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Teaching Business Research Methods with an Internet Course Website: Testing the Applicability of the Technology Acceptance Model (TAM) in Explaining Usage

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Abstract: - The present research looks at the complementary nature of traditional classroom delivery with the use of Internet as supporting material. Data was collected from second year business management students who are required to use the course website for their business research methods class. We used the Technology Acceptance Model (TAM) developed by [1] 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.The regression analysis results indicate that the two constructs were able to explain 49% of the variation in the usage of the course website. Perceived usefulness ($\beta = 0.423$, $p<0.01$) was the more influential predictor of usage with perceived ease of use ($\beta = 0.371$, $p<0.01$) also significant. Perceived ease of use was also positively related to perceived usefulness of the course website. Thus we can conclude that TAM is a valid model that can be used to explain usage of a course website.

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

1 Introduction

Internet has changed the way we do things forever. With the advent of the Internet, it has become the channel of delivery for many businesses and the education sector is not spared either. Gone are the days when students have to physically visit the library for research materials. The advent of the Internet has also changed the way education is delivered and will be delivered. E-learning is the latest way or mode of delivering education to the masses. 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.

2 Conceptual Foundation

This research used the Technology Acceptance Model (TAM) developed by [1] to explain intention and usage of technology. 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 (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].

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]). 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 [10]. 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 [11]. There are also many researches that have found ease of use to be influential in system usage [12][1][13][5][6][9]. Thus we 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][12][14][11][15[16][13][5][6][7][9] have shown that perceived usefulness influences computer usage directly. Thus we hypothesize that:

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

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. 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] $\alpha = 0.910$, $\alpha = 0.968$
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 is 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 is 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

Variable	**Freq.**	**%**
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

Variable	Freq.	%
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	Usage
Perceived Ease of Use (PEU)	1.000		
Perceived Usefulness (PU)	0.553**	1.000	
Usage	0.605**	0.628**	1.000

We used the multiple regression analysis to see the impact of usefulness and ease of use on usage of the course website. The result is presented in Table 7.

Table 7. Results of regression analysis

	Usage
Independent variables	
Perceived usefulness	0.423**
Perceived ease of use	0.371**
F value	128.07**
R^2	0.490
Adjusted R^2	0.486

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

The results indicate that the two constructs (PU and PEU) were able to explain 49% of the variation in usage of the course website. Perceived usefulness ($\beta = 0.423$, $p<0.01$) was the more influential predictor of usage with PEU ($\beta = 0.371$, $p<0.01$) 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 ($r = 0.553$, $p< 0.01$) as presented in Table 6, thus H_1 is also 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 49 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].

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. [12][1][13][5][6][9]

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][12][14][15][16][11][13][5][6][7][[8][9] which have shown that perceived usefulness influences usage directly.

The findings imply 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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