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THE INVESTIGATION OF THE USABILITY OF WEB-BASED ASSIGNMENT SYSTEM

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ABSTRACT: Just as in all aspects of our lives, technological advancements have had an impact on traditional methods and techniques in education. The crucial reflections of this transformation in education have shown themselves in the increase of distance education and in the online content sharing, testing and assignment taking traditional methods' place. Online assignment is a model where tasks are given, student responses are submitted, results and feedback are shared on web. The usability of this web-based assignment system should be explored in order to use it effectively in class, identify and solve the problematic issues, and increase both instructors' and students' level of satisfaction. The aim of this study is to investigate the usability of web-based assignment system implemented in a vocational college. For research purposes, System Usability Scale scores of students were examined and students' opinions on web-based assignment were received to identify the points on its usability. In this mixed-design research, data were collected online from System Usability Scale (SUS) and students' responses to open-ended questions. The participants were 204 post-secondary students enrolling at a vocational college during first semester of 2015-2016 Academic Year. Descriptive statistics and t-test were used in data analyses. The average score of 67.14 from SUS application showed that the system can be used. No significant difference was observed between first and second grades. The results of the qualitative analysis of those responses given to open-ended questions revealed that students enjoyed the system, instructor feedback had a motivating effect, but they had challenges owing to absence of enough time and difficulty at having access to computers and web-based assignment system. The results also showed that web-based assignments could be effectively used, but the ease of students' access to computers and internet should be taken into account before utilization.

Key words: Online assignment, usability, LMS, mixed method

INTRODUCTION

Assignments have always been an important part of an education system. Teachers use assignments to enhance learning, motivate students to study and keep track of student progress. Providing feedback for submitted assignments has a valuable role in this process. Conventionally, submissions of assignments, grading and providing feedback for them have been in hard copy format (Grieve, Padgett & Moffitt, 2016). On the other hand, due to emerging web technologies and online learning tools, many universities and the faculty prefer performing these activities online (Hepplestone et al., 2011). Online assignment system is a web-based education tool that enables students to submit their assignments and receive feedback from their instructors with the assignment grade. Online assignment systems are identified with some advantages like effectiveness of administration, its cost effectiveness, issues of security and accountability, improved turnaround time, ease of grading, availability of private feedback, reduction in paper use and creation of an electronic archive of submitted assignments (Collis, Boer & Slotman, 2001; Palmer, 2005-2006; Thomas et al., 1998; Barker, Kortum & Miller, 2008).

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Several research studies have been conducted addressing student preferences of online assignment systems. According to Palmer (2005-2006) and Buzzetto-More (2008), students prefer online submission of assignments due to flexibility in timing and scope and the enjoyment of checking grades and feedback online owing to increased privacy. While studies reveal that students and the faculty prefer online assignments and enjoy using them, still their use as examinations is a critical issue because research has shown that implementation of usability principles can help teachers enhance student learning experience and it can improve student learning process eventually (Koohang, 2004). Nielsen describes a usable system as user friendly, easy to use, learn, and remember (as cited in Battal & Cagiltay, 2015).

The purpose of this study was to investigate the usability of a web-based assignment system, determine its problem areas during use, and suggest solutions to those problems. Within this scope, comparing the System Usability Scale (SUS) scores of first and second grade students is another goal aimed at this study.

METHODS

For search purposes mixed-method research design was used in the current study. The participants of the study comprised 204 vocational college students, of whom 130 were first grade and enrolling Computer Literacy course, 74 were second grade taking a Computer Programming course during the first semester of the 2015-2016 Academic Year. As a data collection tool, the System Usability Scale (SUS), which was developed by Bangor et al. (2008) and adapted to Turkish by Çağıltay (2011), was used. This scale involves five positive and five negative statements on a 5-point Likert type scale and possible scores range from 0 to 100 where higher scores indicate better usability. Descriptive statistics and t-test were conducted to analyze quantitative data. The significance level was set at .05 in all analyses. Qualitative data were collected using open-ended questions related to usability of the assignment system and content analysis was run on qualitative data.

RESULTS and FINDINGS

According to results of descriptive statistics, the mean of SUS score of all participants were 67.14 with a standard deviation of 17.95. The minimum SUS score was 15 while the maximum score was 100. Bargor et. al. (2008) states that any kind of product with a SUS score less than 50 is judged to be unacceptable, products with SUS score between 50 and 70 are marginally acceptable, and products with SUS score above 70 are passable. In current study, the mean SUS score of 67.14 reveals that online assignment system generally perceived to be marginal at best.

An independent-samples t test was conducted to compare SUS scores of first grade and second grade students as presented in Table 1. According to test results, there was no significant difference between first grade (M=68.32, SD=16.33) and second grade students (M=65.06, SD=20.43); t(202)= 1.249, p=0.213.

Table 1
Results of t-test and Descriptive Statistics for SUS Scores by Grade

	Grade									
	Freshmen Students			Sophomore Students			95% CI for Mean Difference			
	M	SD	n	M	SD	n		t	df	p
SUS Scores	68.32	16.33	130	65.06	20.43	74	-1.88, 8.40	1.249	202	0.213

p<.05

The results of the qualitative analysis showed that majority of the students reported positive attitudes towards the system, especially due to time and place flexibility provided for assignment submission. In addition, students considered the personal feedback provided for their assignments as valuable and students felt there was increased privacy when viewing grades online. On the contrary, students expressed concerns over the system due to absence of enough time and difficulty at having access to computers.

CONCLUSION

The purpose of this study was to investigate usability of web-based assignment system implemented in a vocational college for a Computer Literacy Course and Computer Programming Course. In addition, SUS scores of first and second grade students were compared. According to the results, web-based assignment system was found to be useful in terms of usability criteria presented by Bargor et al, 2008. However, no significant mean

difference was detected between the SUS scores of first and second graders. The results of the qualitative analysis of those responses given to open-ended questions revealed that students enjoyed the system and instructor feedback had a motivating effect on their learning. This finding is consistent with other studies in literature which also indicated that students enjoy using online assignment system, prefer submitting assignments online, receiving feedback and viewing grades online (Palmer, 2005-2006, Buzzetto-More, 2008) On the other hand, students also had some difficulties due to absence of enough time and access to computers. The results also showed that web-based assignments could be effectively used, but the ease of students' access to computers and the internet should be taken into account before utilization.

REFERENCES

Bangor, A., Kortum, P., & Miller, J. (2008). An empirical evaluation of the system usability scale. *International Journal of Human-Computer Interaction, 24*(6), 574–594. doi:10.1080/10447310802205776

Barker, S., Fiedler, B., & Johnson, P. (2008). Paperless assignments: Moving forward or marking time? In Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008. Retrieved May 1, 2016 from http://www.ascilite.org/conferences/melbourne08/procs/barker.pdf

Battal, A., & Çağıltay, K. (2015). Investigation of Usage Frequency and Department on Usability Issues with the Online Examination System. *Mersin University Journal of the Faculty of Education, 11*(3), 752-763.

Buzzetto-More, N.(2008). Student perceptions of various e-learning components. *Interdisciplinary Journal of ELearning and Learning Objects, 4*, 114-134.

Collis, B., Boer, W. and Slotman, K. (2001). Feedback for web-based assignments. *Journal of Computer Assisted Learning, 17*(3), 306-313.

Çağıltay, K. (2011). *İnsan Bilgisayar Etkileşimi ve Kullanılabilirlik Mühendisliği: Teoriden Pratiğe*. ODTÜ Yayıncılık.

Grieve, R., Padgett, C.R., & Moffitt, R.L. (2016). Assignments 2.0: The role of social presence and computer attitudes in student preferences for online versus offline marking. *Internet and Higher Education, 28, 8-16.*

Hepplestone, S., Holden, G., Irwin, B., Parkin, H.J., & Thorpe, L. (2011). Using technology to encourage student engagement with feedback: A literature review. *Research in Learning Technology, 19*(2), 117–127.

Koohang, A. (2004). A study of users' perceptions toward online learning courseware usability. *International Journal on Online learning, 3*(2), 10-17.

Palmer, S. (2005-2006). An evaluation of on-line assignment submission, marking, and return. *Journal of Educational Technology Systems, 34*(1), 57–67.

Storey, M. A., Phillips, B., Maczewski, M., & Wang, M. (2002). Evaluating the usability of Web-based learning tools. *Educational Technology & Society, 5*(3), 91-100.

Thomas, P., Carswell, L., Price, B., & Petre, M. (1998). A holistic approach to supporting distance learning using the Internet: transformation, not translation. *British Journal of Educational Technology, 29*(1), 149–161.