AN EMPIRICAL INVESTIGATION OF THE DETERMINANTS OF STUDENT ACCEPTANCE OF QUICKBOOKS ONLINE SOFTWARE

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Abstract

The previous studies indicate that lack of user acceptance has long been an impediment to the success of new information systems. The present research addresses why students accept or reject online software and how student acceptance is affected by software design features. The technology acceptance model (TAM) specifies the causal relationships between software design features, PUF, PEU, ATU, and AQU. This study explored PNU accounting students' perceptions on PEU and PUF of using QuickBooks Online (QBO), and ATU. A sample of 110 third and fourth year accounting students who have finished the course in May2012 participated in this study. TAM fully mediated the effects of system characteristics on usage behavior, accounting for 70% of the variance in usage. Perhaps the most unexpected finding was that PUF was equal to the PEU in determining usage, underscoring the importance of incorporating the appropriate functional capabilities in new online software. Overall, TAM provides an informative representation of the mechanisms by which design choices influence student acceptance, and should therefore be helpful in applied contexts for forecasting and evaluating student acceptance of online software. Implications for future research and practice are discussed.

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1. Introduction

The use of online applications (browser-based application)in higher education has grown exponentially over the past few years(Garrison, 2009; Gupta & Sharma, 2012). Online-based applications like databases, spreadsheets, simulations, statistics, and authoring packages have found their way into many management areas. The availability of these online -based applications have brought about dramatic changes in college classrooms. Widespread availability of online applications has also caused a renewed interest among educators in the use of Internet applications.

This shows that the impact of Internet applications on teaching and learning can no longer be ignored.Rapid technological changes are forcing a major change in the accounting curriculum. Accounting education must change to provide development of Internet skills in the accounting profession. The integration of Internet into the accounting curriculum prepare accounting graduates to acquire Internet literacy skills for the interactive work environment. However, Potter & Johnston(2006)reported that it is difficult to ascertain what these Internet skills should be. Little or no information is available as to the actual Internet knowledge considered necessary or desirable for the accounting graduate. The development of e-educational technology and the increased accessibility to such technology has seen many university accounting departments adopt e-learning system(Laurillard, 2002; Park, 2009). E-learning system has the potential in changing accounting education(Howieson, 2003). Using e-learning, students will learn about e-accounting whilst learning how to use online-based applications. This will also enable more effective learning by facilitating the understanding of accounting interrelationships and accounting concepts.

1.1. Background to the problem

Little or hardly any research has centered on the PUF and PEU of accounting online particularly QuickBooks Online (QBO). This study investigates PNU accounting students' perceptions of QuickBooks Online acceptance. An empirical survey was used in this study to show whether the independent variables (PEU, PUF andATU) have any impacton the dependent variable, students' actual QuickBooks usage (AQU).

Lack of user acceptance has long been an impediment to the success of new information systems (Akkaya, Obermeier, Wolf, & Krcmar, 2011; Hossain & De Silva, 2009). The goal of most

organizationally based information systems is to improve performance on the job. Unfortunately, performance impacts are lost whenever systems are rejected by users. User acceptance is often the pivotal factor determining the success or failure of an information system project. The present research uses the technology acceptance model (TAM) to address why students accept or reject information technology and how student acceptance is influenced by online software characteristics. From a practical standpoint, this research interested not only in explaining why an online software is unacceptable to a set of students, but also in understanding how to improve student acceptance through the design of the online software. The choice of functional and interface characteristics of a new online software are largely under the control of information systems designers, developers, selectors and managers. Needed is a model of how such design choices affect student acceptance into departments in the PNU.

1.2. Objectives of the study

The purpose of this study is to see whether acceptance of accounting students is affected by their PEU, PEU, and ATU. Therefore, the objectives of this study are:

(a) To determine whether PEU, PUFand ATU affect accounting student's acceptance.

(b) To determine whether ATUaffects students' usage of QuickBooks.

1.3. Significance of the study

The study is motivated by the fact that no or hardly any research has been done concerning PEU and PUF of accounting package usage via the internet with the students' acceptance. Therefore the focus of this study is to determine whether PEU and PUF in using QuickBooks Online and the ATU the package among accounting students has any impact on their acceptance. Since there is no evidence from prior study on accounting online especially QuickBooks Online , this study may provide useful data for further research. It is also hoped that the data will be useful in providing the management of PNU in understanding the fundamental prerequisite of education via the internet. The study will assess the use of QuickBooks and identify the accounting students' perceptions toward using the package. The identification of correlates of positive and/or negative ATU toward using QuickBooks may help educators to devise ways to change negative ATU to more positive ones.

2. Literature Review

Alexander & Murphy(1998)stated that many factors such as differences in knowledge about, and awareness of, the capabilities of computers; differences in perceptions about, and attitude towards using online software; and differences in the way in which the software interface is intuitive and easy to use(Zainol & Nelson, 2011). A number of these issues have been researched. Researchers and practitioners need to understand better the variation in individuals' reactions to using online software. They can develop methods for evaluating online software, predicting how users will respond to them, and improving user acceptance by changing the nature of online software and the processes by which they are implemented (Davis, Bagozzi, & Warshaw, 1989, 1992).

Wynder(2004)reported that through simulation, students had the opportunity to "practice" what led to better management of the manufacturing process. As a result it appears that traditional class lectures may not be sufficient preparation for students to perform managerial roles in ainteractive environment (Rickel et al., 2008).The next section concentrates on previous research done on PEU, PUF, ATU and AQU.

2.1. Perceived Ease of Use (PEU)

Davis (1989) defined PEU as the degree to which a person believes that using a particular system would be free of effort. Effort is a finite resource that a person may allocate to the various activities for which he or she is responsible. Mohamed & Lashine(2003) stated that in a work environment where computer use is largely discretionary because of work tasks are generally less structured (the likely case for professional accountants in large accounting firms) people who use computers are likely to do so because they believe (a) their job performance will improve, i.e., they perceive computers to be useful; and/or (b) the use of computers is relatively free of effort, i.e., they perceive computers to be easy to use.

Ferguson (1997)in his research highlights the importance of accountants' general beliefs about computers. He reported that if accountants believe computers are easy to use and are useful to them in their work, their general ATU is more positive. The results of his findings showed that PEU of computer has a direct positive impacton the extent of computer usage. However, these results suggested that while the overall perceptions of ease of use concerning computers directly affect accountant’s levelof use, this does not hold for their perceptions regarding usefulness.

Ferguson (1997) reported that perceiving computers as easy to use, accountants see themselves as prospectively being competent and capable of 'driving' the computer system if and when they need or want to. That is, the easier they perceive the computer to use, the greater their confidence in their ability to use it.Rawlingson et al.(1992)indicated that students found computerbased elementary bookkeeping learning packages easy to use; clear in terms of explanations and worked examples; and enables them to learn at their own pace and to gain immediate feedback(A. Halabi et al., 2010).This leads to the two hypotheses:

H1:Perceived ease of use will have a significant positive impact on attitudes toward use, controlling for perceived usefulness.

H2: Perceived ease of use will have a significant positive impact on perceived usefulness, controlling for QuickBooks Online .

2.2. Perceived Usefulness (PUF)

Commercial-use Online is a useful vehicle to prepare students for lifelong learning as well as preparing them for work in a complex technological environment. However, educational online assignments are sometimes structured so that they do little to prepare students for the situations they will face when working in the real world of accounting (Bagranoff & Cashell, 2011). Bagranoff& Cashell, 2011 also indicated that simulating a real world experience in automating a small business's accounting cycle allows students to learn topics such as transaction processing cycles, internal control and software selection.

By using commercial software for this purpose, students will be able to learn how to read software manuals, acquire knowledge about "how to learn" new software, and learn the strengths and weaknesses associated with computerized accounting applications. Ferguson (1997) indicated that, PUF is a powerful enough belief on the part of the individual to induce that person to set aside misgivings and apprehensions he/she may hold about computers. The motivation induced by the belief that future job rewards are enhanced by the use of computers acts to moderate and dampen any short term, transitory fear and apprehension invoked by thinking about the impending use of computers.

Halabi et al.(2000)reported that computer-aided learning in accounting allowed students to be in control of their own objectives and methods of learning; provided students with immediate feedback, and familiarized students with using computer packages.Halabi et al.(2005)in his

survey has demonstrated that distance education students view computer-based learning materials as useful and beneficial. This finding is consistent with research findings relating to the PUF of computers in teaching accounting (Rawlingson, et al., 1992).This leads to the hypothesis:

H3: Perceived usefulness will have a significant positive impact on attitudes toward use, controlling for perceived ease of use.

2.3. Attitudes Toward Use (ATU)

Literature review shows that numerous investigations on ATU to computing have been carried out. Literature shows that ATU to computing can be influenced by previous computing experience and computer knowledge. Lack of computer knowledge and without any computing experience can result negative ATU. It has been reported that ATU to computing can be improved significantly with training (Madsen & Sebastiani, 1987; Rawashdeh, Selamat, & Abdullah, 2011; Selamat & Rawashdeh, 2010). This is because computer training leads to familiarity and confidence with computers which often result in a positive ATU to computing.

A study by Eiser, Stafford, & Fazio(2008)indicated that there is significant relationship between previous computing experience and ATU to computing. They reported that a study by McIlroy et al.(2001)showed that students ATU to computing worsens after a one-semester computing course. This worsening ATU may resulted from high expectations by the students on what they could have achieved after a semester's work. Nicolaides, Toda, & Smith(2002) suggested that teachers need to be equipped with skills and knowledge before they can develop a positive ATU within themselves in the first place.This leads to the hypothesis:

H4: Attitudes toward use will have a significant positive impact on actual QuickBooks use.

2.4.Actual QuickBooks Use (AQU)

The proposed conceptual model of this research considers a variety of XBRL use and rate of use as dependent variables. It is expected that the independent variable ATU will differentiate between the variety and rate (Shih & Venkatesh, 2004)of use between students. This research conceptualizes usage as having two equally important dimensions, variety and rate (Shih & Venkatesh, 2004). Variety refers to the different ways in which the product can be used. Usage rate refers to how often the product (e.g., QuickBooks Online) is used, regardless of the variety of applications for which it is used. In order to illustrate this with an example, consider two students, both of whom use the QuickBooks Online two hours a day. The first student uses

QuickBooks Online only for preparing related work (e.g., to prepare financial reports); the second uses QuickBooks Online for generating related work, tax filling, internal reports and governments. Both have the same usage rate, but the second student exhibits greater usage variety.This leads to the hypothesis:

H5: QuickBooks Online will have a significant impact on perceived usefulness and perceived ease of use.

The data will also be used to test whether the causal relationships implicitly hypothesized to be indirect have no significant direct effect. These tests are expressed in hypotheses 6 and 7 below. Hierarchical regression and associated F-tests of the significance of the increase in R^2 due to the additional variables will be used for these hypotheses. This leads to the two hypotheses:

H6: perceived usefulness, perceived ease of use, and QuickBooks Onlinewill not have significant direct effects on actual QuickBooks use, controlling for attitudes toward use.

H7: QuickBooks Online will not have a significant direct impact on attitudes toward use, controlling for perceived usefulness and perceived ease of use.

In addition to testing for the significance vs. non-significance of the hypothesized relationships, the data will also be used to estimate the magnitudes of the causal parameters. The estimates will be the standardized regression coefficients, expressed both as point and confidence interval estimates.

3. Methodology

The subjects were 120 undergraduate accounting students at PNU. A questionnaire was circulated to 110 students in PNU. One hundred and ten responses by the following day yielded a response rate of 91.6%.

The questionnaire first screened respondents to make sure they had previously used the QuickBooks so that the ATU and beliefs measured were formed based on direct behavioral experience with the ATU object (Davis, 1993). Instructions in the questionnaire asked subjects not to fill out the section regarding a given system if they haven't used it. Of the 120 participants, 110 completed the questionnaire pertaining to QuickBooks Online . Respondents were asked to rate their PEU, PUF, ATU and AQU.

ATU was measured using five standard 7-point semantic differential rating scales as recommended by Ajzen&Fishbein(1980)for operationalizing ATU. This scale had a Cronbach

alpha of .80 in sample. PEU and PUF were measured using the measurement adapted from Davis (1989), which were developed and shown to have a high degree of convergent and discriminate validity by Davis (1989). In this sample, the scales were highly reliable, with Cronbach alpha coefficients of 0·95 for PUF and 0·84 for PEU. Two items were used to measure self-reported system use. The first one, a measure of the frequency of use of the QuickBooks read as follows: On the average, I use QuickBooks. The second usage measure asked subjects to specify how many hours they normally spend each week using the QuickBooks.

4. Results

Following Duncan (1975), regression analyses were performed on data pooled across the QuickBooks Online (n = 110). Table 1 contains the results of ordinary least-squares regressions applied to the hypothesized equations of the model.

TABLE 1: TAM regression tests

DV	*R2*	*IV*	*B*	*Std. Error*	*Beta*	*t*	*Sig.*
PEU	0·094	Constant	6.566	.402		16.336	.000
		QBO	-.289	.086	-.306	-3.346	.001
PUF	0·483	Constant	-.266	.643		-.413	.680
		QBO	.342	.078	.335	4.396	.000
		PEU	.742	.083	.683	8.972	.000
ATU	0·559	Constant	1.959	.299		6.555	.000
		PEU	.203	.060	.265	3.368	.001
		PUF	.396	.056	.562	7.133	.000
AQU	0.478	Constant	2.170	.347		6.257	.000
		ATU	.648	.065	.691	9.946	.000
AQU	0·679	Constant	2.176	.333		6.533	.000
		PUF	.445	.090	.474	4.958	.000
		ATU	.200	.063	.303	3.170	.002

Table 2 contains the unrestricted regressions needed to carry out the hierarchical regression test of the non-significance of those causal relationships hypothesized to be non-significant. All of the hypotheses were supported. ATU had a significant impact on AQU. PEU had a significant

and strong impact on ATU, and a strong impact on PUF was significantly affected by the QuickBooks Online being perceived as usefulness. PUF had also significant impact on ATU. QuickBooks Online and PEU had a significant direct impact on AQU as hypothesized. Counter to expectation, however, PUF had a significant direct impact on AQU over and above ATU.

Table 3 gives the point estimates and confidence intervals for the standardized regression coefficients. The parameters enable one to compute the relative importance of PUF and PEU in influencing AQU. PUF has both a direct impact (0.20) plus an indirect impact via ATU (0.32 X 0.45). Combined, this equals 0.34. PEU has an impact on AQU through ATU: 0.31 X 0.45; plus an impact through PUF: 0.74 X 0.34 (0.34 from above calculations of PUF's impact on AQU). This totals 0.39. Comparatively, therefore, PEU is about 1.2 times as important as PUF in influencing AQU.

TABLE 2: Hierarchical regression tests of indirect relationships

DV	*R2*	*IV*	*B*	*Std.Err.*	*Beta*	*t*	*Sig.*
ATT	0·601	Constant	1.104	.385		2.870	.005
		QBO	.168	.051	.233	3.323	.001
		PUF	.321	.058	.456	5.567	.000
		PEU	.305	.065	.398	4.670	.000
AQU	0·705	Constant	1.197	.323		3.702	.000
		QBO	.108	.043	.160	2.511	.014
		PUF	.065	.053	.098	1.222	.225
		PEU	.454	.058	.632	7.804	.000
		ATU	.207	.079	.221	2.628	.010

TABLE3: TAM parameter estimates and 95% confidence intervals

Causal link			Point estimate		95 % confidence interval
DV	IV	B	Std. Error	Sig.	

					Lower bound	Upper bound
PEU	QBO	-.289	.086	.001	-.460	-.118
PUF	QBO	.342	.078	.000	.188	.497
PUF	PEU	.742	.083	.000	.578	.906
ATU	QBO	.168	.051	.001	.068	.268
ATU	PEU	.305	.065	.000	.176	.435
ATU	PUF	.321	.058	.000	.207	.436
AQU	ATU	.445	.090	.000	.267	.622
AQU	PUF	.200	.063	.002	.075	.326

5. Discussion

The TAM motivational variables: ATU, PUF and PEU, fully mediated the impact of system design features on usage. That is, the characteristics of the system appear to influence behavior entirely through these motivational variables and have no additional direct impact on use. The powerful impact of PUF on actual use, both directly, and indirectly through ATU (0.32×0.45) + 0.20 = 0.34, is perhaps the most striking result.

The fact that ATU exerts more than twice as much direct influence on AQU than does PUF (with regression coefficients of 0.45 and 0·20 for ATU and PUF respectively) underscores the importance of the ATU variable. In addition, PUF and PEU have approximately the same influence on the ATU (0.32 vs. 0.31). The direct impact of a perception on behavior over and above its indirect impact through ATU, such as the observed PUF-AQU link, although inconsistent with Fishbein and Ajzen's (1975) theory, has been observed elsewhere in psychology. An alternative model specified by Triandis (1977), views cognitions as having a direct impact on behavioral intentions. Bagozzi (1982) found that beliefs have both a direct impact on intentions and an indirect impact through ATU. Therefore, there is some theoretical and empirical precedent for an impact of beliefs on behavior over and above their indirect impact via ATU.

The impact of PEU on AQU operates almost entirely through its impact on PUF, which is 0·63 × (0.20 + 0.32×0.45) = 0.34. Comparatively, the impact of PEU on AQU through its direct impact

on ATU is only 0.31×0.45 = 0.14. Compared to PUF, PEU has the same direct impact on ATU despite the ATU affected by the indirect impacts of the PEU on the PUF (0.74 × 0.32 = 0.24). The impact of PEU on AQU operates almost entirely through its impact on PUF, which is 0·74 × (0.20 + 0·32 × 0·45) = 0·26. Comparatively, the impact of PEU on AQU through its direct impact on ATU is only 0.31×0.45 = 0.14.

The small but significant direct influence of QuickBooks Online characteristics on ATU (0.17) suggests that PUF and PEU may not be the only beliefs mediating between QuickBooks Online and ATU. This leads to consider possible beliefs that should be added to the model. The previous discussion has emphasized the importance of PUF, arguing that PEU operates through this variable. Thus, the model views QuickBooks Online usage behavior to be largely motivated via the internet, it is important to be driven by the online training. Saadé & Bahli(2005) (1981) points out that Online training play an important role in acceptance of online programs. That is, people use online programs in part because they enjoy the process of using them per se, not just because they are able to access the online programs any time or any place they have an internet connection.

Future research should consider the role of additional variables within TAM. The QuickBooks software examined in the present research was available for students in PNU via the internet. In situations where users are required to use a given system via the Internet, the model would need to be extended. The present findings have implications for improving user acceptance of the QuickBooks Online via the Internet. Many designers believe that the key barrier to user acceptance is the lack of user friendliness of current systems or software, and that adding user interfaces that increase usability is the key to success (Blain-Moraes, Schaff, Gruis, Huggins, & Wren, 2012). Yet the present results indicate that, although PEU is clearly important, the PUF of the QuickBooks Online is even more important and should not be overlooked.

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