

# MALAYSIAN ACCOUNTING REVIEW

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UNIVERSITI TEKNOLOGI MARA



MALAYSIAN INSTITUTE  
OF ACCOUNTANTS

# **MALAYSIAN ACCOUNTING REVIEW**

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# **MALAYSIAN ACCOUNTING REVIEW**

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## **PREFACE FROM VICE CHANCELLOR UiTM**

It is such a great honour for me to be given the opportunity to preface the inaugural issue of the Malaysian Accounting Review (MAR), the first international refereed accounting journal in this country. I wish to congratulate the Faculty of Accountancy, UiTM and the Malaysian Institute of Accountants (MIA) for their proactive effort in making this journal a reality. In the words of Zig Ziglar, "... if you have a vision for it, you can accomplish it". This marks a new beginning and a significant milestone for the accounting profession: practitioners and academicians at large.

This pioneering smart partnership between MIA and UiTM is timely and highly commendable. Today, we live in an era where information must be properly managed and strategically used as our competitive tool. To best manage and use the information, we must integrate descriptive and prescriptive applications. Whilst professional journals focus on descriptive and "what is" measures, academic refereed journals provide support to the accounting profession by prescribing the "what should" phenomena through research findings and empirical evidence. Both measures must be embedded and should be in tandem with each other; it is the only way for the accounting profession to stay on the cutting edge. It is without doubt that MAR will act as a catalyst to bridge the gap between theory and practice.

The publication of the MAR is part of UiTM and MIA's mission to make Malaysia a renowned and reputable centre of accounting excellence in this region. Whilst the journal provides an excellent avenue for researchers (both local and foreign) to publish their research findings, it should also serve as a platform for intellectual discourse, for others.

In closing, I wish to congratulate the Faculty of Accountancy, UiTM, for its vision in initiating a smart partnership with MIA. To MIA, I am sure that this partnership is an added value to your role as a regulatory body to the accounting profession in Malaysia.

Datuk Professor Dr Ibrahim Abu Shah  
Vice Chancellor  
Universiti Teknologi MARA (UiTM)  
MALAYSIA

## **UiTM AT A GLANCE**

Universiti Teknologi MARA (UiTM) started as a college known as Kolej RIDA in 1956. Incidentally, accounting programs such as LCCI, Australian Society of Accountants (ASA) and Institute of Cost and Work Accountants (ICWA) were among the pioneer programs offered by the then, School of Accountancy. Kolej RIDA continued to expand and in 1967 it was further upgraded and its name was changed to Institute Teknologi MARA (ITM).

As an Institute, ITM continued to add other accounting programs: Diploma in Accountancy (DIA), Malaysian Association of Certified Public Accountants (MACPA), Association of Certified and Chartered Accountants (ACCA), Chartered Institute of Management Accountants (CIMA) and the Advanced Diploma in Accountancy (ADIA) to its portfolio. What started, as a humble beginning in a small campus in Petaling Jaya was later expanded to other areas throughout the country. In 1996, the ITM Act was amended to allow the institute to offer various programs, viz., first degrees, Masters degrees and PhD programs. To commensurate with the university type of programs that the Institute was offering, ITM was officially conferred the university status in 1999. With effect from 26 August 1999, the Institute was known as Universiti Teknologi MARA or UiTM with 18 faculties and 13 branch campuses to its credit.

Today, being one of the most dynamic faculties in UiTM, the Faculty of Accountancy is also offering other accounting programs such as the Certified Accounting Technicians (CAT-UK), CPAAustralia, Institute of Chartered Secretaries and Administration (ICSA-UK), Master of Accountancy and Doctor of Philosophy (PhD Accounting). Within the next year, several new programs such as Accounting Information System (AIS), Taxation, Management Accounting, Internal Auditing, Corporate Governance and Forensic Accounting and the newly known Malaysian Institute of Certified Public Accountants (MICPA) will be offered.

The Faculty's two-tier mission allows it to focus on two important aspects; nurturing of professional accounting graduates as well as becoming a renowned Centre of Excellence in Accounting Research & Consultancy. In tandem with our two-tier mission, the Faculty of Accountancy strives to produce quality graduates and quality research & consultancy.



## **PRESIDENTIAL MESSAGE**

On behalf of the Malaysian Institute of Accountants (MIA), I would like to congratulate Universiti Teknologi Mara (UiTM) for its timely effort in initiating the publication of the 'Malaysian Accounting Review'. The Malaysian Institute of Accountants is indeed pleased to be associated with this publication, which is the first international refereed academic accounting journal in this country. The Malaysian Accounting Review is a vital platform for which various key areas useful to the development of the accountancy profession can be examined, analysed and digested. Indeed, this inaugural publication will serve as a catalyst and act as an important tool for students, researchers, accountants, academicians as well as other relevant parties to enhance their knowledge in these areas.

As the regulatory body for the accountancy profession in this country, MIA recognizes the need to provide continuous support and to be involved in research and development activities relating to the accountancy profession. We believe that this smart partnership between the accounting academicians and the profession will strengthen MIA's position to become a globally recognized and respected business partner committed to nation building. With the continued support and cooperation from all stakeholders and through this publication of the Malaysian Accounting Review, we are confident that the profession will further progress in its commitment towards making the country a center of accounting excellence.

Abdul Samad Haji Alias (Dr)  
President  
Malaysian Institute of Accountants (MIA)

# **THE MALAYSIAN INSTITUTE OF ACCOUNTANTS**

The Malaysian Institute of Accountants (MIA) is a statutory body set up under the Accountants Act, 1967 to regulate and develop the accountancy profession in Malaysia. The functions of MIA are, inter alia:

- To regulate the practise of the accountancy profession in Malaysia
- To promote in any manner it thinks fit, the interests of the accountancy profession in Malaysia;
- To provide for the training and education by the Institute or any other body, of persons practising or intending to practise the profession;
- To determine the qualifications of persons for admission as members; and
- To approve, regulate and supervise the conduct of the Qualifying Examination

## **Vision of MIA**

To be a globally recognised and respected business partner committed to nation-building.

## **Mission of MIA**

To develop, support and monitor quality and expertise, consistent with global best-practises in the accountancy profession in the interests of stakeholders.

MIA regulates its members who are Chartered Accountants in public practice, commerce and industry, the public sector and academia. A qualified person who wishes to hold himself or herself out as a Chartered Accountant or an accountant in Malaysia has to be registered with MIA.

MIA is responsible for promoting and regulating the accountancy profession in Malaysia. The Institute is actively involved in the development and issuance of approved auditing standards and also participates in the development of applicable approved accounting standards by the Malaysian Accounting Standards Board. Additionally, MIA also actively participates in legislative initiatives and developments, spearheaded by the Securities Commission, the Kuala Lumpur Stock Exchange and Bank Negara Malaysia. These initiatives relate to the regulation of the capital and financial markets, corporate governance, and the Companies Commission of Malaysia, in the regulation of companies pursuant to the Companies Act 1965.



## **MALAYSIAN ACCOUNTANCY RESEARCH AND EDUCATION FOUNDATION**

The Malaysian Accountancy Research and Education Foundation (MAREF), a trust for the promotion, encouragement and advancement of accountancy research and education in Malaysia, was set up in 1990 and received its certificate of registration as a corporate body under the Trustees (Incorporation) Act 1952 on 26 July 1993. MAREF is a trust body sponsored by the Malaysian Institute of Accountants (MIA)

The objectives of MAREF inter alia are:

1. To encourage and promote the advancement and development of accountancy in Malaysia.
2. To pay all or part of the fees payable including other expenses incurred and/or incidental to the education, training and/or maintenance in respect of deserving persons who are being educated or wish to be educated or wish to be trained in the accountancy profession in recognised institutions of learning.
3. To carry out such other legally charitable purposes for the advancement of education and training in the accountancy profession.
4. To carry out research in and to promote development of the profession of accountancy in general and in particular the development of accounting and auditing standards.
5. To publish and disseminate literature in advancement of the accountancy profession.

## **PERCEIVED USEFULNESS AND EASE OF USE OF WEBSITES: EVIDENCE OF THE IMPACT OF WEBSITE DESIGN FEATURES**

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*and*

**Nicky Brownfield**

*Curtin University of Technology*

### **ABSTRACT**

*This study reports on an empirical investigation of accounting students' satisfaction with design features of websites they use for study purposes. An internet website evaluation service is sourced to establish a set of website design features. User satisfaction is measured by the surrogates of perceived usefulness (PU) and perceived ease of use (PEOU). To date, empirical studies of PU and PEOU have not been extended to the use of websites. Drawing on the instruments developed by Davis (1989) and replicated by Adams et al (1992) and Subramanian (1994), this study administers a questionnaire to 92 second and third year undergraduate accounting students. The results give support to the hypothesis that each of the particular website features of contents, links, graphics, attractiveness, search engines, selling message and uniqueness is related to accounting students' PU of websites. By comparison, students' PEOU of websites was found to be largely unaffected by the importance they place on particular website features. The findings have practical implications for website developers who are contemplating design features to incorporate in their websites to best attract accounting students who are gathering information for assignments, projects and other study purposes.*



## INTRODUCTION

There exists a large body of empirical research relating to user satisfaction with information systems (commencing with Pearson, 1977). While many general and specific contexts of use of information systems have been assessed against the criterion of user satisfaction throughout the 1980s and 1990s, one important context yet to be considered is websites - arguably the fastest growing and most competitive of any context of current information systems use.

Previous studies have adopted the implied definition of user satisfaction as "the extent to which users' believe the information system(s) available to them meets their information requirements" (Ives, et al, 1983). The importance of this concept is that it provides a perceptual way of measuring information systems effectiveness (DeLone and McLean, 1992). This gets around problems of attempting to establish systems effectiveness through more objective measures such as the generation of higher productivity or better quality of work from a system.

The concept of user satisfaction derives from early writings on information systems by Cyert (1963). He suggests that if the needs of users are met by an information system, satisfaction with that system will be reinforced. If needs are not met, users will become dissatisfied and look elsewhere (Cyert, 1963). In many circumstances, however, the user's ability to switch from one system to another will be limited and costly. In particular, users within an organization may not be in a position to readily switch out of a system in which their organization has already invested heavily in systems development and training. Yet there have been many past studies of user satisfaction where users are likely to have faced such circumstances, including studies of general organisational information systems (eg, Bailey and Pearson, 1983; Ives et al, 1983; Baroudi et al, 1986), computer-based decision support systems (eg, Barti and Huff, 1985; Cats-Baril and Huber, 1987) and customised special-purpose systems (eg, Rushinek and Rushinek, 1985; DeSantis, 1986). Websites, however, represent a flexible and no-cost (or low cost) switching situation for internet users. If, as envisioned by Cyert (1963), the needs of users are met by a website, user satisfaction with that website will be reinforced. If such needs are not met, users are less likely to make repeat visits to the website and instead, would browse for other websites.

A key aspect of any website which is likely to impact on users' satisfaction is its design features. Previous studies have found a significant relationship between software package design features such as menus, icons and colour, and surrogate measures of user satisfaction (eg, Benbasat et al, 1986; Dickson et al, 1986). Only one study to date, Rice (1997), has considered the effects of website design features such as content, graphics and links on users. Rice (1997) investigated the role which design features of a website play in determining whether or not a user made repeat visits to a website and whether or not a visit was an "emotionally satisfying experience".

In relation to attempts to measure user satisfaction, two widely adopted surrogate measures are perceived usefulness (PU) and perceived ease of use (PEOU). Contexts that have been researched for their PU and PEOU, and that have parallels to websites in terms of the flexibility of the user to switch to another system, are electronic mail systems (Davis, 1989; Adams et al, 1992), voice mail systems (Adams et al, 1992; Subramanian, 1994), a file editor (Davis, 1989) and WordPerfect, Lotus 1-2-3 and Harvard Graphics software packages (Adams et al, 1992). A search of the literature since the advent of the internet in 1995 has been unable to find a study that has extended PU and PEOU research to the use of websites.

## SCOPE, OBJECTIVES AND MOTIVATION OF THIS STUDY

Because of the extent of the internet's public availability, users of websites can be highly diverse, and their needs can include specific employment-related tasks, formal educational projects, self-learning interests and entertainment pursuits. As a way of controlling the scope of an investigation of users' satisfaction with websites, this study is conducted with advanced undergraduate accounting students as the chosen subjects.

We contend that accounting students (especially those who have visited websites) make suitable subjects because their accounting studies expose them to information systems design features, familiarize them with business reporting and provide them with an aptitude for seeking and interpreting quantitative and qualitative data. In this paper, our subjects are surveyed about the importance of a range of website design features, as well as their PU and PEOU of websites for study purposes. Accounting students, because of their training, are likely to have a natural interest with few pre-conceptions, in such matters concerning websites.

The primary objective of this study is to investigate relationships between the relative importance which accounting students place on alternative design features of those websites they use for study purposes, and the PU and PEOU of such websites. The moderating effect on this relationship of prior student familiarity with the internet will also be examined.

The study is motivated by the fact that evidence is lacking in the literature concerning PU and PEOU of users with websites. A further motivation is that the findings should have practical relevance to developers of websites and website interfaces by increasing their knowledge of specific website features which generate greater/lesser PU and PEOU. This knowledge can contribute to the website developers' objectives of getting their message across or achieving better teaching and learning outcomes for student users.

## LITERATURE REVIEW

### *Perceived Usefulness and Ease of Use*

There are many variables that can influence a user's willingness to accept or reject using information technology. But key influences on willingness to use information technology, suggested in previous research, are users' perceptions that a given application is useful (eg, Cale, 1979) and that using it will help in performing a task more easily (eg, Bandura, 1982). Davis (1989) deemed these variables perceived usefulness (PU) and perceived ease of use (PEOU). Davis defined PU as "the degree to which a person believes that using a particular system would enhance his or her job performance", and PEOU as "the degree to which a person believes that using a particular system would be free of effort" (p.321). These two "fundamental and distinct constructs" (Davis, 1989, p.323), were reviewed by Davis in 37 previously published research papers to facilitate the generation of two 14-item measures. Further validity testing narrowed the candidate items to ten per construct. Davis' (1989) 10-item instruments were tested in studies by Adams et al (1992) and Subramian (1994). Adams et al (1992) concluded that they represented "reliable and valid scales for measurement of PU and PEOU" (p.227). Subramanian (1994) stipulated that "PU is the primary determinant and PEOU is a secondary determinant of intentions to use technology" (p.863).

Davis' (1989) 14-item instruments for PU and PEOU are adopted for this study. Minor modifications are made to the questions to place them in the context of using websites for study purposes.

One difficulty in applying the PU and PEOU measures is finding a system that is voluntary, rather than one which users are required to utilize in order to perform their job. In the latter circumstances, neither PU nor PEOU may be influenced. Systems used on a voluntary basis and having a large number of users' are cited as the key conditions for testing systems implementation success (Markus, 1987). This would make the study of PU and PEOU of websites particularly appropriate. A second difficulty in applying PU and PEOU measures is the existence of captive use of systems. Captive use exists when a user feels there is no alternative but to use a system even though use is not strictly required to complete their task. Adams et al (1992) maintained that under such circumstances the user may understate the true relationship between PU and PEOU because usage will be high regardless of the user's perceptions of the two constructs. When websites are chosen for study of PU and PEOU, captive use is less likely to be an important issue.

### **Website Design Features**

Turning to website design features (the independent variable in this study), the only evidence is the findings from a survey by *SurveySite*, a company that conducts website evaluations on a day-to-day basis, reported on the internet (<http://www.surveysite.com>). *SurveySite* conducted a survey across a diverse mix of eighty-seven US and Canadian websites. The sites included travel, news, business directories, retail, non-profit associations and web magazines. Each of the sites was equipped with a feedback icon for a two-week period. Users that clicked on this icon were forwarded to a standardized on-line survey instrument which asked them to rate features of the site, evaluate their experiences and indicate if they would re-visit the site. The instrument had been pre-tested through a website design newsgroup to formulate a list of website factors that might have potential to influence the success of a site. Initially forty factors were identified, but through factor analysis, these were reduced to twelve items. The findings from this *SurveySite* study are reported in Rice (1997) in terms of correlations of the twelve factors with intention to re-visit a site. The highest positive correlations were for the extent of website content, the enjoyability of the visit, and the layout of the site, whereas the lowest correlations were visual attractiveness, navigation speed and graphics.

*SurveySite* now operates a refined website evaluation tool at its internet address. This instrument contains a ten-item website design features section and a seven-item visitor's experience section. The ten website design features are labelled as "content, visual attractiveness, effective selling message, chat rooms, search engines, graphics, uniqueness, links, registration forms and audio" (<http://www.surveysite.com>). These features are rated on a 7-point scale from poor to excellent.

To measure website design features, the ten-item instrument refined by *SurveySite* is adopted in this study. One of the items, however, was excluded from this study after pilot testing the instrument on accounting students. This is the feature of *audio*, which is not widely available on the hardware at Curtin University where the student sample was taken.

### **Prior Familiarity**

It is postulated that the degree of prior familiarity of users with the internet will have a moderating effect on users' evaluation of website features and their rating of PU and PEOU of websites. Although the literature does not address the matter, the ease of use of websites is likely to be of greater importance to those who have less prior familiarity with website features in general. Further, the relative importance given to specific website features is likely to change as users become more familiar with these features. Therefore, it is contended

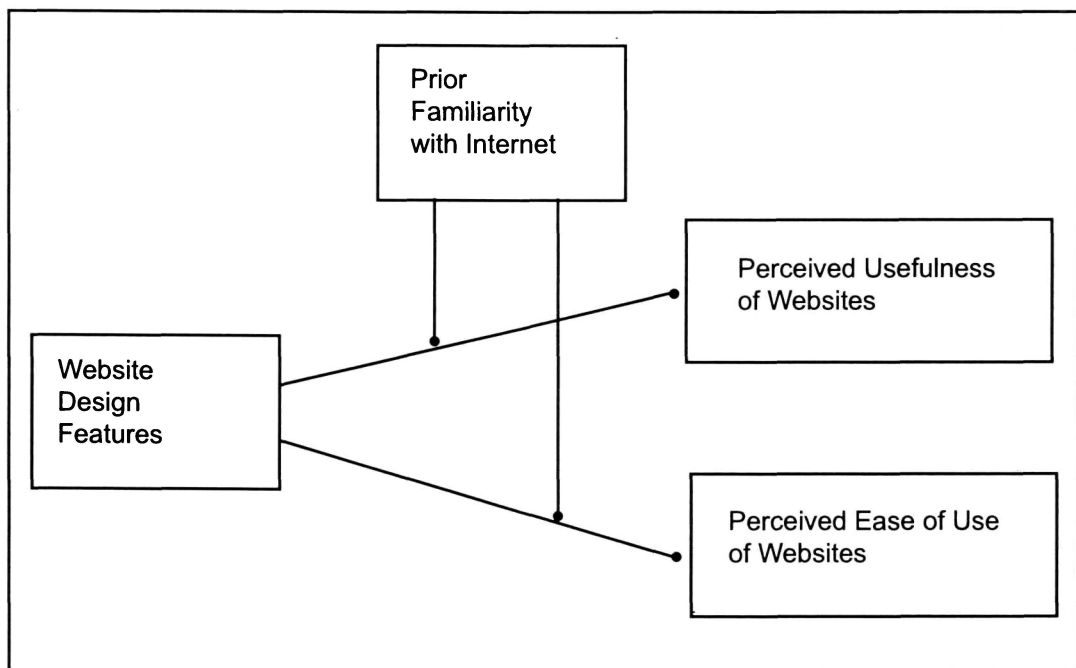
that prior familiarity with the internet is an antecedent variable which could be expected to moderate the relationship between the importance of specific website features and PU and PEOU, respectively.

To measure familiarity of users with the internet, a composite score from three questions was used in this study. The questions concerned the number of prior visits of the respondent to websites, the length of time since the respondent first commenced navigating websites and an overall question on how much experience the respondent believed he or she had had with websites.

## EMPIRICAL SCHEMA AND HYPOTHESES

From the discussion in the previous section, an empirical schema is developed and presented in Figure 1.

**FIGURE 1**  
**Empirical Schema for this Study**



The variable, website design features, comprises of nine separate features. Each of these features represents a separate independent variable. The purpose of this study is to test the PU and PEOU outcome for each of the nine website design features in turn, as well as the possible effects on these outcomes of the covariance of prior internet familiarity with each of these nine website design features.

Two general hypotheses derive from the empirical schema. These hypotheses, in the null form, are:

- H<sub>0</sub>1: There is no significant relationship between the level of importance given by accounting students to specific website design features and their perceptions of usefulness (PU) or ease of use (PEOU) of websites.
- H<sub>0</sub>2: The extent of prior familiarity of students with the internet has no significant influence on the relationship between the level of importance given by accounting students to specific website design features and their perceptions of usefulness (PU) or ease of use (PEOU) of websites.

### **SAMPLING AND VARIABLE MEASUREMENT**

A questionnaire was administered to 92 second and third year undergraduate accounting students at Curtin University of Technology. Usable responses were obtained (during class sessions) from all 92 subjects. While only the questionnaire data is analyzed in this paper, the data collection involved a subsequent experimental design undertaken in a computer laboratory with the same set of subjects. Therefore, to complete the experimental design stage, the sample was drawn, for convenience, from class groups of students enrolled in a computer-based accounting unit. The questionnaire was administered to 49 female and 43 male students.

Construct validity testing on PU, PEOU and prior internet familiarity was undertaken using principal components factor analysis. The varimax-rotated results of this analysis were as follows:

- (1) The 14 items for PU loaded onto two factors. Factor 1, containing eight items, returned an eigenvalue of 4.43034 and explained 63.3% of the total variance. In addition, bivariate correlation was carried out between the eight-item factor score of factor 1 and item 14 "overall, I find websites useful to my studies". The correlation coefficient was .696 ( $p=.000$ ). Therefore, items in factor 1 were adopted as the measure of PU.
- (2) The 14 items for PEOU loaded onto four factors. Factor 1, containing six items, had an eigenvalue of 3.29918 and explained 55.0% of the total variance. The six-item factor score of factor 1 had a correlation coefficient of .485 ( $p=.000$ ) when correlated with item 14 "overall, I find websites easy to use for my studies". Consequently, items in factor 1 were adopted as the measure of PEOU.
- (3) The three items for measuring prior familiarity of the internet were number of visits to the internet, time over which the respondent had been accessing the internet and a self-rating of level of internet experience. These three items loaded onto one factor which had an eigenvalue of 2.1249 and a percentage of explained variance of 70.8%. Consequently they formed the items to measure "familiarity".



A comparison between items extracted to measure PU and PEOU in this study, and other studies using the same (or slightly modified) instruments, is given in Table 1.

**TABLE 1**  
**Comparison of Scale Items Extracted from the 14-item Instruments for PU and PEOU**  
**(using principal components factor analysis)**

| <b>Items Loading onto the Chosen Single Factor</b>   |   |   |   |
|--|---|---|---|
| <b>This Study</b>  | <b>Davis (1989) Study a</b>   | <b>Davis 1989 Study b</b>   | <b>Subramanian (1994)</b>   |
| <b>Perceived Usefulness (PU) Construct:</b>  |   |   |   |
| 1 Increases productivity<br>2 Enhances effectiveness<br>3 Makes study easier<br>4 Accomplish more study<br>5 Quality of study<br>6 Saves time<br>7 Reduces unproductive activities | 1 Increases productivity<br>2 Effectiveness<br>3 Makes job easier<br>4 Accomplish more work<br>5 Quality of work<br><br>6 Work more quickly<br>7 Job performance<br>8 Useful<br>9 Control over work<br>10 Critical to my work | 1 Increases productivity<br>2 Effectiveness<br>3 Makes job easier<br><br>4 Work more quickly<br>5 Job performance<br>6 Useful   | 1 Increases productivity<br>2 Enhances effectiveness<br>3 Makes job easier  |
| <b>Perceived Ease of Use (PEOU) Construct:</b>   |   |   |   |
| 1 Frustrating<br>2 Mental effort<br>3 Cumbersome<br>4 Confusion<br>5 Make errors frequently<br>6 Need consultation   | 1 Frustrating<br>2 Mental Effort<br>3 Cumbersome<br>4 Understandable<br><br>5 Rigid and inflexible<br>6 Easy to use<br>7 Ease of learning<br>8 Effort to be skillful<br>9 Controllable<br>10 Ease of remembering              | 1 Clear and understandable<br><br>2 Flexible<br>3 Easy to use<br>4 Easy to learn<br>5 Easy to become skillful<br>6 Controllable | 1 Flexible<br>2 Easy to use<br>3 Easy to learn<br>4 Easy to become skillful |

As Table 1 shows, the first three items for the measure of PU are the same in this study as each of the other studies. Further, the first five items of PU, and the first four items of PEOU, are the same as the findings of study (a) of Davis (1989).

## RESULTS AND DISCUSSION

### *Importance Rating of Website Features*

Before the hypotheses tests are presented, a description of the relative level of importance to the respondents' studies of the nine website design features is given in Table 2. As revealed in Table 2, the features of *content*, *links* and *search engines* are ranked as the three most important features, with 80% or more of respondents rating each feature as important or very important. These are followed in importance by *graphics*, *visual attractiveness* and *uniqueness* (above 60%). The lowest rated features were *registration forms* (31.8%) and *chat rooms* (30.7%). The results in Table 2 suggest that a website user whose purpose is formal study, rather than leisure and entertainment, will regard the ability to obtain relevant content, and the functionality to navigate to find this content, as the most important needs to be fulfilled by a website.

**TABLE 2**  
**Website Design Features: Ranking by Importance**

| Website Design Features | Percentage indicating Important or Very Important |
|-------------------------|---|
| Content                 | 83.0%   |
| Links                   | 83.0%   |
| Search Engines          | 80.7%   |
| Graphics                | 70.5%   |
| Visual Attractiveness   | 64.8%   |
| Uniqueness              | 60.2%   |
| Selling Message         | 50.0%   |
| Registration Forms      | 31.8%   |
| Chat Rooms              | 30.7%   |

### *Effects of Website Features on PU and PEOU*

Table 3 provides an analysis of variance of the effect of each separate website design feature on PU and PEOU, respectively. In respect of the effect of website features on PU, highly significant results are found for seven of the nine features – i.e. content, links, graphics, visual attractiveness, search engines, selling message and uniqueness.  $H_0$  is, therefore, rejected for the relationship between each of these seven website features and PU. Only two features - chat rooms and registration forms - are shown not to have an influence on PU.

PEOU gives a contrasting result to PU. As indicated in Table 3, only two website features are significantly related to PEOU – i.e. graphics and visual attractiveness.  $H_0$  is, therefore, rejected in respect of the effect of graphics and visual attractiveness on PEOU, but accepted for all other seven features. That is, the other seven features are not related to PEOU. These results tend to support Subramanian's (1994) conclusion that PU is the primary determinant, and PEOU is a secondary determinant, of the intention to use particular types of information technology.

**TABLE 3**  
**Effect of Individual Website Design Features on PU and PEOU**  
**Results of Simple Factorial ANOVA**

| (Unique sums of squares; Factors entered independently) |                      |         |          |                       |         |          |
|---|----------------------|---------|----------|-----------------------|---------|----------|
|   | Perceived Usefulness |         |          | Perceived Ease of Use |         |          |
| Website Design Feature                                  | Sum of Squares       | F-value | Sig of F | Sum of Squares        | F-value | Sig of F |
| Content   | 15.546               | 4.616   | .002**   | 4.576                 | 1.203   | .316     |
| Links   | 18.540               | 5.764   | .000**   | 7.668                 | 2.099   | .088     |
| Graphics  | 14.724               | 4.318   | .003**   | 10.654                | 3.038   | .022*    |
| Visual Attractiveness                                   | 15.492               | 4.596   | .002**   | 9.777                 | 2.755   | .033*    |
| Chat Rooms  | 7.823                | 2.081   | .091     | 1.236                 | 0.312   | .870     |
| Search Engines  | 14.720               | 4.377   | .003**   | 8.804                 | 2.448   | .053     |
| Registration Forms                                      | 5.452                | 1.406   | .240     | 1.708                 | 0.433   | .784     |
| Selling Message   | 17.869               | 5.497   | .001**   | 5.821                 | 1.555   | .194     |
| Uniqueness  | 16.192               | 4.855   | .001**   | 4.356                 | 1.142   | .343     |

#### ***Controlling for the Effect of Prior Familiarity***

Tables 4 and 5 provide ANOVA results of the main effects of each website feature on PU and PEOU, respectively, after adjusting each case for the linear relationship between the dependent variable (i.e. PU and PEOU) and the *prior familiarity* covariate. This technique enables a potentially influential antecedent variable, prior familiarity with the internet, to be controlled for when determining the main effects of website features. It also identifies the extent to which prior familiarity is a separate source of variation of PU and PEOU.

A comparison of the results in Tables 3 and 4 shows that those seven website features found to be significantly related to PU before considering *familiarity* (see Table 3), remained significantly related to PU after adding *familiarity* as a covariate (see Table 4). These seven websites features have a significant main effect on PU, even though the covariate, familiarity, is also significantly related to PU. As shown in Table 4, in all nine cases there is a significant covariate effect of *familiarity* on PU variation. Therefore  $H_{02}$  in respect of PU is rejected for the website features of content, links, graphics, attractiveness, search engines, selling message and uniqueness, but accepted for chat rooms and registration forms.

In practice, the results in Table 4 mean that accounting students who have greater prior familiarity with the internet will tend to rate websites as having greater perceived usefulness for study purposes, than accounting students who have less prior familiarity. The results also mean that, regardless of the level of prior familiarity, the level of perceived usefulness of websites for study purposes will be greater when students place higher importance on any of the following website design features: content, links, graphics, visual attractiveness, search engines, selling message and uniqueness.

**TABLE 4**  
**Analysis of Variance of Perceived Usefulness by Website Features**  
**in Covariance with Prior Familiarity**

| <b>PERCEIVED USEFULNES</b><br>by Website Design Feature with Prior Familiarity of Internet |                             |         |          |   |         |          |                       |
|--|-----------------------------|---------|----------|---|---------|----------|-----------------------|
| (Unique sums of squares; Factors entered independently)                                    |                             |         |          |   |         |          |                       |
|  | Main effect on PU variation |         |          | Covariate effect of Prior Familiarity on PU Variation |         |          |                       |
| Website feature  | Sum of Squares              | F-value | Sig of F | Sum of Squares  | F-value | Sig of F | Residual PU variation |
| CONTENT  | 11.512                      | 3.752   | .008**   | 6.692   | 8.725   | .004**   | 59.828                |
| LINKS  | 11.434                      | 5.026   | .003**   | 3.764   | 4.963   | .029*    | 59.906                |
| GRAPHICS   | 9.147                       | 2.868   | .028*    | 5.149   | 6.458   | .013*    | 62.193                |
| ATTRACT  | 9.423                       | 2.968   | .025*    | 4.656   | 5.866   | .018*    | 61.917                |
| CHAT   | 4.717                       | 1.381   | .248     | 7.619   | 8.920   | .004**   | 66.623                |
| ENGINES  | 10.288                      | 3.286   | .015*    | 6.294   | 8.041   | .006**   | 61.052                |
| FORMS  | 3.301                       | .946    | .442     | 8.575   | 9.830   | .002**   | 68.039                |
| SELLING  | 10.646                      | 3.420   | .012*    | 3.503   | 4.501   | .037*    | 60.694                |
| UNIQUENESS   | 9.965                       | 3.166   | .018*    | 4.499   | 5.718   | .019*    | 61.375                |

Turning to effects on PEOU variation, Table 5 shows that none of the nine website features is significantly related to PEOU when *familiarity* is entered as a covariate. This result in Table 5 compares with the result in Table 3 that two website features - graphics and visual attractiveness - were significantly related to PEOU before considering levels of *familiarity*. Table 5 further shows that there is no significant covariate effect of *familiarity* on PEOU variation, apart from the one covariance case associated with the poor main effect of chat rooms on PEOU. Therefore,  $H_0$  in respect of PEOU is accepted for all website features under study. That is, when the covariate, familiarity, is entered as a source of variation of PEOU, not even graphics and visual attractiveness have a significant main effect on PEOU variation.

The practical interpretation of the results in Table 5 is that regardless of the level of prior familiarity of accounting students with the internet, they will tend not to rate the importance of any particular website feature as having a significant influence on their perceived ease of use of websites for study purposes. (A possible expectation is search engines, which has a significant of .104).

**TABLE 5**  
**Analysis of Variance of Perceived Ease of Use by Website Features**  
**in Covariance with Prior Familiarity**

| <b>PERCEIVED EASE OF USE</b><br>by Website Design Feature with Prior Familiarity of Internet |                               |          |          |   |         |          |                         |
|--|-------------------------------|----------|----------|---|---------|----------|-------------------------|
| (Unique sums of squares; Factors entered independently)                                      |                               |          |          |   |         |          |                         |
|  | Main effect on PEOU variation |          |          | Covariate effect of Prior Familiarity on PEOU variation |         |          |                         |
| Website feature  | Sum of Squares                | F -value | Sig of F | Sum of Squares  | F-value | Sig of F | Residual PEOU variation |
| CONTENT  | 1.385                         | .492     | .742     | 1.624   | 2.306   | .137     | 26.746                  |
| LINKS  | 3.035                         | 1.196    | .316     | 1.555   | 2.236   | .143     | 25.115                  |
| GRAPHICS   | 3.591                         | 1.385    | .143     | 1.972   | 2.719   | .107     | 24.559                  |
| ATTRACT  | 3.347                         | 1.282    | .294     | 2.257   | 3.458   | .071     | 24.803                  |
| CHAT   | 1.624                         | .582     | .678     | 3.072   | 4.401   | .043*    | 26.525                  |
| ENGINES  | 3.696                         | 1.430    | .104     | 1.825   | 2.592   | .115     | 24.453                  |
| FORMS  | .938                          | .327     | .858     | 2.638   | 3.684   | .062     | 27.211                  |
| SELLING  | 2.855                         | 1.072    | .384     | 2.531   | 3.803   | .059     | 25.294                  |
| UNIQUENESS   | .554                          | .191     | .942     | 1.383   | 1.904   | .176     | 27.595                  |

## CONCLUSIONS AND LIMITATIONS

This study addresses a gap in the literature on user satisfaction with information systems. Underlying the construct of user satisfaction is the premise that the user would only seriously assess satisfaction with a current information system if he or she is in a position to switch relatively easily and costlessly to an alternative system. The literature has provided empirical evidence on user satisfaction with many systems which do not meet the criterion of switching flexibility. Websites meet this criterion, but have yet to be empirically investigated for their user satisfaction. In this study, user satisfaction with websites is measured PU and PEQU. The study is confined in scope to accounting students' use of websites for their study purposes. In particular, it is hypothesized that the importance placed on website design features by students determines the PU and PEOU of websites. This relationship is modelled with a moderating variable of students' *prior familiarity with the internet*.

The results reveal a strong relationship between website design features and perceived usefulness of websites for study purposes. A wide range of features – i.e. content, links, graphics, visual attractiveness, search engines, selling message and uniqueness - affect perceived usefulness, even after controlling for differences in prior familiarity of students with websites. However, with the second surrogate measure of user satisfaction – i.e. perceived ease of use of websites for study purposes - the results were that no website design feature had an effect after prior familiarity was controlled for.

The implications of these findings for designers of websites for university study purposes are twofold. First, a wide range of website design features needs to be present because students regarded all these features as important to the purpose of meeting their expectations that a website will "enhance performance" in their course (Davis' 1989 definition of PU). If a website does not have a sufficiently wide range of features to meet students' need for enhancement of their course performance, then students will be unlikely to re-visit the website. Second, none of the website design features appear to be of particular importance to students for the purpose of meeting their expectation that a website will enable them to be more "free of effort" in their course (Davis' 1989 definition of PEOU).

These conclusions are subject to limitations that apply to any survey method, but particularly because the nature of the internet and its applications is relatively unexplored. The terminology and technological advances being made may mean that student users may well be unaware of the benefits of some website design features because they have not yet been felt in the community. An example is the impending influence registration forms are likely to play in industries such as education and banking to necessitate on-line transactions. Further, the results may be limited by the possibility that the user satisfaction instrument from previous studies conducted with PU and PEOU on e-mail, voice-mail and various software packages, may fail to capture the essence of websites - a much more diverse and flexible phenomenon. The sample selection was not randomized and the student subjects were from one university course only, limiting the generalizability of the findings. The matter of user behaviour with, and systems effectiveness of, websites offers much opportunity for further research.

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