Course Website Usage: Does Prior Experience Matter?

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Abstract: - Course websites have been used to enhance the delivery of learning materials that is not bounded by time and space. Although the usage of course websites are common in the West, but in a developing country like Malaysia, it is not the norm but the exception. This research builds on previous research done in Malaysian by looking at the moderating role of prior experience in explaining usage of an Internet course website. Data was collected from second year business management students who are required to use the course website for their business research methods class. The Technology Acceptance Model (TAM) developed by Davis [1] was used as the model for investigating the usage of the course website. TAM proposes that perceived usefulness (PU) and perceived ease of use (PEU) are key determinants of usage of a particular technology or system. This research further extends the relationship to include prior experience as a moderator in this relationship. The regression analysis results indicate that the two constructs were able to explain 47.8% of the variation in the usage of the course website. Perceived usefulness ($\beta = 0.45$, $p<0.01$) was the more influential predictor of usage with perceived ease of use ($\beta = 0.34$, $p<0.01$) also significant. Perceived ease of use was also positively related to perceived usefulness of the course website. The findings of this study however did not support the moderating role on prior experience. The reasons for the contradiction are further explored.

Key-Words: - Internet course website, perceived usefulness (PU), perceived ease of use (PEU), usage, and business management students

1 Introduction

Advances in information and telecommunications technology have exposed the academics and also students to new ways of doing things. The advent on Internet has actually removed the time and space boundary that has defined the delivery of teaching in the past. E-learning which is a product of these advancements has shaken the education sector and more and more and jumping onto the band wagon of the e-world. With that in mind, there is a need to investigate how instructional technologies can be integrated and utilized to improve and enhance the learning process.

The present research looks at the complementary nature of traditional classroom delivery with the use of Internet as supporting material. Although course website usage in teaching has been long implemented in the developing countries, it is still a very new phenomenon in a developing country like Malaysia. Many older academics are reluctant to migrate from the traditional way of teaching to the e-enabled way of delivery. This research looks at the usage of course websites to complement the traditional teaching mode where lectures are delivered in physical classrooms. The objective of the paper is test the applicability of the TAM in explaining usage of a course website in a developing country like Malaysia and also to see if prior experience plays a moderating role in the relationship between beliefs and usage of a course website.

1.1 The Course Website

The research was conducted at the Universiti Sains Malaysia (USM) which is in Penang, situated at the northern part of the Peninsular Malaysia. USM is one of the 17 public institutions of higher learning offering a diverse range of courses which includes both arts and science based courses.

As part of its efforts to globalize and internationalize, USM has vigorously promoted the usage of technology in the delivery of education on its campuses. E-learning which is the product of the advances in information and telecommunications technology is here to stay and each faculty is expected to jump onto the bad wagon.

Although there is a lot of encouragement given there is still a lack of uptake in terms of course

website development and usage in USM. This research was conducted at the School of Management, Universiti Sains Malaysia where an undergraduate course in "Business Research Methods" was conducted with the aid of a course website. The class size is typically 300 or more as such a course website was deemed necessary to help students in complementing their normal classroom lectures.

The URL for the course website is http://www.management.usm.my/ramayah

2 Conceptual Foundation

This research used the Technology Acceptance Model (TAM) developed by [1] to explain intention and usage of technology (see Figure 1). The Technology Acceptance Model (TAM) pioneered by Davis [1] 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 (U) of a particular technology or system. PU is defined as the extent to which a person believes that using a particular system or technology would enhance his/her job performance. [1] PEU on the other hand, is defined as the extent to which a person believes that using the particular system or technology would be free from effort [1].

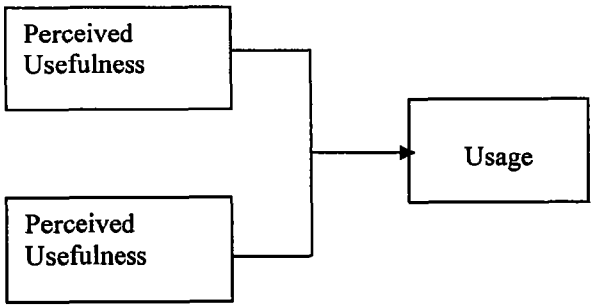

Figure 1. Technology Acceptance Model

2.1 Hypotheses Development

In general, 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 [2] and again justified through many other researchers through empirical tests (e.g. [3][4][5][6][7][8][9]). In a recent research on course website usage among distance education students in Malaysia [10][11] showed that perceived ease of use positively influences perceived usefulness. This was further supported by a research on personal computer usage of students in private institutions of higher learning [12] and e-mail usage among university students [13]. Therefore, this study expects that:

H_1: *Perceived ease of use will positively influence perceived usefulness of the course website.*

Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible [14]. All else being equal, an application perceived to be easier to use is more likely to be accepted by the users. Although most researches have found perceived ease of use to be directly related to usage, there are some findings that show no significant effect on usage such as [15]. There are also many researches that have found ease of use to be influential in system usage [16][1][17][5][6][9]. This particular link has received mixed support and in researches conducted on course website usage by [10][11] and e-mail usage [13]have found that the relationship is positive whereas it was not supported in the research on PC usage [12]. We still hypothesize that:

H_2: *Perceived ease of use will be positively related to usage of the course website.*

Within the organizational context, a system that is high in perceived usefulness is one that the user believes will have a positive use-performance relationship. Past researches like [1][3][5][6][7][9] [15][16][17][18][19][20] have shown that perceived usefulness influences computer usage directly. All the research on course website usage [10][11], PC usage [12] and e-mail usage [13] in Malaysia have supported the notion that perceived usefulness drives the usage of a particular technology. Thus we hypothesize that:

H_3: *Perceived usefulness will be positively related to usage of the course website.*

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. [21], 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 [22][23][24][19]. Taylor and Todd [25] 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 [21]. In another related research on computer usage, Thompson et al. [26] 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. [13] 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 [27] 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. In a recent research on course website usage amongst distance education learners [10] found that prior web experience moderated the relationship between perceived usefulness, perceived ease of use and course website usage. Ramayah and Joshua [12] conducted a research to look at the moderating effect of prior experience on personal computer (PC) usage and found that prior experience moderated the relationship between perceived usefulness and usage whereas it did not moderate the perceived ease of use and usage relationship. Alternatively we hypothesize that:

H_4: *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.*

The research model can be depicted graphically as shown in Figure 2.

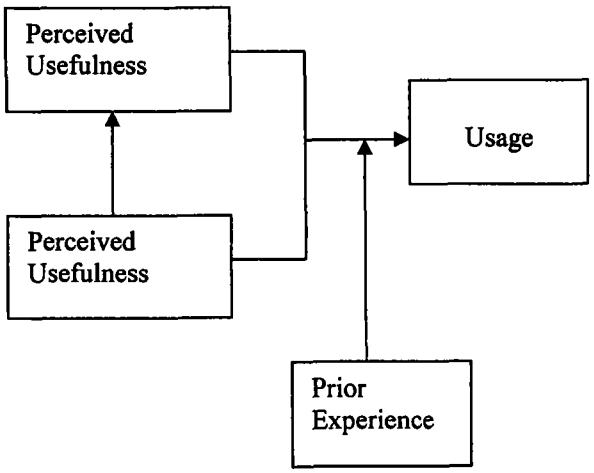

Figure 2. Research Framework

3 Methodology

The population for this study was all second year business management students enrolled for the Business Research Methods class for the academic year 2004-2005. A structured questionnaire adopted from [7] and validated by [9] was used to collect data from 330 registered students in the class. The prior experience was measured using a single item which asks the students how many years of experience they have in using a course website, the range can be 0 years to 4 years. A total of 275 students responded out of the 330 students as this was a voluntary exercise, giving an effective response rate of 83.3%. Table 1 shows sample questions used for each of the variable used in this study with the corresponding Cronbach alpha value from 2 previous studies.

Table1. Sample questions from measures used

Variable	Sample Question	Source
Perceived ease of use	It was easy for me to become skillful at using the course website.	[7], [9] $\alpha = 0.912$, $\alpha = 0.966$
Perceived Usefulness	Using the course website improves the quality of the course work I do.	[7], [9] $\alpha = 0.910$, $\alpha = 0.968$
Prior Experience	How many years of experience using course websites?	[10] [12]
Usage	I use the course website whenever possible to do my course work.	[7], [9] $\alpha = 0.909$, $\alpha = 0.908$

2.1 Goodness of Measures

The validity was ascertained using the principal component factor analysis with an orthogonal rotation and then subsequently the reliability of the measurement was assessed using the Cronbach Alpha. The results shown in Table 2 indicate a 2 factor solution with eigenvalues greater than 1.0 and the total variance explained of 66.49%. KMO measure of sampling adequacy was 0.906, indicating sufficient intercorrelations while the Bartlett's Test of Sphericity proved to be acceptable (χ^2= 2011.978, $p< 0.01$). The criterion of [15] was used to interpret the rotated factors which were: each item should load 0.50 or greater on one factor and 0.35 or lower on the other factor. The reliability on the other hand was assessed using the Cronbach alpha values and is presented in Table 3. The values ranged from 0.88 to 0.91 which shows that the measures used in this study are reliable and comparable to the earlier 2 studies done using the same instrument.

Table 2. Results of the factor analysis

	Component	
	1	2
PU1	0.296	**0.749**
PU2	0.041	**0.691**
PU3	0.375	**0.711**
PU4	0.226	**0.801**
PU5	0.180	**0.797**
PU6	0.367	**0.759**
PEU1	**0.845**	0.200
PEU2	**0.773**	0.253
PEU3	**0.853**	0.135
PEU4	**0.770**	0.272
PEU5	**0.827**	0.217
PEU6	**0.698**	0.290
Eigenvalue	4.252	3.727
% Variance	35.431	31.057

Table 3. Results of the reliability analysis

Variables	No. of Items	Items Deleted	Alpha
Perceived Ease of Use	6	-	0.91
Perceived Usefulness	6	-	0.88
Usage	4	-	0.89

The descriptive for each of the variable was also computed. For Usefulness (M = 5.39, SD = 0.75), Ease of use (M = 4.97, SD = 0.90) and Usage (M = 5.03, SD = 0.95) with all three variables close to a value of 5 on a 7 point Likert scale.

4 Results

As can be seen from Table 4, a majority (74.2%) were female students which are the norm lately in the distribution in terms of gender in the Malaysian public university student intake. A majority (81.1%) were Chinese students which are a recent phenomenon as a result of the meritocracy criteria of intake introduced in the last 3 years. Since these students are in the second year, most of them were staying outside the campus as there are limited on campus accommodation available and priority is given to fist year students.

Table 4. Profile of respondents

Gender		
Male	71	25.8
Female	204	74.2
Race		
Malay	38	13.8
Indian	8	2.9
Chinese	223	81.1
Others	6	2.2
Living		
On Campus	107	38.9
Outside	168	61.1
CGPA		
Below 2.00	1	0.4
2.00 – 2.33	20	7.3
2.34 – 2.67	59	21.5
2.68 – 3.00	97	35.3
3.01 – 3.33	81	29.5
3.34 – 3.67	11	4.0
Above 3.67	6	2.2

Table 5 presents the internet access and usage profile of the students. Most of the students have Internet access, accessing the Internet using Internet Explorer browser with more than 2 years experience of using the Internet. A large percentage of the students use the Internet a few times a week spending an average of 1-2 hours per day using the Internet at home or from cyber cafes.

Table 5. Internet Access and Usage

Internet Access Availability		
Yes	219	79.6
No	56	20.4
Web Browser		
Internet Explorer	241	87.6
Netscape Navigator	3	1.1
Both	28	10.2
Others	3	1.1
Length of Use (Internet)		
Less than 1 year	7	2.5
1 - < 2 years	32	11.6
2 - < 3years	57	20.7
3 - < 4years	71	25.8
4 - < 5years	55	20.0
> 5 years	53	19.3
Frequency of Use (Internet)		
Once a month	7	2.6
Few times a month	74	27.0
Once a week	46	17.9
Few times a week	106	38.7
Once a day	19	6.9
Few times a day	20	7.3
Usage of Course Website		
Almost never	20	7.3
< 30mins/day	39	14.2
30mins – < 1hour/day	45	16.4
1 – < 2 hours/day	100	36.4
2 – 3 hours/day	42	15.3
> than 3 hours per day	29	10.5
Access Internet from		
Room	44	16.0
Friend's room	10	3.6
School Laboratory	25	9.1
Cyber café	74	26.9
House	122	44.4

Table 6 presents the intercorrelations of the main variables used in this study

Table 6. Intercorrelations of the main variables

	PEU	PU	Exp	Usage
Perceived Ease of Use (PEU)	1.00			
Perceived Usefulness (PU)	0.55**	1.00		
Prior Experience	0.01	0.17**	1.00	
Usage	0.63**	0.57**	0.01	1.00

We used a three step hierarchical multiple regression to test all the 4 hypotheses generated. The first step is where both the independent variable is entered to see the direct effect. In the second step the prior experience variable is added to see if it can act also as an independent variable. In the third step the interaction terms which is the product of the 2 independent variable multiplied by the prior experience variable is added to see the incremental change in the amount of variance explained. If the F change in the third step is significant then we can conclude that there is a moderating effect or else moderating effect is not present. Further to that if the interaction terms are significant then graphs will be plotted to see the interaction effect.

The result of the hierarchical regression is presented in Table 7.

Table 7. Results of the hierarchical regression analysis

	Standardized Beta		
	Step 1	Step 2	Step 3
Independent variables			
Perceived usefulness	0.45**	0.44**	0.32
Perceived ease of use	0.34**	0.35**	0.07
Prior Experience		0.01	0.69*
PU * Exp			0.54
PEU * Exp			0.26
F value	128.07**	83.00**	51.25**
R^2	0.48	0.48	0.49
Adjusted R^2	0.47	0.48	0.48
R^2 change	0.48	0.00	0.01
Sig. F change	0.00	0.18	0.10

* $p<0.05$, ** $p < 0.01$

The results indicate that the two constructs (PU and PEU) were able to explain 48% of the variation in usage of the course website. Perceived usefulness ($\beta = 0.45$, $p<0.01$) was the more influential predictor of usage with PEU ($\beta = 0.34$, $p<0.01$) also significant. Thus H_2 and H_3 of this study are supported. The correlation between perceived ease of use and perceived usefulness was also significant ($r = 0.55$, $p< 0.01$) as presented in Table 6, thus H_1 is also supported.

The step 3 in Table 7 shows that the increase in R^2 is not significant thus suggesting that prior experience does not moderate the relationship between beliefs and usage of a course website thus H_4 of this study is not supported.

4 Conclusion

The findings suggest that the Technology Acceptance Model [1] is a valid model that can be used to predict course website usage amongst university students in a developing country like Malaysia. This was concluded from the regression analysis which registered a high R^2 value of 48 percent. Perceived ease of use was found to have a positive impact on the perceived usefulness of the course website. In general, the findings support the notion that a system or technology that is perceived to be easy to use or learn would be projected as more useful from the perspective of the user [2][3][4][5][6][7][8[9][10][11][12][13].

Perceived ease of use was also found to have a positive influence on the usage of the course website. As noted earlier in the literature, all else being equal, an application perceived to be easier to use is more likely to be accepted by the users. [16][1][17][5][6][9][10][11][13]

Perceived usefulness was the more influential driver in our study in predicting the usage of the course website. As discussed earlier, a system that is high in perceived usefulness is one that the user believes that will reduce his/her task ambiguities and eventually increase work-related performance. This concurs with the findings of many past researches [1][3][5][6][7][[8][9][10][11][12][13][15][16][17] and [20] which have shown that perceived usefulness influences usage directly.

This research found that prior experience did not moderate the relationship between beliefs and usage of the course website. This finding contradicts the earlier findings of [10] and [12] which found prior experience to be a moderator in the above relationship. A plausible reason could be that the 2 researches done earlier by [10] and [12] were on distance education students and also students from private institutions of higher learning whereas this research was conducted on full time students of a public institution of higher learning. Generally students who get into the public institutions of higher learning are perceived to be of better quality than those from opting for distance education or private institutions of higher learning. Another plausible reason could be that these students were given hands on training at the school laboratory by the instructor prior to the commencement of the course. The hands on training may have reduced their anxiety and exposed them to the benefits of the course website. This component was absent from the earlier 2 researches done.

The findings imply that prior experience does not matter in course website usage. Those with and without prior experience can adapt to the use of a course website if there is necessary training and support provided.

The findings that perceived ease of use and perceived usefulness are positively related to usage drive the point that students have to be educated on the importance and usefulness of the course website in their study programme. The developers of course websites have to take into consideration the ease of navigating through the course website when developing the interface for the course website. Course website will continue to be useful to the students in the near future as we move towards the

era of e-learning and a knowledge based society. The lecturers should also be motivated to develop and maintain course websites to complement the traditional delivery method.

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