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PROFESSIONAL STUDENTS' TECHNOLOGY READINESS, PRIOR COMPUTING EXPERIENCE AND ACCEPTANCE OF AN E-LEARNING SYSTEM

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This study examines professional students' state of technology readiness, prior computing experience and acceptance of an e-learning system. We administered 2,189 questionnaires on students pursuing the professional examinations in Malaysia. A total of 453 usable questionnaires were received. Based on the Technology Readiness Index (TRI) of Parasuraman and Rockbridge Associates Inc (1999), the survey found that professional accounting students were neither highly techno-ready nor highly techno-resistant. The respondents were classified into five categories, explorers (9%), pioneers (35%), skeptics (39%), paranoids (14%) and technology laggards (3%). Overall, the findings showed that the respondents had strong usage intentions of e-learning system; they exhibited positive attitudes towards e-learning, and perceived that e-learning system was easy to use and was useful in enhancing their academic performance. This study provides the insight that professional bodies ought to intensify information and communication technologies (ICT) integration into the accounting education curriculum and assessment policies, and to motivate professional students in using ICT and e-learning.

Keywords: *Professional education, Professional student, e-learning, technology readiness*

Introduction and Motivation of Study

Electronic learning (e-learning) has become popular tools for teaching and learning in business and educational institutions. The potential benefits of e-learning are many, at the outset; e-learning system integrates instructional material (via audio, video and text), email, live chat sessions, online discussions, forums, quizzes, assignments and the World Wide Web. E-learning enables

learners to learn at their own time and place; and it empowers learners to do self-learning, and connect learners to people and resources supportive of their educational needs online (Pituch and Lee, 2006).

Globally, educational institutions have invested substantial resources in e-learning system. In the United States, Cook and Bacsich (2007) stated that "successful cases for e-learning over the last ten years or so are Carnegie Mellon University and the Pew foundation" (p. 16). However, in the Malaysian educational setting, e-learning is in its infancy; institutions of higher learning are at the threshold of implementation. The professional accounting bodies, for example, the Association of Chartered Certified Accountant (ACCA) and Malaysian Institute of Certified Public Accountants (MICPA) are encouraging its members to use e-learning system for continuous professional development. Notably, in the professional accounting education context, a substantial majority of Malaysian working adults are pursuing the ACCA and MICPA examinations on a part-time basis, thus, e-filing may provide the needed solution, so that they can access to online courses at their own time and place. However, the ACCA and MICPA have taken little effort to request their tuition providers to promote the usage of e-learning on campus. It is encouraging to note that one of the ACCA's tuition providers, namely UiTM is currently promoting e-learning for students and academics.

Pituch and Lee (2006) asserted that having an e-learning system on campus will not automatically lead to its use. They argued that the benefits of an e-learning system will not be maximized unless learners use the system. Studies of Marriott et al. (2004), Concannon et al (2005) and Zemsky (2007) indicated that the success of the e-learning project will hinge not only on the users' technology acceptance of an e-learning system, but also their attitude towards computer, state of technology readiness, prior ICT experience, peer influence, level of computer and internet self-efficacy among others.

Except empirical studies of Marriott et al. (2004) and Cancannon et al. (2005), there had been little published empirical studies on undergraduate accounting students and e-learning. Notably, there is no published study pertaining to Malaysian professional students and e-learning system. At the time of study, little is known if professional students in Malaysia are ready to embrace an e-learning system. What is the state of technology readiness? What are their attitudes, usage intentions and perceptions of e-learning system? How are their computing knowledge and internet experience? Is there any relationship between the state of technology readiness and demographic variables? Is there a relationship between technology readiness and acceptance of an e-learning system? Hence, this study aimed to address some of the concerns. Essentially, this paper dealt with a much under-researched issue in Malaysia. The research objectives are presented next.

Research Objectives

This study had the following objectives (i) To assess the state of technology readiness of professional students in Malaysia, (ii) To assess their prior computing knowledge and

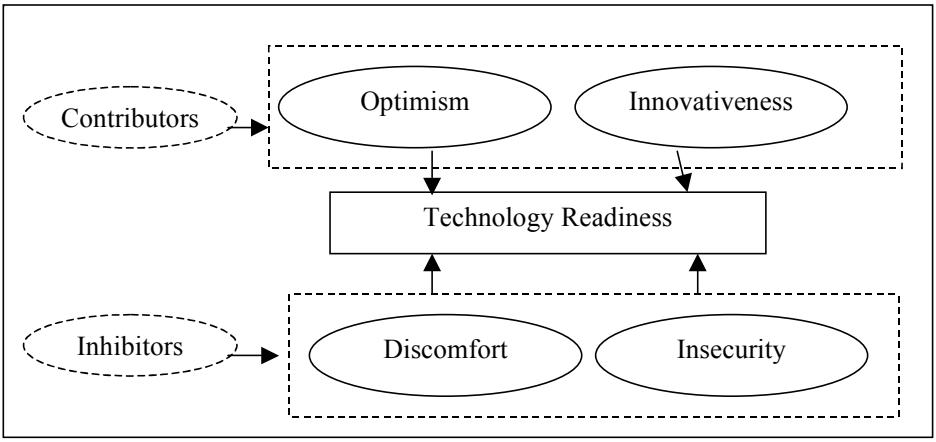
Internet experience, (iii) To ascertain their usage intentions, attitudes, perceived usefulness and perceived ease of use of the e-learning system, (iv) To assess if there is any difference in technology readiness dimensions across gender and age groups, and (v) To explore if there is a relationship between usage intentions, attitudes, perceived usefulness and perceived ease of use of an e-learning system across the technology readiness segments.

Literature Review

Prior studies have found that a combination of positive and negative beliefs about technology underlies the domain of technology readiness (Dabholkar, 1994; Mick & Fournier, 1998; Parasuraman, 2000; Parasuraman and Colby, 2001). In particular, Dabholkar (1994) found that individuals simultaneously harbor positive (favorable) and negative (unfavorable) beliefs about technology. The positive beliefs propel individuals towards new technologies, while negative beliefs may hold them back. Both Dabholkar (1994) and Mick & Fournier (1998) asserted that information technology/information system (IT/IS)' consumers with more positive beliefs are more receptive and ready to use the various new technologies.

Parasuraman and Colby (2001, p. 48) defined technology readiness as "people's propensity to embrace and use new technologies at home and at the workplace". They categorized the positive and negative belief about technology into four distinct technology readiness dimensions, namely, (1) optimism, (2) innovativeness, (3) discomfort and (4) insecurity. The optimism facet is defined as a positive view of technology and beliefs in the benefits of technology in increasing job efficiency and enhancing people's lives at work and at home. The innovativeness dimension refers to the extent to which a person believes that he or she is a thought leader, and at the forefront of trying out new technology-based products/services. Discomfort refers to a perceived lack of control over technology and a feeling of lack of confidence in using the new technologies properly. Insecurity is defined as distrust of technology-based transactions and skepticism about their ability to work properly. The first two technology readiness dimensions, 'optimism' and 'innovativeness' are the 'contributors' that may increase an individual's technology readiness while the other two dimensions; 'discomfort' and 'insecurity' are "inhibitors' that may suppress technology readiness as shown in Figure 1.

Parasuraman and Rockbridge Associates, Inc developed the Technology Readiness Index (TRI) to measure technology readiness. According to TRI, the combination of scores on the four technology readiness dimensions represents a person's overall technology readiness. TRI is a multiple-item scale with sound psychometric properties that can be used to gain an in-depth understanding of the readiness of technology customer (both internal and external) to embrace and interact with technology, especially computer/internet-based technology (Parasuraman and Colby, 2001). Several empirical studies provide the insight that the TRI scale is capable of capturing the relationship between technology readiness and technology usage behaviors (for example, Colby and Albert, 2003; Farby, 2004; NTRS, 1999; 2000; 2001; Parasuraman and Colby, 2001). The empirical studies found that technology readiness (i) correlates with actual use and intention to use the



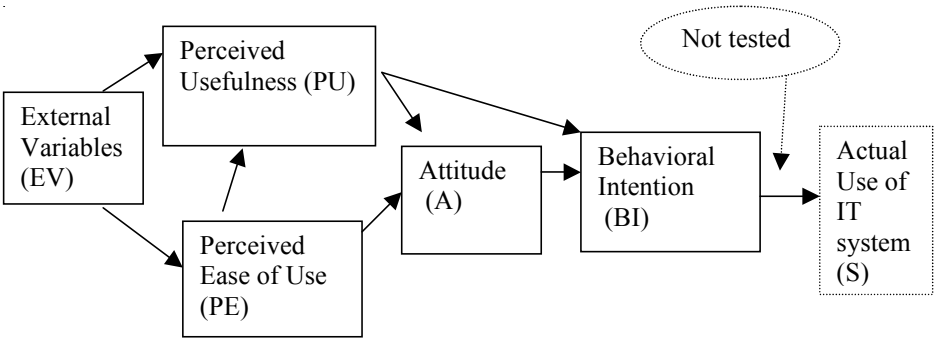
Source: Parasuraman (2000, p. 34)

Figure 1: Drivers of Technology Readiness

technology-based products and services in varying degrees (NTRS, 1999; 2000; 2001; Parasuraman & Wuhrer, 2002); (ii) correlates with attitudes toward IT/IS and perceptions of service quality of the IT/IS (Parasuraman, 2000; Parasuraman & Colby, 2001). It is worthy to note that Parasuraman and Colby (2001) stressed that technology readiness is an overall state of mind and not a measure of technical competency or ability.

Based on the TRI, the technology customers can be categorized into five technology readiness segments, namely, (i) Explorers, (ii) Pioneers, (iii) Skeptics, (iv) Paranoids, and (v) Laggards (Parasuraman and Colby, 2001). They noted that "explorers" are highly optimistic and innovative; they score high in technology readiness and are highly motivated and fearless to try new technologies. "Pioneers" are relatively early adopters of new technology but are simultaneously held back by inherent discomfort and insecurity; they are innovative yet cautious. "Skeptics" are fairly techno-ready; they are lowly motivated and need to be convinced of the benefits of using the emerging technology. "Paranoids" are the insecure; they are later adopters of new technology. Though they are convinced of the benefits of the technology, at the same time, they are concerned about the risks and barriers of technology adoption. "Laggards" are the resistant ones, who are likely the last adopters of new technology; and they may never use new technology unless they are forced to do so. Notably, the explorers and pioneers are high in technology readiness and tend to embrace new technology earlier than the others (Rogers, 1995; Parasuraman & Colby, 2001).

On the other hand, in the Theory of Reasoned Action (TRA), Fishbein and Ajzen (1975) stated that an individual's beliefs influence attitude, which in turn affect intention, and subsequently guide actual behavior. Adapting from the TRA, Davis (1989) developed the technology acceptance model (TAM). He hypothesized that user acceptance of an IT/IS can be measured from his/her usage intention of a particular IT/IS (see Figure 2). Specifically, Davis, Bagozzi and Warshaw (1989, p. 977) assert, "People's computer use



Source: Davis (1989)

Figure 2: Technology Acceptance Model

can be predicted reasonably well from their intention." Attitudes towards using an IT/IS are jointly determined by perceived usefulness and perceived ease of use of the IT/IS. Davis (1989, p. 320) defines perceived usefulness, as "the degree to which a person believes that using a particular system would enhance his or her job performance". Meanwhile, 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, p. 320). Theoretically, in TAM, it is assumed that users generally intend to act before they act and behavioral intention is predicted by both attitudes towards using and perceived usefulness of the IT/IS (Davis, 1989).

Legris, Ingham and Collerette (2003) conducted a meta-analysis on 22 studies that used the TAM as a theoretical model to examine end users' technology acceptance. They concluded that the TAM is a useful model, but it has to be integrated to a broader one, to include variables related to both human and social change processes.

Marriott et al. (2004) solicited the views of accounting undergraduates in two universities in the United Kingdom (UK). They found a significant increase in students' voluntary use of the Internet and e-mail, but the UK students are reluctant to consider being taught via the Internet. A primary concern was with the threat of decreased social contact and the potential isolation of learning alone. Concannon et al. (2005) carried out a study to examine undergraduate accounting students' views and perception of e-learning in Ireland. They found that learner attitudes to computers and awareness of online resources seemed to be a stronger predictor of a student's likelihood to use e-learning system. In addition, peer support and encouragement, perceived lecturer or tutor support were crucial in predicting the student's motivation to use e-learning.

Adapting the TAM, Pituch and Lee (2006) studied the influence of system characteristic on e-learning use among college students in Taiwan. They focused on college students majoring in management information system, pharmacy, healthcare administration,

industrial hygiene and nursing. The findings of Pituch and Lee (2006) suggest that learner familiarity with an e-learning system may be an important determinant of user adoption of that system. Most recently, Zemsky (2007) reviews the successes and failures of e-learning. He concluded that e-learning is supplementing tools to classroom-based learning, and e-learning benefits people who are motivated and looking for online courses that teach various aspects of career and professional development.

The above literature review provides the insight to adapt the TRI of Parasuraman and Rockbridge Associates, Inc (1999) to study the state of technology readiness of the target subjects, and to adapt technology acceptance variables of Davis (1989) to study professional students' usage intentions, attitudes, perceived usefulness and perceived ease of use of an e-learning system.

Data and Research Method

A questionnaire was developed to collect data. Section A of the questionnaire gathered demographic information about the respondents. In Section B, 36 questions were designed to capture the respondents' technology beliefs on four different technology readiness (TR) dimensions, namely, optimism, innovativeness, discomfort and insecurity. These questions were adapted and modified from the technology readiness index of Parasuraman and Rockbridge Associates, Inc with written permission. In Section C, 12 questions were purposefully designed to gauge the respondents' prior ICT experience. In Section D, 13 questions were adapted from Davis (1989) to measure technology acceptance of an e-learning system.

The target subjects were professional students who are pursuing professional accounting and secretarial courses in Malaysia. Hence, the sample was limited to the professional students currently pursuing the second or final stage of the ACCA,MICPA, Chartered Institute of Management Accountants (CIMA), and Malaysian Institute of Chartered Secretaries and Administrators (MAISCA/ISCA) examinations. In considering that stratified lists are readily available at ACCA, MICPA, CIMA and MAISCAICSA offices in Malaysia. The stratified sampling method was employed. We wrote to ACCA, MICPA, CIMA and MAICSA/ICSA office to seek their permission and assistance in mailing the questionnaire to the professional students nationwide. Except the ACCA, all other three professional bodies were willing to assist us in posting the questionnaire to their students in Malaysia.

We pre-tested the questionnaire on 8 professional students who were pursuing ACCA and CIMA courses. The full-scale mail survey was carried out over a period of four months, from mid June to mid October 2005. We mailed 1,000 questionnaires (with a return stamped, self-addressed envelope enclosed) to CIMA students via CIMA Malaysia. We mailed 500 questionnaires to MICPA and ICSA students via MICPA and ICSA office respectively. The ACCA (UK office) was apprehensive to provide us the mailing lists of ACCA students in Malaysia. However, the ACCA office had no objection if we administered the questionnaire on campus. At the time of study, in view that UiTM has one of biggest

ACCA enrollments in Malaysia; we sought lecturers from UiTM, who were teaching the ACCA course to help in distributing 210 questionnaires in class.

In total, twenty-one (21) mailed questionnaires were returned as undeliverable because the target respondents had shifted. As such, out of the 2,189 questionnaires distributed, we received 482 questionnaires, of these, 29 were partially completed. Hence, 453 questionnaires were usable for data analysis; the response rate was about 20.7% (453/ 2,189).

Data Analysis

The respondents' profiles are presented in Tables 1. The results show that 68% of the respondents are females and 32% are males. Merely 2% of the respondents are aged below 21 years old and the majority aged 21-25 (53.2%). More than one-third (35.8%) of the respondents are pursuing the ACCA examination, and the rest are pursuing CIMA (27.4%), MICPA (24.3%) and ICSA (12.6%) examinations. A substantial majority of the respondents are from UiTM (48.6%), 10.8% from Systematic College, 4.2% from College Tunku Abdul Rahman, and the remainders are either from other institutions or not attached to any tuition providers (presumably they were doing self-studies on their own). About 45% of the survey respondents are pursuing full time study, whilst 54.3% were doing part time study. These findings reflect the reality in Malaysia that a substantial majority of the professional students who are pursuing stage two or final stages of professional studies are doing it on a part time basis.

Table 1: The Respondents' Profiles

Demographic characteristics		**Frequency**	**Percentage (%)**
Gender	Male	145	32.0
	Female	308	68.0
Age	< 21 years old	9	2.0
	21- 25 years old	241	53.2
	26-30 years old	97	21.4
	Above 30	106	23.4
Professional Course attended	ACCA	162	35.8
	CIMA	124	27.4
	MICPA	110	24.3
	MAICSA/ICSA	57	12.6
University/college attended	University Technology MARA	220	48.6
	Systematic college	49	10.8
	College Tunku Abdul Rahman	19	4.2
	FTMS	19	4.2
	Others tuition providers	79	17.4
	Self-studies	67	14.8
Mode of Study	Full time	205	45.3
	Part time	248	54.7
Total		**453**	**100%**

Technology Readiness

Before analyzing the data in detail, the Cronbach's alpha was computed to determine the reliability of 36 measurement items used in measuring the four technology readiness dimensions. Table 2 shows that the Cronbach's alpha for the four TR dimensions ranged from 0.63 to 0.78, which demonstrate a moderate level of reliability, these results are satisfactory, according to Nunnally (1978).

Table 2: A Test of Reliability - The Cronbach's Alpha

Technology Readiness Dimensions	Total measurement items	Cronbach's Alpha
Optimism	10	0.78
Innovativeness	7	0.68
Discomfort	10	0.70
Insecurity	9	0.63

Table 3 shows that the survey respondents were highly positive or optimistic towards new technologies with a mean score of 3.92 on the 5-point scale (significant at $p < 0.001$). However, they had a moderate level of innovativeness (mean score of 3.12 on the 5-point scale, significant at $p < 0.001$), and experienced some degree of discomfort with new technologies (means score of 3.81, significant at $p < 0.001$). By and large, the respondents were moderately wary about the security of Internet technology with a mean value of 3.40 on the 5-point scale (significant at $p < 0.001$). The overall technology readiness score (overall TRI) computed is 2.96 on a 5-point scale (significant at 1% level), thus indicates that on average, the professional students are neither highly techno-ready nor highly techno-resistant towards new technologies.

Table 3: Summary Statistics for the Technology Readiness Index (TRI) and Its Dimensions

					Correlation Coefficients			
TR Dimensions	Mean	Std Dev	Skewness	Kurtosis	OPT	INN	DIS	INS
Optimism (OPT)	3.92***	0.44	-.012	0.33	1.00			
Innovativeness (INN)	3.12***	0.53	.014	0.65	0.09	1.00		
Discomfort (DIS)	3.40***	0.39	-.27	0.11	0.36**	-0.08	1.00	
Insecurity (INS)	3.81***	0.46	-.24	0.52	0.10*	0.59**	-0.09	1.00
Overall TRI[a]	2.96**	0.30	.046	1.85	0.44**	-0.65**	0.64**	-0.68**

Note: All mean values are on a 5-point scale, anchored on 1 (Strongly disagree), 2 (Slightly disagree), 3 (Neutral), 4 (Slightly agree) and 5 (Strongly agree).
* Significant at $p < 0.05$; ** Significant at $p < 0.01$; *** significant at $p < 0.001$
a. The overall TRI score for each respondent was obtained by averaging the scores on the four dimensions (i.e., (OPT + INN + (6-DIS) + (6-INS))/4).

A Test of Technology Readiness Dimensions across Gender and Age Groups

Next, we explore if there is any significant different between the technology readiness dimension across gender and age groups. The *t*-test results show that male respondents were more innovative as compared to female respondents at 5% significant level. This result is consistent with NTRS (2000), which reported that there is a significant difference between male and female in innovativeness dimension. In addition, the findings show that there are no significant differences in optimism and insecurity dimensions across gender. These results lend supports to study of NTRS (2000) and Lai et al. (2004) that males and females are quite positive about technology; and both males and females are wary of the security of Internet technologies. As for the discomfort dimension, the result indicates that there are no significant differences between males and females. Notably, this finding is consistent with Lai et al. (2004) when they compared the technology readiness dimensions of Malaysian tax practitioners across gender, but inconsistent with NTRS (2000), which found females experience greater degree of discomfort with new technology than males.

Table 4: Mean Scores and t-test for Equality of Mean Scores across Gender and Age

Technology Readiness Dimension	Mean (Standard Deviation)			Mean (Standard Deviation)		
	Male (N = 145)	Female (N = 308)	*p*-value	Aged 25 and below (N = 250)	Aged above 25 (N = 203)	*p*-value
Optimism	3.95 (0.50)	3.91 (0.40)	0.365	3.86 (0.36)	3.99 (0.50)	0.001**
Innovativeness	3.27 (0.56)	3.05 (0.50)	0.000***	3.14 (0.48)	3.09 (0.57)	0.374
Discomfort	3.40 (0.52)	3.39 (0.44)	0.929	3.39 (0.41)	3.39 (0.53)	0.005**
Insecurity	3.78 (0.58)	3.82 (0.52)	0.538	3.74 (0.48)	3.88 (0.61)	0.987

Note: All items were measured based on a scale of 1 (Strongly disagree), 2 (Slightly disagree), 3 (Neutral), 4 (Slightly agree) and 5 (Strongly agree).
* Significant at $p < 0.05$; ** Significant at $p < 0.01$; *** Significant at $p < 0.001$

In addition, Table 5 reports that there are significant differences between the two age groups (those aged 25 and below and aged above 25) on both optimism and insecurity dimensions. Meanwhile, there are no significant differences for innovativeness and discomfort dimensions across age groups. These findings are consistent with Lai et al. (2004), but in contrast with the NTRS (2000), which found that younger people tended to be more innovative about new technology, and they experienced less discomfort with new technology as compared to older people. The plausible explanation for the findings are the respondents are living and studying in urban areas (note that majority of the professional tuition providers are located in major cities in Malaysia), hence, it is reasonable to assume that professional students are constantly exposed to new ICT at home and at school regardless of their gender and age levels.

Technology Readiness Segment

The combination of scores on the above four technology Readiness dimensions represents a person's overall technology readiness (Parasuraman, 2000; Parasuraman & Colby, 2001). Based on the Technology Readiness Index (TRI) of Parasuraman and Rockbridge Associates, Inc, (1999), the respondents are analyzed into 5 different segments (i.e., explorers, pioneers, skeptics, paranoids and laggards). Figure 3 presents the findings.

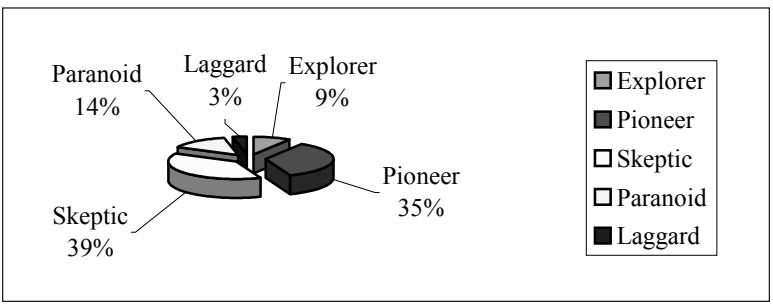


Figure 3: Technology Readiness Segment

Figure 3 shows that about 9% of the respondents were explorers. This group was high in technology readiness and was highly motivated and fearless. The survey found that approximately 35% were pioneers, who desired the benefits of the new technology but were more practical about the difficulties and dangers involved. Nearly 39% were skeptics, who needed to be convinced of the benefits of using the emerging technology. About 14% were paranoids, who were convinced of the benefits of the technology but were concerned about the risks. Merely 3% were technology laggards who would never use new technology unless they were forced to do so.

Prior ICT Experience

In order to assess professional students' computing knowledge and internet experience, several questions were designed to gauge their level of usage of ICT at school and at home. Table 5 reports that although the respondents had mastered Microsoft word and Microsoft Excel, they nevertheless were not skilful in using Microsoft power point, Database management system and Accounting packages. The possible explanations could be due to lack of practical experience as the survey found that respondents were not trained to use any accounting software packages in the professional course. Notably, the respondents also lacked the skills in using statistical packages such as SPSS (mean score of 2.04 on a 5-point scale, significant at 1% level). In addition, the results as presented in Panel B of Table 5 indicate that the respondents had some experience in internet such as email, online banking and ticketing; nonetheless, they lacked online stock trading experience.

Table 5: Usage of ICT: Prior Computing Knowledge and Internet Experience

Panel A: Usage of ICT: Computing Knowledge	**Mean ***	**Standard deviation**	**Skewness**	**Kurtosis**
I have mastered Ms word	4.26	0.722	-0.903	1.365
I have mastered Ms Excel	4.18	0.751	-0.782	0.888
I have mastered Ms Power point	3.67	1.070	-0.723	0.071
I have mastered Database management system such as MS Access	2.54	0.987	0.183	-0.433
I have mastered Accounting packages such as ACCPac, Accountstar, Mr. Accounting and UBS	3.35	1.172	-0.515	-0.477
I have mastered Statistical packages such as SPSS	2.04	1.018	0.658	-0.243
Panel B: Computing Experience				
I have the experience in using E-mail for correspondence	4.64	0.613	-1.753	2.905
I have the experience in using online banking facilities	3.57	1.375	-0.586	-0.884
I have the experience booking bus, air, rail and concert tickets online	3.52	1.340	0.826	-0.875
I have the experience buying and selling stock online	2.02	1.094	-0.391	-0.037

* Note: All mean values are on a 5-point scale, anchored on 1 (Strongly disagree), 2 (Slightly disagree), 3 (Neutral), 4 (Slightly agree) and 5 (Strongly agree), and all mean values are significant at $p < 0.001$.

Attitudes, Perceptions and Usage Intentions of the E-learning System

Multiple items questions were used to measure the professional students' attitudes, perceived ease of use, perceived usefulness and usage intentions of a web-based learning system/e-learning system. The reliability test and mean score results are presented in Table 6. The results show that the Cronbach's alpha for the four technology acceptance variables ranged from 0.65 to 0.89, thus indicating very satisfactory internal consistency (Nunnally, 1978). Notably, these findings are compatible with prior findings, such as Davis (1989) and Pitch and Lee (2006). Overall, the survey found that the professional students had moderately strong intention to use the e-learning system, with a mean value of 3.82 on a 5-point scale ($p < 0.001$). In addition, the respondents exhibit positive attitude towards using of the e-learning system (mean score of 3.77, significant at $p < 0.001$), they also perceived that the e-learning system would be useful in enhancing their academic performance (mean score of 3.59, significant at $p < 0.001$) and easy to use (mean score of 3.55, significant at $p < 0.001$).

In turn, a non-parametric test, i.e., Kruskal-Wallis test was used to explore if there is a difference in usage intention, attitude and perceptions of the e-learning system across the 5 technology readiness segments. The non-parametric test was used in view that one of segment had a small sample size (i.e., N less than 30). Table 7 shows that the mean rank scores of explorer and pioneer are higher than the rest of the groups. The results indicate that those who were classified as explorer and pioneer were more inclined to use the

Table 6: Scale Statistics of Technology Acceptance Variables

Variable	Mean*	Standard Deviation	Reliability (Cronbach alpha)
Behavioural Intention (2 items)	3.82	0.760	0.65
Attitude (3 items)	3.77	0.703	0.82
Perceived Usefulness (4 items)	3.59	0.775	0.89
Perceived Ease of Use	3.55	0.701	0.84

*All variables were measured based on scale of 1 (strongly disagree) to 5 (strongly agree), and are significant at $p < 0.001$.

e-filing system, had more positive attitude, and more strongly perceived that e-learning system is usefulness and ease of use than those who were classified as skeptics, paranoids and laggards, significant at 5% level or better. These findings somewhat support the findings of Rogers (1995) and Parasuraman and Colby (2001) that explorer and pioneer are thought leaders and they are more likely to use new technology earlier than the rest of the groups.

Table 7: A Tests between Technology Readiness Segment and Usage Intention, Attitudes Towards and Perceptions of the E-learning System

	Technology Readiness Segment	N	Mean Rank	Kruskal-Wallis Test Statistics
Intention to use e-learning System	Explorer	40	283.38	$X^2 = 11.28$
	Pioneer	160	231.73	df = 4
	Sceptic	174	218.81	p = 0.024*
	Paranoid	64	211.30	
	Laggard	15	188.17	
Had positive attitude towards e-learning system	Explorer	40	339.69	X^2=51.65,
	Pioneer	160	243.39	df = 4
	Sceptic	174	206.38	p = 0.000***
	Paranoid	64	195.82	
	Laggard	15	123.90	
Perceived e-learning system is useful	Explorer	40	321.51	$X^2 = 10.83$
	Pioneer	160	243.61	df = 4
	Sceptic	174	205.03	p = 0.028*
	Paranoid	64	199.92	
	Laggard	15	168.17	
Perceived e-learning system is easy to use	Explorer	40	267.92	$X^2 = 34.77$
	Pioneer	160	240.33	df = 4
	Sceptic	174	213.03	p = 0.000***
	Paranoid	64	219.42	
	Laggard	15	170.03	

* $p < 0.05$, *** $p < 0.001$

Limitations of the Study

This study has several limitations. Firstly, this is a cross-sectional survey. Data was collected at a particular point of time; as such the respondents' state of mind might change overtime. Secondly, all the ACCA students surveyed are mainly from UiTM. Hence, they may not be representative of the ACCA students in Malaysia. Care should be exercised in generalizing the results. Future study could be conducted on a larger sample or a longitudinal study should be conducted to provide a more complete picture.

Conclusion

The survey found technology readiness varies from one student to another. About 9% of the professional students surveyed were explorers, whilst 3% appeared to be laggards. On average, students had moderately strong intention to use the e-learning system. Notably, the use of internet and email is widespread among the Malaysian professional students. However, the usage of accounting software and statistical packages is relatively low. This appears to support the findings of Marriott et al. (2004) that in the professional education arena, the students seem to use internet and email on an increasing basis. However, their use of mainstream accounting packages and computer-assisted learning software remains dependent on the educational establishment and accompanying teaching philosophy.

Pituch and Lee (2006) asserted that having computer labs and e-learning systems on campus will not automatically lead to its use. Therefore, it should not be assumed that having the internet access and e-learning system on campus is an educational success. Accounting educators and tuition providers can not assume that their students will acquire the requisite ICT skills and knowledge elsewhere. While, the findings as presented in Table 4 shows that the gender differences in the 'discomfort', 'optimism', and 'insecurity" dimensions are not as great as may be expected, and there are no gender differences reported in prior computing and internet experience. This study supports Marriott et al. (2004) that there are no other statistically significant differences in the use of individual computer applications among students choosing to study accounting courses. Nonetheless, it is imperative to provide hands-on e-learning to educate the Malaysian professional accounting students, especially the female students on how to locate and use online resources to ease their discomfort and fear. Provision of hands-on e-learning course is in line with the findings of Pituch and Lee (2006) that learner familiarity with e-learning system may be an important determinant of system adoption. In this respect, professional bodies such as ACCA, MICPA, CIMA and MAISCA/ICSA need to specifically request their tuition providers to educate students in using internet and e-learning system on campus. In addition, they ought to develop more positive ICT integration strategies into the professional education curriculum and assessment policies.

Last but not least, developers, designers and institutional providers need to carefully consider the needs and value of learners, and to ensure that that e-learning system is effectively meets the needs and demands of learners. In this respect, in order to motivate the take up of e-learning system among professional students, the tuition providers of professional accounting courses need to ensure that e-learning system is very user-friendly, easy to use and useful in enhancing students' academic performance. In particular, the 'skeptics' and 'paranoids' need to be convinced of the benefits of using e-learning system.

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