued

Construct	Factor loadings	KMO	Barlett's test	Cronbach alpha
Properties of e-classroom				
E-environment				
VE1	0.875	0.629	41.074	0.724
VE2	0.799			
VE3	0.742			
E-material				
MVC1	0.843	0.630	32.441	0.594
MVC2	0.816			
MVC3	0.692			
Satisfaction				
S1	0.896	0.758	96.740	0.830
S2	0.870			
S3	0.760			
S4	0.721			

Note: ***.p<0.001.

Afterwards, structural equation modelling (SEM) procedures were also used.

Findings

The performance of exploratory factor analysis with SPSS revealed that the students' satisfaction model consists of the following three dimensions: *Personality of students*, *E-learning properties* and *E-classroom properties*.

The students' satisfaction model demonstrated appropriate reliability (Cronbach alpha 0.733), and convergence in the sense of coefficients (they were all positive, high and statistically significant), with the model suitability indices (CFI, NFI, RHO, RMSEA, SRMR) having shown satisfactory values.

The construct of students' satisfaction is indicated in Figure 1 while the analysis indicated that the construct of students' satisfaction is multidimensional. The model is shown in Figure 1.

All consistency indices are moderate to high, indicating good consistency. The goodness of fit indices for the dimensions indicate moderate model fit (NFI and CFI are high, whereas SRMR and RMSEA are less appropriate, both at the threshold of 0.05, but still acceptable). Indeed, no single magic value for the fit indices separates good from poor models. The quality of fit depends heavily on model characteristics, including sample size and model complexity.

The structural relationships in the model of the influence of three dimensions, i.e. Personality of students, E-learning properties and E-classroom properties on the students satisfaction were estimated

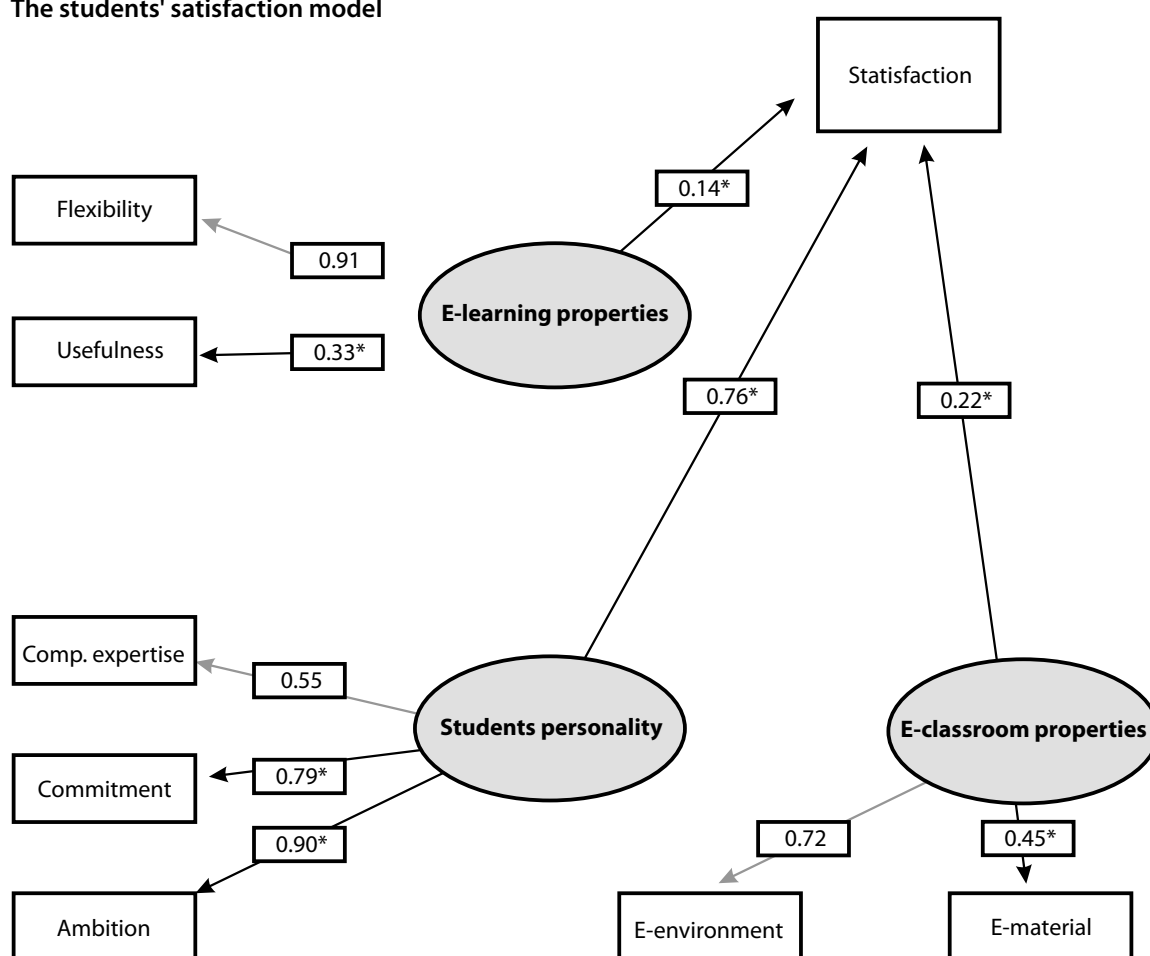
using the Elliptical reweighted least square (ERLS) method in EQS 6.1 (Bentler & Wu, 2006). EQS reported that parameter estimates appeared in order, and that no special problems were encountered during the optimization. The resulting model goodness-of-fit indices indicated a moderately good model fit (CFI = 0.99; NFI = 0.887; SRMR = 0.15; RMSEA = 0.06; Cronbach alpha = 0.73). An examination of our hypotheses is presented in the following paragraphs.

Hypothesis 1a: The 'Personality of students' dimension has a positive effect on students' satisfaction.

Hypothesis 1b: The 'E-learning properties' dimension has a positive effect on students' satisfaction.

Hypothesis 1c: The 'E-classroom properties' dimension has a positive effect on students' satisfaction.

Figure 1
The students' satisfaction model



Note: CFI = 0.99; NFI = 0.887; SRMR = 0.15; RMSEA = 0.06; Cronbach alpha = 0.73.

On the whole, we can confirm that students' satisfaction is a multidimensional construct. We can state that all the three hypotheses are entirely confirmed. The Personality of students was expected to be positively associated with students' satisfaction. Standardised coefficient between the Personality

of students and Students' satisfaction is positive, significant and high (0.76). This means that 58% of the variability in students' satisfaction can be accounted for with Personality of students. This is in line with hypothesis 1 and points to the fact that Personality of students represents an important factor for students' satisfaction. The E-learning properties were expected to be positively associated with students' satisfaction. The standardised coefficient between the E-learning properties and Students' satisfaction is positive and significant (0.14). This means that 2 % of the variability in students' satisfaction can be accounted for by the E-learning properties. The E-classroom properties were expected to be positively associated with students' satisfaction. The standardised coefficient between the E-classroom properties and Students' satisfaction is positive and significant (0.26). This means that 5 % of the variability in students' satisfaction can be accounted for by E-classroom properties.

Discussion and conclusion

As distance education is a well-established community, its researching and developing, represents a high contribution to educational research and practice in general (Spector, 2009).

We have developed a students' satisfaction model, tested it empirically on a sample of Slovenian students and thus proved its character. The model unites *Personality of students*, *E-learning properties* and *E-classroom properties* with students' satisfaction. By using the final model in our research we have proved that 58% of the variability in students' satisfaction can be accounted for by Personality of students, 2 % of the variability in students' satisfaction can be accounted for by E-learning properties and 5 % of the variability in students' satisfaction can be accounted for by E-classroom properties. The study made a key contribution by developing a model of students' satisfaction with e-learning. Many factors may influence student satisfaction in e-learning environments. Further improvement of the proposed model could help us to identify more factors that can influence and improve the quality of courses. Our research showed that more than half (55%) of the variance in student satisfaction with e-learning can be explained by three factors, i.e. (1) Personality of students, (2) E-learning properties and (3) E-classroom properties.

Based on the strong relationship between personality of students and satisfaction with e-learning, it is assumed that commitment and computer expertise are important variables of student satisfaction. If students perceive computer knowledge and their commitment to study as being high, it affects their satisfaction with e-learning. However, the relationships between E-learning properties, E-classroom properties and student satisfaction are not negligible.

Offering interesting and interactive e-material in a user friendly environment involves student satisfaction with e-learning. In addition, if students consider e-learning useful and flexible, it affects their satisfaction with it as well. Therefore, professors/teachers/academics should carry out the process of e-learning in such a way that adds value to students and encourages them to use it. For researchers, practitioners and policy makers, high-quality researching of distance education still represents a value (Bernard, 2004). As e-learning represents a significant opportunity in education, special attention should be pay to learners, who are most involved in distance education. Better understanding of their needs and attitude to distance education is, higher the quality of their learning experience (White, 2005).

The results of this study can improve better insight into the concept of e-learning and variables, which affect students' satisfaction with it and thus can assist in further researching. Furthermore, additional items or variables, such as environmental and institutional measures, should be included in the survey, with the aim of extending our understanding of students' satisfaction with e-learning. Our research has the following limitations: (1) the above mentioned sample: we were limited to Slovenian students, namely to Slovenian students of Turistica, joining the course of Marketing in tourism research; (2) questionnaire: factors were studied on the basis of data collected with a questionnaire, which used perceptual measures, which are subjective in nature but capture detailed information about the concepts studied; (3) model: our model does not include all elements of students' satisfaction, but it can be considered relatively complete, since it includes a high number of dimensions and elements, and also since we succeed in explaining more than 55 % of the variance of the students' satisfaction with e-learning. Despite the limitations, this study does provide important contributions and implications.

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