

THE MODERATING EFFECT OF CULTURAL DIMENSIONS ON USER'S ACCEPTANCE OF MOBILE PAYMENT DEVICES: A CONCEPTUAL MODEL

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ABSTRACT

This paper is an attempt to develop a model that explores the impact of cultural dimensions on user intention to use mobile payment devices using the Unified Theory of Acceptance and Use of Technology model (UTAUT) and Hofstede's cultural dimensions as the basis for the research framework. Effort expectancy, performance expectancy, social influence, and perceived information security will be used to predict the user intention to use mobile payment devices. Additionally, the moderating effect of uncertainty avoidance, power distance, collectivism, and masculinity will be explored.

INTRODUCTION

A great deal of research has been conducted in the past on the topic of end-user acceptance of new technology (Legris, Ingham, and Collette, 2003; McCloskey, 2003-2004; Stylianou and Jackson, 2007). The vast majority of previous studies that used technology acceptance models to predict the intended or actual usage of IT were primarily conducted in Western countries. However, it has been argued that technology acceptance models may not hold equally well across countries of different cultures (Al-Gahtani 2001; Huang et al. 2003). Few studies have used technology acceptance models outside North America, and even less studies have tested their applicability in non-Western countries. This study attempts to utilize the latest technology acceptance model introduced by Venkatesh et al, 2003 called UTAUT that has been developed based on eight different models. The UTAUT model was built on the premise that an individual's intention to use a particular technology is influenced by some beliefs such as performance expectancy, effort expectancy, and social influence. Additionally the proposed model will include Hofstede's cultural dimensions as moderators variables.

The technology in this study is the mobile payment devices. Mobile payment is relatively a new alternative payment method in which the consumer use a mobile phone or a mobile payment device to pay for his/her purchases. It is estimated by 2013 that purchases via mobile devices and

money transfers will together generate transactions worth over \$600 billion globally (Juniper Research 2010). The Mobile Payment Device (MPD), a special small electronic device when it connect to mobile phones, computers, or android, it works as a card reader, which enables the merchant to receive payment from the consumer by swiping his credit card (or debit card) in the MPD. The MPD reads the data and converts it into an audio signal. The microphone picks up the audio signals, then send them through the processor which routed to a software application on the mobile phone. The encrypted data is transmitted using Wi-Fi or 3G internet connection to back end servers, which communicate with the payment networks to complete the transaction. There will be no information stored on the mobile devices which ensure security and trust for users.

The paper is organized as follows: The first section provides a brief background perspective on related literature, and it introduces the research hypotheses. In the second section, the research methods that include instrument development and data collection, and statistical procedures are discussed. The last section provides a brief conclusion.

BACKGROUND PERSPECTIVE

Behavioral Intention (BI)

Behavioral intention is defined as the degree of “certainty” of the individual’s intention to use a particular technology. Behavioral intention is one of the most significant factors that influence the actual behavior (Ajzen and Fishbein, 1980; Ajzen 1991; Venkatesh et al., 2003). The UTAUT model, which is utilized in this study, includes three major factors that influence user intention to use mobile payment devices. These factors are effort expectancy, performance expectancy, and social influence (Venkatesh et al., 2003). In this study, the perceived security factor will be added to the model.

Effort Expectancy (EE) and Performance Expectancy (PE)

The UTAUT model posits that effort expectancy (EE), performance expectancy (PE), social influence, and facilitating conditions are the key determinants of intention and usage of the technology. Additionally, the model includes the four moderator variables of gender, age, experience, and voluntariness of use. Effort expectancy (EE) is defined as “the degree of ease associated with the use of the system.” (Venkatesh et al., 2003). Performance expectancy (PE) is defined as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance.” (Venkatesh et al., 2003). Consumers who perceive the mobile payment device as easy to use and helpful in completing the payment process, compared to the traditionally methods of payments, will most likely have a strong intention to use the technology. It has been suggested by researchers (Teo, Lim, & Lai, 1999; and Venkatesh & Morris 2000) that EE has an indirect impact on attention through PE. Therefore, a link was established between EE and PE. In this study, the authors posit the following hypotheses:

H1: Performance expectancy (PE) has a positive effect on user intention (BI) to use mobile payment device.

H2: Effort expectancy (EE) has a positive effect on user intention (BI) to use mobile payment device.

H3: Effort expectancy (EE) has a positive effect on performance expectancy (PE) of mobile payment device.

Social Influence (SI)

Social influence is defined as the perceived social pressure from close members to the individual to perform or not to perform the behavior in question (in this study, the use of mobile payment device). Many researchers have used social influence as a predictor for behaviors in various contexts (Brown et al., 2002; and Harrison et al, 1997). Bandyopadhyay and Bandyopadhyay (2008) found that social influence had a direct impact on consumer intention to use prepayment metering systems. The following hypothesis was developed:

H4: Social influence has a positive effect on user intention to use mobile payment device.

Perceived Information Security (PIS)

Information security has been a major concern for online consumers. Information security is defined as “the protection of information and its critical elements, including the systems and the hardware that use, store, and transmit that information.” (Whitman & Mattord, 2009, p. 8). It demands the means that are necessary to minimize unauthorized access to personal information. Information security and trust are interrelated and considered to be extremely important for the success of any mobile transaction (Han and Noh, 1999; Lee and Turban , 2002). Thus, the security factor was included in the proposed model as a predictor for user intention to use mobile payment device.

H5: Perceived information security has a positive effect on user intention to use mobile payment device.

The Moderator Effect of cultural Dimensions

The moderating effect of cultural dimensions of power distance, uncertainty avoidance, collectivism, and masculinity on the hypothesized relationships will be examined.

Effect of Power Distance (PD)

According to Hofstede (1997), power distance (PD) is the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally. In low power distance cultures, individuals have less pressure from their peers. On the other hand, in societies having high power distance, people are more likely to be affected by closer personal relations with others. One can expect the relationship between SI and BI to be stronger for a high power distance culture. Thus, we posit that:

H6: Power distance(PD) positively moderates the relationship between social influence (SI) and user intention (BI).

Effect of Uncertainty Avoidance (UA)

According to Hofstede (1997), uncertainty avoidance (UA) is the extent to which the members of a culture feel threatened by uncertain or unknown situations. If the technology reduces uncertainty in some way, then cultures scoring high on this dimension would adopt it faster than

expected. If the usage of mobile payment device reduces uncertainty in some way, then users from cultures scoring high on this dimension would have a strong intention to use it. Reducing the uncertainty would also reduce the fear from information security. Therefore, the following hypothesis was proposed:

H7: Uncertainty avoidance (UA) positively moderates the relationship between perceived information security (PIS) and user intention (BI).

Effect of Collectivism (CO)

Individuals scoring high on collectivism (CO) consider themselves part of a group. In this study, it is asserted that the social influence will have stronger impact on user intention for individuals scoring high on collectivism, compared to those individuals scoring low on collectivism. Thus, we posit that:

H8: Collectivism (CO) positively moderates the relationship between social influence (SI) and user intention (BI).

Effect of Masculinity (MA)

Masculine (MA) cultures are more likely to adopt technology as they are more task-oriented and many organizational tasks today require the use of technology. Venkatesh and Morris (2000) assert that, in masculine cultures, greater emphasis is placed on whether the computer will do the job given favoritism towards the technology. In a feminine culture, on the other hand, workers might be more concerned with working in a friendly atmosphere (Ford et al. 2003). Strite (2006) reported that individuals scoring low on masculinity might be more concerned with the ease of use of a technology, since individuals from these cultures place less emphasis on instrumental goals and more on the quality of life. Therefore, we posit:

H9: Masculinity (MA) positively moderates the relationship between performance expectancy (PE) and user intention (BI).

H10: Masculinity (MA) negatively moderates the relationship between effort expectancy (EE) and user intention (BI).

Based on the above-mentioned literature review and hypotheses, we proposed the following research model depicted in Figure 1.

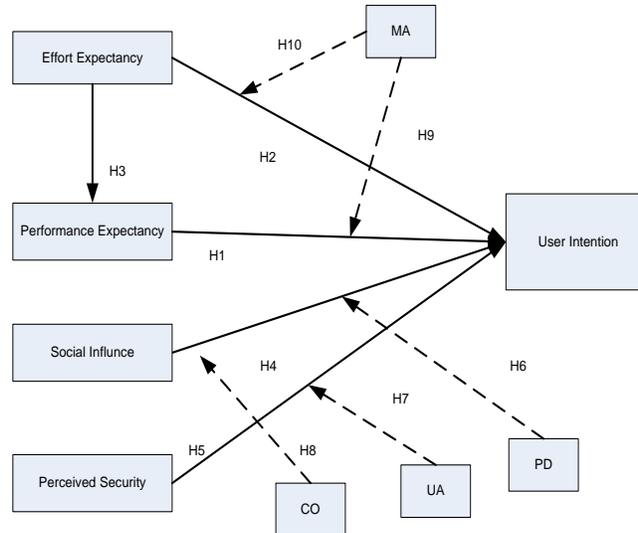


Figure 1: The Proposed Research Model

RESEARCH METHODS

Instrument Development and Data Collection

An instrument based on the literature will be created to gather data on each of the variables. The instrument will be pilot tested and then administered to consumers in different countries that represent a variety of cultural sets. .

Statistical Procedure

SPSS & LISREL software packages will be used to carry out the analysis. SPSS will be used to compute frequencies, means, standard deviation, reliability coefficients, and principle component analysis. A confirmatory factor analysis (CFA) approach will be taken with LISREL to validate the factor loadings identified in the principle component analysis. This validation will be conducted in the form of a measurement model consisting of all variables identified by the research model. A structural model will then be run to test the research model and hypotheses.

CONCLUSION

This paper is an attempt to develop a model that investigates the factors that affect user intention to use mobile payment devices using the UTAUT model and Hofstede's cultural dimensions as the basis for the proposed model. Variables considered performance expectancy, effort expectancy, social influence, and perceived information security. Additionally, it examines the moderating effect of cultural attributes on user intention. It is important to understand the factors that influence consumers' intention to use mobile payment devices which ultimately impact their actual usage so that businesses considered such factors when they introduce such technology.

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