Feasibility Study Of Lecturer's Acceptance Of E-Assessment

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Abstract

Technology acceptance studies are an effective way of gauging future system use and developing a robust system. In the area of e-learning numerous technology acceptance studies exist. However, rarely research works have studied acceptance of e-assessment. The purpose of this study is to develop a novel model that can predict a university lecturer's intention to use e-assessment. The proposed model uses Technology Acceptance Model (TAM) as a foundation and complements it with relevant constructs from appropriate acceptance models like Theory of Reasoned Action(TRA), Technology Acceptance Model -2 (TAM-2), Social Cognitive Theory (SCT) and Unified Theory of Acceptance and Usage of Technology (UTAUT). A construct relating to Experience has also been used. Data was collected from 52 lecturers at a public university in Malaysia. Partial Least Squares was used to test the hypothesised model. The model can explain approximately 52% of lecturer's e-assessment acceptance.

Keywords

E-assessment, Computer Based Assessment, Technology Acceptance, TAM, PLS.

INTRODUCTION

Education can be thought of as a cyclic process. It begins with the teaching/learning phase which aims at facilitating co-construction and assimilation of knowledge by students. It is followed by the assessment phase which aims at gauging a student's learning progress and use the assessment outcome to motivate further learning. Assessment can be conducted at fixed time intervals; also known as summative assessment or assignments and projects could be used to conduct formative assessment. Feedback and data gathered from assessment is used to further improve the 'teaching/learning' phase, and the cycle continues again. This method of education is commonly referred to as 'assessment for learning' approach. Researchers have found this approach to be more effective in promoting skill development on the higher levels of Bloom's Taxonomy (Oakleaf 2009; Siozos et al. 2009; Syh-Jong, J. 2007).

Computer use in the education sector has become very popular. E-learning systems or Learning Management Systems have been supporting teaching and learning for some time now. Computerized assessment or e-assessment can make assessment more interesting, immersive and interactive through the use of audio-visual mediums, simulation and educational games. Utilizing question banks has made test items reusable, hence, saving a lot of time and effort. E-assessment also provides quick feedback (Siozos et al. 2009; Terzis et al. 2012b). Nevertheless, e-assessment still remains a challenge and very few educational institutes use a dedicated e-assessment system (Deutsch et al. 2012; Whitelock 2009).

Understanding a user's intention to use a particular technology helps in increasing its use and in developing a robust system. Technology acceptance studies are commonly conducted for this goal (Chen 2011; King & He 2006). Nonetheless, such studies are a rarity in e-assessment and the only e-assessment acceptance model available studies it from student's perspective (Imtiaz & Maarop, 2014). Hence, in this study acceptance of e-assessment from lecturer's perspective has been studied at a public university in Malaysia. This study firstly finds out the factors that promote e-assessment acceptance among the lecturers. Next, inter-factor relationships in promoting a lecturer's intention to use e-assessment is analysed through a Partial Least Squares (PLS) structural model, the implications are discussed and future research work is suggested.

BACKGROUND OF STUDY

In this section the background of the research is described in order to allow a thorough understanding of the study.

Technology Acceptance Theories and Their Usage in Education

Usage of any technology often depends on an individual's approval of it and for it to become prevalent it should be well accepted by the user (Legris et al. 2003). In this study, relevant constructs from appropriate acceptance theories have been used to develop the e-assessment acceptance model and hence, brief descriptions of these theories are provided in the following paragraph. After that, technology acceptance studies in the field of education are discussed.

Fishbein & Ajzen developed the Theory of Reasoned Action (TRA) in 1975. This theory is regarded as the first acceptance theory; all other technology acceptance theories and models have been derived from it. Attitude and Subjective Norm (SN) are the two major constructs which are used to predict Behavioural Intention (BI) (Fishbein & Ajzen 1975). TRA was used by Davis to develop the Technology Acceptance Model (TAM). Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) are its key constructs which are used to predict an individual's Attitude which is in turn used to predict their BI and actual system use (Davis 1989). To understand the relationship between personal, behavioural and environmental influence on a person's action, Bandura developed the Social Cognitive Theory (SCT). Self Efficacy, a construct identified in SCT deals with an individual's perception of their skills in order to use them to achieve a desired performance level (Bandura 2001). TRA was further extended by adding construct Perceived Behavioural Control along with the pre-existing constructs Attitude and SN to better explain BI; this theory is referred to as the Theory of Planned Behaviour (TPB) (Ajzen 1991). TAM was later extended as TAM-2 by adding construct SN to it (Venkatesh & Davis 2000). A combined model called Unified Theory of Acceptance and Use of Technology (UTAUT) was developed by combining constructs from Innovation Diffusion Theory (IDT), the Combined TAM and TPB, the Model of PC Utilization (MPCU) and the above mentioned theories. Constructs - Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions (FC) are predicted to have a significant impact on BI and User Behaviour respectively. Variables- Gender, Age, Experience and Voluntariness Of Use moderate these relationships (Venkatesh et al. 2003).

Šumak et al. (2011) in their critical review on e-learning acceptance found that majority of the researches have been conducted on students. Whereas a thorough search in the area of e-assessment acceptance revealed that all studies have been on students (Imtiaz & Maarop, 2014). A user's use and acceptance of technology may differ from another user. Studies show that teacher's technology use is different from students and their acceptance of technology consecutively affects student's technology acceptance and use (Hu et al. 2003; Mahdizadeh et al. 2008; Selim 2007). Hence, more research is required on teacher's acceptance of e-learning and e-assessment. Many technology acceptance studies have been conducted in the field of education, but most of the studies have been on acceptance of e-learning. Not many e-assessment acceptance studies exist, the oldest study being done only in 2011(Imtiaz & Mirhashemi, 2013). Terzis et al. (Terzis & Economides 2011a, 2011b; Terzis et al. 2012a, 2012b, 2013) have conducted most of these studies. An e-assessment acceptance model to study technology acceptance from student's perspective was developed by them through adding Goal Expectancy and constructs from TPB and UTAUT to TAM. TAM extended with other constructs, has been used in most of the education domain technology acceptance studies. Original TAM without additional constructs has been sparingly used (Imtiaz & Maarop, 2014). Studies have found TAM with only its original constructs to be insufficient in explaining use and technology acceptance. The reason is that constructs PEOU, PU and Attitude were found to be unable to sufficiently explain intention and use. These drawbacks in TAM are the main reasons for the revision of TAM as TAM-2, TAM-3 and development of theories like UTAUT (Hu et al. 2003; Padilla-MeléNdez et al. 2013; Terzis & Economides 2011a; Venkatesh & Davis 2000).

From the discussions in the preceding paragraphs it can be understood that though there are many advantages of e-assessment, it's acceptance among users is low and very few e-assessment acceptance researches have been done. It can also be deduced that most of the e-learning acceptance research and all of e-assessment acceptance research has been performed on user type students and not teachers. So to fill the research gap, e-assessment acceptance from a university lecturer's perspective has been analysed in this study. In the next section the hypotheses and the theoretical model are developed.

RESEARCH MODEL AND HYPOTHESES FORMULATION

In this section the development of the hypotheses and research model is done by explaining the constructs that are part of the model. The survey questions are mentioned in the appendix.

Subjective Norm

It describes the effect of social motivation from co-workers, friends, etc. to use a particular system. In TRA BI is determined by SN (perception of what people close to him/her think about what behaviour he/she should display) and Attitude (individual's positive or negative emotional state towards the target behaviour) (Fishbein & Ajzen 1975). In our research work SN is predicted to have a substantial relationship with BI and PU. Relationships SN-BI and SN-PU have been studied and found to be considerable in several studies, e.g. Wang and Wang (2009), Teo (2011) and Pynoo et al. (2012). In this study since the model is not being tested on an existing e-assessment system hence PU has been aptly renamed as Expected Usefulness (EU). Based on the above discussions the ensuing hypotheses are proposed.

H1: Subjective Norm (SN) will have a substantial influence on Behavioural Intention (BI)
H2: Subjective Norm (SN) will have a substantial influence on Expected Usefulness (EU)

TAM Constructs

Davis defined PU as "the degree up to which a person believes that using a particular system would enhance his or her job performance" and PEOU was defined as "the degree up to which a person believes that using a particular system would be free of effort" (Davis 1989). TAM has been used in majority of the technology acceptance studies on e-learning, e.g. Padilla-MeléNdez et al. (2013) and Pynoo et al. (2012). Terzis and Economides (2011a) also used TAM for developing their computer based assessment acceptance model. In this study the construct Attitude has not been used as researchers have found it to be unsatisfactory in predicting BI (Chow et al. 2012). Instead of PU and PEOU, Expected Usefulness (EU) and Expected Ease Of Use (EEOU) have been used as this model will be used to predict a future e-assessment system's acceptance. The relationships amongst PU and EU, and PEOU and EEOU have been discussed by Terzis et al. (2013) in their study on continuance acceptance of computer based assessment. They have stated that a user's confirmation is the difference between perception formed after initial system use and pre-use expectation. The following hypotheses are developed based on the above discussions.

H3: Expected Usefulness (EU) will have a substantial influence on Behavioural Intention (BI)
H4: Expected Ease Of Use (EEOU) will have a substantial influence on Behavioural Intention (BI)
H5: Expected Ease Of Use (EEOU) will have a substantial influence on Expected Usefulness (EU)

Previous Experience

Research has found that users are often more comfortable with a systems if they have previous experience of it. Researchers have found relationships between Previous Online Learning Experience (POLE), PEOU, BI, and PU (Hartley & Bendixen 2001; Liu et al. 2010). In this study, the university in focus currently doesn't have a dedicated e-assessment platform but the lectures and students have been using Moodle LMS for some years. They have experience using the basic assessment features like multiple choice questions, matching etc., hence it is expected that their experience will be of importance. Since this study is on e-assessment, hence POLE has been renamed as Previous E-Assessment Experience (PEAE) and the research instrument was also accordingly modified. Based on the above reasoning the following hypotheses are derived.

H6: Previous E-Assessment Experience (PEAE) will have substantial influence on Behavioural Intention (BI)
H7: Previous E-Assessment Experience (PEAE) will have substantial influence on Expected Usefulness (EU)
H8: Previous E-Assessment Experience (PEAE) will have substantial influence on Expected Ease Of Use (EEOU)

Job Relevancy

Job Relevancy (JR) is defined as "Individual's perception regarding the degree to which the target system is relevant to his or her job". This construct was introduced by Venkatesh and Davis (2000) in the acceptance model TAM-2. They found that JR has a significant impact on PU. Other studies have also found substantial relationship between JR and PU, e.g. Hong et al. (2002). In this research too it is predicted that if lecturers believe that e-assessment is important for their job then job relevancy will have a significant relationship with usefulness. Therefore the following is hypothesized.

H9: Job Relevancy (JR) will have significance influence on Expected Usefulness (EU)

Computer Self Efficacy

Compeau and Higgins in 1995 modelled Computer Self Efficacy (CSE) based on Bandura's Self-Efficacy. CSE can be defined as "The degree to which an individual beliefs that he or she has the ability to perform specific task/job using computer"(Compeau & Higgins 1995). Research has shown that CSE affects computer usage in education. A significant relationship between CSE and PEOU has also been established by many studies, e.g. Terzis and Economides (2011a), Chow et al. (2012) and Teo (2009). In this study if a person is confident of his computer skills then CSE should have an important effect on Ease Of Use of the e-assessment system. Hence the following hypothesis is proposed.

H10: Computer Self Efficacy (CSE) will have a significant influence on Expected Ease Of Use (EEOU)

Facilitating Condition

The construct Facilitating Condition (FC) was first presented in the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003). They defined FC as "The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system". Researchers have found substantial relationship between FC and Ease Of Use in the field of education (Teo 2009; Terzis & Economides 2011a). In this research also we predict that if the facilitating conditions of an educational institution are adequate enough then FC should have large impact on Ease Of Use. Hence, the following is hypothesised.

H11: Facilitating Conditions (FC) will have a substantial influence on Expected Ease Of Use (EEOU)

The above discussed hypotheses have been represented in the structural model in Figure 1.

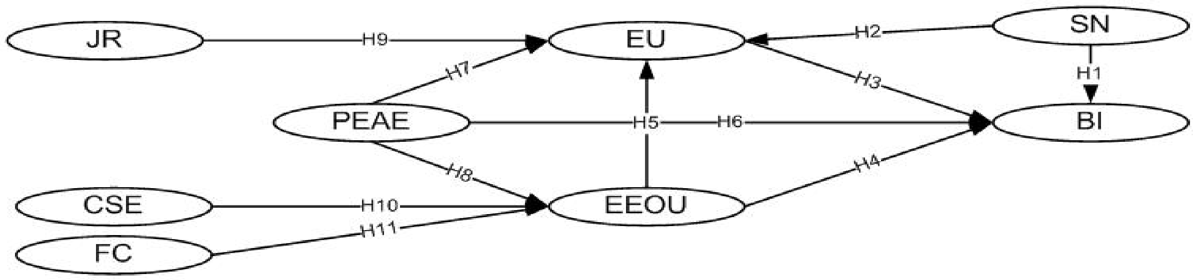

Figure 1: Lecturer's E-Assessment Acceptance Model

METHODOLOGY

In this section the various steps performed to carry out this study is explained.

Sampling and Population

The population of interest for this study were randomly selected lecturers at a public university in Malaysia. All lecturers at this university have experience of using Moodle LMS for some years now but the university doesn't have a dedicated e-assessment system. For PLS-Structural Equation Modelling (SEM) analysis minimum sample size is determined by the following guidelines of Hair et al. (2011) and Chin (1998): (a) The minimum sample size should be 10 times that of the largest number of formative items (indicators) in a construct (b) or 10 times the largest number of structural paths affecting a dependent variable(c) if both are true then, the larger value of the two will be selected. Since all the research constructs in this study are reflective as per the rule by Jarvis et al. (2003), hence only rule '(b)' is applicable and minimum sample size is calculated to be 40. A total of 52 valid responses were collected and analysed. Previous studies have also successfully used PLS-SEM with small sample size for technology acceptance studies, e.g. Van Raaij and Schepers (2008) and Venkatesh and Davis (2000).

Survey Instrument Scale

Except for demographic questions Likert scale was used for all the other questions pertaining to the construct items. This is grounded on the finding by Nunnally that summated scales, i.e. Likert scales are more reliable than single-item scales (Nunnally 1978). A 7 point Likert scale was used as it is uniformly balanced on both positive and negative sides of the opinion. The scale has three negative items (strongly disagree, disagree and disagree somewhat) and three positive items (strongly agree, agree and agree somewhat) along with a neutral. Other exploratory studies like Chen (2011) and Terzis and Economides (2011a) have also preferred 7 point Likert Scale.

Data Collection Method

Both online survey and paper based survey was used. Online survey website 'Survey Gizmo' was used to develop the online survey questionnaire. The link was shared through email to lecturers of different departments at the university. After waiting for an adequate amount of time for the online questionnaire reply data was collected through paper survey. It was made sure that they didn't answer the survey twice by confirming it with them whether they had given the online survey or not. Most of the data was collected through paper based survey.

Data Analysis Techniques

In this research a new acceptance model is being developed to predict future e-assessment system use and PLS has been found best suited for such conditions (Vinzi 2010), hence it was the preferred statistical method. PLS-SEM was selected based on the following rules of thumb defined by Hair et al. (2011): (a) fit for exploratory research or one in which existing structural model is extended. Like TAM is being extended in this study to form a novel acceptance model (b) fit for complex structure with many relationships (c) fit for small sample size. PLS-SEM algorithm consists of two steps. Firstly, the measurement model is assessed to determine the factor loadings/weights; convergent validity and discriminant validity is done for this. Secondly the structural model is evaluated and hypotheses are tested; R^2, Q^2 and bootstrapping is done for this. The details of these tests are discussed in 'Data Analysis and Results' section. SmartPLS was the software used for data analysis (Ringle et al. 2010).

DATA ANALYSIS AND RESULTS

A total of 52 valid responses were obtained. Out of this, only 13 replies were via the web survey and the rest were through paper based survey. A total of 60 paper questionnaires were circulated out of which 39 responded, hence the response rate via paper based survey was 65%.

Respondent Characteristics

45% of the lecturers taught solely graduate students. Whereas rest of the participants were those who taught graduate students along with bachelors or undergraduate or all three level of students. 58 % of the participants were lecturers of Applied Science subjects like Engineering, ICT etc. This was followed by lecturers from Business Studies and Social Sciences areas. One third of the population had 11 to 15 years of teaching experience which was closely followed by 27% of participants with teaching experience of 20 or more years. Next were lecturers with 6-10 and less years of experience.

Measurement Model Validation

As discussed in the 'Data Analysis Techniques' section the first step in PLS-SEM analysis is to validate the measurement model. The tests and results for this validation are explained in the following sub-sections.

Convergent validity

The following tests were done to prove convergent validity– (1) Internal Consistency Reliability (2) Average Variance Extracted (AVE) and (3) Indicator Reliability (Terzis & Economides 2011a). Internal Consistency Reliability: Composite Reliability (CR) is a more accurate measure of internal consistency than Cronbach's Alpha for PLS-SEM because for Cronbach's Alpha the indicators are assumed to be uniformly consistent but for PLS-SEM indicators are ranked according to their consistency in model estimation (Hair et al., 2011). Moreover, Cronbach's Alpha might be underestimated or overestimated for PLS-SEM. A value of 0.6 for exploratory research and otherwise 0.7 or more is reliable for internal consistency (Chin 1998; Hair et al. 2011). It can be seen in Table 1 that all the constructs have CR of more than 0.6 and hence are highly reliable. Average Variance Extracted (AVE): it is another way for checking convergent validity. As per Van Raaij and Schepers (2008), Chin (1998) and Hair et al. (2011) value of AVE should be 0.5 or more. In the research model all constructs had AVE value of 0.5 or more, as can be noted from the Table 1. Indicator Reliability: the purpose of this test is to validate each individual item's reliability with its construct. For reflective constructs the normal cut off for factor loading is 0.7 (Chin 1998). Nevertheless, in the case of exploratory study this can be lower than 0.7, as is the circumstance of this research. A cut off of 0.5 was suggested by Peterson (2000) in his work, whereas a value lower than 0.7 was proposed by Hulland (1999). A factor loading threshold of 0.5 was used by Van Raaij and Schepers (2008) in their work on acceptance of visual learning environment. Whereas, in a similar acceptance study by Sørebø et al. (2009) the threshold of 0.6 was used. Since, this is an exploratory study, therefore the minimum threshold value selected was 0.6 which resulted in the removal of item SN1 as its factor loading was less than 0.6. SN is a reflective construct and the items of such constructs being highly correlated can be interchanged or deleted without changing the construct's meaning, so SN1 was deleted (Jarvis et al. 2003). The indicator reliability of remaining items with their corresponding construct has been presented in the Table 1. It can be observed that all values are 0.7 or more except between JR3 to JR which is 0.617, which is acceptable too. Hence, all the indicators were found to be reliable.

Table 1. Convergent Validity

Construct Item	Factor Loadings	CR	AVE
CSE	CSE1(0.747) CSE2(0.708) CSE3(0.706)	0.764	0.520
BI	BI1(0.865) BI2(0.877) BI3(0.917)	0.917	0.786
EEOU	EEOU1(0.819) EEOU2(0.810) EEOU3(0.746)	0.835	0.628
EU	EU1(0.945) EU2(0.957) EU3(0.833)	0.938	0.835
FC	FC1(0.882) FC2(0.845) FC3(0.840)	0.891	0.733
JR	JR1(0.796) JR2(0.827) JR3(0.617) JR4(0.793) JR5(0.726)	0.868	0.571
PEAE	PEAE1(0.716) PEAE2(0.847) PEAE3(0.796)	0.830	0.621
SN	SN2(0.794) SN3(0.778) SN4(0.735)	0.813	0.592

Discriminant validity

The purpose of this test is to check whether the indicators in a construct are more correlated to its own construct than with other constructs. None of the indicator should have a higher correlation with a construct other than its own construct. This is tested through the Cross-Loading matrix (Chin 1998; Sørebø et al. 2009; Van Raaij & Schepers 2008). In the matrix presented in Figure 2 it can be observed that all the singular indicators have a higher correlation with their own construct than with other constructs. Hence, discriminant validity was satisfied.

	CSE	BI	EEOU	EU	FC	JR	PEAE	SN
CSE1	**0.7479**	0.2602	0.2472	0.128	0.1329	0.2192	0.041	0.2105
CSE2	**0.7089**	0.1132	0.2687	0.1237	0.3819	0.237	0.1839	0.2519
CSE3	**0.7065**	0.142	0.2671	-0.0368	0.105	0.2758	0.0135	0.1168
BI1	0.2159	**0.8651**	0.3356	0.5896	0.012	0.5659	0.1443	0.3009
BI2	0.153	**0.8774**	0.2522	0.5963	0.1033	0.5659	0.1484	0.2811
BI3	0.2549	**0.9174**	0.3552	0.621	0.212	0.5806	0.1885	0.3398
EEOU1	0.3249	0.1584	**0.8199**	0.2401	0.3532	0.1503	0.3161	0.427
EEOU2	0.4211	0.2839	**0.8106**	0.2531	0.4808	0.2619	0.0938	0.5409
EEOU3	0.1249	0.3745	**0.7467**	0.5226	0.2481	0.433	0.2184	0.2735
EU1	0.0909	0.6769	0.4173	**0.9458**	0.2043	0.6413	0.2887	0.2146
EU2	0.0992	0.6479	0.339	**0.9577**	0.1408	0.6735	0.3719	0.1947
EU3	0.0762	0.5285	0.4584	**0.8338**	0.2237	0.5058	0.2771	0.134
FC1	0.2644	0.2347	0.3704	0.3035	**0.8824**	0.4047	0.2987	0.2801
FC2	0.2727	0.0652	0.4565	0.0858	**0.8456**	0.15	0.1917	0.3289
FC3	0.194	0.0189	0.3188	0.1546	**0.8404**	0.1852	0.3415	0.3004
JR1	0.2809	0.5867	0.2772	0.5254	0.2911	**0.7965**	0.1597	0.4082
JR2	0.3893	0.5549	0.2374	0.5322	0.0572	**0.8279**	0.2375	0.2599
JR3	0.3543	0.4129	0.3146	0.3888	0.4696	**0.6174**	0.0646	0.4324
JR4	0.0498	0.5226	0.3798	0.6136	0.2511	**0.7937**	0.4028	0.2854
JR5	0.2833	0.3149	0.1672	0.4198	0.0354	**0.7262**	0.1451	0.0194
PEAE1	0.1213	0.2257	0.1366	0.0874	0.1277	0.3432	**0.7166**	0.2879
PEAE2	0.0896	0.131	0.332	0.2856	0.2995	0.0817	**0.847**	0.1494
PEAE3	0.0703	0.113	0.0959	0.3753	0.2672	0.3376	**0.7961**	0.1728
SN2	0.2958	0.283	0.6168	0.2696	0.211	0.3112	0.1899	**0.7942**
SN3	0.2519	0.2775	0.3263	0.077	0.4603	0.2987	0.1308	**0.778**
SN4	0.0092	0.234	0.1478	0.0621	0.1613	0.2381	0.229	**0.7356**

Figure 2: Cross-Loading Matrix

Structural Model Validation and Hypotheses Testing

The Goodness of Fit (GoF) measures for PLS-SEM are R^2 and Q^2 which are calculated for endogenous variables only (Terzis & Economides 2011a; Hair et al. 2011). R^2 values from Figure 3 show that almost 52% of Behavioural Intention (BI), 53% of Expected Usefulness (EU) and nearly 28% of Expected Ease Of Use (EEOU) can be explained by this model. Q^2 values for EU (0.45) and BI (0.41) indicate large predictive relevance. Whereas, Q^2 for EEOU (0.17) shows small predictive relevance. The results are comparable to the earlier studies of acceptance of technology in education domain, e.g. (Moran et al. 2010; Terzis & Economides 2011a; Van Raaij & Schepers 2008). A bootstrapping method with 1000 bootstrap samples was done to determine path coefficient significance. The purpose of this method is to compute t-values which are used to determine the significance of the path coefficients. Critical two-tailed t-values as per Hair et al. (2011) are 1.65, 1.96 and 2.58; in common terms if t-value for path coefficient is greater than 1.65 then the hypothesis is supported. Next, the p-value was calculated from the t-value. P-value tells if the null hypothesis is right or not; lower the p-value the better the chance that the result obtained will be replicated the next time also and is not just by chance. In Table 2 the results of the hypotheses testing are presented. All the hypotheses except H4, H6 and H8 were supported.

Table 2. Hypotheses Validation Result

Construct Item	Path	Path Coefficient	T-value	Statistical Significance
H1	SN→BI	0.263	2.944****	Yes
H2	SN→EU	-0.206	2.340**	Yes
H3	EU→BI	0.686	8.456****	Yes
H4	EEOU→BI	-0.057	0.685	No

H5	EEOU→EU	0.289	2.713****	Yes
H6	PEAE→BI	-0.101	0.922	No
H7	PEAE→EU	0.146	1.773*	Yes
H8	PEAE→EEOU	0.120	0.998	No
H9	JR→EU	0.596	6.637****	Yes
H10	CSE→EEOU	0.249	2.418***	Yes
H11	FC→EEOU	0.346	3.537****	Yes

****p<0.01, ***p<0.02, **p<0.05, *p<0.1

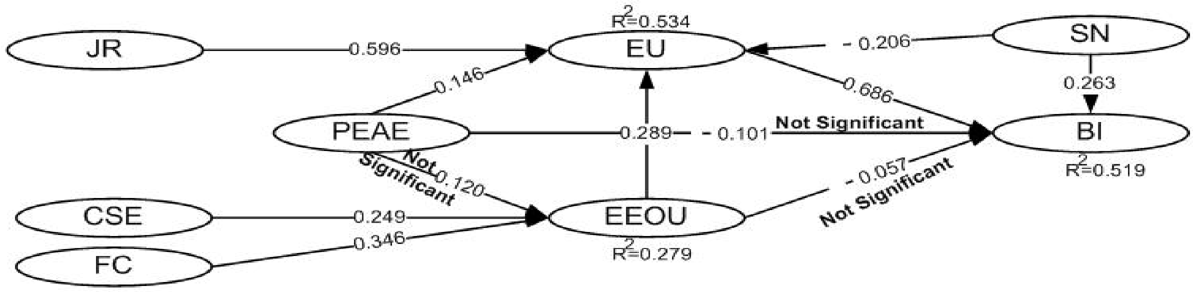

Figure 3: Model after PLS-SEM Analysis

DISCUSSION AND RESEARCH CONTRIBUTION

In this study e-assessment acceptance from lecturer's perspective was studied at a public university in Malaysia. Firstly, acceptance factors were found and then an acceptance model was developed. Secondly, the hypothesized acceptance model was found to be significant after PLS-SEM analysis and can explain 52% BI, thus fulfilling the two research objectives. Analysing the hypotheses provides guidelines for future system implementation. Support of H1, H2,H3,H5,H7,H9,H10,H11 and rejection of H4, H6 and H8 give the following insights. The lecturers have a positive intention towards e-assessment use and would use it in the future. Though they would be influenced by their social peers in using such a system, they themselves believe that the future system would be useful and relevant to their job. The lecturers believe computer knowledge and positive facilitating condition can make the future e-assessment system easy to use. They also marginally believe that they could determine the usefulness of the future e-assessment system if they had prior experience in a similar system. They consider that if the system is easy to use it will be useful to them and this would indirectly impact their future system use. However, they are not much concerned about the system being easy to use and would use it anyway. They also believe that they do not need any prior experience in using the future e-assessment system. These insights would be very helpful to IT-Managers and software developers who plan to implement an e-assessment system in the future.

This study is among the very few research works in e-assessment acceptance and probably the first to test e-assessment acceptance from lecturer's perspective. It makes a significant contribution to e-assessment acceptance research by testing constructs SN, JR and Experience that have not been used previously in this area. Previously studied significant negative relationship between SN and EU, insignificant relationships between PEAE and BI, and EEOU and BI in technology acceptance research have been tested for the first time in e-assessment acceptance and could be reconfirmed by other similar future e-assessment acceptance studies.

LIMITATIONS AND CONCLUSION

The study was conducted using a small sample size of 52 lecturers. Though, as discussed earlier many previous technology acceptance studies have been carried out successfully with an even smaller sample. Retesting the e-assessment acceptance model with a large sample size will confirm its robustness. This research was an exploratory research trying to predict future use. Hence, the acceptance model should be retested on an already implemented e-assessment system in order to check how the responses vary after actual use.

This research is an initial attempt to study e-assessment acceptance by lecturers. The finding of this study is useful to IT-Managers, software developers and researchers. Different constructs from acceptance theories were used and tested in a new scenario thus stimulating researchers to test it in similar studies and re-confirm the lecturer's e-assessment acceptance model.

APPENDIX-A: QUESTIONS USED IN THE SURVEY INSTRUMENT

Item	Definition	Item	Definition
BI1	I intend to use e-assessment in the future	EU1	Using e-assessment I expect to improve my work
BI2	I predict I would use e-assessment in the future	EU2	Using e-assessment I expect to enhance my effectiveness
BI3	I plan to use e-assessment in the future	EU3	Using e-assessment I expect to increase my productivity
EEOU1	I expect that my interaction with the system will be clear and understandable.	SN2	People who influence my behaviour think that I should use e-assessment
EEOU2	I expect that it will be easy for me to become skilful in using the system	SN3	People who are important to me think that I should use e-assessment in the future
EEOU3	I expect to find the system easy to use	SN4	My friends think that I should use e-assessment in the future.
PEAE1	I feel it would be easier to operate the system if I had previous experience of using it	CSE1	I could complete a job or task using the computer.
PEAE2	I will have a better understanding of how to use the system if it has online help	CSE2	I could complete a job or task using the computer if someone showed how to do it first
PEAE3	I will have a better understanding of how to use the system if a colleague operated it first	CSE3	I can navigate easily through the Web to find most of the information I need
JR1	I consider e-assessment to be important to my job	JR2	I consider e-assessment is needed for my job
JR3	I consider e-assessment to be fundamental to my job	JR4	I consider e-assessment matters to my job
JR5	I consider e-assessment to be of concern to my job	FC2	When I encounter difficulties in using technology at my institution, I know where to seek assistance
FC1	When I encounter difficulties in using technology at my institution, a specific person is available to provide assistance	FC3	When I encounter difficulties in using technology at my institution, I am given timely assistance

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