# Testing Control, Innovation and Enjoy as External Variables to the Technology Acceptance Model in a North American French Banking Environment

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**Abstract**

Nowadays banks are enhancing major objectives to challenge competition, competitiveness and growth. To comply with these new objectives they have developed new innovative channels of contacts and distribution of financial services to customers relying on the net: 'the Internet channel'. Based on the 'Technology Acceptance Model' this research will evaluate the impact of external latent variables 'Control', 'Innovation' and 'Enjoy' on the internal TAM model latent variables 'Ease of Use', 'Perceived Usefulness', 'Attitude towards Using' and 'Intention to Use' in a North American French Banking Environment. Results show a well structured model for on-line banking financial services that complies pretty well with all major criteria of structural equation modeling norms. The 'Control' latent variable has a significant effect on the TAM model latent variables 'Ease of Use and 'Attitude towards Using' while 'Innovation' has a sole impact on 'Intention to Use'. The 'Enjoy' latent variable has substantial impacts on 'Ease of Use', 'Attitude towards Using' and 'Intention to Use'.

**Keywords:** Technology Acceptance Model, on-line banking, Control, Innovation, Enjoy, Structural Equation Modeling

## 1. Introduction

Current usage and growth rates in the use of e-banking services in recent years (Fox, 2005) suggest that there is a huge potential in the offer of related Internet banking services in the unique French North American setting. This situation has been offset by the necessity to find out new ways of doing business, to increase revenues, control costs and improve the quality of service. On-line banking allows customers to do many banking operations (except

perhaps cashing money) through a telecommunication network without leaving one's home or business in a complete virtual environment (Lallmahamood, 2007; Legris, Ingham & Collerette, 2003; Mukherjee & Nath, 2003).

The services offered by Internet banking could include viewing all transactions and all accounts balances in real time, payment of bills, change of money in other currencies, transfers of money, stocks operations, purchase of all kind of insurances, purchase of travel tickets and travel packages, etc. (Ainin, Lim & Wee, 2005; Gerrard & Cunningham, 2003; Polatoglu & Ekin, 2001).

In a virtual environment two major factors should be taken into account when doing business. They are the risk of transactions and the confidence that customers could give to a virtual address. Customers who do not feel confident about a virtual address will not be loyal and will not do business with the bank even if they are satisfied (Lee, Kwon & Schumann, 2005; Gerrard & Cunningham, 2003; Anderson & Srinivasan, 2003).

The purpose of this research is to analyze the adoption of on-line banking services among people of Québec based on the Technology Acceptance Model (TAM) (Davis, 1989; Davis, Bagozzi & Warshaw, 1989, 1992; Mathieson, 1991) and the influence of external latent variables 'Control', 'Innovation' and 'Enjoy' on TAM latent dependent variables 'Ease of Use' (independent), 'Perceived Usefulness', 'Attitude towards Using' and 'Intention of Use'. These external latent variables are very important and many authors think they should be added to the TAM Model; as a matter of fact, we will add them as external variables to the core TAM Model and test them in a North American environment, particularly in the French financial environment.

## 2. Theoretical Background

### *2.1 The TAM Model Latent Variables*

#### 2.1.1 Ease of Use

The latent variable 'Ease of Use' is very important to acceptance of an information system because it is the basis of a system use (Davis et al., 1989). The perceived 'Ease of Use' refers to the degree to which the future user thinks that the system use will be effortless. A difficult system will be perceived as less useful by the user and will probably be abandoned (Davis, 1989).

All researches show evidence of significant effects of 'Ease of Use' perception on 'Intention to Use' directly or indirectly through 'Perceived Usefulness' and 'Attitude towards Using' (Venkatech & Bala, 2008; Wixom & Todd, 2005; Moon & Kim, 2001; Venkatesh & Morris, 2000). 'Ease of Use is a crucial factor for adopting and using services of on line banking (Gounaris & Koritos, 2008; Amin, 2007; Rigopoulos & Askounis, 2007). See hypothesis H1.

#### 2.1.2 Perceived Usefulness

The TAM model is based on the Theory of Reasoned Action (TRA, Ajzen & Fishbein, 1975; Fishbein & Ajzen, 1980), which seeks to explain behaviour and the intention of using technology including those factors that influence the user. The intended behaviour is determined by 'Perceived Usefulness' influenced by the technology 'Ease of Use' and the attitude in using this technology. The 'Perceived Usefulness' is defined as the subjective probability that the user will increase its productivity using a specific application in its work. In turn this application will help them do a better job, more efficiently (Davis et al., 1989). See hypothesis H1.

#### 2.1.3 Attitude towards Using

This latent variable is defined as the individual feeling towards behaviour objectives and realizations, It is a positive or negative feeling' evaluation. Nevertheless the bank customer's attitude towards new bank technologies has been extensively analysed in many researches because they determine which people are more able to adopt new electronic channels (McKechnie, Winklhofer & Ennew, 2006; Al Sukkar & Hassan, 2005). It has been demonstrated that user attitude has a strong, direct and positive effect on the real consumer intentions by using a new system or technology (Bobbitt & Dabholkar, 2001; Dishaw & Strong, 1999; Venkatech & Davis, 1996). In conclusion, customers with a more positive attitude to new technologies will be more motivated to use new bank on line products and financial services (Guerrero, Egea & Gonzalez, 2007). See hypothesis H2.

#### 2.1.4 Intention to Use

The Theory of Reasoned Action (TRA) as well as the TAM model says that the use of technology is determined by the intention to have a particular behaviour, the intention to use a technology. The behaviour to use a technology could be predicted by measuring the intention and other factors influencing the user's behaviour (Davis et al., 1989). In the online banking context some authors confirm that there is a significant relation between 'Intention to Use' and the actual use of banking operations via the Internet (Walker & Johnson, 2006). See hypotheses H3 and H4.

### *2.2 The External Latent Variables to the TAM Model*

#### 2.2.1 Control

Control refers to the availability of resources, opportunities and knowledge to have a specific behaviour (Monsuwé, Dellaerty & Ruyter, 2004), the TAM model does not include the 'Control' latent variable but some authors suggest its inclusion (Venkatesh, 2000). Specifically, the internal control refers to the knowledge and self-efficiency to accomplish a task and the external control refers to the environment. It could be interpreted as availability of technology and necessary resources (including personnel) to perform duties (Taylor & Todd, 1995).

The internal control and self-efficiency is related to the 'Ease of Use' perception because the more you feel comfortable with computer manipulation and on-line banking operations, the higher the efficiency feeling (Dabholkar & Bagozzi, 2002). Bank operations using Internet could be a new difficult and process for many customers. Much like adding or changing some operations keys, this creates discomfort and thoughts that they have lost control on the process (Davis et al., 1989). Other authors have related self-efficiency with the latent variable 'Perceived Usefulness' (Reid & Levy, 2008; Venkatesh & Bala, 2008). See hypothesis H5, H6 and H7.

#### 2.2.2 Enjoy

There is a multitude of empirical evidences on the importance of 'Enjoy' or 'Intrinsic Motivation' applied to the TAM Model (Venkatech & Bala, 2008). The 'Intrinsic Motivation' or 'Enjoy' comes from the experience itself and its consequences; this is more enjoyable because we experience the use of the computer and the technical system that we can control (Monsuwé et al., 2004). This brings to light the utilitarian and hedonic aspects that are considered crucial in the consumer's acceptance of a technology. Some people could be considered as problem solvers while others could be considered as seeking for fantasy, fun and sensorial excitement (Venkatech, 1999). The fun is a very important factor that has shown its influence in using computers and the Internet (Teo, Lim & Lai, 1999). It is related to people's perceived abilities and when these coincide with the perceived challenge, the user develops an intrinsic motivation or fun thus wanting to continue the activity. When the objectives are clear, our resources are at the challenge level and the feedback is immediate. We feel involved in the activity and intrinsically motivated. By the opposite, if the job requests abilities we don't have, work causes anxiety (Moon & Kim, 2001). See hypothesis H8, H10, H11.

#### 2.2.3 Innovation

The most innovating people are those who can use a new technology despite its complexity and risks. Such people will challenge uncertainty. This construct can differentiate people who will use innovation and will be considered as innovators from those who do not. This construct is very stable in describing individuals with little variation in different situations and settings (Robinson, Marshall & Stamps, 2005).

Considering on line bank operations, some authors (Lassar, Manolis & Lassar, 2005) have surprisingly found that general innovation predisposition has a significant negative effect on the use of online banking. These authors explain this finding by stating that Internet banking is not an exciting innovation. See hypothesis H9.

## 3. Methodology

### *3.1 The Questionnaire*

Data for this research stem from a questionnaire handed out to a convenience sample of full time students in a Quebec metropolitan Area University with 225 fully useful responses, including missing data, have been received.

The questionnaire is divided into 48 questions directly related to bank operations made by Internet and 10 general questions related to gender; age; level of education; social and personal questions; questions directly related to using the Internet and general questions related to Internet use and banking services. All respondents are at least 18 years old, have a bank account and make some too many bank operations using the Internet.

Insert Table 1 Here

In the table 2 we show the four TAM model latent variables 'Ease of Use', 'Perceived Utility', 'Attitude towards Use' and 'Intention of Use' used in our model as well as the observed variables all measured on a five points Likert Scale ranging from 'not agree at all' to 'completely agree'. The items or observed variables derive in part from a more extended questionnaire; these items have been directly adapted from the referenced literature and from the authors mentioned in the table 2. We used multi-item scales adapted to the suitability of the research, along with the fact that the instrument was translated into French and a prior confirmatory factor analysis was also performed. Some items were deleted on substantive and statistical grounds (Anderson and Gerbing, 1988), as the result only 20 items remained but all very significant for $p < 0.000$.

Insert Table 2 Here

The model is analyzed using Structural Equation Modeling; the original TAM model presents four latent variables, the 'Perceived Usefulness' using the Internet for banking operations, 'Attitude towards Use' of the Internet for banking operations and the 'Intention of use'. Three external latent variables: 'Control', 'Innovation' and 'Enjoy' were added to the model.

*3.2 Validation of Scales*

The measurement scales used in this research comply with all psychometric criteria established in the literature; in the TAM model, the latent variable 'Ease of Use' has been measured by three items, 'Perceived Usefulness' by four items, 'Attitude towards Use' by two items and the 'Intention of Use' by three items. As stated before, we had to add three external variables or dimensions, 'Control' measured by three items, 'Innovation' measured by three items and 'Enjoy' (enjoyment of use) measured by two items. Each item was measured on a five points' scale ranging from 'completely disagree' to 'completely agree'. The results obtained for the reliability analysis show that all Cronbach's Alpha for the latent variables are significant (Churchill, 1979) and superior to 0.70, like in table 6.

Before analyzing convergent and discriminant validity we proceeded to perform a confirmatory factor analysis (Table 3) with those latent variables appearing in figure 1. We kept only those loadings superior to 0.60 (except for Q44) (Hair, Anderson, Tatham & Black, 1999; Bagozzi & Baumgartner, 1994; Bagozzi & Yi, 1988).

Insert Table 3 Here

Table 4 shows that the confirmatory factor analysis model responds to the major acceptable criteria. Incremental indices CFI and the IFI are superior to 0.90 and the RMSEA is inferior to 0.09, so the model could be considered as significant.

Insert Table 4 Here

These tables allow us to confirm that the Critical ratios or Student T tests are very significant for $p < 0.05$ ($t > 1.96$) and that there is a significant convergent validity between the observed and the latent variables of the model.

The next stage will evaluate discriminant validity among factors to be sure that each factor (or latent variable) is specifically different of other factors. We can observe in table 5 that correlations between factors should not be superior to an 0.80 value which, is not the case for 'Ease of Use' (EU) and 'Control' (C) 0.903; 'Perceive Usefulness' (PU) and 'Attitude towards Use' (AU) 0.816 as well as on 'Intention of Use' 0.839; 'Attitude towards Use' (AU) and 'Intention to Use' (IU) 0.825. Usually the square root of the average variance extracted (AVE) should not be superior to the correlation between latent variables, thus rendering the correlation between 'Attitude towards Use' (AU) and 'Intention of Use' (0.825) acceptable because it is inferior to the AVE square root 0.915 (Fornell & Larcker, 1981). In conclusion, we can establish that there is substantial suspicion of lack of discriminant validity between 'Ease of Use' and 'Control' (0.761 vs. 0.903) and some between 'Perception Utility' with 'Intention of Use' (0.784 vs. 0.839) and 'Perception Utility' and 'Attitude towards Use' (0.784 vs. 0.816).

Insert Table 5 Here

The AVE figures in table 6 represent the extracted variance for each latent variable. They are superior to 0.50, which is usually recommended and accepted (Fornell & Larcker, 1981). The reliability and the Cronbach's alpha are superior to 0.70, which means that the instrument is indeed reliable.

Insert Table 6 Here

Traditional criteria were used to analyze the measurement of reliability and validity, Cronbach's alpha values and Average Variance Extracted measures provided evidence of measurement reliability (Fornell & Larcker 1981; Nunnally & Bernstein, 1994). The results indicate a reasonably good fit between the factor model and the observed data, the main fit indices are significant: Chi-square 359.145, ($df = 149$, $p<0.000$), the Comparative Fit Index (CFI) = 0.920, the Tucker Lewis Index (TLI) = 0.890 and the RMSEA = 0.079. (See Table 4).

In conclusion we can confirm that once tested, the scales comply with all psychometric properties established in the literature; in the next section, we will present the hypothesis the Model should test.

*3.3 The TAM Model*

Many versions of the TAM model have been used in different settings. We will adapt the general model for bank services offered on line. This new technology seems particularly suitable to the Internet operations for banking services (see figure 1). As previously stated we added three external latent variables to the TAM Model: 'Control', 'Innovation' and 'Enjoy'; next, we will test the following set of hypotheses:

3.3.1 Hypotheses Related to the TAM Model

H1. There is a significant positive relationship between the 'Ease of Use' and the 'Perceived Usefulness'.

H2. There is a significant positive relationship between the 'Perceived Usefulness' and 'Attitude towards Using'.

H3. There is a significant positive relationship between the 'Perceived Usefulness' and 'Intention to Use'.

H4. There is a significant positive relationship between 'Attitude towards Using' and 'Intention to Use'.

3.3.2 Hypothesis Involving External Variables

H5. There is a significant positive relationship between 'Control' and 'Ease of Use'.

H6. There is a significant positive relationship between 'Control' and 'Attitude towards Using'.

H7. There is a significant positive relationship between 'Control' and 'Intention to Use'.

H8. There is a significant positive relationship between 'Enjoy' and 'Ease of Use'.

H9. There is a significant positive relationship between 'Innovation' and 'Intention to Use'.

H10. There is a significant positive relationship between 'Enjoy' and 'Attitude towards Using'.

H11. There is a significant positive relationship between 'Enjoy' and 'Intention to Use'.

Insert Figure 1 Here

3.3.3 Results

3.3.3.1 The TAM Structural Model

The TAM structural model applied to online banking services offered in the province of Québec is highly significant. Table 7 shows that the Comparative Fit Index is superior to 0.90 as well as the Incremental Fit Index, the RMSEA is inferior to 0.09 and the confidence interval ranges from highly level of 0.069 to 0.09.

Insert Table 7 Here

The TAM model also has a high predictable capability. All $R^2$ displayed in Table 8 are superior to 0.50, the prediction strength increases with the introduction of the three external variables; comparing with the TAM basic model, the prediction increases 0.069 for 'Perceived Usefulness', 0.036 for 'Attitude towards Using' and 0.058 for 'Intention to Use'.

Insert Table 8 Here

3.3.3.2 Regression Weights and Measurement Model

Table 9 shows the standardized estimates for all relationships between latent variables in the structural model as well as loadings for all items on latent variables. All standardized regression weights are significant for $p<0.05$ (Student t or Critical Ratios are > 1.96), except for the relationship 'Control' → 'Intention to Use'. In figure 2 no relationships have been set up between 'Innovation' and 'Ease of Use', 'Innovation and 'Perceived Usefulness', 'Innovation' and 'Attitude towards Using' because these relations have been tested before and were not significant for $p<0.05$.

Insert Table 9 Here

Insert Figure 2 Here

## 4. Hypotheses Testing and Discussion

Table 10 shows the result of the hypothesis testing relative to the TAM Model. Hypotheses H1, H2, H3 and H4 are accepted and are perfectly significant and corroborate the nomological structure of the model.

The relationships 'Ease of Use' → 'Attitude towards Using' ($p=0.219$) as well as 'Ease of Use' →'Intention to Use' ($p=0.858$) have not been added because they are not significant to the model for $p < 0.05$.

The estimator value between 'Attitude towards Using' → 'intention of Use' without the direct relationship through 'Perceived Usefulness' to 'Intention to Use' should be 0.610 (significant for $p<0.05$) and significantly high in comparison to 0.297 (0.30 in Figure 2) if adding the direct relationship 'Perceived Usefulness' →'Intention to Use' in the model.

As was said before the only external variable relationship to the TAM model which is not significant is 'Control' →'Intention to Use'; this hypothesis is rejected, all the others are accepted.

Insert Table 10 Here

Understandably, the 'Control' external variable seems to have the most important impact on 'Ease of Use', but this variable does not have a significant impact on 'intention to Use'. This means that on-line banking use is easy, but it does not imply that customers will use it to buy financial services. There are many reasons for not using on-line banking even among users that control it well (security, confidence, risk, etc.).

The external variable 'Enjoy' reflects more a behaviour than an attitude and the correlation with 'Control' is very high (0.63); the relation between 'Control' and 'Intention to Use' could be indirectly mediating through the variables 'Innovation' or 'Enjoy'. In turn, external Variables 'Innovation' and 'Enjoy' have a substantial and a significant impact on 'Intention to Use' to justify the introduction of these variables in the model. Another major reason to adopt the TAM Model with the three external variables is due to the fact that there is a substantial and significant increase in the model predictability (table 8) for using on line banking.

In conclusion, our model integrates all latent variables of the TAM original Model; they are all very significant and the TAM Model could easily be applied to analyze the adoption of on line banking in a French environment in North America (Davis et al., 1989).

### *4.1 Limitations*

This research has some limitations; the first one could be the sample selection, which is made up of university students with proven abilities in computer manipulation, banking account(s) experience in the use of on-line banking. These people are very opened to new technologies; they enjoy and in majority prefer to have an Internet connection with their bank. For these reasons they think they have a reasonable control over on-line banking operations in the Internet. It would be interesting to see if similar results would be obtained with other subjects.

### *4.2 Management Implications*

To attract people and new users to online banking, banks and credit unions should offer a complete selection of financial services based on perceived usefulness and not only with an easy system to manipulate. Banks and credit unions should offer the same utility completing the financial services in Internet at the same level than those they offer at the branch. Banks should differentiate the products they offer from those of their competitors' and this differentiation will not come from technology or product complexity but from innovation and creativity.

A common problem with on line banking is to lose the financial counselling you normally get when going to the bank. For this reason it is important for the user-customer to have an easy access to direct help through special phone numbers for either customer support, chat opportunity, or customer e-mail help and support as well as develop all channels of interaction between branch and its users.

Banks in Canada are trying to start direct communication with their customers through special e-mail accounts they give to their customers; some countries are using Facebook and Twitter as communication channels in both directions for communicating news, offering new products, financial counselling and even the management of customer' complaints. This way of doing things through social networks seems to be much appreciated in some European countries.

## 5. Conclusion

The TAM model is strongly supported in a French North American banking (more specifically in Québec), the influence of the 'Perceived usefulness' on 'Attitude towards using' is very strong as well as the 'Attitude towards using' on the 'Intention of use'.

Our findings have significant meaning to encourage population of Québec (and by the way in French Canada) to use the Internet for making all their personal banking operations in a secure, easy and self-efficient way. All Canadian banks or Credit Unions operating in the province of Québec should be encouraged to continue investing and developing services offered via the net and complete the financial services offered by chat, e-mails, telephone, Internet, on line help and all other means enhancing and accelerating communication.

In conclusion to attract customers, banks should offer the same financial services via the Internet that they offer at the branch, this is beneficial for the customer and for the control of bank costs (Wang, Wang, Lin & Tang, 2003).

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Table 1. Sample Description

| | |
|---|---|
| **Universe** | People using Internet for bank operations |
| **Sample** | People with a bank account using on-line banking services |
| **Regional Area** | Ottawa-Gatineau area |
| **Data Collect Method** | Direct questionnaire |
| **Sample Size** | 225 useful questionnaires |
| **Collection Period** | September-November 2010 |

Table 2. Items in the Questionnaire

| Items in the questionnaire | |
|---|---|
| **Items (in French)** | **Adapted from** |
| **Attitude towards using** | |
| *5. Utiliser les services bancaires par Internet est une bonne idée.* | (Chau & Hu, 2002; Klopping & McKinney, 2004; Morris & Venkatesh, 2000; O'Cass y Fenech, 2003; Reid & Levy, 2008; Robinson et al., 2005) |
| *6. En général, mon attitude sur l'usage des services bancaires par Internet est positive.* | (Lu & Lin, 2002) |
| **Control** | |
| *14. J'ai un bon contrôle des opérations bancaires par Internet.* | (Chau & Hu, 2002) |
| *15. J'ai les connaissances informatiques nécessaires pour utiliser les services bancaires par Internet.* | (Chau & Hu, 2002; Morris & Venkatesh, 2000; Venkatesh, 2000) |
| *16. J'ai les connaissances financières nécessaires pour utiliser les services bancaires par Internet.* | (Chau & Hu, 2002; Morris & Venkatesh, 2000; Venkatesh, 2000) |
| **Enjoy/pleasure (Intrinsic Motivation)** | |
| *22. L'usage des services bancaires par Internet est amusant.* | (Childers, Carr, Peck & Carson, 2001; Pikkarainen, Pikkarainen, Karjaluoto & Pahnila, 2004; Venkatesh, 2000; Venkatesh, Speier & Morris, 2002) |
| *23. L'usage des services .bancaires par Internet est agréable.* | (O'Cass & Fenech, 2003; Pikkarainen, et al., 2004; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh, et al., 2002) |
| **Ease of Use** | |
| *24. Il est facile que les services bancaires fassent ce que je désire qu'ils fassent.* | (Agarwal & Prasad, 1998; Chan & Lu, 2004; Chen, Gillenson y Sherrell, 2002; Davis, 1989; Pikkarainen, et al., 2004; Robinson, Marshall & Stamps, 2005; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 1996, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002) |
| *25. Les services bancaires par Internet sont clairs et compréhensibles.* | (Agarwal & Prasad, 1998; Chen, et al., 2002; Davis, 1989; Pavlou, 2003; Pikkarainen, Pikkarainen, et al., 2004; Reid & Levy, 2008; Robinson, Marshall & Stamps, 2005; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 1996, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002; Wang, et al., 2003) |
| *26. Les services bancaires par Internet sont d'un usage facile.* | (Brown, et al., 2004; Chan & Lu, 2004; Chen, et al., 2002; Davis, 1989; O'Cass & Fenech, 2003; Pavlou, 2003; Pikkarainen, et al., 2004; Robinson, et al., 2005; Venkatesh & Bala, 2008; Venkatesh & Davis, 1996, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002; Wang, et al., 2003) |
| **Intention to use** | |
| *31. Si j'avais accès aux services bancaires par Internet je les utiliserais.* | (Agarwal & Prasad, 1998; Chen, et al, 2002; Pavlou, 2003; Robinson, et al., 2005; Venkatesh, 2000; Venkatesh & Davis, 1996, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002; Wang, et al., 2003) |
| *32. Je veux utiliser les services bancaires par Internet plutôt que d'effectuer mes opérations au comptoir de la banque.* | (Agarwal & Prasad, 1998) |
| *33. J'ai l'intention dans l'avenir d'augmenter mon usage des services bancaires par Internet.* | (Chau & Hu, 2002; Lu & Lin, 2002; Pavlou, 2003; Reid & Levy, 2008; Wang, et al., 2003) |
| **Innovation** | |
| *42. Mes amis et mes camarades de travail me considèrent comme une bonne source d'information et de conseils pour Internet.* | (Lassar, Manolis & Lassar, 2005; O'Cass & Fenech, 2003) |
| *43 Mes amis et mes camarades de travail me demandent des conseils sur Internet et les pages web à visiter.* | (Lassar, et al., 2005; O'Cass & Fenech, 2003) |
| *44. Habituellement j'aime essayer de nouveaux produits.* | (Agarwal & Prasad, 1998; Robinson, et al., 2005) |

| **Perceived Usefulness** | |
|---|---|
| *45. Effectuer des opérations bancaires par Internet permet d'économiser du temps.* | (Chen, et al., 2002; Davis, 1989) |
| *46. Je trouve que les services bancaires offerts sur Internet sont utiles.* | (Brown, et al., 2004; Chau & Hu, 2002; Chen, Gillenson & Sherrell, 2002; Davis, 1989; Klopping & McKinney, 2004; O'Cass & Fenech, 2003; Pavlou, 2003; Reid & Levy, 2008; Robinson, et al., 2005; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh and Davis, 1996, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002; Wang, et al., 2003) |
| *47. Les services bancaires par Internet me permettent de gérer mes finances plus efficacement.* | (Agarwal & Prasad, 1998; Brown et al., 2004; Chan & Lu, 2004; Chau & Hu, 2002; Chen, Gillenson & Sherrell, 2002; Davis, 1989; O'Cass & Fenech, 2003; Pikkarainen, et al., 2004; Reid & Levy, 2008; Robinson, et al., 2005; Venkatesh, 2000; Venkatesh & Bala, 2008; Venkatesh & Davis, 2000; Venkatesh & Morris, 2000; Venkatesh, et al., 2002) |
| *48. La plupart des opérations bancaires que j'ai besoin d'effectuer sont disponibles en services bancaires par Internet.* | (Akinci, Aksoy & Atilgan, 2004) |

Table 3. Standardized Regression Weights for the Confirmatory Model

| | | Estimate | S.E. | C.R. | p |
|---|---|---|---|---|---|
| Q45_SBI_permet_économiser_temps | <--- Perceived Utility | 0.782 | | | |
| Q46_Je_trouve_SBI_utiles | <--- Perceived Utility | 0.898 | .096 | 14.535 | *** |
| Q47_SBI_permet_gérer_finances_personnelles_efficacement | <--- Perceived Utility | 0.770 | .127 | 12.137 | *** |
| Q6_Attitude_positive_sur_SBI | <--- Attitude towars use | 0.931 | | | |
| Q5_SBI_bonne_idée | <--- Attitude towars use | 0.902 | .044 | 20.614 | *** |
| Q31_Si_avais_accès_aux_SBI_je_les_utiliserais | <--- Intention of use | 0.751 | | | |
| Q32_Veut_utiliser_SBI_plutôt_que_comptoir | <--- Intention of use | 0.776 | .094 | 11.306 | *** |
| Q33_Intention_augmenter_usage_SBI | <--- Intention of use | 0.789 | .092 | 11.531 | *** |
| Q26_Usage_facile | <--- Easiness of Use | 0.776 | .101 | 10.036 | *** |
| Q25_SBI_clairs_compréhensibles | <--- Easiness of Use | 0.830 | .099 | 11.083 | *** |
| Q24_Usage_SBI_fait_ce_que_je_veux_pour_moi | <--- Easiness of Use | 0.711 | | | |
| Q16_Ai_connaissances_financières_pour_SBI | <--- Control | 0.720 | .101 | 10.554 | *** |
| Q15_Ai_connaissances_informatiques_pour_SBI | <--- Control | 0.707 | .085 | 10.330 | *** |
| Q14_Bon_contrôle_des_opérations_SBI | <--- Control | 0.769 | | | |
| Q42_Suis_source_information_conseil_pour_Internet | <--- Innovation | 0.858 | | | |
| Q43_Amis_me_demandent_conseil_pour_Internet | <--- Innovation | 0.851 | .109 | 9.709 | *** |
| Q44_J_aime_essayer_nouveaux_produits | <--- Innovation | 0.489 | .075 | 6.865 | *** |
| Q23_Usage_SBI_agréable | <--- Enjoy | 0.952 | | | |
| Q22_Usage_SBI_amusant | <--- Enjoy | 0.743 | .077 | 11.752 | *** |
| Q48_Plupart_opérations_bancaires_SBI_disponibles | <--- Perceived Utility | 0.660 | .112 | 10.073 | *** |

Table 4. Confirmatory Model Fit

| **Chi-Square** | **Degrees of Freedom** | **Probability** | **NFI** | **IFI** | **CFI** | **RMSEA** |
|---|---|---|---|---|---|---|
| 359.145 | 149 | 0.000 | 0.876 | 0.924 | 0.922 | 0.079 |

Table 5. Correlation between Latent Variables for the TAM Model. In Diagonal the AVE Square Roots

| Latent Variables | EU Easiness of Use | PU Perception Utility | AU Attitude towards Use | IU Intention of Use | C Control | I Innovation | E Enjoy |
|---|---|---|---|---|---|---|---|
| **EU** | **0.761** | | | | | | |
| **PU** | 0.691 | **0.784** | | | | | |
| **AU** | 0.654 | 0.816 | **0.915** | | | | |
| **IU** | 0.650 | 0.839 | 0.825 | **0.772** | | | |
| **C** | 0.903 | 0.703 | 0.732 | 0.652 | **0.732** | | |
| **I** | 0.290 | 0.256 | 0.191 | 0.315 | 0.345 | **0.752** | |
| **E** | 0.638 | 0.630 | 0.699 | 0.760 | 0.637 | 0.227 | **0.853** |

Table 6. Reliability Measures and Average Extracted Variance

| Latent Variables | Cronbach's Alpha | Reliability | AVE |
|---|---|---|---|
| **EU** | 0.795 | 0.805 | 0.580 |
| **PU** | 0.846 | 0.862 | 0.615 |
| **AU** | 0.795 | 0.918 | 0.839 |
| **IU** | 0.818 | 0.816 | 0.596 |
| **C** | 0.781 | 0.776 | 0.536 |
| **I** | 0.766 | 0.788 | 0.566 |
| **E** | 0.819 | 0.841 | 0.728 |

Table 7. Fit Indices for the TAM Model with External Variables

| Chi-Square | Degrees of Freedom | Probability | NFI | IFI | CFI | TLI | RMSEA |
|---|---|---|---|---|---|---|---|
| 375.736 | 156 | 0.000 | 0.870 | 0.920 | 0.918 | 0.889 | 0.079 |

Table 8. Capability of Prediction for the Basic TAM Model Versus the TAM Model with External Variables

| Latent Variables | Ease of Use | Perceived Usefulness | Attitude towards Using | Intention to Use |
|---|---|---|---|---|
| **$R^2$ for the TAM Model with the three external variables** | 0.876 | 0.564 | 0.727 | 0.821 |
| **$R^2$ for the basic TAM Model without external variables** | - | 0.495 | 0.691 | 0.763 |

Table 9. Standardized Regression Weights with Standard Errors. Student T and Probability for the TAM Model

| | | | Estimate | S.E. | C.R. | p |
|---|---|---|---|---|---|---|
| Ease of Use | <--- | Control | .786 | .104 | 7.587 | *** |
| Ease of Use | <--- | Enjoy | .214 | .060 | 2.781 | .005 |
| Perceived Usefulness | <--- | Ease of Use | .751 | .062 | 8.928 | *** |
| Attitude towards use | <--- | Perceived Usefulness | .543 | .131 | 6.884 | *** |
| Attitude towards use | <--- | Control | .156 | .105 | 1.813 | .070 |
| Attitude towards use | <--- | Enjoy | .273 | .065 | 4.059 | *** |
| Intention to use | <--- | Attitude towards use | .297 | .105 | 2.664 | .008 |
| Intention to use | <--- | Control | -.142 | .111 | -1.476 | .140 |
| Intention to use | <--- | Perceived Usefulness | .466 | .169 | 4.323 | *** |
| Intention to use | <--- | Enjoy | .342 | .075 | 4.079 | *** |
| Intention to use | <--- | Innovation | .118 | .044 | 2.164 | .030 |
| Q45_SBI_permet_économiser_temps | <--- | Perceived Usefulness | .787 | | | |
| Q46_Je_trouve_SBI_utiles | <--- | Perceived Usefulness | .897 | .094 | 14.615 | *** |
| Q47_SBI_permet_gérer_finances_personnelles_efficacement | <--- | Perceived Usefulness | .768 | .126 | 12.158 | *** |
| Q6_Attitude_positive_sur_SBI | <--- | Attitude towards use | .932 | | | |
| Q5_SBI_bonne_idée | <--- | Attitude towards use | .903 | .045 | 20.223 | *** |
| Q31_Si_avais_accès_aux_SBI_je_les_utiliserais | <--- | Intention to use | .898 | | | |
| Q32_Veux_utiliser_SBI_plutôt_que_comptoir | <--- | Intention to use | .747 | .095 | 11.102 | *** |
| Q33_Intention_augmenter_usage_SBI | <--- | Intention to use | .771 | .094 | 11.325 | *** |
| Q26_Usage_facile | <--- | Ease of Use | .785 | .094 | 10.021 | *** |
| Q25_SBI_clairs_compréhensibles | <--- | Ease of Use | .708 | .091 | 11.106 | *** |
| Q24_Usage_SBI_fait_ce_que_je_veux_pour_moi | <--- | Ease of Use | .783 | | | |
| Q16_Ai_connaissances_financières_pour_SBI | <--- | Control | .730 | .105 | 10.505 | *** |
| Q15_Ai_connaissances_informatiques_pour_SBI | <--- | Control | .735 | .089 | 10.292 | *** |
| Q14_Bon_contrôle_des_opérations_SBI | <--- | Control | .721 | | | |
| Q42_Suis_source_information_conseil_pour_Internet | <--- | Innovation | .758 | | | |
| Q43_Amis_me_demandent_conseil_pour_Internet | <--- | Innovation | .865 | .108 | 9.624 | *** |
| Q44_J_aime_essayer_nouveaux_produits | <--- | Innovation | .845 | .075 | 6.779 | *** |
| Q23_Usage_SBI_agréable | <--- | Enjoy | .951 | | | |
| Q22_Usage_SBI_amusant | <--- | Enjoy | .744 | .078 | 11.660 | *** |
| Q48_Plupart_opérations_bancaires_SBI_disponibles | <--- | Perceived Usefulness | .659 | .111 | 10.102 | *** |

Table 10. Hypothesis Tested and Acceptation

| | | | |
|---|---|---|---|
| H1 | Ease of Use → Perceived Usefulness | 075 | accepted |
| H2 | Perceived Usefulness → Attitude towards Using | 0.54 | accepted |
| H3 | Perceived Usefulness →Intention to Use | 0.47 | accepted |
| H4 | Attitude towards Using → Intention to Use | 0.30 | accepted |
| H5 | Control → Ease of Use | 0.79 | accepted |
| H6 | Control → Attitude towards Using | 0.16 | accepted |
| H7 | Control → Intention to Use | -0.14 | rejected |
| H8 | Enjoy → Ease of Use | 0.21 | accepted |
| H9 | Innovation → Intention to Use | 0.12 | accepted |
| H10 | Enjoy → Attitude towards Using | 0.28 | accepted |
| H11 | Enjoy → Intention to Use | 0.34 | accepted |

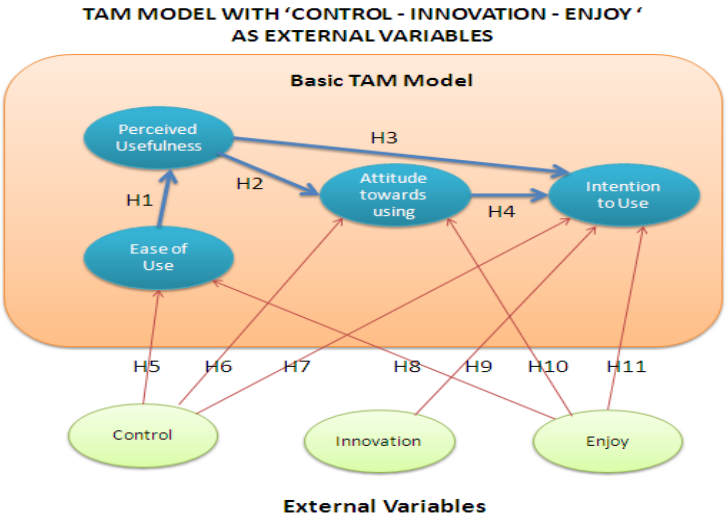


Figure 1. TAM Model and External Variables Hypotheses

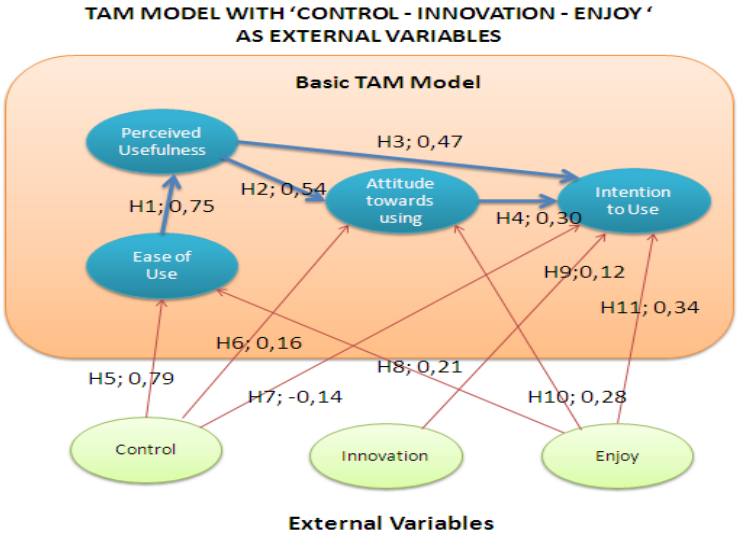


Figure 2. TAM Model and External Variables Hypotheses Tested