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Course Website Usage among Distance Learning Business Students: The Role of Prior Experience

Main Description

Usage of course websites as an aid to teaching has gained acceptance with the advent of information and communication and the proliferation of Internet technology. This paper looks at the acceptance of a course website by students of a distant learning business program offered by a public institution of higher learning. Using the Technology Acceptance Model (TAM) (Davis, 1989) as the basis, a structured questionnaire was used to elicit responses from 106 students enrolled in a business research methods course at the undergraduate level. TAM proposes that perceived ease of use (PEU) and perceived usefulness (PU) will influence the behavioral intention to use a technology. This paper also looks at the impact of prior experience on the total relationship. It was found the relationship between perceived ease of use, perceived usefulness and behavioral intention was higher for those with prior experience than those without prior experience ($R^2 = 0.93$ vs. $R^2 = 0.64$). Another interesting finding was that for those with prior experience perceived ease of use was the influential predictor whereas for those without prior experience perceived usefulness was more influential. Implications for student training and development are forwarded.

Short Description

This paper looks at the acceptance of a course website by students of a distant learning business program offered by a public institution of higher learning.

Keywords

Technology Acceptance Model
Course website usage
Perceived ease of use
Perceived Usefulness
Prior experience

INTRODUCTION

Distance learning education has been around for a long time in the West but it is a relatively new phenomenon in Malaysia. Distance education in Malaysia started in the year 1971 when the government gave Universiti Sains Malaysia (USM) the mandate to start offering courses through distance learning (Md Noor Salleh, 1999). Thus USM embarked on a journey as the pioneer in providing education through distance learning among all the other public institutions of higher learning (IPTA). Distance learning only took off in Malaysia after 1990 when the then Education Minister encouraged the other IPTA's to offer courses through distance learning in line with the idea of democratizing higher education and providing opportunities for those working to pursue higher education without leaving their current jobs.

Although in the early years of distance education, correspondence mode was widely used. The teaching methodology or mode has undergone tremendous change with the advent of technology in the late 1980's. The evolution from paper based to radio and television based and then to Computer Aided Instruction (CAI) and video and recently to the web based mode has changed the way teaching is delivered and will be delivered in the future.

Selim (2003) has argued that there is a lack of studies that addresses students acceptance of course websites as a teaching and learning tool, although Stoel and Kyu (2003) has looked at the effect of experience on acceptance of Web-based courseware whereas Karuppan (2001) profiled users of web based teaching materials. Apart from these, there has not been many studies looking at this phenomenon per se. Selim (2003) further asserted that there is a need to investigate how instructional technologies can be integrated and utilized to improve and enhance the learning process. Thus, the objective of this study is to model the impact of perceived ease of use and perceived usefulness on the usage of a course website. The findings will be able to assist lecturers in understanding the important factors that influences the acceptance of a course website among students in a rapidly developing and changing teaching and learning environment.

This study builds on the new trend and looks at the acceptance of a course website by business students who are enrolled in the Management programme through distance learning at USM. The study uses the Technology acceptance Model (TAM) (Davis, 1989) to help explain why students accept or reject the course website.

The course website

The distant education programme that is enrolled by the subjects of this study works on a system where there will be 4 video conferencing sessions per course per year. The students are geographically dispersed in 14 different states in Peninsular Malaysia and also East Malaysia. They also have to attend a compulsory 3 weeks intensive course at the main campus in Penang, Malaysia as

a compulsory requirement. During this intensive course, the students will have another 3 sessions of face-to-face sessions with the course coordinator after which they are on their own. Thus to help these students, this course website (see Figure 1) was developed so that the distant education students can be to access the materials anytime, anywhere.

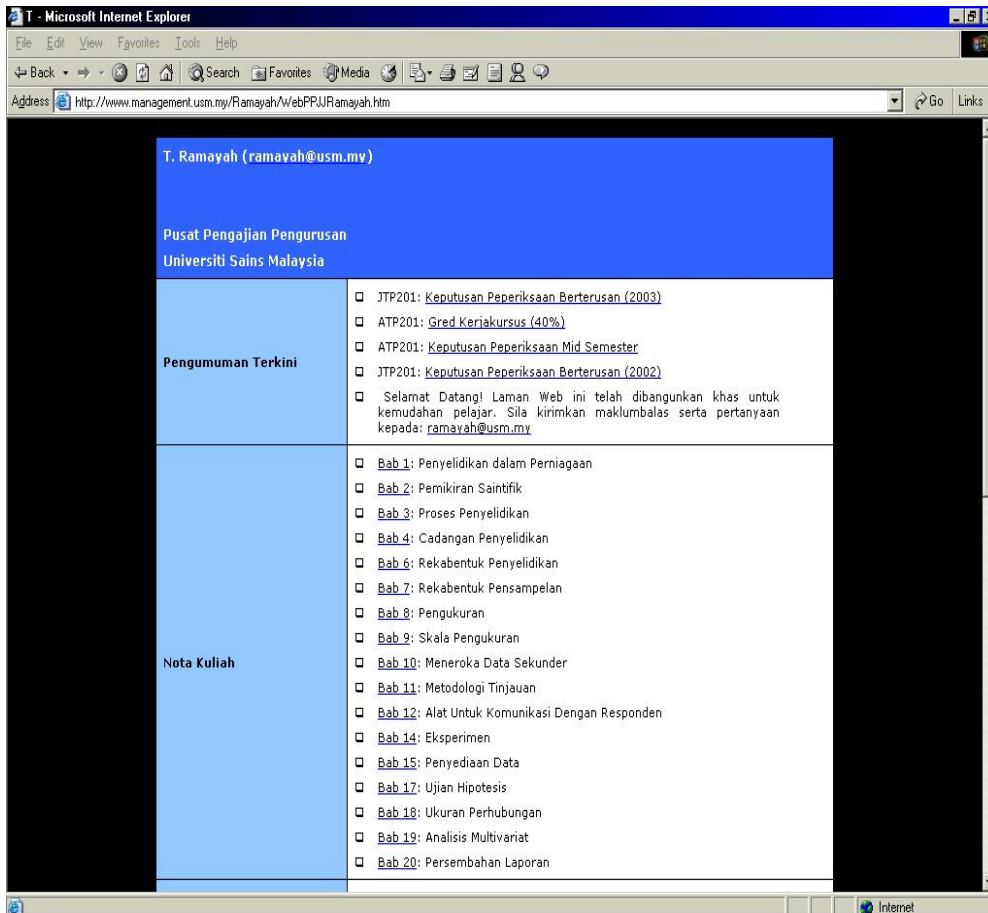


Figure 1-1
The course website

LITERATURE REVIEW

Technology Acceptance Model

The Technology Acceptance Model (TAM) pioneered by Davis (1989) advances the TRA by postulating that perceived usefulness (PU) and perceived ease of use (PEU) are key determinants that inevitably lead to the actual usage of

a particular technology or system. Perceived usefulness is defined as “the degree to which an individual believes that using a particular system would enhance his or her productivity” while perceived ease of use is defined as “the degree an individual believes that using a particular system would be free of effort” (Davis, 1989). Between the two, perceived ease of use has a direct effect on both perceived usefulness and technology usage (Adams, Nelson and Todd, 1992; Davis, 1989).

It is argued that eLearning tools alone do not ensure implementation success, let alone promoting technology acceptance. The students have to decide to embrace or behave receptively towards the course website that was intended to supplement their face-to-face classroom learning process. Nevertheless, the intention to accept or reject the course website is based on a series of tradeoffs between the perceived benefits of the course website and the complexity of learning or using it. This phenomenon can be reasonably explained by using the Theory of Reasoned Action (TRA) which essentially argues that social behavior is motivated by an individual’s attitude towards executing that behavior. Therefore, the change of behavior is the result of the function of one’s beliefs about the outcome of the behavior and an evaluation of the value of each of those outcomes (Ji-Won and Young-Gul, 2001).

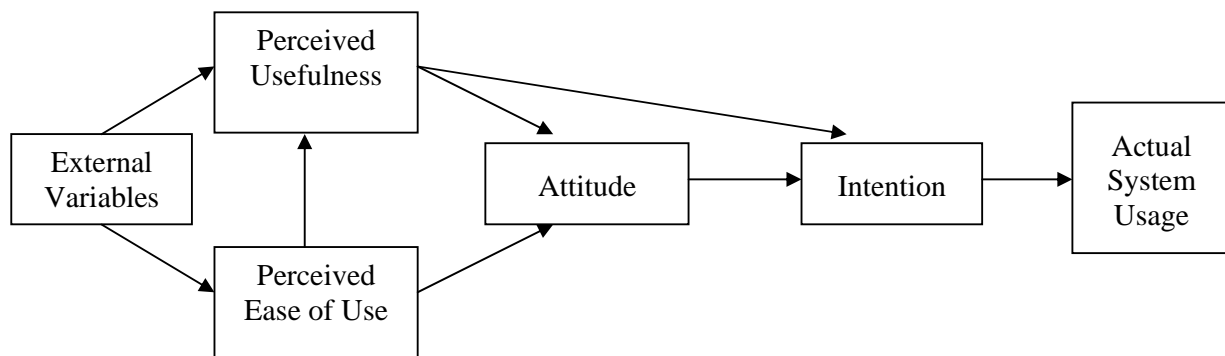


Figure 2-1
Technology Acceptance Model (TAM) (Davis et al., 1989)

Although TAM was influential in predicting and explaining technology acceptance in general, it lacks the specificity of users’ opinions on specific system or technology (such as the course website). Due to this reason, researchers (e.g. Davis and Ventkatesh, 1996; Ventkatesh and Davis, 2000) pursued vigorous validation and extension of the TAM under different environments to increase its explanatory power. Additionally, a number of modified TAM models (e.g. Chau, 1996; Igarria, Zinatell, Cragg and Cavaye, 1997; Agarwal and Prasad, 1998; Hu, Chau, Sheng and Tam, 1999; Jiang, Shu, Klein and Lin, 2000; Chau and Hu, 2001; Horton, Buck, Waterson and Clegg, 2001; Kwasi and Salam, 2004) were

developed to address acceptance of new technologies and their industrial application.

Despite many applications that were accessed by TAM in Malaysia, there is no study that seeks to elucidate on the acceptance of course websites as a technology to enhance a student's performance. The fact that many studies in the west (e.g. Seal and Przasnyski, 2001) had highlighted the use of World Wide Web (WWW) as a tool to change the student – teaching model gives rise to the need for Malaysian education system to view WWW as a potential to improve our status quo. Applications of WWW that has been used extensively are e-discussion groups, e-boards and course websites has impacted the teaching – learning methodology in the information age (e.g. Brown and Neilson, 1996; Chrisman and Harvey, 1998). Seal and Przasnyski (2001) added that course websites improve students' understanding of the course materials. They suggested that course websites could be used as a teaching enhancement to the conventional methods.

Research Hypotheses

In previous studies of TAM, many (e.g. Robey, 1979; Teo and Lim, 1999; Selim, 2003; Stoel and Kyu, 2003; Ramayah and Aafaqi, 2004) have discovered that perceived usefulness (PU) is directly associated with technology usage. Pragmatically, students that have been exposed to WWW are likely to form various perceptions (i.e. favorable – unfavorable) regarding the usage of course websites. The espoused beliefs (or perceptions) can be viewed as a means for the student to assess his/her professed mental effort in using the course website as a supplementary application to the course website. In other words, the outcome of the professed mental state of the student would lead to an actual usage or rejection of the use of course website. These embedded innate beliefs are surmised to be an antecedent that will influence the adoption or actual usage of the course website. Hence, this study posits that:

H1: Perceived usefulness is positively related to the actual usage of the course website.

Since the seminal works of Fishbein and Ajzen (1975) in TRA and Davis (1989) in TAM, there are other researches (e.g. Adams, Nelson and Todd, 1992; Mathieson, 1991; Davis, 1989; Teo and Lim, 1999; Selim, 2003; Stoel and Kyu, 2003) who have indicated that technology acceptance is driven to a large extent by perceived usefulness (PU) and perceived ease of use (PEU). Likewise, as mentioned earlier, PEU was also found to contribute towards the behavior of the user. In the case of course website acceptance among students, it would depend on the level of ease of use of the course website, such that the likelihood to use the WWW application is associated with the level of difficulty in executing the task. Therefore, we anticipate that:

H2: Perceived ease of use will be positively related to the actual usage of the course website.

PEU and PU are two distinct constructs though they are related. Typically, a system or technology that is perceived to be easy to use (or learn) would be anticipated to be more useful to the user. This notion was first supported by Davis, Bagozzi and Warshaw (1989) and again justified through many empirical tests (e.g. Mathieson, 1991; Chau, 2001; Selim, 2003; Stoel and Kyu, 2003; Ramayah et al., 2004) that followed. Therefore, in the case of course websites as an application to enhance a student's performance, it can be stated that:

H3: There is a positive relationship between the course website's ease of use and actual usage of the course website.

Prior Web Experience

Many researchers using the TAM model have proposed that prior experience with the technology in question will influence the beliefs about the technology and also the usage of the technology in question. As rightfully said by Crisp et al. (1997), one of the key sources of information used to shape beliefs is the person's own direct experience with a similar situation. The notion of prior experience having an impact on the beliefs about the technology has been forwarded by a host of researchers (Agarwal and Prasad, 1999; Venkatesh and Davis, 1996; DeLone, 1988; Igarria et al, 1995). Taylor and Todd (1996) found that although the TAM model can help in prediction of intention and behavior among experienced and inexperienced users, they found that the relationship was stronger for the experienced users than for those who were inexperienced. The reason they forwarded was that the users employ the knowledge accumulated from past experiences to form their intentions (Crisp et al., 1997). In another related research on computer usage, Thompson et al. (1994) found that prior experience with computers not only had a direct effect on beliefs, attitude and intention, but also that the person's level of experience with the particular technology moderated the strength of the relationships between beliefs, attitude, and intention. This result was also supported by a research done by Ramayah et al. (2002) among users and non users of Internet banking in Malaysia and it was found that the strength of the relationship was different for users and non users. In another research on student acceptance of Web-based courseware (Stoel and Kyu, 2003) found that as the experience with the technology increases, users perceive it to be easier and more useful which in turn leads to more usage. They also found that experience was directly related to intention to use the courseware. Thus we hypothesize that:

H4: Prior experience will moderate the relationship between beliefs and actual usage of the course website, the relationship will be stronger for those with prior experience.

METHODOLOGY

Data collection, population and sample

This study collected data from a group of distant education business students of Universiti Sains Malaysia during their mandatory 3 weeks on-campus residence requirement. The students are in the 2nd year of their 4 year degree programme and the course that they are enrolled for was Business Research Methods. Data was collected via a structured questionnaire which was self-administered. The questionnaire was divided into 4-parts consisting of demographic information, perceived usefulness, perceived ease of use and usage. Questionnaires were distributed during the last lecture and students were given 15 minutes to fill up the questionnaire.

The items used to measure perceived usefulness and perceived ease of use as well as usage was adopted from Selim (2003). Respondents were asked to indicate their agreement or disagreement with several statements on a five-point Likert scale with 1=strongly disagree to 7=strongly agree. The Cronbach alpha obtained for the measures were 0.97, for perceived usefulness, 0.97, perceived ease of use and 0.91, for usage.

The demographic profile of the respondents is presented in Table 1.

Table 1-1
Demographic profile of respondents

Variables	Frequency	%
<i>Gender</i>		
Male	37	34.9
Female	69	65.1
<i>Ethnicity</i>		
Malay	56	52.8
Indian	4	3.8
Chinese	44	41.5
Others	2	1.9
<i>Marital Status</i>		
Married	62	58.5
Single	42	39.6
Widowed/separated	2	1.9
<i>Year joined the programme</i>		
2000	2	1.9
2001	2	1.9
2002	65	61.3
2003	37	34.9
<i>Prior Experience</i>		
Yes	35	33.0
No	71	67.0
Age	Mean = 31.00 Std. Dev. = 5.89	

From Table 1 it can be seen that 65.1% of the respondents are female whereas 34.9% of them are male. As for ethnic composition, 52.8% of the respondents are Malay, 41.5% are Chinese, followed by 3.8% and 1.9% are Indian and Others respectively. 61.3% of the respondents have joined the institution in year 2002 and 34.9% of them have joined in 2003. Mean age of respondents is 31 years with a standard deviation of 5.89 years. A total of 33% of the respondents indicated having prior experience using course websites whereas a majority of 67% have not been exposed to the use of a course website.

Instrument validity and reliability

A factor analysis with Varimax rotation was performed to validate whether the items in each section loaded into the expected categories when used for analyzing the hypotheses. As presented in Table 2, the results showed three distinctive factors, PEU, PU and usage explaining 85.41% of the total variation. A closer examination showed that for PU the total variance explained was 72.47%, for PEU it was 6.77% whereas for usage the total variance explained was 6.17%. The analysis showed sufficient intercorrelations being present with Measures of

Sampling Adequacy values of 0.814 ($\chi^2 = 1566.92$, $p < 0.01$). The criteria used to identify the loadings was that each item should load 0.50 or greater on one factor and 0.35 or lower on another factor (Igarria et al., 1995).

Table 2-1
Results of Factor Analysis

Items	Factor 1	Factor 2	Factor 3
Using the course website improves the quality of the course work I do.	0.830		
Using the course website enables me to accomplish course tasks more quickly.	0.713		
Using the course website makes it easier to study the course material.	0.709		
Using the course website increases my productivity.	0.827		
Using the course website enhances my effectiveness in the course work.	0.832		
I find the course web site useful in the course work.	0.780		
Using the course website is easy for me.		0.784	
It was easy for me to become skilful at using the course website.		0.655	
I find the course website easy to use.		0.823	
I find the course website to be flexible to interact with.		0.790	
My interaction with the course website is clear and understandable.		0.793	
I find it easy to get the information I want from the course website.		0.770	
I use the course website a lot to do my course work.			0.582
I use the course website whenever possible to do my course work.			0.846
I use the course website frequently to do my course work.			0.873
I use the course website whenever appropriate to do my course work.			0.712
Eigenvalue	11.59	1.21	1.10
Variance (%)	72.47	6.77	6.17
Reliability	0.96	0.95	0.90

*Values below 0.35 are suppressed

FINDINGS

Table 3 provides the mean and standard deviation for all the items and variables used in this study.

Table 3-1

Mean and Standard deviation of all items and variables

Variables and Items	Mean	S. D.
Perceived Usefulness	5.26	1.08
Using the course website improves the quality of the course work I do.	5.12	1.27
Using the course website enables me to accomplish course tasks more quickly.	5.10	1.29
Using the course website makes it easier to study the course material.	5.49	1.17
Using the course website increases my productivity.	5.12	1.21
Using the course website enhances my effectiveness in the course work.	5.26	1.15
I find the course web site useful in the course work.	5.47	1.16
Perceived Ease of Use	5.29	1.19
Using the course website is easy for me.	5.32	1.35
It was easy for me to become skilful at using the course website.	5.28	1.24
I find the course website easy to use.	5.36	1.36
I find the course website to be flexible to interact with.	5.28	1.28
My interaction with the course website is clear and understandable.	5.12	1.28
I find it easy to get the information I want from the course website.	5.35	1.27
Usage	4.86	1.17
I use the course website a lot to do my course work.	4.93	1.31
I use the course website whenever possible to do my course work.	5.02	1.20
I use the course website frequently to do my course work.	4.57	1.45
I use the course website whenever appropriate to do my course work.	4.88	1.36

We used the separate group analysis to test the impact of prior experience in enhancing the relationship between perceived ease of use, perceived usefulness and usage of the course website. The results are presented in figures 3 and 4.

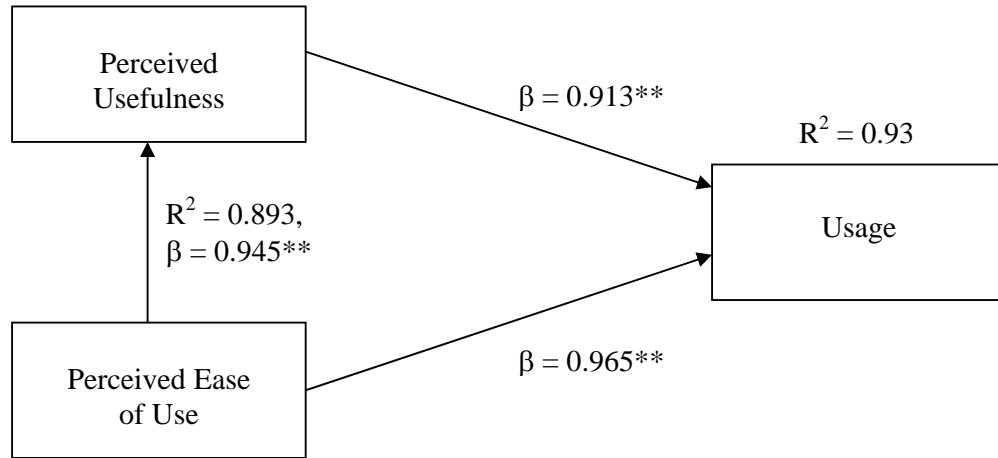


Figure 3-1
Regression Analysis result for those with Prior Experience

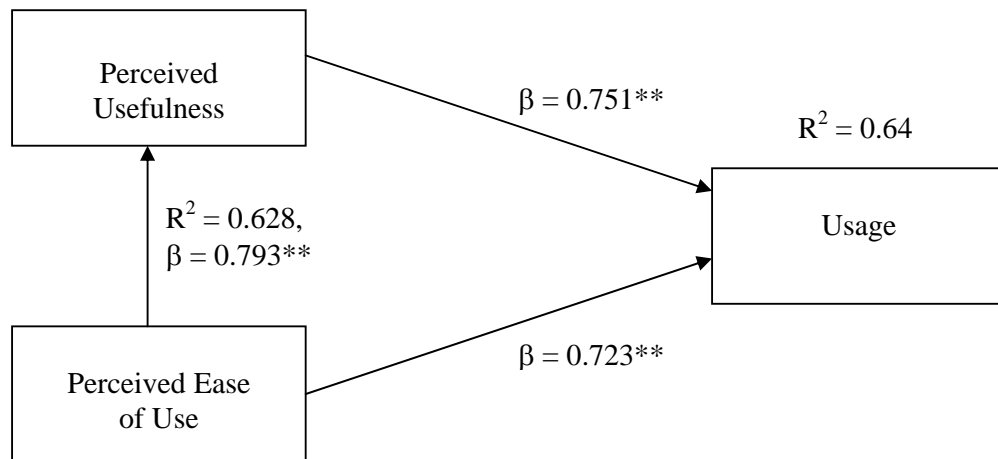


Figure 4-1
Regression Analysis result for those without Prior Experience

Perceived ease of use and perceived usefulness together can explain 93% of the variation in the course website usage among those with prior experience whereas for the group who do not have any prior experience the percentage of variation explained is much lower at 64%. This gives support for hypothesis 4 which states that prior experience will moderate the relationship between perceived ease of use, perceived usefulness and usage.

Perceived ease of use was strongly related to perceived usefulness for both the groups which further strengthens the notion that a system that is perceived to be easy will be perceived to be more useful. This gives support for hypothesis 3.

Hypotheses 1 and 2 are also supported, as both the paths for those with and without prior experience was significant with a positive relationship indicating that the use of a course website is a function of both ease of use and usefulness.

An interesting finding was that for those with prior experience perceived ease of use was the more influential predictor whereas for those without prior experience perceived usefulness was more influential. This again confirmed that the relationship between perceived ease of use, perceived usefulness and usage will be different for those with and without prior experience.

Discussion

The findings of the study further provide support for the use of the TAM (Davis, 1989) to explain or predict the use of a course website among students. This is evidenced by the high values of the R^2 thus this research further confirms the findings of similar research on courseware by researchers such as Stoel and Kyu (2003) and Selim (2003).

The main objective of the study was to gauge the acceptance of a course website by business students doing their undergraduate program though the distant learning mode. The findings indicate that generally the students use the website in their coursework as all the mean values for the usage items were above 4 and closer to 5 on a 7 point Likert-like scale. This can be easily be attributed to the nature of the course where the amount of face-to-face interaction is very limited as such the students rely a lot on the course website to do their coursework. They also perceive the course website to be useful and easy to use, evident from their mean ratings for all items above 5 on a 7 point Likert-like scale.

Perceived usefulness and perceived ease of use was found to be the determinant of actual usage which supports the previous research of Robey (1979), Teo and Lim (1999), Selim (2003), Stoel and Kyu (2003) and Ramayah and Aafaqi (2004). A system has to be both easy to use and perceived to be useful for continued usage. Perceived ease of use was found to be more influential in determining the use of those with prior experience whereas for those without prior experience the perceived usefulness was a stronger predictor. This phenomenon can be explained based on a research done of Brown et al. (2002) on mandated technology acceptance which showed that when a technology acceptance is mandated then perceived ease of use becomes more important as the issue of usefulness becomes secondary. For those without prior experience the anxiety of using something that is new warrants the usefulness factor for them to use the system whereas for those with prior experience of using a course website the ease of use becomes more important as they have been exposed to the usefulness of the course website in their previous encounters.

Implications

The findings from the study suggest that course websites should be developed to complement the traditional methods of delivery. One important findings of this study was the fact that students with prior experience of using a course website have a higher tendency to use the course website. The implications are that the curriculum design has to be improved to include course website development as compulsory. When all courses have course websites and students are exposed from day one when they enter the university then the use of the course websites can be inculcated among these students to enhance their learning environment. Individual lecturers should be encouraged to develop their own websites as a complement to their traditional materials.

The findings that ease of use and usefulness are important drivers of a course website usage points to the need to harp on the ease of use and usefulness of the course website. This can be done by demonstrating the same during the class or during the tutorial sessions. Although ease of use was found to be a strong driver of usage, perceived usefulness has to be continuously focused as the continued use of the course website is always tied to the desire of the students to excel or do well in their exams. One useful way of promoting the use of this course website is to demonstrate to the student that the course website has many materials and links to help them in their quest for a better learning experience and ultimately a better grade.

Limitations

One of the limitations of this study was that the use of the course website was a mandated one thus explaining the high variance. Also not all the students of the class participated in the study as there were some who did not submit the survey forms. This might induce some form of bias as only the students who are really interested answered whereas some who were not interested may have provided a different set of answers.

Conclusion

The current research has confirmed previous findings on the applicability of the TAM in explaining and predicting technology acceptance among individuals by extending it to the acceptance of a course website among students. This research also adds to the limited literature on the usefulness of the TAM in predicting acceptance of education related technology such as course websites. A major contribution of this research is to show the applicability of the TAM in predicting a course website acceptance especially in a multicultural environment such as Malaysia.

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