EXAMINING FACULTY PERCEPTIONS OF BLACKBOARD BY USING THE TECHNOLOGY ACCEPTANCE MODEL

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ABSTRACT: *This study aims to investigate faculty perceptions of blackboard usage, utilizing Technology Acceptance Model (TAM) as its theoretical basis. The TAM questionnaire was administered to a sample of faculty members in the Faculty of Education at Najran University, after modifying the items to be suitable to Saudi Arabia society. This questionnaire measures three hypothesized constructs of e-learning: perceived usefulness of the blackboard, and usage of the blackboard. The findings of the study showing faculty members' Perceived Ease of Use having significant on their perceptions about usefulness and attitudes towards us of the blackboard in teaching. Although there are many more questions than answers regarding teaching with Blackboard as learning management system, it is hoped that these results and experiences may encourage further pedagogical dialogue, and empirical results about how to deliver and organize courses in this technological environment effectively and successfully.*

KEYWORDS: Technology Acceptance Model (ATM) ,Blackboard, E-learning

INTRODUCTION

Education and technology are two key elements having an important role in human's life. Technology helps individuals to take advantages of their knowledge and skills more effectively and efficiently. Technology is the discipline which consists of gathering machine, process, method, system, management, control system and bridges between science and applications. E-learning has been used in education as early as the 1950's, and it was referred to as distance learning (Clark, 2000). The term E-learning refers to the learning methods which use electronic channels to deliver the instructional content. Moreover, e-learning is also referred to as web-based learning; technology based learning; online learning; and network learning (Fusilier, and Durlabhji, 2005).

Due to a broad global attention given to e-Learning, sevral reports and studies have been conducted by educational institutions, different organizations, and governments (Bhatiasevi, 2011). The Saudi Ministry of Higher Education is one of those educational organizations that proposed the use of e-learning, and recognized the need of integrating Information and Communication Technology (ICT) among universities in Saudi Arabia. The increased projection shows vital focus on the advantages of e-learning in Saudi Arabia's modern education. However, many factors still influence negatively on the students' participation in the online courses. Al-Jarf (2007) observed that Saudi students had a negative attitude towards online courses.

Many educational institutions are making significant investments in Web-based course management software such as Blackboard and WebCT. The blackboard System is at the front of recent technological advances in higher education. It has been adopted by several universities as an online learning management system for all learners (Blackboard LearnTM, 2009). The blackboard has been categorized as a Learning Management System (LMS), which

can be used together with face to face interaction. It provides an online space where there are a variety of tools which can be used to enhance learners teaching and learning experience.

The Ministry of Higher Education in Saudi Arabia has recognized that distance learning is very crucial to the future success of Saudi education expansion and quality. Therefore, many Saudi universities have increasingly used e-learning solutions and learning management systems as a part of the teaching methods (Ahmed, & El Zawaidy, 2014). These universities have selected the Blackboard system as a strategic partner to support their e-learning requirements. They found blackboard solutions to offer advanced functionality and significantly enhanced collaborative learning opportunities compared to competing vendors. Moreover, it was found that blackboard solutions would be easier to implement and manage than the alternatives based on the company's strong and proven product support and well-organized, global user community.

LITERATURE REVIEW

The recent LMS like blackboard at the institution understudy is believed to be one of the responses to the imperatives of dealing with skills shortages and facilitating the needs of the 21st century learners. Since Information and Communication Technology (ICT) is affecting the 21st century students in every aspect of their lives in the university, it is necessary to engage students with ICTs within the university and to explore their experiences of how these technologies impact their learning environment (Blackboard LearnTM, 2009). At the same time, due to the residential nature of the University, a blended Learning approach through the integration of the blackboard technology into teaching and learning was felt to be suitable by the researcher concerned.

Faculty members and students may benefit from using blackboard. Benefits include increased availability, quick feedback, improved two-way interactions, tracking, and building skills such as organization, time management and communication (Bradford et al., 2006-2007). In terms of availability, users can access blackboard via the internet at anytime and anywhere (DeNeui & Dodge, 2006), so students can view and download course materials and other information as well as submitting assignments online as soon as they are complete. Previous study such as Heirdsfield et al., 2007, indicates that it is the increased availability that most appeals to students. While students may appreciate the convenience, students are generally less satisfied with online learning compared to traditional face-to-face learning (Pillay, Irving, & Tones, 2007). Students mention reasons such as the lack of a learning atmosphere in blackboard, reduced opportunities for interactions or discussions with teachers and other students, delayed feedback from teachers and a less efficient learning process with students required to dedicate more time to learning the content (Liaw, 2008; Yang & Cornelius, 2004). Especially, when students have questions or concerns, lack of immediate clarification can slow down the leaning process (Belcheir & Cucek, 2001). Thus, it appears that student dissatisfaction with online learning experiences stems from pedagogical issues rather than logistical concerns (Summers, Waigandt, & Whittaker, 2005).

Blackboard features that facilitate interactions include announcements, discussions, virtual classroom, chat and email (Bradford et al., 2006-2007). The announcements section on blackboard homepages provides a simple way of relaying messages on to all students in the cohort without taking up valuable class time, while the email facility provides students with

the opportunity to communicate with teachers on an as-needed basis (Ballard et al., 2004). Most features of the blackboard encourage student-centred approaches to learning. Especially, the asynchronous online discussion function of blackboard allows students to interact frequently with each other and with the teachers. Asynchronous discussions have the advantage of allowing students to take time to thoughtfully compose their responses before posting them online. However, the lack of immediacy in asynchronous discussions makes them unpopular for students who may need instantaneously help (Gorski, Caspi & Trumper, 2004). On the other hand, synchronous discussions, as evident in the virtual classroom facility, are in real time and have a solider sense of social presence (Malikowski et al., 2007, p. 159). Both synchronous and asynchronous discussions provide an environment of collegiality and support that may be established within the student cohorts. These fundamental interactions also allow students and teachers to talk and work with each other without having to schedule a suitable time for all parties to meet (Ballard et al., 2004).

The Technology Acceptance Model (TAM) was initially proposed by Davis (1989). The TAM comprises two beliefs, the perceived utilities and the perceived ease of application, which determine attitudes to adopt new technologies. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. According to Davis, positive perception of technology's ease of use, usefulness, and attitudes towards technology usage are significant determinants of the intention to use a technology.

At the same time, the TAM is one of the most frequently employed models for research into new information technology acceptance. The model was introduced in order to help researchers and practitioners to study the process of implementation of new technology in the workplace. It works by assessing attitude of personnel with respect to new technology over perceived ease of use and usefulness.

The TAM is an adaptation of Theory of Reasoned Action (TRA) specifically tailored for modeling user acceptance of information systems (Davis et al. 1989). The model provides a basis for tracing the impact of external factors on internal beliefs, attitudes, and intentions (Davis et al., 1989). The two main constructs of TAM are perceived usefulness and perceived ease of use. Perceived usefulness is defined as the extent to which ones believes that using a technology will enhance their productivity and perceived ease of use is the extent to which ones believes that using a technology will be free of effort. TAM suggests that behavioral intention determines actual systems use and behavioral intention is determined by both attitude and perceived usefulness. Both perceived usefulness and perceived ease of use have an effect on behavioral intention. Perceived ease of use also affects perceived usefulness. At the same time, behavioral intentions are influenced indirectly by external variables through perceived usefulness and perceived ease of use. The figure 1, given below illustrates the basic research model showing the casual linkages in TAM.
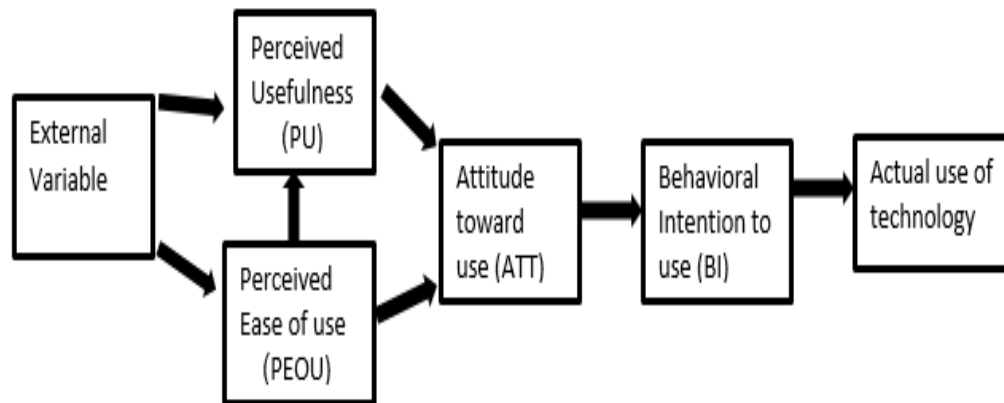
Figure 1: Technology Acceptance Model (TAM

The relationship usefulness - usage versus the relationship of using ease of use was a significant finding, especially for designers. Users need to perceive the system as being useful or they will not attempt to use it regardless of how easy or difficult it is to use. Ease of use is less important because difficulty in using a system can be overcome if the user thinks that the system will be useful to them. Overall the model explained 47% of the overall model's variance. Davis modified his original TAM model (corroborating the finding of Mathieson) where he found a stronger support of perceived ease of use construct with perceived usefulness rather than with intention to use.

As mention previously, several Saudi universities have adopted the blackboard system (Ahmed, & El Zawaidy, 2014). Najran University was one of these universities those have the blackboard system as the appropriate e-learning choice. Using the blackboard at Najran university has been started in 2010. During the academic year of 2014/2015, the university urges all faculty members to use the blackboard technology in their teaching, however, many of faculty members at Najran University are not familiar with e-learning and some of them believe that no need for such technology. Therefore, this study is trying to investigate their perceptions of using blackboard in teaching, using TAM.

The aim of the study

The aim of this study is to explore faculty perceptions of blackboard, utilizing Technology Acceptance Model (TAM). The research questions that guide this study are:

1. Is there a relationship between the faculty perceptions of usefulness and usage of blackboard?

2. Is there a relationship between faculty perceptions of ease of use and usage of blackboard?

3. Is there a relationship between faculty perceptions of usefulness and their perceived ease of use of blackboard?

METHODOLOGY

Population and Sampling

The population of this study is the faculty of education professors at Najran University. The total of the population is 137 faculty members, 74 are females and 63 are males. A sample of 55 faculty members was randomly chosen from this population (28 males and 27 females). More demographics are detailed in Table 1.

Table 1: demographic characteristics

Experience in Using Computers
5 years and less = 22%
6-10 years = 57%
More than 10 years 21%
Work Experience
up to 5 years = 23%
6-9 years = 48%
More than 10 years = 29%

Instrumentation and Procedures

The instrument that was used to gather the primary data for the study is a questionnaire driven from the Technology Acceptance Model (TAM), which is an information systems theory that models how users come to accept and use a technology. It has been widely used in Information Systems research to analyze user perceptions of technology. The questionnaire measures seven hypothesized constructs of e-learning: perceived usefulness of the internet, perceived ease of use, attitude toward using the internet, behavioral intention to use the internet, perceived complexity using the internet, experience, and voluntariness using the internet. The questionnaire items were modified to meet the educational status in Saudi Arabia.. At the same time, the instrument was validated by university professors who were experienced in the use of e-learning and computer in education who held doctorates in either educational technology or science education, and are familiar with the e-learning standard required in academic research. The measurement model consists of relationships among the conceptual factors of interests and the measures underlying each construct. The data indicates that the measures are robust in terms of their internal consistency reliability as indexed by the composite reliability (table 2). The composite reliabilities of the different measures ranged from 0.746 to 0.86 which exceed the recommended threshold value of 0.70 (Nunally, 1978).

Table 2: Composite Reliability

Factor	Composite Reliability
Actual Use	0.861875
PEOU	0.835841
PU	0.844572
Perceived Usage	0.756292

TAM was used to provide the theoretical justification and results in the following

hypotheses:

H1a: There is a positive relationship between faculty perception of usefulness and usage of

Blackboard.

H2a: There is a positive relationship between faculty perception of ease of use and usage of

Blackboard.

H3a: There is a positive relationship between faculty perception of usefulness and ease of use of Blackboard.

RESULTS

All path coefficients were significant ($p < 0.05$) except one. Thus we can reject the null hypothesis and say that Perceived ease of Use (PEOU) has positively affected teachers' attitude towards computer use and PEOU has a significant effect on Perceived Usefulness as well. But for the sample being considered, PU seems to have insignificant effect or negative effect on the Attitude towards using. Therefore, the generated hypotheses H1 and H3 were supported but H2 was not supported by the sample.
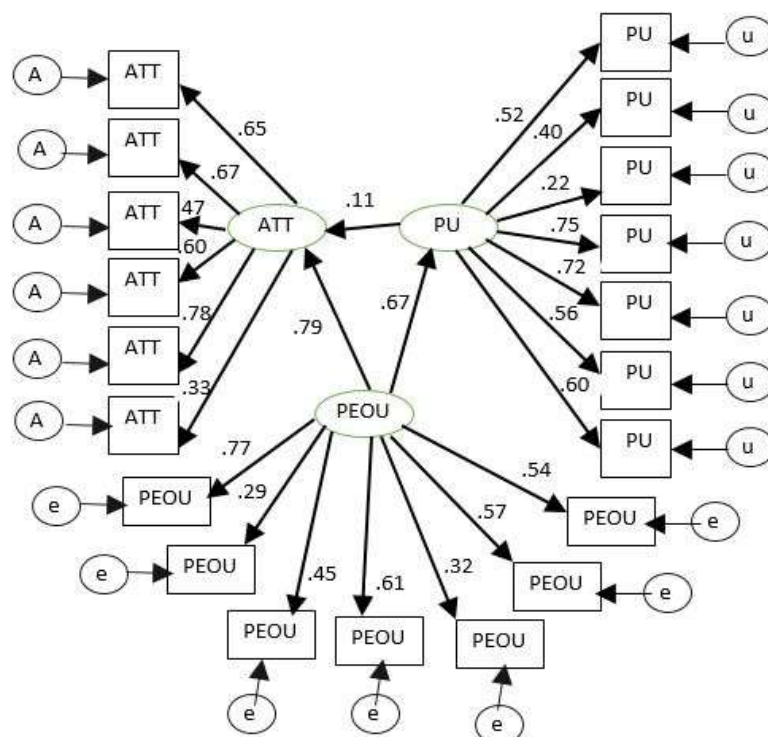

Figure 2: The parameter estimates of general Structural Model

Table 3 shown below, gives the Estimate, the Standard Error (S.E.) and Critical Ratio (C.R.), which is nothing but the estimate divided by S.E. , also referred as t-value, followed by

Probability Value (P) associated with the null hypothesis , in various columns . As seen here the regression weights in this model are significantly more than 0 , beyond the .01 level and so also are the t-values , all found to be significant for all item loadings to the latent constructs and for every path except for the PU->ATT , which seems a bit contrary to the TAM assumption. (Chutter, 2009)

Table 3: regression weights

Hypothesized path	Estimate	S.E.	C.R. (t)	P	Remarks
PEOU ->ATT (H1)	1.400	.546	2.563	.010	Supported
PU-> ATT (H2)	-.051	.211	-.243	.808	Not Supported
PEOU->PU (H3)	.682	.356	1.918	.054	Supported

DISCUSSION AND CONCLUSION

Universities are investing significant amounts of money, time, and resources into Blackboard to remain competitive. Universities don't know whether facult y perceive the same level of usage, usefulness and ease of use for all the Blackboard features and if using Blackboard can improve teaching and learning for the students.

This article provides further empirical justification of the strength of the TAM model

and supports its appropriateness as a suitable and consistent measure of technology acceptance in educational settings. This study offers a continuing theme for researchers involved in the TAM model to examine user actions in these educational settings, in addition to creating a baseline for additional research concerning the effect of perceptions on the use and embrace of new technological innovations in educational settings. It is anticipated that the TAM model will continue to be investigated in different systems evaluations states.

This study demonstrates that faculty will use an online educational tool such as Blackboard if they perceive it to be useful to them and if they perceive that the technology is easy to use and supports their needs. This study analyzed perceptions of faculty in Saudi Arabia. Perception of faculty internationally may differ as culture impacts the educational delivery system. We intend to extend this study to determine if significant differences exist in an international setting. Also, this study only looked at faculty perception of ease of use and perceived usefulness. We intend to extend this study to determine if significant differences exist in student perceptions as well.

An additional area for investigation is to determine if there are significant differences in the perception of usage and ease of use of the other major educational software packages. A cross-sectional analysis to study compare Blackboard results to the use of Web-CT and e-College is planned.

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REFERENCES

Ahmed, & El Zawaidy (2014). *International Interdisciplinary Journal of Education, 3(7),* 141-150.

Al-Jarf, R. (2007, March). Cultural issues in online collaborative learning
in EFL. Paper presented at the 3rd International Online Conference on Second and Foreign Language Teaching and Research.

Ballard, S., Stapleton, J., & Carroll, E. (2004). Students' perceptions of course websites used in face-to-face instruction. *Journal of Interactive Learning Research, 15*(3), 197-211.

Bhatiasevi, V. (2011). Acceptance of e-learning for users in higher
education: An extension of the technology acceptance model. *The Social Sciences,* 6(6), 513-520. http://dx.doi.org/10.3923/sscience.2011.513.520.

Belcheir, M. J., & Cucek, M. (2001). *Student perceptions of their distance education courses* (Research Report. No. 2001-04). Idaho: Office of Institutional Assessment.

Blackboard LearnTM (2009). Blackboard Inc. New York: McGraw Hill.

Bradford, P., Porciello, M., Balkon, N., & Backus, D. (2006-2007). The Blackboard learning system: The be all and end all in educational instruction? Journal of Educational *Technology Systems, 35*(3), 301-314.

Chuttur M.Y. (2009). "Overview of the Technology Acceptance Model: Origins,
developments and Future
Directions" Indiana University, USA . Sprouts: Working Papers on Information Systems, 9(37). http://sprouts.aisnet.org/9-37

Clark, R. E. (2000). Evaluating distance education: Strategies and
autions. The Quarterly Journal of Distance Education, 1(1), 3-16.

Davis, F. (1989, Sep.). Perceived Usefulness, Perceived Ease of Use, and User
Acceptance of Information Technology, *MIS Quarterly*, 319-340.

Davis, FD, Bagozzi, RP & Warshaw, PR 1989, 'User acceptance of computer
technology: a comparison of two theoretical models', *Management Science*,
vol. 35, no. 8, pp. 982-1003, viewed 7 June 2004,

Davis, J., Lennox, S., Walker, S., & Walsh, K. (2007). Exploring staff perceptions: Early childhood teacher educators examine online teaching and learning challenges and dilemmas. *International Journal for the Scholarship of Teaching and Learning, 1*(2), 1-15.

DeNeui, D. L., & Dodge, T. (2006). Asynchronous learning networks and student outcomes: The utility of online learning components in hybrid courses. *Journal of Instructional Psychology, 33*(4), 256-259.

Fusilier, M., & Durlabhji, S. (2005). An exploration of student internet
use in India: The technology acceptance model and the theory of planned behaviour. Campus Wide Information Systems, 22(4), 233-246.

Gazette. (2008, April). Business: Kingdom's E-learning industry to reach
$125 million this year. Saudi Gazette online, Retrieved from http//:

www.saudigazette.com.sa/index.cfm?method=home.regcon & content ID=200804244097. Rosenberg, M. J. (2001). E-learning: Strategies for delivering knowledge in the digital age:McGraw-Hill New York.

Gorsky, P., Caspi, A., & Trumper, R. (2004). Dialogue in a distance education physics course. *Open Learning*, *19*(3), 265-277.

Heirdsfield, A., Davis, J., Lennox, S., Walker, S., & Zhang, W. (2007). Online learning environments: What early childhood teacher education students say. *Journal of Early Childhood Teacher Education, 28*, 115-126.

Liaw, S-S. (2008). Investigating students' perceived satisfaction, behavioural intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers and Education, 51*, 864-873.

Malikowski, S. R., Thompson, S. R., & Theis, J. G. (2007). A model for research into course management systems: Bridging technology and learning theory. *Journal of Educational Computing Research, 36*(2), 149-173.

Pillay, H., Irving, K., & Tones, K. (2007). Validation of the diagnostic tool for assessing Tertiary students' readiness for online learning. *Higher Education Research & Development, 26*(2), 217-234.

Summers, J. J., Waigandt, A., & Whittaker, T. A. (2005). A comparison of student achievement and satisfaction in an online versus a traditional face-to-face statistics class. *Innovative Higher Education, 29*(3), 233–250.

Yang, Y., & Cornelius, L. F. (2004). Students' perceptions towards the quality of online education: A qualitative approach. *Association for Educational Communications and Technology*, *2*(7), 861–877.

Nunally, J. (1978). Psychometric, 2nd Edition, New York: McGraw Hill.