

**A pilot replication study: Technology Acceptance and Internet usage:  
Pleasurable Discovery for Accountants.**

by

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**A PILOT REPLICATION STUDY: TECHNOLOGY ACCEPTANCE AND  
INTERNET USAGE: PLEASURABLE DISCOVERY FOR ACCOUNTANTS.**

***ABSTRACT***

The ability to attract people to a website is critical for the success of Internet-based companies. If people do not visit a company's website, no transactions can take place and so, no revenue is generated. It is, therefore, crucial to understand why people adopt a technology. Many models have been developed to try and predict the way potential users of a technology decide whether or not to use that technology. Among these is the Technology Acceptance Model (TAM). This paper examines a variant on the TAM that identifies "Cognitive Absorption" as a key influence in the decision to adopt a technology.

This paper documents a pilot study of a TAM variant proposed by Agarwal & Karahanna (2000) and is based on a sample of Accounting Professionals working for a large accountancy audit practice in the United Kingdom.

The results obtained from the research in this paper propose a new, simplified, variant on TAM that includes two concepts that are hybrids of constructs identified in the research of others. The concepts proposed in this paper are those of "Pleasurable Discovery" and "Perceived Function".

## **INTRODUCTION: THE IMPORTANCE OF TECHNOLOGY ACCEPTANCE**

The acceptance of Internet technology is crucial for a wide range of modern business activities. For example, electronic commerce, administration of an employee's benefits via a company intranet or searching for business related knowledge.

Therefore, a good understanding of the factors that influence a person's acceptance and intention to use a particular technology is very important to the success of these types of business application.

The research described in this paper is designed to provide some insight into some of the factors that drive the acceptance of technology. It is an extension of work originally conducted in the US on a sample of students. In this research a sample of accounting professionals was chosen in order to bring the research closer to industry. The research focuses on the Internet / intranet as the technology being explored for its acceptance criteria.

## TECHNOLOGY ACCEPTANCE: A REVIEW OF PRIOR RESEARCH

A number of models have been developed with the aim of explaining what determines whether or not a particular information technology is accepted by potential users (eg, Davis, 1989; Davis et al., 1989; Hartwick and Barki, 1994; Mathieson, 1991; Moore and Benbasat, 1991; Thompson et al., 1991). A common aim of these models is to develop tools to predict information system acceptance thus enabling design changes to be made that increase the chance of acceptance (and hence usage) by the target audience.

Figure 1, below illustrates the TAM (Davis et al. 1989)

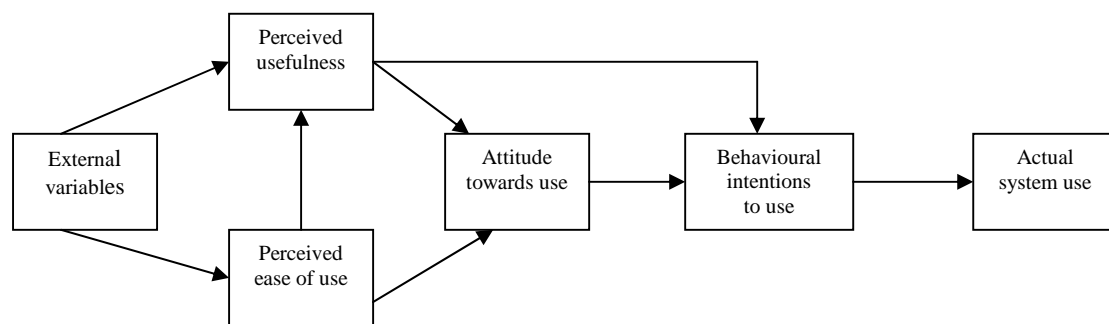


Figure 1: The Technology Acceptance Model  
(Davis, Bagozzi and Warshaw, 1989)

Of these models, the Technology Acceptance Model (TAM) is one that has been proven to have a high validity (Chau, 1996; Taylor & Todd, 1995). TAM proposes that the usage of a particular information technology is determined by a person's behavioural intention to use it and that in turn is determined by a person's attitude towards using the system and its perceived usefulness.

TAM has its theoretical roots grounded in the theory of reasoned action (Fishbein & Ajzen, 1975); this was then further developed (Ajzen, 1985, 1988) into a model that describes the relationship between behaviour and the intention to engage in that behaviour (see figure 2 below). The intention to engage in certain behaviours is influenced by three factors: Subjective Norm, Attitude towards the behaviour and Behavioural Control. In this model, “Subjective Norm” represents the perceived social pressures experienced by the person. For example, in a working environment, does everyone else use the technology? Is it expected that the person should use the technology? What is the attitude of co-workers towards it? Perceived behavioural control is the extent to which people believe they are capable of using the technology in their work etc.

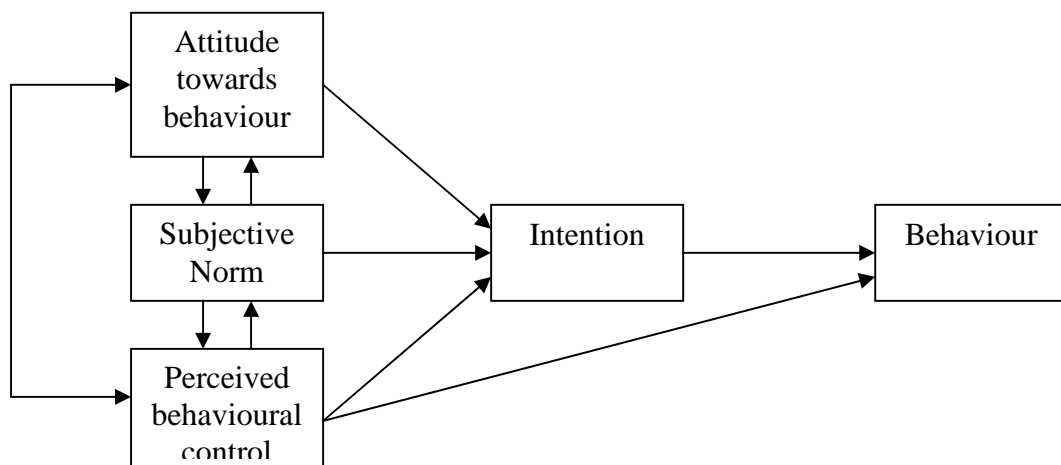


Figure 2: Theory of Planned Behaviour

Indeed, the importance of peer group pressure became clear in a study by Karahanna & Straub (1999), where a final sample of 107 potential adopters and 161 existing users of MS Windows demonstrated that the most significant influence over whether or not the potential users would adopt the software was the social environment (i.e. peer group pressure & managerial pressure).

However, TAM has not been able to explain all observed behaviours in its original form; as a result, a number of modifications have been proposed to TAM by researchers:

Adams et al., 1992 found that, by applying a technique called Structural Equation Modelling (SEM) to data collected, the construct identified by Davis in the original TAM labelled “perceived usefulness” had to be split into two constructs labelled “usefulness” and “effectiveness”. Their findings were consistent with the findings of Hartwick and Barki (1994). Further, this reflected criticism aimed at the construct by Moore & Benbasat (1991) who said that the construct was “too broad”.

A modified TAM consisting of four constructs was proposed by Chau (1996) in which the original “perceived usefulness” construct is split into two constructs: “Perceived near-term usefulness” and “Perceived long-term usefulness” (see figure 3 below). Chau used data collected from the administrative / clerical staff of a not-for-profit organisation and developed the model using SEM. Chau’s study used Microsoft Word and Excel as the technologies in question.

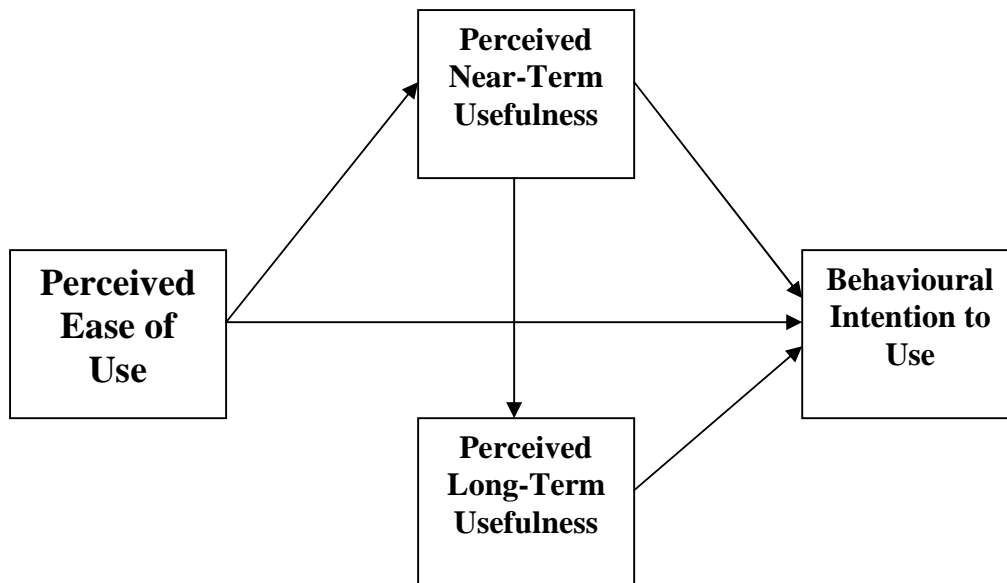


Figure 3: Chau's modified TAM

TAM does not address influences on the acceptance of technology caused by social and control factors, which are known to have a significant influence on IT usage behaviour (eg, Barclay et al., 1996; Compeau & Higgins, 1991, Hartwick & Barki, 1994). A study conducted by Taylor & Todd (1995) added the constructs of “Subjective Norm” and “Perceived behavioural control” (PBC) because of their “predictive utility in IT usage research and because of their widespread application in social psychology” (see figure 4). Their study used data collected from students usage of a “computer resource centre” (a lab that provides high-end computing and printing services) and focused on the influence of prior experience on behavioural intention. The results obtained by Taylor & Todd indicated that the modified model was adequate for both experienced and inexperienced users, but identified some significant differences between experienced & inexperienced users: The research found a stronger link between behavioural intention and behaviour for experienced users, but that inexperienced users’ intentions were better predicted than experienced users’.

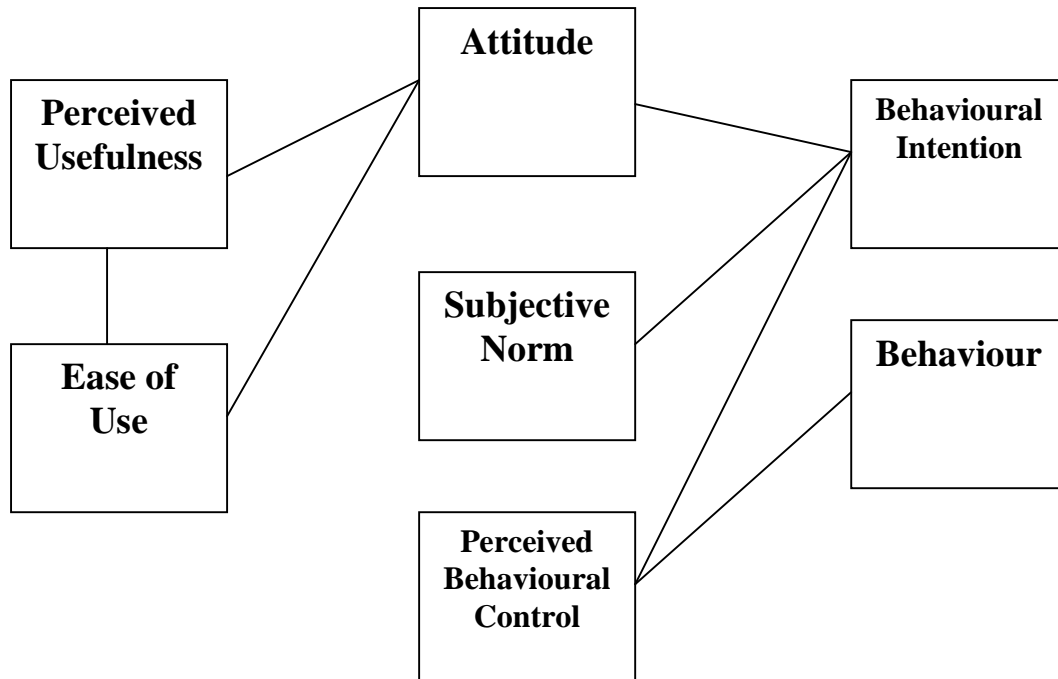


Figure 4: Taylor & Todd's Modified TAM

A further modification to TAM was made by the inclusion of two constructs, “perceived social presence” (a sense of human contact embodied in the medium) and “information richness” (Straub, 1994). Following on from this research, Gefen & Straub (1997) looked at the influence of gender on technology acceptance and added a gender construct to the already extended TAM of Straub (1994).

The research supported the inclusion of a gender construct. The study was conducted on three firms across three countries with e-mail as the technology in question.

These studies demonstrate that the TAM, or variations of it, can be used to model intention to use information systems. However, none of the studies cited above specifically use the Internet as the technology being studied. Studies using the Internet as the technology medium have been carried out, notably by Han & Noh (2000), Lederer et al.(2000) and Agarwal & Karahanna (2000).

Han and Noh (2000) looked at factors affecting e-commerce performance such as satisfaction, usage and expectation of usefulness (labelled Critical Failure Factors). They concluded that there was a relationship between these constructs and performance.

Lederer et al (2000) made a study of TAM using the Internet as the technology. Their study supported TAM and also demonstrated that two constructs “Ease of Understanding” and “Ease of Finding” predict “Ease of Use” and that “Information Quality” predicts “usefulness” for revisited sites. This study can be used to help understand the drivers for people to revisit certain websites.

Lin & Lu (2000) conducted a study of the TAM to explore why users accept or reject a website. Their sample consisted of technology students and the website they chose was China Times [Inter@ctive](#). Their research demonstrated that information quality, response time and system accessibility affect the users’ belief in a website. However, they caution that other, possibly subjective factors may also play a part.

Agarwal and Karahanna (2000) noted that much of the prior work researched around TAM focused on outcomes such as attitudes and usage, with less emphasis on *how* beliefs are formed. They reasoned that “An understanding of what causes individuals to hold certain beliefs about the target information technology would be of value not only to practitioners responsible for the implementation and deployment of IT, but also to researchers interested in explicating the paths through which technology use behaviour is manifested.” This should be particularly true where e-commerce

applications are concerned, as whole businesses can thrive or fail on the basis of the beliefs of potential users.

Agarwal & Karahanna argue that whilst TAM focuses on usage behaviour as being driven by instrumentality and cognitive complexity beliefs; whereas there is an alternative body of work that proposes that an individual's behaviour towards a technology is shaped by their holistic experiences with the technology.

Building on the need to further examine and incorporate this aspect into our understanding of technology and user behaviours, they propose a construct called "cognitive absorption" (CA). The construct derives its theoretical base from work in individual psychology (e.g. Tellegen, 1982; Tellegen & Atkinson, 1974; Csikszentmihalyi, 1990 and Webster & Ho, 1997). Agarwal & Karahanna posit that "cognitive absorption" is important to the study of technology acceptance and use because it acts as a key antecedent to beliefs about an information technology. Their study supported a proposed model of a modified TAM (see figure 5). The pilot study reported here is a replication of Agarwal & Karahanna's research, conducted to test the generalisability of their proposed model.

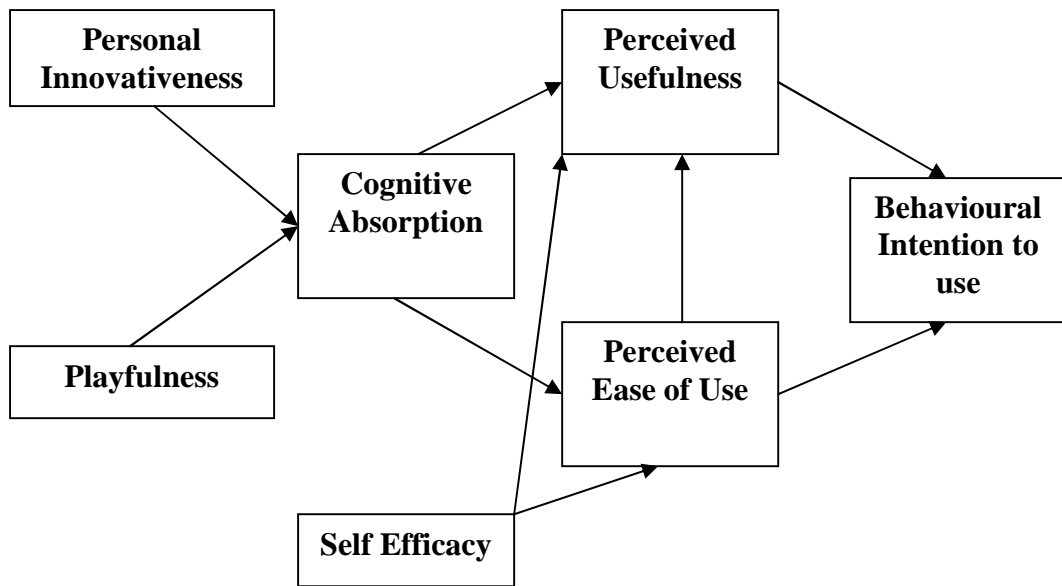


Figure 5: Agarwal and Karahanna's modified TAM

## **RESEARCH HYPOTHESES**

The research hypotheses are drawn from the literature and are the same as those originally tested by Agarwal & Karahanna (2000):

H1: Perceived Usefulness of an information technology has a positive effect on behavioural intention to use the information technology.

H2: Perceived Ease of Use of an information technology has a positive effect on behavioural intention to use the information technology.

H3: Perceived Ease of Use of an information technology has a positive effect on the perceived usefulness of the information technology.

H4: After controlling for self-efficacy perceptions, cognitive absorption with an information technology has a positive effect on the perceived ease of use of the information technology.

H5: After controlling for self-efficacy perceptions, cognitive absorption with an information technology has a positive effect on the perceived usefulness of the information technology.

H6: Computer Playfulness has a positive effect on cognitive absorption with an information technology.

H7: Personal innovativeness has a positive effect on cognitive absorption with an information technology.

## **METHODOLOGY**

### **Study Context and Sample**

The approach taken by Agarwal and Karahanna for their study was a field study using a survey methodology for data collection. They collected data from a sample of students enrolled at a large university. They chose the Internet as the technology in question.

In this study, the same instrument as Agarwal and Karahanna (having obtained their permission to do so) is used, but conducted on a different sample: The sample used in this study consisted of 104 accounting professionals. The technology chosen was the Internet. Why choose such a sample?

The choice was appropriate for several reasons:

- Accounting professionals are generally experienced users of personal computers.
- The firm the accountants work for uses an Intranet for many aspects of its operations and so the professionals are expected to use it.
- Many of the accountants' Client firms utilise the Internet to publish information.

Subjects were surveyed over a period of two days and were asked to respond honestly to the questions. As this was a pilot study, they were also asked for their feedback on the questions and to provide ideas for improving the survey instrument.

The study also utilises SEM in place of the Partial Least Squares (PLS) method employed by Agarwal and Karahanna. This method was one of the suggestions made in the “Further research” section of their paper.

### **Operationalisation of research variables**

The research variables were measured using multi item scales. The questions and scales were those utilised by Agarwal and Karahanna (2000). The questionnaire is attached as Appendix A.

The scales used had previously been validated by prior research (Davis, 1989; Ajzen and Fishbein, 1980; Compeau & Higgins, 1995; Agarwal and Prasad, 1998; Webster and Martocchio, 1992) and specifically for the cognitive absorption construct, as described by Agarwal & Karahanna (2000).

### **Results**

The analysis used Factor Analysis and Structural Equation Modelling techniques (Chin, 1998a, 1998b; Fornell and Bookstein, 1982; Lohmoller, 1989).

A Factor Analysis was performed on the modified Technology Acceptance Model proposed by Agarwal & Karahanna (2000), using the data obtained from the pilot study. Factor Analysis can be used in two ways: *Exploratory Factor Analysis* – used to determine the structure of a Construct and the items that are to be used in measuring the dimensions; *Confirmatory Factor Analysis* – is used to validate hypotheses on previously developed scales (Sharma, 1996).

In this study, Confirmatory Factor Analysis was used. The methodology used the seven steps for performing a Factor Analysis (Hair et al., 1998, p 120). In this research, the following assumptions and criteria were used for the Factor Analysis:

- ❑ A sample size of 104 was achieved.
- ❑ For a sample size of 100, variables with Factor Loadings of less than 0.55 should be deleted (Hair et al., 1998, p 112) as they do not belong to the factors.
- ❑ One measure that is often used to establish whether a factor analysis will be worthwhile is the Kaiser Meyer-Olkin (KMO) index. It measures whether partial correlations among variables are small. KMO values less than 0.7 are generally not acceptable (Kaiser, 1974).

The objective of the pilot analysis is to summarize the data in the minimum number of factors. Therefore, the component analysis method was used and the following steps employed to interpret the factors: (Hair et al., 1998, p 106):

- Computation of the unrotated factor matrix.
- Factor rotation. In this pilot study the Varimax method was used (Kinnear & Gray, 2000, p 383)
- Interpretation of the factor matrix.

Validation of factor analysis was achieved through confirmatory factor analysis (CFA) and through Structural Equation Modelling, SEM, (Hair et al., 1998, p 115).

This pilot study is a CFA study, as the original work of Agarwal and Karahanna, 2000

could be classed as the initial factor analysis. In this pilot study, SEM was carried out using AMOS v4 software.

### Measurement Model

The characteristics of the sample used in this study are displayed in Table 1 below and the descriptive statistics for the data collected are displayed in Table 2, attached as Appendix B.

Years	Mean	Standard Deviation	Missing data
Age	24.5	3.25	0
Web experience	3.2	1.43	0
Work experience	5.1	2.7	0
Gender	Male: 49% Female: 51%		

Table 1 Sample characteristics

The variables defined for data collection are presented in Appendix C as Table 3.

A Factor Analysis (FA) was carried out on the data collected: Correlations below 0.55 are not considered significant on samples of 100, so correlations below that were eliminated (Hair et al., 1998, p112). The result was a factor model with eight factors. The eight factor model eliminated 76.29% of error (see Appendix D, Table 4) and maintains the principle of parsimony (Hair et al., 1998). The correlation matrix for the rotated factor analysis is displayed as Table5, below.

The eight factor model was also confirmed by the Scree plot of Eigenvalues; Eigenvalues should be  $>1$  ideally (Hair et al., 1998). The values start to even out and drop below one after the eighth factor – see figure 6 below.

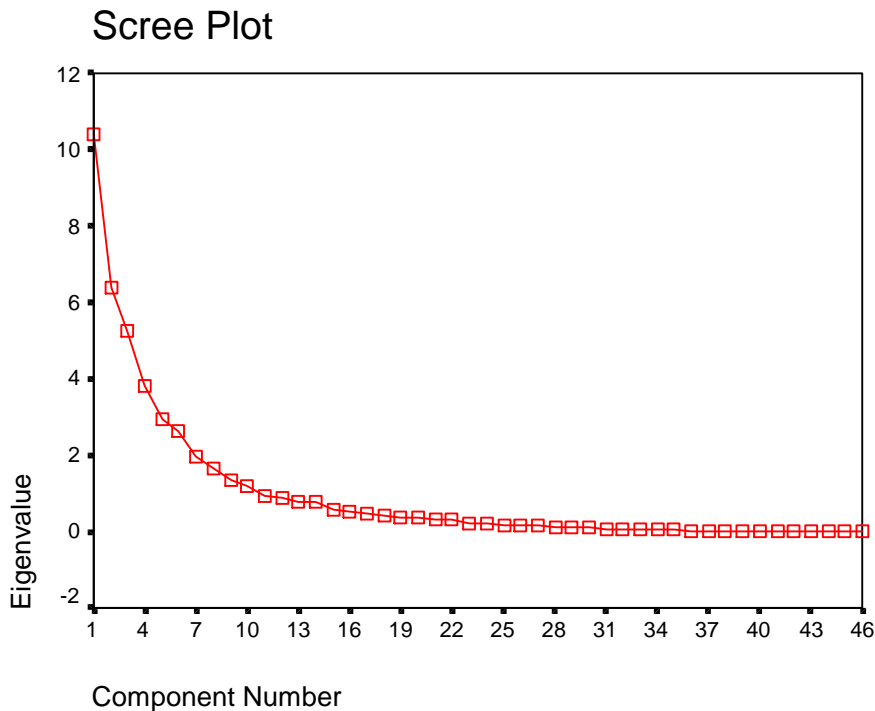


Figure 6: Scree plot of pilot sample factor analysis

The eight factor model eliminated a number of variables: PE1, PE2, PE3, C15 and C16 were all eliminated; these variables belonged to the Constructs of “Perceived Ease of Use” (PE1-PE3) and “Control” (C15 & C16). The eight-factor model is a significant difference from the model constructed by Agarwal & Karahanna (2000); The Constructs of Control, Curiosity, Heightened enjoyment, Perceived Usefulness and Perceived Ease of Use were not clearly identifiable.

	Component							
	1	2	3	4	5	6	7	8
tempdis1								.665
tempdis2								.746
tempdis3								.713
tempdis4								.809
tempdis5								.774
focimm1					.800			
focimm2					.787			
focimm3					.780			
focimm4					-.727			
focimm5					.783			
heightenj1			.842					
heightenj2			.746					
heightenj3			.734					
heightenj4			-.748					
curious1			.746					
curious2			.716					
curious3			.700					
easeuse4				.937				
useful1				.931				
useful2				.781				
useful3				.689				
useful4				.903				
persinn1							.693	
persinn2							-.704	
persinn3							.702	
persinn4							.658	
play1		.794						
play2		.850						
play3		.731						
play4		.913						
play5		.663						
play6		.782						
play7		.721						
behavint1						.940		
behavint2						.946		
behavint3						.946		
selfeff1	.702							
selfeff2	.564							
selfeff3	.725							
selfeff4	.712							
selfeff5	.846							
selfeff6	.785							
selfeff7	.711							
selfeff8	.760							
selfeff9	.857							
selfeff10	.714							

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 9 iterations.

Table 5: Varimax rotated factor matrix for user acceptance

The Factor Analysis did not support the original research model structure, in so far as eight factors were identified, some of which did not correspond to those identified in the Agarwal and Karahanna model. Consequently, the new factors were assigned names (see Table 6) that reflected their composite nature – being derived from elements of more than one of the research model constructs.

### Structural Model

The factors derived from the FA are described in Table 6.

<b>Factor</b>	<b>Research Model Construct</b>	<b>New Construct Name</b>
1	Self Efficacy	<i>Self Efficacy</i>
2	Playfulness	<i>Playfulness</i>
3	Heightened Enjoyment & Curiosity	<i>Pleasurable Discovery</i>
4	Perceived Ease of use and Perceived usefulness	<i>Perceived Function</i>
5	Focused Immersion	<i>Focused Immersion</i>
6	Behavioural Intention	<i>Behavioural Intention</i>
7	Personal Innovativeness	<i>Personal Innovativeness</i>
8	Temporal Dissociation	<i>Temporal Dissociation</i>

Table 6: New Constructs

Each of these eight new Constructs (factors) was tested for reliability by calculating the Cronbach's Alphas. These are given in Table 7 below.

<b>Construct</b>	<b>Cronbach's Alpha</b>	<b>Standardised Item Alpha</b>
Self Efficacy	0.9192	0.9222
Playfulness	0.9196	0.9215
Pleasurable Discovery	0.6318	0.6873
Perceived Function	0.9336	0.9357
Focused Immersion	0.5498	0.5345
Behavioural Intention	0.9911	0.9912
Personal Innovativeness	0.0120	0.0984
Temporal Dissociation	0.8493	0.8488

Table 7: New Construct Cronbach's Alphas

Higher values of Cronbach’s alpha (on the scale 0 to 1) indicate a higher reliability (Hair et al., 1998, p 579). Therefore, the reliability of the construct labelled “Personal Innovativeness” must be questioned. Also, but to a lesser extent, the construct labelled “Focussed Immersion” appears to have a relatively weak reliability. Therefore, these two constructs were eliminated prior to conducting the Structural Equation Modelling.

Descriptive statistics were run on the new constructs. The results are summarised in Table 8 below:

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Skewness</b>		<b>Kurtosis</b>	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Self efficacy	104	-3.40709	1.88073	-2.2030988E-16	1.0000000	-.720	.237	.781	.469
Playfulness	104	-2.79372	1.77370	-1.1275703E-17	1.0000000	-1.007	.237	1.044	.469
Pleasurable Discovery	104	-2.85189	1.81255	1.179612E-16	1.0000000	-.881	.237	.872	.469
Perceived Function	104	-3.38266	2.34234	-2.7408631E-16	1.0000000	-.455	.237	1.822	.469
Bahavioural Intention	104	-2.09527	1.62248	7.372575E-17	1.0000000	-.230	.237	-1.090	.469
Temporal Dissociation	104	-3.11167	2.26512	6.310057E-17	1.0000000	-.739	.237	1.900	.469
Valid N (listwise)	104								

Table 8: Descriptive statistics for new constructs

Two of the descriptive statistics, Skewness and Kurtosis, provide important insight into how the construct data compares to a normally distributed population. Kurtosis is a measure of how peaked or flat the distribution curve is and Skewness provides a measure of the symmetry of the distribution.

For Skewness and Kurtosis, there are recommended guidelines concerning what constitutes a “normal” population: Hair et al. (1998), p 72 observe:

“...a calculated value exceeding  $\pm 2.58$  indicates we can reject the assumption about normality of the distribution at the .01 probability level. Another commonly used critical value is  $\pm 1.96$ , which corresponds to a .05 error level.”

As can be seen from the data, all values fall within the  $\pm 1.96$  critical value.

For the study of the interrelationships between the constructs, structural equation modelling estimation was applied. This technique allows the researcher to conduct a series of separate, but interdependent multiple regression equations at the same time; the technique provides the researcher with the ability to identify and represent unobserved concepts in relationships. The analysis in this study was conducted using AMOS 4, developed by James L. Arbuckle. The reason for using this software was twofold: Firstly, its ease of use and secondly, the fact that it interfaces directly with SPSS version 10.

The seven stages for conducting Structural Equation Modelling, SEM, (Hair et al., 1998 p 592) were applied:

### **Stage 1: Developing a theoretically based model.**

SEM is based on causal relationships. In this research, the theoretically based model was initially derived from the work of Agarwal & Karahanna (2000) and the model

that they proposed, given that the pilot research described above found some variables and constructs unreliable as measures for the sample selected.

### Stage 2: Constructing a path diagram of causal relationships

The initial path diagram used in the analysis is illustrated in Figure 7 below.

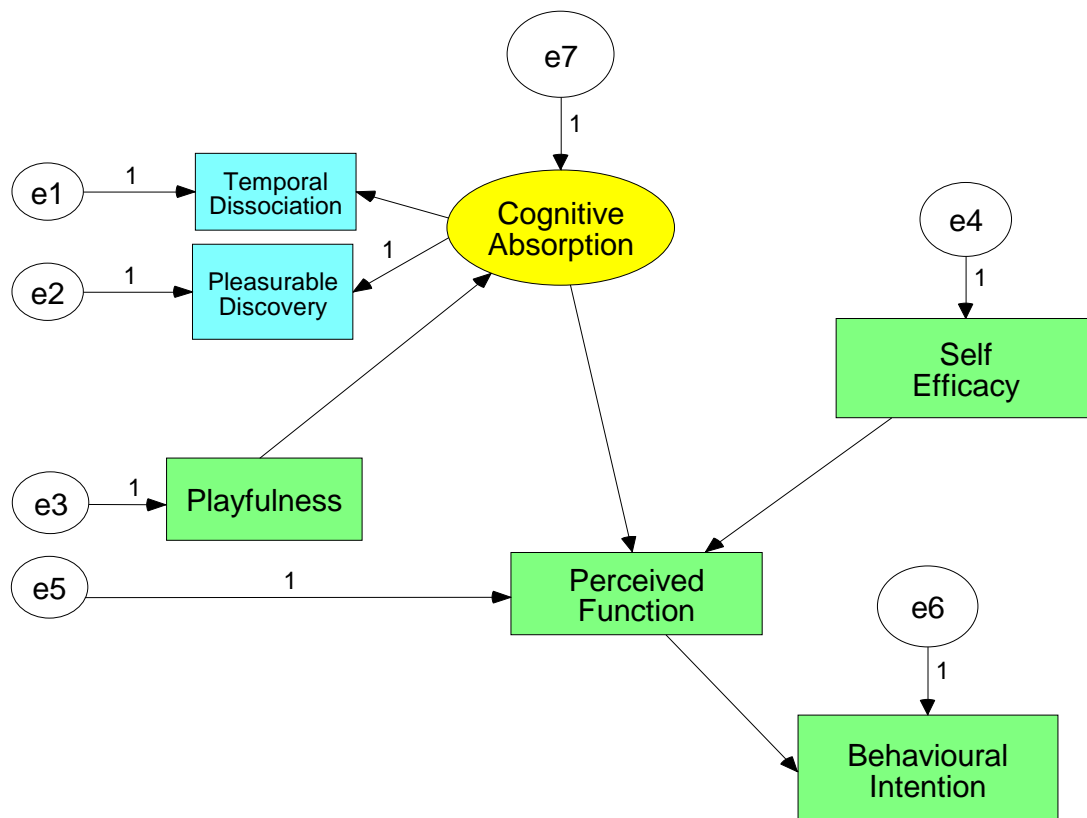


Figure 7: Initial Path diagram used in SEM analysis

**Stage 3: Converting the path diagram into a set of structural and measurement models:**

In this research, the Amos computer programme, based on the path diagram constructed, produces the equations.

**Stage 4: Choosing the input matrix type and estimating the proposed model.**

For this research, the data from the constructs resulting from the factor analysis were used.

**Stage 5: Assessing the identification of the structural model.**

The model described by figure 6 above did not meet these criteria and, therefore, had to be modified. The modifications are described in Stage 7 below.

**Stage 6: Evaluating the Goodness-of-fit criteria.**

The overall model fit has to be assessed using one or more goodness-of-fit measures. The likelihood-ratio (Chi square) is a fundamental measure of fit and large values relative to the number of degrees of freedom, with a statistical significance level exceeding 0.05, are recommended. Chi Square is very sensitive to sample size and a minimum sample size of 100 is recommended (Hair et al., 1998).

A second key measure is the goodness-of-fit index (GFI). It is a non-statistical measure with a range from 0 (poor fit) to 1 (perfect fit). A value of >0.90 is desirable.

The Non-Centrality Parameter (NCP) is a third measure and an alternative to Chi square that does not depend on sample size. The columns in the Amos printout

labelled LO90 and HI90 provide the lower and upper limits of a 90% confidence interval. Further measures include the Comparative Fit Index (CFI) – values .0.90 are desirable; The Tucker-Lewis coefficient (TLI) also known as the Bentler-Bonett non-normed fit index (NNFI). Again, values exceeding 0.90 are desirable. The parsimonious fit measure relates the goodness of fit of the model to the number of coefficients required to achieve the level of fit. The Adjusted goodness-of-fit index (AGFI) is based on that premise. A score greater than 0.90 is desirable.

### **Stage 7: Interpreting and modifying the model**

The model described by figure 7 was found to be invalid and was re-specified to a simpler model by examination of the data produced by the Amos programme.

The modified model is illustrated in Figure 8, below and the key statistics for this model are described in Table 9 below:

Type of Measure	Statistic	Value
<b>Absolute Fit</b>	Degrees of Freedom	11
	Sample size	104
	Chi Square	690.194
	GFI	1.0
	NCP	679.194
		HI=769.014
		LO=596.775
<b>Parsimonious Fit</b>	AGFI	1.0
<b>Incremental Fit</b>	NFI	1.0
	IFI	1.0
	Hoelter's Critical N	3 at p=0.05 and 4 at p=0.01

Table 9: Modified SEM statistics

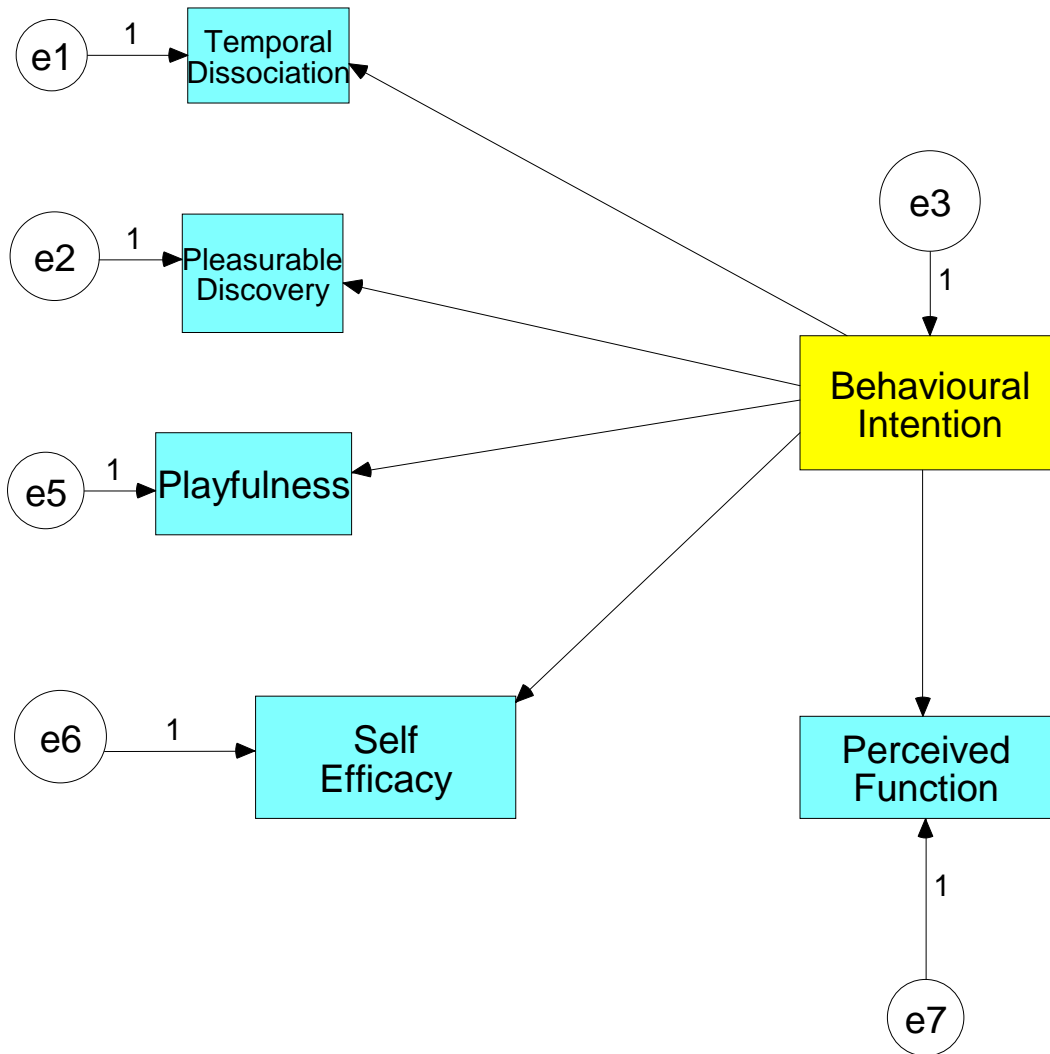


Figure 8: Modified Model

The model that best fits the results obtained and that is illustrated in Figure 7 above indicates a simple relationship between behavioural intention to use an information technology and the other constructs identified by the factor analysis. The model does not support the concept of cognitive absorption. This result is significantly different from that anticipated and represented by the original research model in figure 4 above.

A greater surprise is the identification of the construct labelled “Perceived Function”, formed from elements of both Perceived Ease of Use and Perceived Usefulness; however, the analysis clearly demonstrated that there were not two distinctly identifiable constructs present.

The construct labelled “Pleasurable Discovery” was identified through the FA as a hybrid of the constructs labelled by Agarwal & Karahanna as “Heightened Enjoyment” and “Curiosity”.

Table 10 below, documents the summary of hypothesis tests:

Hypothesis	Support
H1: PU → BI	Yes
H2: PEOU → BI	Partial
H3: PEOU → PU	No
H4: CA → PEOU	No
H5: CA → PU	No
H6: CPS → CA	No
H7: PI → CA	No

Table 10: Summary of Hypothesis Tests

## **Limitations**

It is important to understand any limitations to the research that should be considered when reading the conclusions and discussion that follow (Cook & Campbell, 1979).

The population sampled was a group of accounting professionals working for a large firm. One would expect such a population, although a mixture of ages and a near 50:50 split between male and female, to be familiar with and experienced in using information technologies. Further, because of the recruitment strategies used by the company, the population might not be typical of the general UK industrial workforce and so their behavioural intention to use certain information technologies and the factors that influence that may not be generalisable to the whole workforce population.

The conclusions drawn in this study are also based on data collected around one form of information technology only (the Internet). Therefore, it should not be assumed that all technologies would have produced the same result. Also, Self-Efficacy was assessed at a general rather than a task-specific level; this might have had an effect on the outcome.

Finally, the sample size used for this study was 104; close to the minimum of 100 recommended (Hair et al., 1998).

## **DISCUSSION AND CONCLUSIONS**

The research was conducted through a desire to understand what influences a person's decision to use the Internet as an information technology; more specifically, what types of factors would influence a person's decision to use a business to business electronic procurement information technology. In this pilot study, the chosen starting point was taken as TAM (a validated model) and in particular, a modification proposed and tested by Agarwal & Karahanna that took into account a broad range of influences.

The research conducted does not support the concept of cognitive absorption per se, but recognisable elements of that proposed construct are supported: The influence of Temporal Dissociation, Playfulness and the newly identified construct of Pleasurable Discovery (all of which were elements of the proposed CA construct) on Behavioural Intention to use an information technology is supported. The influence of Perceived Usefulness and Perceived Ease of Use on Behavioural Intention to use the technology is supported in so far as the construct identified as Perceived Function does consist of elements of the other two constructs, although the data did not support their individual existence.

From the results of the research, it is possible to conclude that behavioural intention to use an information technology is influenced by a mixture of practical and personal drivers: Practical in terms of the function of the IT (Perceived Function) and prior experience and confidence with IT (Self efficacy); personal in terms of how involved the person feels with the IT (Temporal Dissociation), how enjoyable the experience is

(Pleasurable Discovery) and the person's innate propensity to experiment (Playfulness) with the information technology.

This result partially supports the research of Agarwal and Karahanna (2000) and partially supports TAM (Davis et al., 1989). However, the model presented here is a simple model demonstrating a number of influences on behavioural intention to use a technology (the Internet in this case). The model does support the construct of "Temporal Dissociation", indicating that the "holding power" or ability of a person to become "engaged" in the Internet (technology) does influence a person's intention to use the technology.

The results of this research apply to a sample population of accountants who have access to Internet and intranet technology on a daily basis. The results reflect the factors that influence the acceptance of the technology by that sample who, in general, are graduates with a first class or upper second-class degree from University. This sample may not be representative of industry as a whole (see Further Research below).

In practice, the results obtained from this research may be of use to Managers and Software companies in predicting the potential adoption of the Internet through knowledge of the target audience. That is, if companies understand the drivers for using a particular website (in this case) it should be possible to build into that site certain features which are more likely to retain users once they have used it once. Further, by understanding the potential users experience with IT and some of their

more innate attributes such as “playfulness” and “pleasurable discovery” it may be possible to target potential users more effectively.

If Internet-based technologies are to be widely accepted, an understanding of what determines whether or not potential users will use them is vital. This research provides an insight into what some of those factors may be, grounded in existing and validated theories.

### **FURTHER RESEARCH**

Areas for further research abound as a result of this study. One obvious consideration is the nature and size of the sample used: This study was based on the responses of 104 people; perhaps a larger sample from a similar population could be used to confirm and validate the model presented in figure 8. Alternatively, the model could be tested for its generalizability by choosing a different population completely. For example, one engaged in using the Internet to purchase goods and services for business.

Research could focus on other countries. This research was conducted in the UK, whereas Agarwal & Karahanna’s research was carried out in the U.S.A. Would the result be substantially different in France, Germany or Russia?

Further research could be conducted concerning methodology, either by sampling a similar population to the one chosen here and using the exact method chosen by Agarwal & Karahanna (2000) or by varying the methodology used in this research.

A further area of research might concentrate on some of the antecedents of the constructs used here and identified by Lederer et al. (2000). For example information quality on a website. This could be extended to examine factors that determine or measure the overall quality of an Internet website.

Research based on the concepts of “engagement” (Webster & Ho, 1997) could be revisited and extended to identify and build instruments to measure the factors that engage Internet users.

Such lines of research could be useful to companies wishing to improve their websites and ensure a high degree of customer / user loyalty.

## **APPENDIX**

### **LIST OF ABBREVIATIONS USED IN THIS PAPER**

**CA** – Cognitive Absorption

**FA** – Factor analysis

**IT** – Information Technology

**PLS** – Partial Least Squares

**SEM** – Structural Equation Modelling

**TAM** – Technology Acceptance Model

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## **APPENDIX A**

Business 2 Business Electronic Commerce Research

Dear .....,

The attached questionnaire has been designed to collect information concerning professional peoples' views on electronic commerce in general and the future of the Internet as a medium for conducting commercial activities.

Please complete the whole questionnaire and return it to me in the prepaid envelope provided.

Thank you for your time.

**Jon Moon**

---

Please circle the response on scale that matches your experience:

**TD1. Time appears to go by very quickly when I am using the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**TD2. Sometimes I lose track of time when I am using the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**TD3. Time flies when I am using the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**TD4. Most times when I get on the web, I end up spending more time than I had planned.**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**TD5. I often spend more time on the web than I had intended**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**FI6. While using the web, I am able to block out most other distractions**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**FI7. While on the web, I am absorbed in what I am doing**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**FI8. While on the web, I am immersed in the task I am performing**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**FI9. When on the web, I get distracted by other attentions very easily**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**FI10. While on the web, my attention does not get diverted very easily**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**HE11. I have fun interacting with the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**HE12. Using the web provides me with a lot of enjoyment**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**HE13. I enjoy using the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**HE14. Using the web bores me**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**C15. When using the web, I feel in control**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**C16. I feel that I have no control over my interaction with the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**C17. The web allows me to control my computer interaction**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**CU18. Using the web excites my curiosity**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**CU19. Interacting with the web makes me curious**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**CU20. Using the web arouses my imagination**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PE1. Learning to operate the web is easy for me**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PE2. I find it easy to get the web to do what I want it to do**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PE3. It is easy for me to become skilful at using the web**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PE4. Using the web improves my performance at work**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PU1. Using the web enhances my effectiveness at work**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PU2. Using the web enhances my productivity**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PU3. I find the web useful in my work activities**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PU4. Using the web improves my performance at work**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PI1. If I heard about a new information technology, I would look for ways to experiment with it**

<b>Strongly disagree</b>						<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PI2. In general, I am hesitant to try out new information technologies**

<b>Strongly disagree</b>						<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PI3. Among my peers, I am usually the first to try out new information technologies**

<b>Strongly disagree</b>						<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PI4. I like to experiment with new information technologies**

<b>Strongly disagree</b>						<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF1. When using the web I am spontaneous**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF2. When using the web I am imaginative**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF3. When using the web I am flexible**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF4. When using the web I am creative**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF5. When using the web I am playful**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF6. When using the web I am original**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**PF7. When using the web I am inventive**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**BI1. I plan to use the web in the future**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**BI2. I intend to continue using the web in the future**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

**BI3. I expect my use of the web to continue in the future**

<b>Strongly disagree</b>			<b>Neutral</b>			<b>Strongly agree</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

Often we are told about software packages that are available to make work easier. For the following questions, imagine that you were given a new software package for some aspect of your work. It doesn't matter specifically what this software package does, only that it is intended to make your work easier and that you have never used it before.

The questions below ask you to indicate whether you could use this unfamiliar software package under a variety of conditions. For each of the conditions, please indicate whether you think you would be able to complete the work using the software package. Circle either "Yes" or "No". Then, for each condition that you answered "Yes", please rate your confidence about your first judgement, by writing a number from 1 to 10, where 1 indicates "Not at all confident" and 10 indicates "Totally confident". You may enter any number in this range.

**I could complete the job using the software package.....**

	Yes/No	Confidence (1-10)
SE1. ...if there was no one around to tell me what to do as I go.	Yes No	_____
SE2. ...if I had never used a package like it before.	Yes No	_____
SE3. ...if I only had the software manuals for reference.	Yes No	_____
SE4. ...if I had seen someone else using it before trying it. Myself.	Yes No	_____
SE5. ...if I could call someone for help if I got stuck.	Yes No	_____
SE6. ...if someone else had helped me get started.	Yes No	_____
SE7. ...if I had a lot of time to complete the job for which The software was provided.	Yes No	_____
SE8. ...if I had just the built-in help facility for assistance.	Yes No	_____
SE9. ...if someone showed me how to do it first.	Yes No	_____
SE10. ...if I had used similar packages like this one before to do the job.	Yes No	_____

## **APPENDIX B**

VAR	N	Mean	SD	Variance	Skewness	Std. Error	Kurtosis	Std. Error
tempdis1	104	5.00	1.21	1.476	-.828	.237	.407	.469
tempdis2	104	4.62	1.24	1.538	-.464	.237	-.429	.469
tempdis3	104	4.92	1.17	1.373	-.587	.237	.251	.469
tempdis4	104	4.85	1.24	1.549	-.257	.237	-.050	.469
tempdis5	104	4.69	1.29	1.671	-.229	.237	-.269	.469
focimm1	104	4.28	1.19	1.407	-.133	.237	-.272	.469
focimm2	104	4.41	1.10	1.216	.002	.237	-.673	.469
focimm3	104	4.40	.97	.942	-.308	.237	-.281	.469
focimm4	104	3.49	1.01	1.029	-.201	.237	.075	.469
focimm5	104	4.19	.98	.953	-.461	.237	.236	.469
heightenj1	104	4.46	1.15	1.319	-.433	.237	-.072	.469
heightenj2	104	3.93	1.13	1.287	-.558	.237	-.409	.469
heightenj3	104	4.54	1.17	1.377	-.682	.237	-.353	.469
heightenj4	104	3.22	1.29	1.669	.679	.237	.618	.469
control1	101	4.07	1.46	2.145	-.103	.240	-.624	.476
control2	104	3.21	1.41	1.994	.586	.237	-.071	.469
control3	104	4.10	1.03	1.059	-.032	.237	-.029	.469
curious1	104	4.39	1.17	1.367	-.705	.237	.735	.469
curious2	104	4.44	1.02	1.045	-.425	.237	.366	.469
curious3	104	4.08	.98	.965	-1.034	.237	1.232	.469
easeuse1	104	4.88	1.25	1.559	-.327	.237	-.451	.469
easeuse2	104	4.17	1.49	2.222	-.375	.237	-.710	.469
easeuse3	104	4.27	1.11	1.228	-.860	.237	.855	.469
easeuse4	104	4.28	1.02	1.038	-.811	.237	.972	.469
useful1	104	4.28	.95	.902	-.658	.237	1.319	.469
useful2	104	3.95	.97	.939	-.033	.237	.818	.469
useful3	104	4.78	1.08	1.164	-.822	.237	1.719	.469
useful4	104	4.33	.93	.863	-.627	.237	1.889	.469
persinn1	104	2.68	.74	.549	-.289	.237	-.058	.469
persinn2	104	2.13	.80	.635	.123	.237	-.696	.469
persinn3	104	2.21	.75	.557	.062	.237	-.428	.469
persinn4	104	2.64	.74	.542	-.365	.237	-.008	.469
play1	104	4.17	.95	.902	-.425	.237	-.094	.469
play2	104	3.91	.85	.721	-.610	.237	.926	.469
play3	104	4.50	1.00	1.010	-.556	.237	.398	.469
play4	104	4.10	.92	.845	-.958	.237	.947	.469
play5	104	4.23	1.01	1.014	-.015	.237	.571	.469
play6	104	3.83	.85	.727	-1.095	.237	1.680	.469
play7	104	3.86	.98	.960	-.968	.237	.527	.469
behavint1	104	6.26	.78	.602	-.490	.237	-1.173	.469
behavint2	104	6.31	.76	.584	-.589	.237	-1.050	.469
behavint3	104	6.31	.76	.584	-.589	.237	-1.050	.469
selfeff1	104	4.77	2.68	7.189	.091	.237	-1.330	.469
selfeff2	104	4.15	2.51	6.287	.368	.237	-.910	.469
selfeff3	104	5.51	2.51	6.311	-.158	.237	-1.150	.469
selfeff4	104	6.03	2.27	5.174	-.783	.237	-.178	.469
selfeff5	104	7.15	2.03	4.112	-.520	.237	-.329	.469
selfeff6	104	7.21	2.11	4.440	-.907	.237	.272	.469
selfeff7	104	6.84	2.69	7.225	-.780	.237	-.223	.469
selfeff8	104	5.38	2.20	4.839	-.284	.237	-.248	.469
selfeff9	104	8.01	1.85	3.408	-1.374	.237	2.101	.469
selfeff10	104	7.96	1.99	3.979	-1.323	.237	1.436	.469

Table 2: Descriptive statistics

## APPENDIX C

<b>Construct</b>	<b>Label</b>	<b>Description</b>
<b>Temporal Dissociation</b>	TD1	Time appears to go by very quickly when I am using the web
	TD2	Sometimes I lose track of time when I am using the web
	TD3	Time flies when I am using the web
	TD4	Most times when I get on the web, I end up spending more time than I had planned.
	TD5	I often spend more time on the web than I had intended
<b>Focussed Immersion</b>	FI6	While using the web, I am able to block out most other distractions
	FI7	While on the web, I am absorbed in what I am doing
	FI8	While on the web, I am immersed in the task I am performing
	FI9	When on the web, I get distracted by other attentions very easily
	FI10	While on the web, my attention does not get diverted very easily
<b>Heightened Enjoyment</b>	HE11	I have fun interacting with the web
	HE12	Using the web provides me with a lot of enjoyment
	HE13	I enjoy using the web
	HE14	Using the web bores me
<b>Control</b>	C15	When using the web, I feel in control
	C16	I feel that I have no control over my interaction with the web
	C17	The web allows me to control my computer interaction
<b>Curiosity</b>	CU18	Using the web excites my curiosity
	CU19	Interacting with the web makes me curious
	CU20	Using the web arouses my imagination
<b>Perceived Ease of Use</b>	PE1	Learning to operate the web is easy for me
	PE2	I find it easy to get the web to do what I want it to do
	PE3	It is easy for me to become skilful at using the web
	PE4	Using the web improves my performance at work
<b>Perceived Usefulness</b>	PU1	Using the web enhances my effectiveness at work
	PU2	Using the web enhances my productivity
	PU3	I find the web useful in my work activities
	PU4	Using the web improves my performance at work

	<b>Label</b>	<b>Description</b>
<b>Personal Innovativeness</b>	PI1	If I heard about a new information technology, I would look for ways to experiment with it
	PI2	In general, I am hesitant to try out new information technologies
	PI3	Among my peers, I am usually the first to try out new information technologies
	PI4	I like to experiment with new information technologies
<b>Playfulness</b>	PF1	When using the web I am spontaneous
	PF2	When using the web I am imaginative
	PF3	When using the web I am flexible
	PF4	When using the web I am creative
	PF5	When using the web I am playful
	PF6	When using the web I am original
	PF7	When using the web I am inventive
<b>Behavioural Intention to Use</b>	BI1	I plan to use the web in the future
	BI2	I intend to continue using the web in the future
	BI3	I expect my use of the web to continue in the future
<b>Self Efficacy</b>	SE1	If there was no one around to tell me what to do as I go
	SE2	If I had never used a package like it before.
	SE3	If I only had the software manuals for reference.
	SE4	If I had seen someone else using it before trying it.
	SE5	If I could call someone for help if I got stuck
	SE6	If someone else had helped me get started.
	SE7	If I had a lot of time to complete the job for which the software was provided
	SE8	If I had just the built-in help facility for assistance
	SE9	If someone showed me how to do it first
	SE10	If I had used similar packages like this one before to do the job.

Table 3: Variables

## **APPENDIX D**

Component	Initial Eigenvalues	% of Variance	Cumulative %	Extraction Sums of Squared Loadings	% of Variance	Cumulative %	Rotation Sums of Squared Loadings	% of Variance	Cumulative %
	Total			Total			Total		
1	10.385	22.576	22.576	10.385	22.576	22.576	6.294	13.682	13.682
2	6.372	13.852	36.428	6.372	13.852	36.428	5.511	11.979	25.661
3	5.282	11.482	47.910	5.282	11.482	47.910	4.727	10.276	35.937
4	3.831	8.327	56.237	3.831	8.327	56.237	4.596	9.991	45.928
5	2.936	6.383	62.620	2.936	6.383	62.620	3.885	8.445	54.372
6	2.648	5.757	68.377	2.648	5.757	68.377	3.507	7.625	61.997
7	1.973	4.289	72.666	1.973	4.289	72.666	3.347	7.275	69.273
8	1.667	3.624	76.290	1.667	3.624	76.290	3.228	7.017	76.290
9	1.370	2.979	79.269						
10	1.174	2.552	81.821						
11	.951	2.068	83.889						
12	.887	1.928	85.817						
13	.775	1.685	87.502						
14	.754	1.639	89.141						
15	.594	1.292	90.432						
16	.537	1.168	91.600						
17	.469	1.019	92.619						
18	.425	.923	93.542						
19	.384	.834	94.376						
20	.344	.749	95.125						
21	.319	.695	95.819						
22	.292	.636	96.455						
23	.236	.513	96.968						
24	.200	.435	97.404						
25	.178	.386	97.790						
26	.161	.349	98.139						
27	.141	.306	98.445						
28	.131	.284	98.729						
29	9.538E-02	.207	98.937						
30	8.729E-02	.190	99.126						
31	8.238E-02	.179	99.306						
32	7.312E-02	.159	99.464						
33	6.613E-02	.144	99.608						
34	4.718E-02	.103	99.711						
35	3.499E-02	7.605E-02	99.787						
36	2.479E-02	5.389E-02	99.841						
37	2.154E-02	4.683E-02	99.888						
38	1.554E-02	3.379E-02	99.921						
39	1.093E-02	2.376E-02	99.945						
40	8.549E-03	1.858E-02	99.964						
41	7.009E-03	1.524E-02	99.979						
42	5.250E-03	1.141E-02	99.990						
43	2.591E-03	5.633E-03	99.996						
44	1.071E-03	2.328E-03	99.998						
45	7.776E-04	1.691E-03	100.000						
46	-7.751E-17	-1.685E-16	100.000						

Extraction Method: Principal Component Analysis.

Table 4: Total Variance