The Bandwagon Effect in the Adoption of E-Learning Systems in Language Learning– An Appraisal

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***Abstract*— The purpose of this study was to investigate the factors affecting the adoption of e-learning management system (LLMS) in mandatory and voluntary EFL learning settings, through an application of the technology acceptance model (TAM) to e-learning within an EFL programme in a Saudi Arabian southern university. The study, through a descriptive method of research involving quantitative data gleaning techniques, investigated the level of acceptance of online learning in college students with regard to Competing Behavioral Intention and Behavioural Intention, the factors that voluntariness affect in adopting e-learning, and the effects of perceived network externality on voluntariness, behavioural intention to use e-learning, perceived usefulness and perceived ease of use.. Findings of the study revealed that perceived net-work externality exerts a significant direct effect on Blackboard use intentions, perceived usefulness, and perceived ease of use. This re-search implied that, at the very inception, mandatory usage is necessary for overall adoption of the LLMS. It was also revealed that the massive use of e-learning endeavours has been created by a bandwagon effect; therefore, the LLMS should be developed to target changes in perceived usefulness, perceived ease of use, and perceived network externality rather than to emulate to current practices in EFL computer-mediated environments. Practical alternatives included enhancing content quality, developing a simple and easy-to-use system, and enhancing students' computer self-efficacy in ways inducing better foreign language learning results.**

***Index Terms*— EFL - bandwagon effect, e-learning – learning management systems - language learning - mandatory and voluntary EFL learning settings**

I. INTRODUCTION

A global electronic revolution age has come, bringing forth with it pedagogical changes from the conventional classroom-centred teaching methodology to a volatile, vibrant, and virtual electronic Web-based interactive learning milieu (Cuban, 1990; Mekheimer, 2005; Shearman, 1997; Fageeh, 2011). According to Wegner, et al. (1999), the practice of using technology to deliver coursework in higher education 'has seen a veritable explosion'. However, Wegner, et al. (1999) writes that "in many instances, the change to an Internet-based delivery system has been instituted with little or no consideration of the impact on student learning". (p. 99)

Pertinently, Serwatka (2003) adeptly noted that the prevalence of e-learning endeavours worldwide led to the popularity of e-learning technology, and consequently, e-learning has taken a detour from mere distance education methods like correspondence courses and teleconferencing to full-fledged e-learning systems that diffuse web-based courses easily.

Likewise, the benefits of e-learning technologies have been recognised in the relevant literature; yet, there are still research findings which have fallen short of providing concrete evidence in support of e-learning endeavours, especially in the undergraduate level of university education (Dutton, Dutton & Perry, 2002; Liaw, 2008; Duan, He, Feng, Li & Fu, 2011; Stricker, Weibel, & Wissmath, 2011; Lonn, Teasley & Krumm, 2011). Rather, such findings indicate that many e-learning projects have petered out inconclusively. In this respect, Liaw (2008) has adeptly suggested that "something is not working properly in e-learning systems" (p. 865).

Over the past few decades, technology has been generally accepted in schooling at all levels, and since then, research has accrued to examine e-learning endeavours in terms of "the relationship between instructional materials and the structure of such materials, teaching strategies, the personalities of learners and the self-control and behaviour of students" (Lee, 2006, p. 518). Even in meta-pedagogical research, the acceptance of such new e-learning technologies has been the focus of further investigation (Lai & Li, 2005; Lin, 2011). In this context, issues of post-adoption usage and continuance intention have recently attracted similar research awareness and interests in galore (Lin, 2011; Lonn, et al., 2011; Fageeh, 2011). In this vein, there has been a plethora of researchers and online educators who developed various technologies to test, assess and verify technology acceptance models (See for instance: Chen & Lou, 2002).

Research findings from education-related disciplines, such as psychology, indicate that the acceptance and adoption of instructional technology related to online learning hinges to a greater extent upon the students' attitudes and behavioural intentions towards a new system of e-learning (Fageeh,

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2011). This holds true, now that the success of any e-learning effort relies on a combination of user acceptance and advancements in technology (Chih-Chien, et al., 2005).

This study was set to gain insights of the success factors contributing to the acceptance of the Web-based e-learning system by foreign language learners in an English programme in a Saudi southern university. The learning management system of Blackboard (Release 9) has been widely used in Saudi Arabia, more specifically in our university, to give students access to e-courses, using the Announcements, Assignments, and Course Instructor email features to introduce students to the syllabus of the e-course, course content, course activities and tasks, discussion boards for topics related to the course and evaluation procedures required from the students. The LMS of Blackboard is now widely used since it consisted of the tools used for class management and for student administration and progress tracking. In addition to these standard LMS tools, the system has other additional features and tools necessary for continuous assessments, which are currently implemented in course delivery for the English language programme in the College of Languages and Translation, King Khalid University, as effective learning features (Mekheimer, 2012).

Crudely put, the purpose of this study was to investigate the factors affecting the adoption of e-learning management system (LLMS) in mandatory and voluntary EFL learning settings, through an application of the technology acceptance model (TAM) to learning and teaching Reading Comprehension in Saudi Arabia.

The research question underlying this study is: what are the factors that impact the adoption of an e-learning system in voluntary and mandatory settings?

II. RESEARCH QUESTIONS

This main research question bears the following sub-questions:

a. Are there significant differences between voluntary users and mandatory users with regard to Competing Behavioral Intention and Behavioural Intention?
b. What is the level of acceptance of online learning in college students?
c. What are the factors that greatly affect voluntariness in the adoption of e-learning systems in higher education institutions?
d. What are the effects of perceived network externality on voluntariness, behavioural intention to use e-learning, perceived usefulness and perceived ease of use?

III. HYPOTHESES OF THE STUDY

1. Voluntariness positively affects the acceptance of online-learning systems.
2. Voluntariness positively affects perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, subjective norm.
3. Perceived network externality positively affects voluntariness.
4. Perceived network externality positively affects behavioural intention to use the e-learning system.
5. Perceived network externality positively affects perceived usefulness.
6. Perceived network externality positively affects perceived ease of use.

IV. LITERATURE REVIEW

Post-adoption research – a review

Higher education institutions have become in dire need to prepare students for virtual learning to replace conventional education at both the undergraduate and graduate levels. It is now widely assumed that exposing higher education students to online learning systems early in their academic life will help students and faculty to be more successful online learners (Volery & Lord, 2000). When these students are provided with due care considered in the early phases of virtual learning, they are better geared towards developing enhanced technology use skills, and consequently bettered learning outcomes. As well, teaching or learning skills or habits are gradually developed in both teachers and students using LMSs. Notwithstanding these benefits, a hurried adoption of technology can create a hurdle for faculty and students lacking the necessary skills, experiences, and expertise to function successfully (O'Neill, et al., 2004). That is why some researchers and practitioners call for caution in hurried adoption of e-learning technology.

Even in some of these Western environments, a few research studies raised doubts with regard to the benefits of e-learning compared with traditional classroom teaching methodology (Oppenheimer, 1997; Kraut et al., 1998; Phipps and Merisotis, 1999). The grossest complaint reported in several studies

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was that online students tended to drop out before e-courses were completed or that they did not seriously address the e-course assignments and tasks as properly as was expected compared with their peers in conventional classes.

In relation to this issue of inefficacy of technology for teaching, several studies burgeoned in an upsurge to cogitate the key factors accountable for the success of failure of e-learning. Some of this research suggested that there are three factors deemed key in the study of e-learning effectiveness; namely the individual, the system adopted, and the organisation of the learning environment (Nanaykkara, 2007). Some indicated that there are six dimensions of e-learning that should be mulled over when considering the adoption of e-learning in course delivery bids: these are the student dimension, the instructor dimension, the course dimension, the technology dimension, the design dimension, and the environment dimension (Sun, et al., 2008).

Sprouting further, e-learning evaluation studies further suggested other factors that interfere with the adoption of technology for classroom practices' acceptance and adoption of new systems or services; of such are the following: (1) user satisfaction (e.g., Arbaugh, 2000; Burns, et al., 1990; Hsu, Yen, Chiu, & Chang, 2006; Liao, Chen, & Yen, 2007), (2) learners' and teachers' motivation and attitudes (e.g., Bhattacherjee & Sanford, 2006; Mekheimer, 2012; McClensky, 2009; Ushida, 2005), (3) perceived usefulness (e.g., Roca, Chiu, & Martinez, 2006; Liao, et al., 2007; Gefen, 2003; Hsu and Lu, 2004; Ong, et al., 2004), (4) perceived ease of use (e.g., Roca, et al., 2006), and (5) quality (e.g., Chiu, et al., 2005; Delone and McLean, 1992; Katerattanakul and Siau, 1999; McKinney et al., 2002; Roca et al., 2006). However, the relationship between the initial technology acceptance and post-adoption of a service of e-learning has seldom been investigated, especially in the Arab world (Fageeh, 2011).

With the multiplicity of factors impacting e-learning, some researchers advocated the exploration of "the explicit relationships among technology capabilities, instructional strategy, psychological processes, and contextual factors involved in learning" (Alvi and Leidner, 2011, p. 1). This further calls for more research into the bandwagon effects of technology adoption, now that higher education institutions are running by leaps and bounds to involve their faculty and students in e-learning projects to keep updated though they are in fact "hopping onto the bandwagon, simply because they do not want to be left behind" (Liaw, Huwang, & Chen, 2007, pp. 1068-9). This is particularly true in the developing countries in which the use of e-learning technology is still in the early stage of adoption and implementation (Miller, Lu, & Thammetar, 2004; Lennon & Maurer, 2003).

Thus, reviewing the growing research on the relationship between technology and education, findings indicated that for many students and teachers, e-learning is still difficult to accept, despite the fact that e-learning technology employed for e-learning purposes has become user-friendlier and more easily accessible than ever (Aldosari, 2010a; 2010b; 2011; Alshumaimeri, 2009; Fageeh, 2011; Mekheimer, 2012). Some researchers reason this out to the dubiety raised with regard to the effectiveness of these tools, the teachers' and students' attitudes towards and motivation for e-learning technology use, especially at the undergraduate level in higher education institutions (Manochehri & Sharif, 2009; Alshumaimeri, 2009; Fageeh, 2012; Juhdi, Abd Hamid & bin Siddiq, 2010). Some researchers argued that the reason for this is that younger students needed a more organised structure of course materials and ongoing help (Eom and Reiser, 2000; Lee, 2006).

Others contended that the learner personality traits, the structure of courseware and delivery technology, and the teaching strategies of e-educators have a big impact on the way young e-learners self-regulate themselves to accept and interact with coursework in the virtual classroom (McManus, 2000; Lee, 2006; Mason and Weller, 2000). Furthermore, reluctance to accept technology for classroom practices has also been attributed to the cultural values prevailing in the educational organisation as well as to other technology affordance and achievement factors (Katz & Shapiro, 1985; Ali & Katz, 2010;McClelland, 1987; Vatrapu, 2007).

Many studies often considered technology in and of itself as an efficient educational intervention but they disregarded how and when it was used. However, it was found that these factors were not considered in many studies, especially those that concluded that there was a lack of educational benefit from e-learning (Cradler, 2003; Becker, 2000). The evaluation criteria for post-adoption research should then include the instructional setting, teacher training and how the teacher integrates the technology into instruction (Mekheimer, 2005). Some researchers, in this vein, recommended that students should be given the opportunity to receive instruction in conventional classroom settings using educational videos or instructional CD-ROMs or to receive it online (Harrison, 1995). These alternatives to course delivery

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modes may have an impact on the final acceptance of e-learning technology (Harrison, 1995). According to this theory of Harrison's (1995), technology acceptance is a function of competing behavioural intentions (CBI), which in turn, is a negative function of behavioural intentions to use competing learning media. This means that the eventual adoption of e-learning technology is the outcome of the learners' choice between behavioural intentions and competing behavioural intentions, thus the former (BI) is more instrumental in inducing learners to adopt an e-learning system (Lee, 2006).

The Technology Acceptance Model

Over the past three decades, several theories explaining and appraising the use of technology in educational settings accrued. In this vein, the Technology Acceptance Model developed by Davis (1989) has been proposed to predict the extent to which new technologies will be adopted in the field of information systems, but was widely applied in educational research; for instance, Terzis & Economides (2011) have recently showed that nine principal models in the field of IT acceptance have been recognized. Notwithstanding these models, the TAM theorised that perceived usefulness (PU) and perceived ease of use (PEOU) were two key determinants of technology adoption (Davis, 1989). Accumulated research on prototypical applications of the TAM have confirmed that user perceptions of usefulness and the ease-of-use of a system are two important antecedents of technology adoption, and have also suggested various ways of broadening the overall applicability of the TAM (e.g., Davis et al., 1992; Igbaria et al., 1997; Gefen and Straub, 1997, 2000; Venkatesh, 2000; Venkatesh and Davis, 2000; Gefen, 2003; Hsu and Lu, 2004; Ong et al., 2004).

The Technology Acceptance Model has thus been proven to be useful in forecasting students' acceptance of an e-learning system (ELS). However, very few studies have adopted the TAM as a model for explaining the use of e-learning systems designed and provided by higher education institutions (Babenko-Mould et al., 2004; Fageeh, 2011; Lee, 2006; Chih-Chien, et al., 2005; Selim, 2002), but most findings concluded that the two TAM constructs of "perceived usefulness" and "perceived ease-of-use" as the main predictors of user acceptance of e-courses.

On the one hand, perceptions of the usefulness and ease of use relative to a particular system shapes the attitude towards its use and behavioural intention to make use of that system. The model postulates that usage behaviours of individuals towards technologies are shaped by the experiences with the technology (Agarwal & Karahanna, 2000; Davis, 1989; Davis, Bagozzi, & Warshaw, 1989; Lederer et al., 1998). On the other, Perceived ease of use is an individual's assessment that technology interaction will be relatively free of cognitive burden, i.e., ease of use reflects the facility with which the individual is able to interact with a particular software artifact. The model postulates that usage behaviours of individuals towards technologies are shaped by the experiences with the technology (Agarwal & Karahanna, 2000, p. 674). In this vein, perceived usefulness and perceived ease of use imply that e-learners are capable of ameliorating their performance, and consequently, their academic achievement ((Davis, et al., 1989, p. 987).

Determinants of LMS adoption

Some researchers have theorised the determinants of the e-learning system adoption (Lee, 2006; Davis, 1989). Below is a turgid description of these determinants (from Lee, 2006, pp. 519-525):

1. *Behavioural intention (BI)*: within an e-learning context, the adoption of an ELS is a positive function of the intention (BI) to accept the system.
2. *Competing behavioural intentions (CBI)*: the adoption of a new idea or an innovative technology by any group of people is the result of logical decision making with regard to choice.
3. *Perceived usefulness (PU)*. The perceived usefulness of a system is defined as the extent to which individuals believe that using the new technology will enhance their task performance.
4. *Perceived ease of use*: the perceived ease of use (PEOU) of a system is defined as the degree to which an individual believes that using a particular technology will be free of effort.
5. *Perceived content quality*: it refers to the assumption that information quality is significant in determining users' level of satisfaction with the system, which in turn, leads to system utilisation. There are two dimensions of content quality: "content richness", and "update regularity". The first of these, "content richness", positively affects learners' level of satisfaction with the course (Burns et al., 1990; Arbaugh, 2000). The richness of an e-course content within an ELS

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can be ameliorated by providing additional educational software on a CD-ROM.

6. *Perceived network externality*: it relates to an increase in the value of a product or service to a consumer, not because of the inherent quality of the product or service, but because of increasing numbers of others adopting it; for instance, the value of the internet increases as it allows more people to communicate and exchange information with other participants; its popularity, in turn, attracts more users to that technology. This term could be synonymous with the term "bandwagon effect" (Luo and Strong, 2003; Hsu and Lu, 2004; Shapiro and Varian, 1999).
7. *Computer self-efficacy*: it refers to people's judgement of their own ability to perform specific tasks.
8. *Course attributes*: this refers to the assumption that not every course can be appropriate for inclusion in an ELS, since the functionality of an ELS has to correspond with the requirements of a particular course; thus, course attributes (CA) involve the particular course characteristics.
9. *Subjective norm*: social influence greatly affects user behaviour. A person's subjective norm is determined by his perception that salient social referents think he should or should not perform a particular behaviour.

V. METHODOLOGY OF RESEARCH

Data collection procedures

This is a descriptive study utilizing survey research. The questionnaire used to collect data was a three-part survey adapted from Lee (2006), which is a solid data collection tool extracted from previous research and based on an exhaustive review of relevant literature (Confer Lee, 2006, pp. 525-527). The first part was designed to garner basic Information about participants (Age, e-learning experience using computerized and/or online, hours of using the Blackboard e-learning system, and voluntariness as to the use of the e-learning system at issue). The second part was comprised of items related to students' behaviours towards the use of Blackboard. Part three contained items related to students' attitudes towards the use of Blackboard as an e-learning system and included nine items made up of 27 statements. Responses to these items were designed on a Likert-type scale ranged as follow: 1 "Strongly Disagree", 2 "Disagree", 3 "Neutral", 4 "Agree", and 5 "Strongly Agree".

VI. *Participants*

Of the total of 225 sample in this study, 219 students participated in this research; 55 (25.1 per cent) were18-20 years, and 119 (54.3 per cent) were 21-23 years, and 45 (20.5 per cent) were above 23 years, with (98) of these respondents (44.7 percent) with a 1 year e-learning experience. In terms of e-learning experience using computerized and/or online instructional media, 69 (31.5per cent) 2 years, 31(14.2per cent) were 3 years and 21(9.6 per cent) were 4 years. Regarding the hours of using the Blackboard e-learning system, 25.6 per cent had 1 hour a day, 41.6 per cent had 2 hours a day, 20.1 per cent had 3 hours a day and 12.8 per cent had 4 hours a day. Most of the respondents reported that their teachers do not require them to use the e-learning system; about 87 (39.7 per cent) responded affirmatively while 132 (60.3 per cent) negatively responded to how voluntarily they reacted to the use of Blackboard. On average, 72 (32.9 per cent) said never, 65 (29.7per cent) said Seldom, 57 (26.0 per cent) said Oftentimes and 25 (11.4 per cent) said always vis-à-vis the daily frequency of using Blackboard behaviour. With regard to the weekly frequency of using Blackboard, 44 (20.1 per cent) said they used Blackboard for 5 hours a week, 108 (49.3 per cent) said they used it for 10 hours a week, 31 (14.2 per cent) said they used it for 15 hours a week, and 36 (16.4 per cent) said they used Blackboard for 20 hours on a weekly basis. (See Table 1).

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Table 1
Demographics of the Participants

Variable	Category	Frequency	Percent
Age	18-20 years	55	25.1
	21-23 years	119	54.3
	above 23 years	45	20.5
Ex-perien ce	1 year	98	44.7
	2 years	69	31.5
	3 years	31	14.2
	4 years	21	9.6
Hours using Black-board	1 hour a day	56	25.6
	2 hours a day	91	41.6
	3 hours a day	44	20.1
	4 hours a day	28	12.8
Voluntari-ness	Voluntary users	87	39.7
	Mandatory users	132	60.3
Behaviour towards learning via Black-board	Never	72	32.9
	Seldom	65	29.7
	Oftentimes	57	26.0
	Always	25	11.4
Frequency	5 hour a week	44	20.1
	10 hours a week	108	49.3
	15 hours a week	31	14.2
	20 hours a week	36	16.4

VII. *Instrumentation*

Validity and Reliability

Different methodological approaches were employed to ensure acceptable levels of reliability and validity of the instrument. The survey form was reviewed by a panel of five experts to determine content and face validity. Members of the panel were selected based on their experience using e-learning tools, such as Blackboard. The instrument was also pilot-tested with a group of 20 students who were enrolled. These students who were using Blackboard were excluded from the main sample of the study. Changes recommended by the validation panel and those identified as needed during the pilot-testing phase were incorporated into the instrument. These changes occurred in the wording of items and in the instructions for completing the instrument.

The internal consistency of the instrument was determined using the same group of students used in the pilot study. The calculated coefficient alpha reliability for the use scale (part one) was .81 and for the technical problems scale (part two) was .8177. (*See* Table 2)

Table 2
Reliability of the survey

item	Correla-tion	sig
Competing Behavioural Intention (CBI)	.134(*)	0.047
Behavioural Intention	.290(**)	0.000
Perceived usefulness	.780(**)	0.000
Perceived ease of use	.744(**)	0.000
Perceived content quality	.738(**)	0.000
Perceived network externality	.748(**)	0.000
Computer self-efficacy	.641(**)	0.000
Course attributes	.461(**)	0.000
Subjective norm	.635(**)	0.000

There was a positive correlation between every item and total score on the survey, which indicates the instrument enjoys a high level of internal consistency.

VIII. FINDINGS

Results (Part I)

The first section in Part III of the survey was designed to tab into the students' attitudes towards competing behavioural intention. To respond to this section, students were asked to rate their responses with regard to two items. The mean values and standard deviations for students' responses to these items are presented in Table 3 below.

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Table 3
Means and Standard Deviations for the Items of the Use Scale (N=219) Item N

Competing Behavioural Intention (CBI):	Mean	Std. Deviation
1. I intend to use other means (such as participation in the classroom, educational CD-ROM or video) to learn instead of using the e-learning system to receive education.	3.6986	.98640
2. I intend to learn by participating in the classroom, using CD-ROM or educational video instead of using the e-learning system to receive education	3.8995	.95732
Average	3.80	0.97

According to the table above, the overall mean score for all items was 3.80, with regard to Competing Behavioral Intention. It is interesting to notice that all items had mean values greater than 3.5.
The second section in Part III of the survey was designed to recognize the behavioural intentions of student users. Table 4 below displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 4.02.

Table 4
Behavioural Intention

Behavioral Intention	Mean	Std. Deviation
Assuming I have access to the e-learning system, I intend to use it	4.2192	.78249
Given that I have access to the e-learning system, I plan to use it.	3.8174	.93528
Average	4.02	0.86

The third section in Part III of the survey was about perceived usefulness by student users. Table 5 below displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.93.

Table 5
Perceived Usefulness

Perceived usefulness	Mean	Std. Deviation
Using the e-learning system improves my learning performance.	3.3257	1.00202
Using the e-learning system increases my learning productivity.	3.8174	.99700
Using the e-learning system enhances my effectiveness in my learning.	4.1826	.80905
I find the e-learning system to be useful …	4.3836	.94767
Average	3.93	0.94

The fourth section in Part III of the survey was about perceived ease of use by student users. Table 6 below displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.89.

Table 6
Perceived Ease of Use

Perceived ease of use	Mean	Std. Deviation
Interacting with the e-learning system does not require a lot of my mental effort.	4.2740	.77685
I find the e-learning system to be easy to use.	3.9726	.90319
My interaction with the e-learning system is clear and understandable.	3.5616	1.06641
I find it easy to get the e-learning system to do what I want	3.7671	.95572
Average	3.89	0.93

The fifth section in Part III of the survey was about perceived content by student users. Table 7 below displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.94.

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Table 7
Perceived Content

Perceived content quality	Mean	Std. Deviation
I search and share the related course content …	4.1279	.90468
My teachers or classmates search and share the related course content from the internet to help my learning.	4.2648	.76817
Content on the e-learning system is updated on a regular basis.	3.5114	.94994
The e-learning system often provides the updated information.	3.8402	1.04356
Average	3.94	0.92

The sixth section in Part III of the survey was about perceived network externality by student users. Table 8 displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.59.

Table 8
Student Users

Perceived network externality:	Mean	Std. Deviation
Most students use the e-learning system.	4.0913	.87308
There will be more students using the e-learning...	3.1050	.93501
As more and more students use the e-learning system, I think related services will soon be developed.	3.8265	.99403
As more and more students use the e-learning system, related software and hardware will soon be developed.	3.3242	.99074
Average	3.59	0.95

The seventh section in Part III of the survey was about computer self-efficacy appraised by student users. Table 9 displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.77.

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Table 9
Computer Self-Efficacy by Student Users

Computer self-efficacy:	Mean	Std. Deviation
I am able to operate the e-learning system with less support and assistance.	4.1096	.90201
I am confident that I can overcome any obstacles when using the e-learning system.	3.3836	1.09582
I believe that I can use different e-learning software and systems to receive education.	3.8311	.94517
Average	3.77	0.98

The eighth section in Part III of the survey was about course attributes as assessed by student users. Table 10 displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.49.

Table10
Course attributes

Course attributes	Mean	Std. Deviation
Functions of the e-learning system support the processes and demands required by the course.	3.0868	.94177
Available functions on the e-learning system support requirements of the course.	3.8950	.98284
Average	3.49	0.96

The ninth section in Part III of the survey was designed to tab into the subjective norms in the use of Blackboard as evaluated by student users. Table 11 below displays the mean values and standard deviations for students' ratings of these items. According to the table, the overall mean value for all items was 3.89.

Table11
Subjective norms

Subjective norm	Mean	Std. Deviation
My teachers think that I should use the system.	3.6712	1.10944
My friends think that I should use the system.	4.1142	.86773
Average	3.89	0.99

To identify any effects of voluntariness on the acceptance of online-learning systems, independent samples t-tests were utilised to check for the equality of means through employing SPSS (vers. 14) as the statistical analysis tool.

Results of analysis showed that no significant differences were found between the Yes (voluntary) and No (mandatory) respondents at the alpha = 0.05 level on Competing Behavioural Intention (CBI) and Behavioural Intention (BI). However, mean scores for the voluntary ELS setting group were higher than for the mandatory ELS setting group for all sections of the survey (perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, subjective norm and SUMALL); this was significant at ($p<.05$).

These results displayed in the above tables confirm the hypothesis that voluntariness positively affects the acceptance of online-learning systems. Table 12 below shows the results of these t-tests.

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Table 12

T-tests for the effects of voluntariness factor on online learning

	Voluntariness	N	Mean	Std. Deviation	*t*	Sig. (2-tailed)
Competing Behavioral Intention (CBI)	Voluntary	87	7.69	1.527	.762	.447
	Mandatory	132	7.54	1.384		
Behavioral Intention (BI)	Voluntary	87	8.14	1.340	.848	.398
	Mandatory	132	7.97	1.498		
Perceived usefulness (PU)	Voluntary	87	13.74	1.973	-13.092	.000
	Mandatory	132	16.98	1.671		
Perceived ease of use (PEU)	Voluntary	87	13.97	2.485	-7.827	.000
	Mandatory	132	16.58	2.380		
Perceived content quality (PCQ)	Voluntary	87	13.61	1.845	-15.722	.000
	Mandatory	132	17.15	1.475		
Perceived network externality (PNE)	Voluntary	87	13.16	1.970	-7.249	.000
	Mandatory	132	15.13	1.963		
Computer self-efficacy (CSE)	Voluntary	87	10.34	1.445	-6.669	.000
	Mandatory	132	11.97	1.946		
Course attributes (CA)	Voluntary	87	6.14	1.488	-7.992	.000
	Mandatory	132	7.54	1.101		
Subjective norm (SN)	Voluntary	87	7.20	1.247	-5.296	.000
	Mandatory	132	8.17	1.395		
SUMALL	Voluntary	87	93.98	7.341	-14.016	.000
	Mandatory	132	109.04	8.057		

Furthermore, the results above confirm the hypothesis that voluntariness positively affects perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, and subjective norm.

Results (Part II)

We conducted a statistical analysis using statistic mean values and standard deviations in order to provide an understanding of the level of perception and acceptance of online learning as shown in Table 13 below.

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Table 13

The level of acceptance of online learning using Blackboard

N	Survey sections	Mean	Std. Deviation	Level
	Competing Behavioral Intention (CBI)	3.80	0.97	High
	Behavioral Intention (BI)	4.02	0.86	High
	Perceived usefulness (PU)	3.93	0.94	High
	Perceived ease of use (PEOU)	3.89	0.93	High
	Perceived content quality	3.94	0.92	High
	Perceived network externality	3.59	0.95	High
	Computer self-efficacy	3.77	0.98	High
	Course attributes	3.49	0.96	Moderate
	Subjective norm	3.89	0.99	High

As the table above indicates, a greater number of EFL students have high levels of accepting online learning voluntarily (X= 3.81).

Results (Part III)

First: Factor Analysis

In Table 14 below, it is possible to distinguish among nine clusters of variables raised from factor analysis. Each class is differently populated and variables appear distributed in accordance to several criteria. The "support" issue seems to behave in a unique way, while, in the first row, many parameters are gathered together.

Table 14: Parameters are distributed in accordance with the factor analysis. Component Matrix(a)

Sections Item No	Components								
	1	2	3	4	5	6	7	8	9
1	.012	-.151	-.239	-.225	.075	.413	.386	.493	.201
2	.098	-.081	-.095	-.010	.491	.189	.422	-.326	-.145
3	.160	.699	-.281	-.268	-.225	.051	.169	.264	-.092
4	-.056	.560	-.292	-.016	.070	.051	-.262	.117	-.128
5	.253	.322	.169	.006	.588	.106	-.007	-.111	-.058
6	.262	.298	.165	.071	.358	-.149	.014	.163	-.466
7	.816	-.221	-.312	.082	.017	.076	-.139	-.061	.051
8	.706	-.037	.251	-.188	.153	-.252	.026	.162	.107
9	.873	-.069	-.185	.149	-.048	.057	.008	-.086	-.097
10	.423	.617	-.076	-.343	-.313	.160	.059	.047	-.042
11	.241	.478	-.014	-.227	-.039	-.155	-.269	-.300	.041
12	.360	.543	-.019	-.282	-.002	.093	-.034	-.298	.004
13	.493	.079	.396	-.137	.217	-.166	-.067	.349	.324
14	.863	-.118	-.177	.142	-.065	.061	.006	-.103	-.079
15	.385	.063	.192	.041	-.328	.008	.545	-.295	.126
16	.250	.245	.448	.257	-.050	.231	-.081	-.168	.466
17	.838	-.312	-.267	-.001	.016	.009	-.124	.016	-.005
18	.327	.173	.458	.274	-.179	.294	-.101	.197	-.365
19	.065	.508	-.287	.338	.212	-.017	.279	.055	.173
20	.454	-.024	.429	.015	.137	.407	-.031	.101	.010
21	.843	-.271	-.252	-.020	-.067	-.059	-.055	.031	.021
22	.392	.028	.500	.347	-.310	-.057	.117	.070	-.219
23	.043	.320	-.293	.547	-.041	-.267	.245	.023	-.031
24	.169	.060	.026	.109	.013	-.527	.125	.241	.065
25	.480	.039	.341	-.393	.039	-.361	.190	-.117	.016
26	.099	.464	-.117	.416	.083	.029	-.237	.039	.340
27	.860	-.286	-.259	-.004	.022	.011	-.090	.056	-.004
Initial Eigenvalues									
% of Variance	24.284	10.863	7.623	5.539	4.704	4.445	4.174	3.974	3.742
Cumulative %	24.284	35.147	42.77	48.31	53.013	57.459	61.633	65.607	69.349

Extraction Method: Principal Component Analysis: 9 components extracted.

Second: Results of Regression Analysis

A stepwise multiple regression analysis was used to prove the significance of the variables identified in this study in Part III of the survey. Regression analysis was conducted to assess the relationship between eight main factors and behavioural intention to use online-learning. The dependent variable for this test was Voluntariness checked in the survey item that reads: (My teachers do not require me to use the online-learning system). The independent variables were Behaviour, Competing Behavioural Intention, Behavioural Intention, Perceived usefulness, Perceived ease of use, Perceived content quality, Perceived network externality, Computer self-efficacy, Course attributes, and Subjective norm, which were statistically excluded from the model by a stepwise regression method. Tables 15 and 16 below show the

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statistics for the variables that were excluded from the model and retained in the model respectively.

Table 15

Regression results for voluntariness
Excluded Variables(i): Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
Perceived content quality	.730(a)	.532	.530	.336
Perceived usefulness	.801(b)	.642	.639	.295
Course attributes	.819(c)	.671	.667	.283

The stepwise analysis in Table 15 above showed that perceived content quality had the strongest effect on voluntariness (R^2 = .532). The next most prominent effect were perceived usefulness (R^2 = .642) and course attributes (R^2 = 671).

Table 16
Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Perceived content quality	.101	.010	.491	10.522	.000
	Perceived usefulness	.069	.010	.338	7.128	.000
	Course attributes	.063	.015	.186	4.351	.000

Dependent Variable: Voluntariness: My teachers do not require me to use the e-learning system

Table 17

ANOVA(d)

Model		Sum of Squares	df	Mean Square	F	Sig.
Perceived content quality	Regression	27.923	1	27.923	247.170	.000 (a)
	Residual	24.515	217	.113		
	Total	52.438	218			
Perceived usefulness	Regression	33.678	2	16.839	193.883	.000 (b)
	Residual	18.760	216	.087		
	Total	52.438	218			
Course attributes	Regression	35.197	3	11.732	146.300	.000 (c)
	Residual	17.242	215	.080		
	Total	52.438	218			

It can be concluded that none of the excluded variables were dropped from the model due to multi-co linearity. Furthermore, regression analysis was conducted to assess the relationship between perceived network externality and voluntariness (See Table 18 below). Fig. 1 below illustrates the graphical presentation of the β-value for the factors.

Table 18
Correlations

		(Voluntariness)	Perceived network externality
Voluntariness	Pearson Correlation	1	-.765(**)
	Sig. (2-tailed)	.	.000
	N	219	219
Perceived network externality	Pearson Correlation	-.765(**)	1
	Sig. (2-tailed)	.000	.
	N	219	219

** Correlation is significant at the 0.01 level (2-tailed).

There is a high significant relationship between voluntariness and perceived network externality. Results of regression analysis show that R^2 =-.765, which means that as one variable increases in value, the second variable decreases in value, bringing forth a negative correlation between these two variables. Consequently, we could conclude that when voluntariness increases, perceived network externality decreases. In other words, voluntary use of LMSs is the result of a bandwagon effects of the adoption of technology rather than a conscious, self-determined choice on the part of users due to seen benefits in real pedagogical practices. Thus, the hypothesis in this

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study that perceived network externality positively affects voluntariness is verified, now that perceived network externality creates a bandwagon effect in favour of technology adoption.

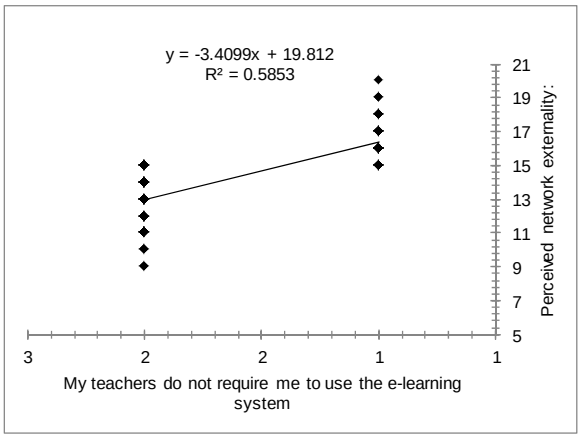

Fig. 1: the graphical presentation of the β-value for the factors (Voluntariness and PNE)

To verify the hypothesis that perceived network externality positively affects behavioural intention to use the e-learning system, a regression analysis was conducted with Perceived Network Externality as the dependent variable and Behavioral Intention to use the e-learning system as the predictor variable. From a total of 219 cases that were analyzed, a significant model emerged {F (1, 219) =2145.204, p < .001} (*See* Table 19 below).

The second significant statistic that was obtained from the analysis is the R^2, which ranges from 0 to 1, with 1 being a perfect fit model. It was found that R^2= .908 for this analysis. This factor explains 90.8% of the changes in perceived network externality. This confirms the hypothesis that perceived network externality positively affects behavioural intention to use the e-learning system.

Table 19

Regression results for perceived network externality and behavioural intention

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	945.938	1	945.938	2145.204	.000(a)
	Residual	95.687	217	.441		
	Total	1041.626	218			
Model		R	R Square	Adjusted R Square		
2		.953(a)	.908	.908		
		B	Standardized Beta	T Statistics	Significance	
		1.450	.953	46.316	.000	

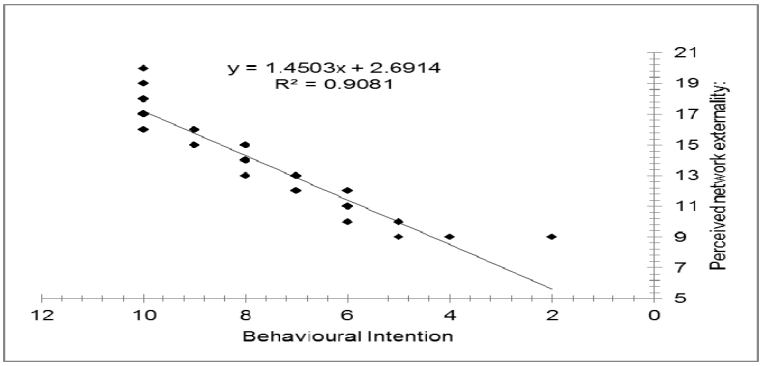

Fig. 2: the graphical presentation of the β-value for the factors (BI & PNE)

To verify that perceived network externality positively affects perceived usefulness, a regression analysis was conducted with perceived network externality as the dependent variable and perceived usefulness as the predictor variable. From a total of 219 cases that were analyzed, a significant model emerged {F (1, 219) =3202.250, p < .001} (See Table 20 below). The second significant statistic that was obtained from the analysis is the R^2, which ranges from 0 to 1, with 1 being a perfect fit model. It was found that R^2 = .937 for this analysis. This factor explains 93.7% of the changes in perceived network externality. This further verifies the hypothesis that perceived network externality positively affects perceived usefulness.

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Table 20 Regression results for perceived network externality and perceived ease of usefulness

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	975.520	1	975.520	3202.250	.000(a)
	Residual	66.106	217	.305		
	Total	1041.626	218			
Model		R	R Square	Adjusted R Square		
2		.968(a)	.937	.936		
		B	Standardized Beta	T Statistics	Significance	
		.882	.968	56.588	.000	

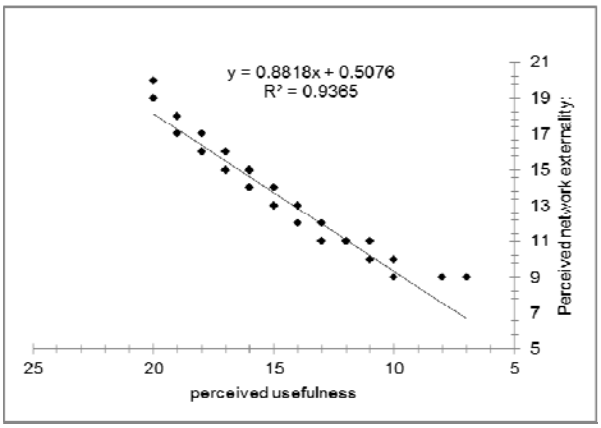

Fig. 3: the graphical presentation of the β-value for the factors (PU & PNE)

To check the hypothesis that perceived network externality positively affects perceived ease of use, a regression analysis was conducted with the Perceived network externality as dependent variable and perceived usefulness as predictor variables. From a total of 219 cases that were analyzed a significant model emerged {F (1, 219) =3202.250, p < .001} (See Table 21 below).

The second significant statistic that was obtained from the analysis is the R^2, which ranges from 0 to 1, with 1 being a perfect fit model. It was found that R^2 = .946 for this analysis. This factor explains 94.6% of the changes in perceived network externality. This finding confirms the hypothesis perceived network externality positively affects perceived ease of use.

Table 21

Regression results for perceived network externality and perceived ease of use

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	986.075	1	986.075	3851.964	.000(a)
	Residual	55.550	217	.256		
	Total	1041.626	218			
Model		R	R Square	Adjusted R Square		
2		.973(a)	.947	.946		
		B	Standardized Beta	T Statistics	Significance	
		.777	.973	62.064	.000	

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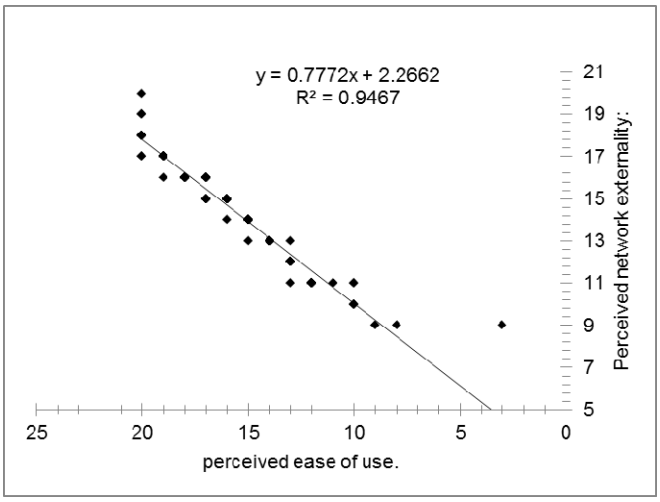

Fig. 3: the graphical presentation of the β-value for the factors (PEU & PNE)

IX. SUMMARY OF FINDINGS

Findings from the present study demonstrated that voluntariness affected perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, subjective norm more than did mandatory use of the LMS (here Blackboard).This further confirms the hypothesis that voluntariness positively affects perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, and subjective norm. Furthermore, findings from regression analysis showed that the perceived content quality had the strongest effect on voluntariness (R^2 = .532), and the factors second and third in rank in this effect have been perceived usefulness (R^2 = .642) and course attributes (R^2 = 671), respectively. This is contrary to some prior research findings which showed that perceived usefulness was the strongest predictor of behavioural intention. Here in the present study, the use of LMSs comes as a consequence of the perceived quality of course content as well as the effects of perceived network externality, the latter affecting voluntariness, behavioural intention to use the e-learning system, perceived usefulness, and perceived ease of use. Additionally, voluntary use of LMSs has been revealed to be the outcome of a bandwagon effect on the LMS users due to the propagation of the effects of technology regarding usefulness, ease of use, self-efficacy and perceived content quality. Also, it was found that perceived network externality positively affects behavioural intention to use the e-learning system.

X. ANALYSIS & DISCUSSION

In mandatory settings, students would only have to use the LLMS in graded activities and tasks, but, in voluntary settings, they would use it in supportive activities (Lee, 2006). According to this study, students tend to use CD-ROMs and/or educational video to receive their education more than they do with e-learning (M = 3.8 with regard to Competing Behavioral Intention). This is commensurate with prior research findings which indicated that students may also choose to receive instructional material and education within classroom (face-to-face) settings, or to make use of educational videos or educational CD-ROMs (Lee, 2006; Harrison, 1995). Educational material on CD-ROMs or videos is perceived as a factor that adds to content richness, and thus may positively affect the learners' satisfaction with the course, whether delivered online in an LMS or via other technologies. This result is consistent with some previous studies (Burns et al., 1990; Arbaugh, 2000). However, these findings from the present study showed no differences between voluntary users and mandatory users with regard to the two prominent factors identified in the adoption of e-learning with regard to both factors of Competing Behavioural Intention (CBI) and Behavioural Intention (BI). This runs counter to Harrison's (1995) hypothesis that the adoption of an LMS is determined by a positive function of behavioural intention to use the e-learning system and the simultaneous negative functions of intention to use competing learning media, such as CD-ROMs or language labs that utilise educational videos and CD-ROMs in mandatory settings.

Participants also tend to have behavioural intentions for using an LMS if a course is available for delivery via this medium (M = 4.02; SD = 0.86). This further indiccates that technology acceptance is determined by the behavioural intention to use an LMS for learning, which is consistent with prior reserach (Lee, 2006; Fageeh, 2011; Wang, Hsu & Fang, 2005).

Independent samples t-tests were utilised to identify the effects of voluntariness on the acceptance of online-learning systems in order to verify the hypothesis that voluntariness positively affects the acceptance of online-learning systems, but the analyses showed that no significant differences between students in voluntary and mandatory settings with regard to two factors: Competing Behavioural Intention (CBI) and Behavioural Intention (BI). Albiet, there were differences between voluntary and mandatory users for other factors, namely, perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, subjective norm to the good of vol-

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untariness as a discrete factor in the students' perceptions of these determinants. This further verifies the hypothesis that voluntariness positively affects perceived usefulness, perceived ease of use, perceived content quality, perceived network externality, computer self-efficacy, course attributes, subjective norm. This is commensurate with prior research findings (Davis, 1989; Davis et al., 1992; Igbaria et al., 1997; Gefen and Straub, 1997, 2000; Hsu and Lu, 2004; Ong et al., 2004; Venkatesh, 2000; Venkatesh and Davis, 2000; Gefen, 2003; Katerattanakul and Siau, 1999; McKinney et al., 2002; Roca et al., 2006; Fageeh, 2011; Lee, 2006; Burns et al., 1990; Arbaugh, 2000).

To verify the hypothesis that perceived network externality positively affects voluntariness, regression analysis was conducted to assess the relationship between perceived network externality and voluntariness. Results have demonstrated that there is a negative correlation between these two variables. The results of regression analysis shows that bandwagon effects result in mandatory use of an LMS, while a voluntary use of the LMS comes as a conscious, self-determined choice out of perceptions of the factors that are conducive to LMS adoption. This verifies the hypothesis that perceived network externality positively affects voluntariness. This finding is compatible with findings of prior research (Hsu & Lu, 2004; Hsu, et al., 2006).

To verify the hypothesis that perceived network externality positively affects behavioural intention to use the e-learning system, further regression analyses were conducted, which revealed that 90.8% of the changes in perceived network externality explains the behavioural intention to use an LMS (R^2= .908). Pertinently, this perception can also create bandwagon effects. This is commensurate with established claims in the literature (Luo and Strong, 2003; Hsu and Lu, 2004; Shapiro and Varian, 1999).

To further verify the hypothesis that perceived network externality positively affects perceived usefulness, a further regression analysis was conducted, and findings indicated that perceived network externality explains 93.7% of the participants' perceptions of usefulness of LMSs. This result confirms this hypothesis (R^2 = .937). The effect of perceived network externality was therefore significant in relation to perceived usefulness of LMSs in both mandatory and voluntary settings. This result is compatible with prior research findings (See for instance, Lee, 2006).

Last, confirming the hypothesis that perceived network externality positively affects perceived ease of use also required conducting a regression analysis, with this latter factor of perceived network externality as the dependent variable and perceived usefulness as the predictor variables. indicated that perceived network externality explains 94.6% of the participants' perceptions of usefulness of LMSs. This result confirms this hypothesis (R^2 = .946). The effect of perceived network externality was therefore significant with regard to perceptions of ease of use of LMSs. This result congruently matches prior research results (Luo and Strong, 2003; Hsu and Lu, 2004; Roca et al., 2006; Lee, 2006).

Pertinent literature has provided ample evidence that technology acceptance largely depends on the perceptions of motivation for and attitude towards technology implementation in e-learning (Lederer, et al., 1998; Davis, 1989; Liaw, 2008; Migliorino & Maiden, 2004; Albirini, 2006). The present study, commensurate with prior research (Ryan and Deci, 2000; Wang and Beasley, 2002; Hung, Chou, Chen, and Own, 2010; Terzis & Economides, 2011), has identified several factors that impact the learners' acceptance of technology use for learning, namely, motivational factors and learner control factors.

Furthermore, results from this study confirmed the hypotheses that perceived network externality exerts a significant direct effect on usage intentions, perceived usefulness and perceived ease of use, thus being congruent with prior studies in this respect (Lee, 2006; Wang and Seidmann, 1995; Shapiro and Varian, 1999; Luo and Strong, 2003; Hsu and Lu, 2004).

XI. *Limitations & Recommendations*

The present study has suffered from some limitations that can be tackled in later research. First, the study has been applied to a limited sample of male students enrolled in the English department of the College of Languages & Translation in King Khalid University. This university includes 59 colleges, and over 35000 students, most of whom use Blackboard as an e-learning management system somehow. So, the sample is limited in size, and no gender differences were taken into account, due to constraints having access to the female campuses to apply the study tools to female students. Such limitations in sampling may influence the generalisability of the results of this study. Second, recognising the effects of adoption of technology may take longer periods of time. Therefore, it is recommended that a longitudinal

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study be launched to recognise the impacts of changes in perception regarding the adoption of LMS technologies for e-learning purposes in higher education institutions. This is needed now that the factors or determinants that impact technology adoption can possibly develop a variable predictive power over time (Venkatesh and Davis, 2000; Lee, 2006). Therefore, potential research is recommended to be conducted to investigate effects of experience using an LMS on the significance of the determinants of LMS adoption.

Third, while this study has explored such factors related to students' perceptions and attitudes towards technology acceptance, further prospective research is needed to determine in a more integrated manner, the relative importance of these factors or determinants of technology acceptance (e.g. by designing a study to measure multiple regression and autocorrelations) as perceived by both faculty and students of both genders.

Last, but far from least, as LMS post-adoption research broadens to examine different implementations across institutions, technical factors should also be taken into account in future research endeavours.

XII.Pedagogical Implications

Two important factors are recognisable to be of significance in the acceptance and adoption of e-learning technology: these are motivation for and attitude towards technology implementation in e-learning technology. Voluntary provisioning of e-learning technology has been shown to provide a better learning setting, widely acceptable by many students. But it is also implied that mandatory settings which require students to use an LMS is ineffective in promoting an LMS as the main learning medium in undergraduate studies.

Contrary to prior research (especially Lee, 2006) which indicated that mandatory approaches to implementing e-learning were thought to be significantly effective in promoting LMSs as main e-learning boards that can potentially discourage students from using other media (Videoware and/or CD-ROMs), this study failed to prove that mandatory settings can induce better statuses of LMS technology adoption and that students may not tend to use videos or CD-ROMs for their learning in their classrooms. Thus, it is strongly recommended students be given the opportunity to receive their education optionally via Blackboard and/or CD-ROMs and videoagogy, with an emphasis on regular updating of the learning material and continual enriching of the course content.

Implications spawning from this study indicate that e-learning may be introduced in three sequential phases: an introductory phase in which faculty and students can use the LMS for providing basic information, announcements, lecturettes, etc. for students, where students are not held accountable for using it. This is an introductory, basal phase. The second phase is one that promotes blended learning. The third phase has the ultimate goal of launching fully fledged e-courses and e-evaluation. In the first two phases, changes in perceptions as to the use of LMSs should target perceived usefulness, perceived ease of use and perceived network externality.

Other factors that induce better adoption of LMSs, such as perceived content quality, computer self-efficacy, and subjective norm should be developed and examined to accelerate LMS technology adoption. Developing these three perceived determinants may better enhance an LMS adoption through improving perceptions of the usefulness and ease of use of an LMS technology, and consequently on the behavioural intentions and competing behavioural intentions to use an LMS for e-learning.

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