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Multimedia Banking and Technology Acceptance Theories

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Abstract

This exploratory study seeks to examine the consumers' intention to adopt themselves to multimedia banking based on three commonly used theories known as Technology Acceptance Theories (TAT). Even though multimedia banking is well available in the market banks are generally facing immense challenges in attracting visitors to their websites. As much of these phenomena were blamed on the traditional brick and mortar type of banking, knowledge and understanding of this challenge can help bankers to fish in more clients into this new wave of banking. At the same time to stay competitive in the market banks have to develop a framework that incorporates latest technological aspects of multimedia banking.

Introduction

Human beings, being creatures of habit will probably view anything that is new with caution and suspicion. The same applies to multimedia banking. People are cautious and often downright reluctant to depart from traditional brick and mortar banks to electronic click and avatar banks. On the other hand, however with the threat of globalization in sight and possible squeezes in margins banks are

attempting to 'push' clients towards multimedia banking.

This paper examines consumers' behavioural intention to use new technology and adopt multimedia banking by drawing upon the three commonly used theories which seek to explain the vagaries of technology acceptance. These postulations are collectively known as Technology Acceptance Theories (TAT): Attracting visitors to websites and generating repeated traffic has been argued to be the two main challenges for Internet marketers. Knowledge and understanding of these two challenges can assist bankers in their efforts to coax clients into this new wave of banking.

Theoretical background

Researchers in information systems rely on acceptance theories to study implementation problems. A major focus of these studies has been how potential users' perception of an IT innovation influences its adoption.

Generally, studies of adoption of information technology takes one of three possible approaches *, a diffusion approach, an adoption approach or a domestication approach.* Diffusion researchers typically describe the aggregate acceptance process as a function of time that may be used to categorize adopters of different kinds (Mahajan, Muller and Bass, 1990). Others like, Rogers (1995) describe the *diffusion* process as consisting of four elements: an innovation or new technology, a social system, the communication channels of the social system and time. *Adoption* researchers, on the other hand, typically describe and explain the acceptance decision of individual users applying different social theories of decision-making. Three models, collectively called the Technology Acceptance Theories (TAT), stand out as the most widely applied explanation within the adoption approach. The three theories are as follows:

- Technology Acceptance Model (TAM)

- Theory of Reasoned Action (TRA)

- Theory of Planned Behaviour (TPB)

The Technology Acceptance Model (TAM) originally proposed by Davis (1989), the Theory of Reasoned Action (TRA) originally proposed by Fishbein and Ajzen (1975) and the extension of TRA into the Theory of Planned Behaviour (TPB) originally proposed by Ajzen and Fishbein (1980). *Domestication* research is typically a descriptive study of the acceptance of technology and the main focus is on the societal consequences of the domestication of technology. As the adoption approach as outlined by TAT appears to be the most comprehensive in explaining perception and acceptance of technology this paper will examine this approach in greater detail.

Importance of Information Technology Adoption Research

The outlook of B2C e-commerce in the financial industry not only depends on consumers accepting online banks as acceptable to traditional brick and mortar branches, but also on recognising multimedia technologies as viable human computer interface media. One of the key objectives of this paper is to assess the value of multimedia technology to financial institutions and to understand the determinants of that value. Consequently this paper should be in a position to assist financial institutions to understand attitudes of customers towards multimedia banking, to help banks deploy and manage their information technology (IT) resources and enhance overall quality and usability.

To understand attitudes, one must know what exactly is meant by the term attitude. There are many definitions for the term attitude. According to Zikmund (2000), an attitude is usually viewed as an enduring disposition to respond consistently in a given manner to various aspects of the world and is composed of affective, cognitive and behavioural components. Alternatively, attitude can be defined as a learned predisposition to react in some consistent positive or negative way to a given object, idea or set of information (Hair et al, 2000). Many variables that business researchers wish to investigate are psychological variables that cannot be directly observed. To measure an attitude, the researcher must infer from the way an individual responds to some stimulus. The term hypothetical construct is used to describe variables that are not directly observable but measured through indirect indicators such as verbal expression or overt behaviour using a variety of measurement scales such as category scale, Likert scale, semantic scale and graphic/pictorial scale (Zikmund, 2000 and Cooper and Schindle, 2002). Such scales are important for bankers who are determined to discover the attitudes of their customers towards specific technology.

Acceptance Research Components

In acceptance studies, researchers focus on the attitudinal explanations of the use of a specific technology or service. The studies rely largely on the following five concepts: perceived user friendliness, perceived usefulness, attitudes towards use, intention to use and actual use. As mentioned earlier, adoption research is grounded in three models from social psychology, namely, the Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980), the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and Technology Acceptance Model (TAM). Of the three theories, TAM has emerged as the most powerful and parsimonious theory to represent the antecedents of technology usage through belief in two factors that is, perceived usefulness and perceived ease of use of an information system (Davis, 1989), as shall be discussed below.

The Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) which was formulated in 1975 by Fishbein and Ajzen has been used extensively in marketing research. *Figure 1* presents a diagrammatic model of the theory. TRA has been applied to explain the behaviour beyond the acceptance of technology and includes four general concepts: *behavioural attitudes, subjective norms, intention to use and actual use* . It argues that individuals evaluate the consequences of a particular behaviour and create intentions to act that are consistent with their evaluations. More specifically, TRA states that individuals' behaviour can be predicted from their intentions, which can be predicted from their attitudes and subjective norms. Following the chain of prediction further back, attitudes can be predicted from an individual's beliefs about the consequences of the behaviour. Subjective norms can be predicted by knowing how significant other individuals think the behaviour should or should not be done. A particularly helpful aspect of TRA from a technology perspective is its assertion that any other factors that influence behaviour do so only indirectly by influencing attitude and subjective norms. Such variables would include, amongst others things, the system design characteristics, user characteristics (including cognitive styles and other personality variables) and task characteristics. Hence, TRA is quite appropriate in the context of predicting the behaviour of using multimedia technology. Although TRA, is a very general theory and as such does not specify what specific beliefs would be pertinent in particular situations. Nevertheless, the inclusion of subjective norm represents an important variable, which is not even included in more popular models such as TAM.

Figure 1: Theory of Reasoned Action (TRA)
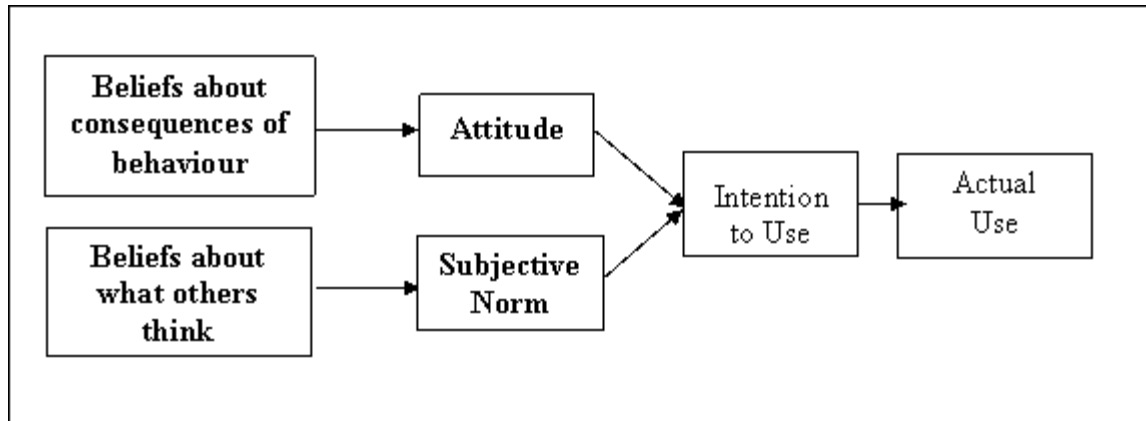
The Theory of Planned Behaviour (TPB)

In exploring consumer's usage behaviour, researchers adopt behaviour theories from psychology and marketing. It is in this context that the TPB was constructed. The TPB was proposed as an extension to the TRA mentioned earlier, by Ajzen in 1991. The TPB sought to account for conditions where individuals do not have a complete control over their behaviour. When applied to the acceptance of information technology systems or services, the model contains five concepts. As in TRA, it includes behavioural attitudes, subjective norms, intention to use and actual use. However, this theory interprets *behavioural control as a perceived construct.* Perceived behavioural control covers both the intention to use and the actual usage. Actual usage is in turn a weighted function of intention to use and perceived behavioural control. Under this arrangement control aspects of the observation is introduced into the model. This makes the TPB more functional in its application. Researchers have used the TPB widely

to model the acceptance of a variety of new information technologies in businesses as well as to predict levels of usage. For example, Mathieson (1991) used the TPB as well as the Technology Acceptance Model (see below) to predict user's intentions, specifically with respect to the usage of spreadsheets.

The TPB is diagrammatically presented in Figure 2 for greater clarity.

Figure 2: The TPB
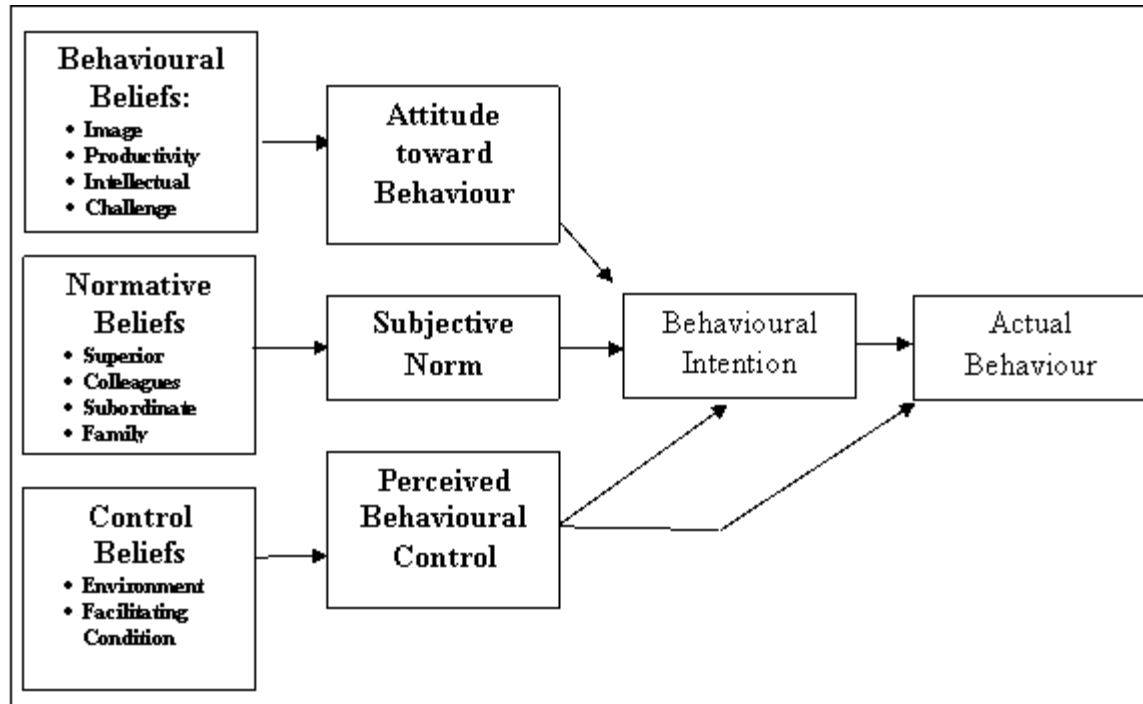
Source: Developed for this thesis

In this research, TPB and TRA are employed to propose the relationship between

**The Technology Acceptance Model (TAM)**

The TAM is a further adaptation of TRA specifically tailored for modelling user acceptance of information systems (Davis , 1989). TRA suggests that social behaviour is motivated by an individual's attitude towards carrying out that behaviour. However, it does not specify what specific beliefs would be important in a particular situation. TAM posits that the actual usage of technology can be predicted by user's behavioural intention and his/her attitude towards use, which in turn are influenced by the technology's *perceived ease of use and perceived usefulness* . TAM adopts the well-established causal chain as follows:

beliefs > attitude > intention> behaviour

Based on certain beliefs, a person forms an attitude about certain objects, on the basis of which one forms an intention as to how one should behave with respect to that object. The intention to behave is the sole determinant of actual behaviour. Davis adapted the TRA by developing two key beliefs that specially account for information system usage. The first of these beliefs is perceived usefulness, defined as the 'degree to which a person believes that using a particular system would enhance his/her job performance' (Davis , 1989). The second is perceived ease of use, defined as 'the degree to which a person believes that using a particular system would be free of effort' (Davis , 1989). A diagram of the model is presented in Figure 3.

Researchers, such as Lin and Wu (2002), further modified the TAM and extended its application to the Internet or WWW. However, studies related to the usage behaviour within the Internet environment is still at an infancy stage. It is not clear how external variables would affect the usage behaviour and intentions. It is hoped that further research would provide greater understanding of the factors that influence acceptance of new technology like multimedia technology in the banking environment.

Figure 3: The TAM
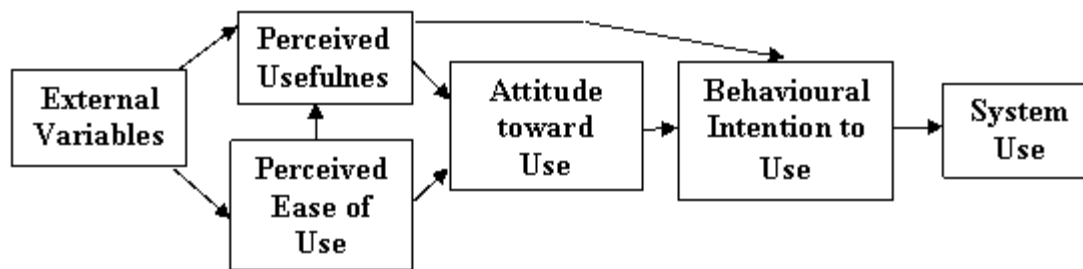
Consumers' Intention to Transact Online

It needs to be reiterated that the intention to use is quite different from the actual usage. Bernadette (1996), applying TAM, however showed that there nevertheless was a high degree of correlation between the two positions of intention and usage. The i ntention to transact online is explained as the consumer's resolve to engage in an electronic exchange relationship with a bank's website, such as sharing customer information, maintaining customer relationships and conducting online banking transactions . Consumer-retailer exchange relationships typically involve several activities as shown in Figure 4. The first step may involve basic data exchange from the bank to the consumer through browsing, gathering information and making product/service and price (interest) comparisons. The next step usually involves consumer providing some private and personal information through registering an e-mail address and other personal information, describing product/service preferences and providing feedback. This step is often supplemented by automatic information exchange that is intentionally or involuntary captured through cookies, log-data, and data mining tools. The final step typically involves provision of private and monetary information such as bank account information, debit/credit card information, actual product/service preferences and finally completion of banking task such as balance inquiry, transfer of funds, request for cheque books and bill payment (Singer et al, 2001).

Based upon the description of the online transaction process, online banking acceptance essentially necessitates that consumers uses banks' websites to receive and provide information and then complete the transactions.

Figure 4: Consumer online transaction process
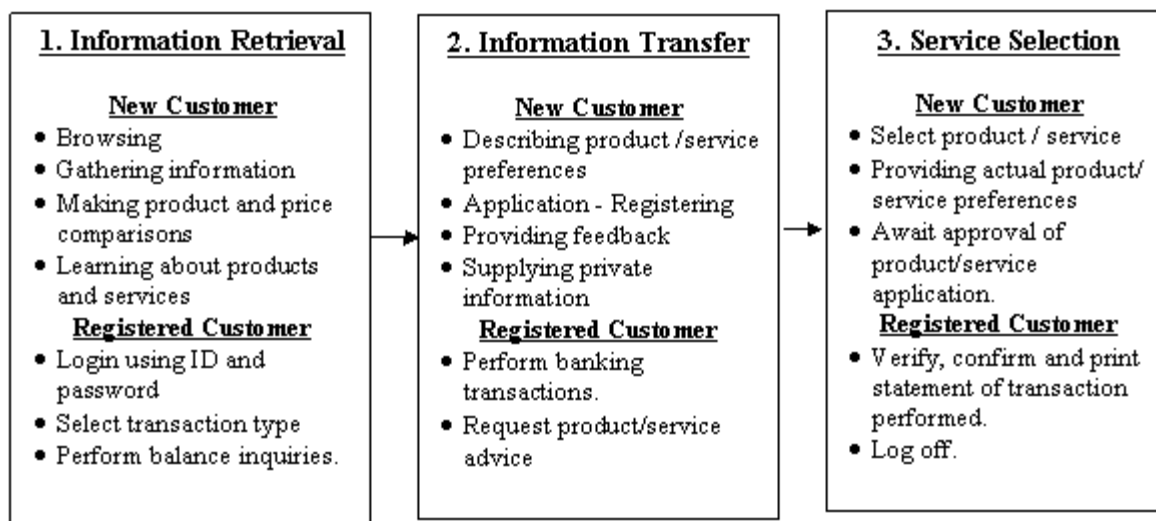
In contrast to traditional banking consumer behaviour, online banking transactions have some unique dimensions, such as (a) the extensive use of technology for transactions, (b) the distant and impersonal nature of the online environment and (c) the implicit uncertainty of using an open technological infrastructure for transactions. More specifically, consumers must first actively engage in extensive technology use through interacting with the bank's website. Second, the spatial and temporal separation among consumers and multimedia banks increases fears of performing banking transaction with product and identity uncertainty. Third, there is a concern about the reliability of the underlying Internet delivery channel and related infrastructure that banks employ to interface with consumers. Overall, these three unique differences reduce consumer perceptions of control over their online transactions and increasing their apprehension about adopting online banking. These perceptions result in a greater disparity

between intention and usage.

Virtually all steps in the proposed online transaction process require consumers to interact with websites and essentially use Internet technologies. Since intentions to transact entail technology use, it is justifiable to consider variables to predict intentions to use Internet technology for online transactions.

Conclusion

Multimedia banking channel and the traditional banking channel are not perfect substitutes. Certain banking transactions such as checking an account balance, transferring funds, paying bills and applying for credit cards does not actually require personal contact or a large physical space, and hence are well suited for delivery over the internet. On the other hand setting up a new account, applying for business loan, retirement planning, closing a mortgage, and other complex transaction often require a person-to-person communication and existence of the bank physically.

Even though customers are beginning to accept multimedia banking it may not be easy to achieve this goal, as they are so much accustomed to the traditional way of conducting banking transactions. Nevertheless, given time the multimedia banking trend would be a major component of the delivery channel in a few years as the younger generation who are considered to be more technology savvy and old customers are learning to get used to the Internet banking.

Banks on the other hand has the responsibility of providing quality internet banking services as the customers are quality conscious. Designing a comprehensive and advanced technological multimedia banking framework is also a vital aspect for banks to consider due to the elements of competition. They must also remember customers will choose banks that provide easiest and fastest services with the right quality. Having much been presented on the multimedia banking sector, its total takeover of traditional bricks and mortar banking may not be possible. It is vital for banks to maintain both types of banking system not because as mentioned earlier it not possible to conduct transactions entirely on electronic mode.

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