THE ROLE OF VOLUNTARINESS IN DISTANCE EDUCATION STUDENTS' USAGE OF A COURSE WEBSITE

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ABSTRACT
This study looks at the usage of a course website among distance learning business management students in a public institution of higher learning in Malaysia. The Technology Acceptance Model (TAM) was used as the basis of the research framework but voluntariness was added as a possible moderating factor. TAM postulates 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. A total of 67 students responded to the survey out of the 155 students registered as this was a voluntary exercise. The findings show that these two variables were able to explain 64.1% of the variance in usage of the course website. Perceived voluntariness was also found to moderate this relationship. Some implications are discussed as a conclusion.

Keywords: Perceived usefulness (PU); Perceived ease of use (PEU); Voluntariness; Course website usage; Moderating effect

INTRODUCTION

Distance learning has become an integral part of the education process over the past few decades and is growing in popularity as technology advances. This has motivated working adults to further their study more and more through distance learning programs, which are being offered by higher learning institutions. Due to work and time constraints, many working students are enrolling in distance learning courses. Distance learning is making a positive impact in education. Many people who are participating in distance education are unable to attend regular classes because of full schedules and proximity to a learning institution (McHenry & Bozik, 1997). The working adults usually opt for off-campus environment whereby; in one year they have to attend three sessions of videoconferencing and four classes face to face, which are very intensive in nature. Distance Education (DE) is a system of education characterized by physical separation between the teacher and the learner in which instruction is deliver through a variety of media including print and other ICTs to learner who may either have missed the opportunity earlier in life or have been denied the face-to-face formal education due to socio-economic, career, family and other circumstances (Ajadi et al., 2008).

A research by Dabaj (2009), however, found that "although the students registered to the online program by will, they preferred the traditional face-to-face education due to the difficulty of the nonverbal communication, their incompetence of using the technology required, and their belief in traditional face-to-face learning more than online education". As such, apart from these interactions, off-campus students have to heavily rely on the given course website in order to get updates related to course work, assignment details, course notes, reference materials, and course related articles etc (Beck & Ferdig, 2008; Teo, 2009; Sahin et al., 2010). Due to this low interaction, it is thus vital that these off-campus students accept and use the course website as much as possible in order to keep themselves updated and to enhance their awareness of the given course. Can (2010) found that students believe the use of technology "brings some kind of change and variety to the teaching, saves teaching from being monotonous, and contribute to establishing lively, colorful and smooth setting for teaching and learning". Even though there are many advantages of using course websites, the problem of its adoption and usage still exists among students particularly in an emerging economy such as Malaysia. A study by Aypay (2010) of Turkish students in PISA found that ICT usage was not significantly related to academic performance. Although ICT is an important tool, ICT alone does not lead to better performance. Thus the problem of information technology adoption has been researched widely and various attempts have been made to understand and explain the factors that affect the acceptance and usage of any given information technology innovation.

The objectives of the paper are:

1. to study the relationship between perceived ease of use and usage of a course website (CW),
2. to study the relationship between perceived usefulness and usage of a CW, and
3. to study the moderating impact of voluntariness in the above mentioned relationship.

CONCEPTUAL MODEL AND HYPOTHESES DEVELOPMENT

The Technology Acceptance Model (TAM) was developed by Davis (1989) and Davis et al. (1989) to measure, predict, and explain user acceptance of information technology (IT). It is an adaptation of the Theory of Reasoned Action (TRA) model by Ajzen and Fishbein (1980)– which asserts that beliefs could influence

attitudes, which lead to intention to use and finally actual usage behavior. TAM introduced two important constructs, perceived usefulness and perceived ease of use. Perceived usefulness is defined as the degree to which a person believes that using a particular system would enhance his/her job performance; while perceived ease of use is defined as the degree to which a person believes that using a particular system would be free of effort (Davis, 1989). TAM theorizes that perceived usefulness and perceived ease of use determine user's behavioral intention and actual usage. The causal relationships among these constructs have been validated empirically in many studies. Between the two, perceived ease of use has a direct effect on both perceived usefulness and technology usage (Adams, Nelson & Todd, 1992; Davis, 1989). Over the last two decades the TAM has been one of the most influential research models in studying the determinants of IT usage (Chau & Hu, 2001). Figure1 below depicts TAM.

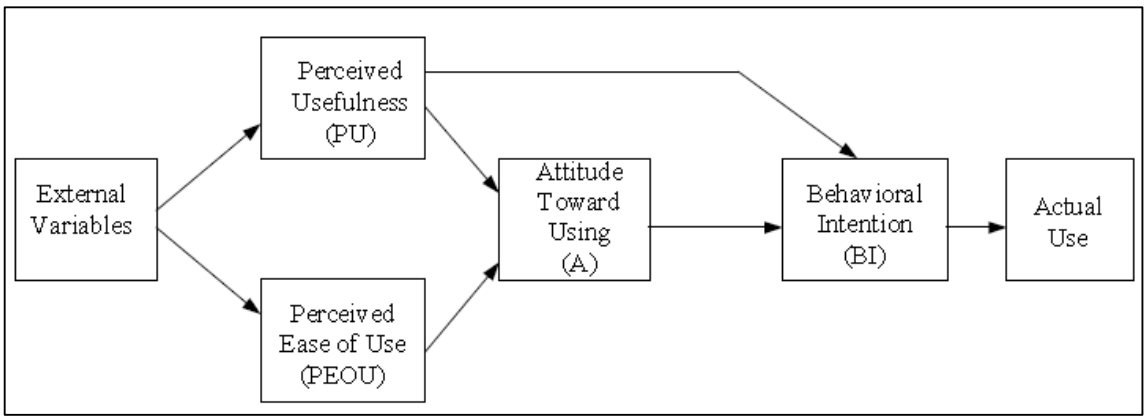

Figure 1: Technology Acceptance Model (TAM) (Davis et al. 1989).

Voluntariness of Use is defined as "the degree to which use of the innovation is perceived as being voluntary, or of free will" (Moore & Benbasat,1991, p. 195). Voluntariness is the extent to which potential adopters perceive the adoption decision to be non-mandated (Agarwal & Prasad, 1997). Although voluntariness is not part of the original set of innovation characteristics proposed by Rogers (1983), it was included by Moore and Benbasat (1991) as a determinant of usage behavior. Venkatesh et al. (2003) have proposed to look at voluntariness as a moderator in the beliefs-intention behavior and as such we would like to test this notion in our current research. Based on this call, this paper proposes the research framework as shown in Figure 2.

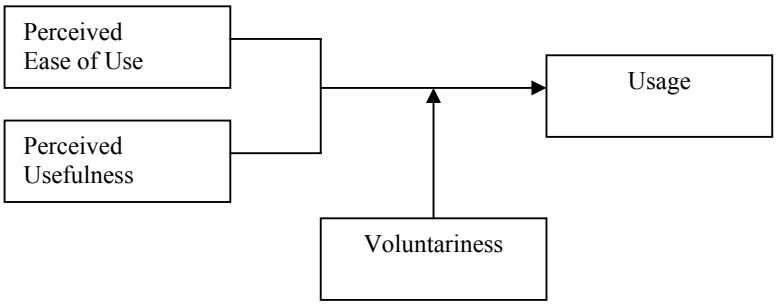

Figure 2: Research Model

In a research looking at a model called Course Website Acceptance Model (CWAM) Selim (2003) proposed to test whether the more useful the students perceive the course website, the more acceptable the course websites are perceived to be. He found course website usefulness to be positively related to usage. This finding was always found to be true in other researches on web acceptance model research conducted by Castaneda et al. (2007) and Ramayah (2005, 2006). Many other researchers have also found perceived usefulness to be the driving factor in acceptance and usage of various technology (Davis, 1989; Mathieson, 1991; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Chau & Hu, 2001; Featherman, 2001; Leong, 2001; Ling, 2002; Gefen et al., 2002; Ramayah et al, 2002; Ramayah et al, 2003; Ramayah & Jantan, 2003; Chan & Lu 2004; Ramayah & Ignatius, 2005; Ramayah et al., 2005; Ramayah & Suki, 2005; May, 2005; Guriting & Ndubisi, 2006; Ramayah & May-Chiun, 2007; Mohd Suki et al., 2008; Lean et al., 2009). Thus the first hypothesis was formulated as:

H1: Perceived usefulness will be positively related to usage of the course website

Selim (2003) also postulated that the easier the course website, the more is its acceptance and usage. This notion was also supported in his research which confirms that ease of use also plays a vital role which is supported by the course website acceptance research conducted by Ramayah (2005, 2006) in Malaysia. The less effort that is required to operate a system, the more it can lead to increase in job performance by regular use of the system (Davis, 1989; Venkatesh & Davis, 2000). Also with less complexity in operating a system, positive attitude could be developed subsequently towards intention and behavior. Several researchers have proposed that a system that is easy to use will be more widely accepted than ~~a~~ the one that is not as easy to use (Jantan et al., 2001; Ndubisi et al., 2001; Ramayah et al., 2002; Ramayah et al., 2003, Selim, 2003; Ramayah, 2005; Ramayah et al., 2005 ; Ramayah & Lee, 2005; Ramayah & Ignatius, 2005; Ramayah, 2006; Ramayah & Lo, 2007). The second hypothesis is as stated below:

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

Voluntariness is the context in which the user will accept technology voluntarily. This means there is no obligation on the user to accept the technology. Venkatesh et al. (2003) included moderating variables like voluntariness and experience in their study and found the explanatory power of their TAM model increased from 35% without moderators to 53% with moderators. As such, voluntariness of use as a moderating factor between perceived ease of use, perceived usefulness and usage was included in the current study. Thus the third hypothesis forwarded is as follows:

H3: The positive relationship between perceived ease of use, perceived usefulness, and course websites usage will be stronger for those with higher voluntariness of use

METHODOLOGY

Data Collection

This study collected data at a given institution of higher learning, using purposive sampling with a questionnaire which was self-administered. The questionnaire was divided into 5-parts which include demographic information, perceived usefulness, perceived ease of use, voluntarinesss and usage. Questionnaires were distributed during the intensive face-to-face on campus lecture and students were given 15 minutes to fill out the questionnaire.

Population and Sample

The population for this research consisted of 155 off-campus students, who needed to use the website for the course titled “Business Research Methods”. The choice was because the other courses did not use course websites. Students for this class were encouraged to visit the website in order to get the lecture notes, assignment details, related journal resources etc. The students were told that it was a voluntary participation and not compulsory, thus only 67 students returned the completed questionnaire. The demographic profile of the respondents is presented in Table 1.

Measurment Items

The items used to measure perceived usefulness and perceived ease of use as well as usage were adopted from Selim (2003) whereas the instrument used to measure voluntariness was adopted from Venkatesh et al. (2003). Respondents were asked to indicate their agreement or disagreement with several statements on a seven-point Likert scale with 1=strongly disagree to 7=strongly agree.

Table 1: Demographic profile of respondents

Variables		Frequency	%
Gender	Male	27	40.3
	Female	40	59.7
Ethnicity	Malay	36	53.7
	Chinese	31	46.3
Marital Status	Married	41	61.2
	Single	24	35.8
	Widowed/separated	2	3.0
Age		Mean = 35.80 Std. Dev. = 5.40	

Goodness of Measures

Factor analysis is a data reduction technique and also used to determine whether items are tapping into the same construct. During factor analysis, factors with eigenvalues of less than one would be rejected and factors with eigenvalues of more than one would be retained for further analysis (Hair et al., 2010). Furthermore during factor analysis, if an eigenvalue is close to 1, then the factor could be considered for inclusion (Hair et al., 2010). To reduce the problem of cross loading, if the difference of loadings of any item across factors was less than 0.10 then the items will be deleted (Snell & Dean, 1992). The results showed a three factor solution with eigenvalues greater than 1.0 and the total variance explained was 85.097% of the total variance. KMO measure of sampling adequacy was 0.849 indicating sufficient intercorrelations while the Bartlett's Test of Sphericity was significant (Chi square= 1338.708, $p < 0.01$). . These results confirm that each of these constructs is unidimensional and factorially distinct and that all items used to measure a particular construct loaded on a single factor. The detailed results are presented in Table 2.

Table 2: Results of the factor analysis

	Component		
	1	2	3
Pu1	.342	**.863**	-.043
Pu2	.463	**.740**	.050
Pu3	.619	**.712**	.003
Pu4	.365	**.873**	-.016
Pu5	.407	**.868**	.037
Pu6	.300	**.758**	-.090
Peu1	**.855**	.412	.088
Peu2	**.777**	.563	.024
Peu3	**.920**	.307	.075
Peu4	**.875**	.387	.113
Peu5	**.877**	.364	.033
Peu6	**.811**	.450	.017
Vol1	.215	-.039	**.803**
Vol2	-.060	-.137	**.919**
Vol3	.009	.117	**.848**
Eigenvalue	5.527	4.989	2.249
Percentage Variance	36.846	33.258	14.993

Cronbach's alpha reliability analysis was applied to identify how well the items grouped are positively correlated to one another. Cronbach's alpha value of 0.70 and above is considered to be reliable (Nunnally & Bernstein, 1994). An alpha value of 0.70 and above indicates items are homogenous and measuring the same construct. Hair et al. (2010) suggested that alpha value of 0.60 would be deemed the lower value of acceptability. The result of the factor and reliability analysis is presented in Table 3.

Table 3: Reliability analysis results

		Pearson correlation						Item-to-total correlation	Cronbach Alpha if Item deleted
	Alpha	1	2	3	4	5	6		
Perceived Usefulness	0.95								
CW improves the quality of the course work I do		-						.884	.940
CW enables me to accomplish course tasks more quickly		0.76	-					.826	.947
CW makes it easier to study the course material		0.82	0.83	-				.882	941
CW Increases my productivity		0.85	0.83	0.81	-			.910	.938
CW enhances my effectiveness in the course work		0.83	0.85	0.86	0.91	-		.933	.936
CW is useful in the course work		0.74	0.54	0.67	0.71	0.73	-	.727	.961
Perceived Ease of Use	0.98								
Using the CW is easy for me		-						.933	.974
It was easy for me to become skillful at using the CW		0.92	-					.920	.976
I find the course website easy to use		0.89	0.87	-				.942	.973
I find the course website to be flexible to interact with		0.92	0.89	0.93	-			.947	.973
My interaction with the CW is clear and understandable.		0.85	0.86	0.93	0.90	-		.927	.975
I find it easy to get the information I want from the CW		0.87	0.86	0.86	0.87	0.88	-	.905	.977
Voluntariness	0.82								
Although it might be helpful, using the CW is certainly not compulsory		-						.612	.819
My use of the CW is voluntary (as opposed to required by lecturers) in my work/studies		0.64	-					.777	.651
My lecturers expect me to use the CW *(reverse coded)*		0.48	0.69	-				.652	.783
Usage	0.88								
I use the CW a lot to do my course work.		-						.707	.854
I use the CW whenever possible to do my course work.		0.82	-					.848	.804
I use the CW frequently to do my course work.		0.67	0.82	-				.834	.803
I use the CW whenever appropriate to do my course work.		0.42	0.54	0.65	-			.586	.905

FINDINGS

Table 4 presents the mean and standard deviation of all study variables.

Table 4: Descriptive analysis

Variables	Mean	Standard Deviation
Perceived usefulness	4.888	1.389
Perceived ease of use	4.920	1.540
Voluntariness	3.955	1.558
Usage	4.504	1.415

To test the three hypotheses generated for this study, a hierarchical regression analysis was employed. The results are presented in Table 5.

Table 5: Results from the hierarchical regression analysis

Variables	Standardized Beta Step 1	Standardized Beta Step 2	Standardized Beta Step 3
Predictors			
Perceived ease of use	0.488**	0.427**	0.252
Perceived usefulness	0.356**	0.405**	1.258**
Moderator			
Voluntariness		0.205**	0.597
Interaction Terms			
PEU*Voluntariness			1.248*
PU*Voluntariness			-1.615**
R^2	0.641	0.681	0.709
Adjusted R^2	0.630	0.666	0.686
R^2 change	0.641	0.041	0.028
F change	0.000	0.006	0.050

**p< 0.01, *p< 0.05

From Table 5, we can observe that perceived ease of use has a significant impact on usage of course website (β = 0.488, p<0.01) with perceived usefulness also having a significant impact on usage (β = 0.356, p<0.01), thus supporting H1 and H2 of the study. Hypothesis 3 was tested by looking at the beta values in the third step, first the R^2 change has to be significant and then we look at the individual beta to see if they are significant. As can be seen the R^2 in the third step is significant (F change = 0.05), hence we can conclude that the interaction terms are significant. Thus H3 was also supported. To see the impact of voluntariness as a moderator, 2 graphs were drawn as shown in Figure 3 and 4. To draw the graphs, the facets were first recoded into two categories ie: Low and High by dividing the respondents into two categories (below median = low, above median = high)

As can be seen from Figure 3, for those with higher voluntariness, the rate of change in usage level does not differ much when the level of usefulness increases, but for those who perceive voluntariness as low, their usage level increases when ease of use increases from low to high.

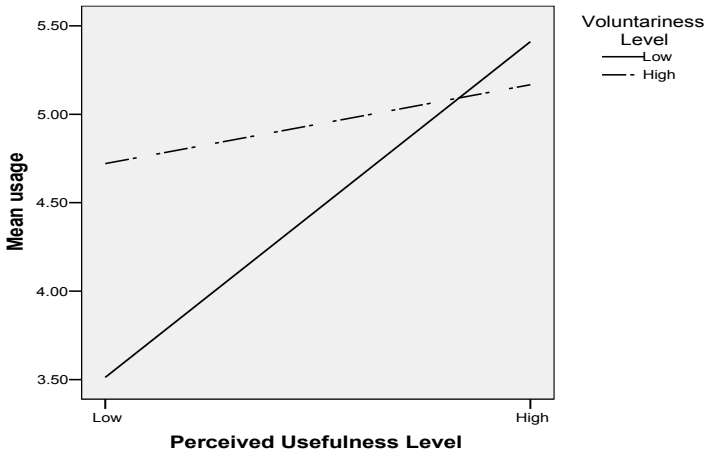

Figure 3: The moderating effect of voluntariness on the PU and usage relationship

As can be seen from Figure 4, for those with higher voluntariness, the rate of change in usage level is greater compared to the ones who perceive voluntariness as low, when the ease of use increase from low to high.

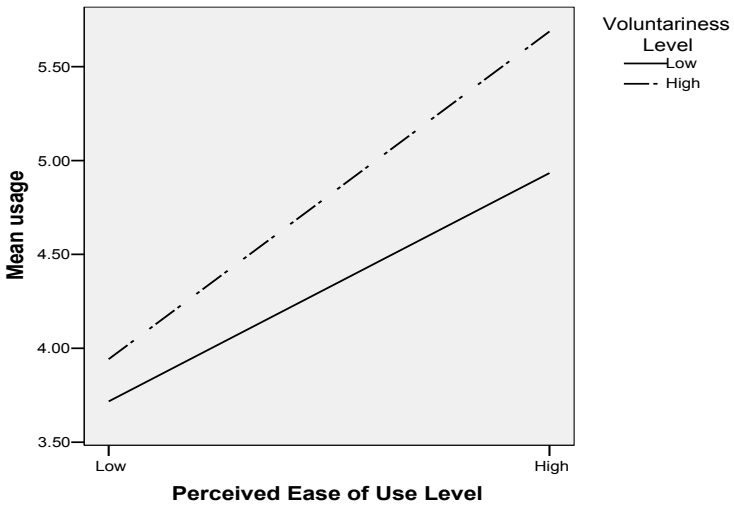

Figure 4: The moderating effect of voluntariness on the PEU and usage relationship

DISCUSSION

It was found that perceived ease of use and perceived usefulness have significant impact on the usage of the course website. These findings concur with the findings of previous researchers (Davis, 1989; Mathieson, 1991; Taylor & Todd, 1995; Venkatesh & Davis, 2000; Chau & Hu, 2001; Featherman, 2001; Leong, 2001; Ling, 2002; Gefen et al., 2002; Jantan et al., 2001; Ndubisi et al., 2001; Ramayah et al., 2002; Ramayah et al., 2003; Selim, 2003; Chan & Lu, 2004; Ramayah, 2005; Ramayah et al., 2005 ; Ramayah & Lee, 2005; Ramayah & Ignatius, 2005; Ramayah, 2006; Guriting & Ndubisi, 2006; Ramayah & Lo, 2007; Mohd Suki et al., 2008). A course website needs to be easy to use before users will even think about using it. Hence, it can be said that PEU is an important determinant of usage of course website.

It was also observed that a given technology should be perceived to be better to have than to be without (Jantan et al., 2001; Ndubisi et al., 2001; Ramayah et al., 2002; Ramayah et al., 2003, Selim, 2003; Ramayah, 2005; Ramayah et al., 2005 ; Ramayah & Lee, 2005; Ramayah & Ignatius, 2005; Ramayah, 2006; Ramayah & Lo, 2007). Hence, perceived usefulness is also an important factor in determining website usage.

As off-campus students are mandated to use the course website due to low interaction, it can be seen from the results that perceived ease of use is more important in determining usage level of the course website as compared to perceived usefulness. Students are more concerned whether it would be easier for them to use the website, rather than whether the given website will be useful for them. This finding supports the research of Brown et al. (2002) which was done in a mandated environment.

The findings of this study can be used by lecturers and university administrators to encourage the acceptance and usage of course website. They can focus on the usefulness and ease of use aspect of the course website when encouraging students to use a given website. They should give students information or training (Akpinar & Bayramoglu, 2008) on how to fully utilize and use the course website which will make them perceive that the given website will be useful for them in achieving better results and which will be easy for them to use, that is to say they do not have to spend a lot of time learning how to use it.

Other than practical contributions, this study also contributes to theory by confirming that the TAM is applicable in the adoption of course website and the two beliefs, which are perceived ease of use and perceived usefulness are strong predictors of course website usage. This study also provided empirical support that the relationship between the two beliefs and the usage is moderated by the level of perceived voluntariness (Venkatesh et al., 2003) thus supporting the notion of model extension to explain a greater variance in the technology acceptance model.

LIMITATIONS

There are also several limitations in this research, the first one being the presence of common method variance as the usage was based on self-report. The sample size is also not very large given the fact that this was the only class that used a course website. Thirdly, the results may not be generalizable as it was based on only one course. Future research may look at expanding the sample size and including a greater breadth of users and also if viable, the usage logs can be used to measure the usage level. Another possible avenue of research would be to look at the role of prior experience or knowledge on this relationship (Somyurek et al., 2008)

CONCLUSION

The findings of this study show clearly that the drivers of a course website use are the ease of use and the usefulness and this positive relationship is stronger with higher perceived voluntariness. Thus to promote higher usage of course websites to complement the face to face course delivery, the website must be designed to take care of these issues.

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APPENDIX

Mean and Standard Deviations of all items used in the survey

Construct		Mean	Standard Deviation
Perceived Usefulness	PU1	5.00	1.311
	PU2	4.88	1.364
	PU3	5.35	1.268
	PU4	4.86	1.171
	PU5	5.03	1.118
	PU6	5.27	1.234
Perceived Ease of Use	PEU1	5.05	1.419
	PEU2	5.03	1.287
	PEU3	5.05	1.462
	PEU4	5.11	1.336
	PEU5	4.97	1.403
	PEU6	5.23	1.389
Perceived Voluntariness	VOL1	3.49	1.678
	VOL2	4.26	1.716
	VOL3	4.48	1.697
Usage	USE1	4.89	1.416
	USE2	4.89	1.276
	USE3	4.32	1.542
	USE4	4.60	1.443