



Integrating perceived economic wellbeing to technology acceptance model: The case of mobile based agricultural extension service

Pranay Verma^{a,*}, Neena Sinha^b

^a School of Fashion and Retail Management, Footwear Design Development Institute, A-10/A, Sector-24, Noida 201301, India

^b University School of Management Studies, Guru Gobind Singh Indraprastha University, Sector 16-C, Dwarka, Delhi 110078, India

ARTICLE INFO

Keywords:

Perceived economic wellbeing
Behavioral intention
Mobile based agricultural extension services
Perceived usefulness

ABSTRACT

Adoption of mobile based agricultural extension services (AES) can serve as a tool for inclusive development in the rural farm land. This paper investigates the antecedents of behavioral intention in the context of mobile based AES. The aim of this study is to identify the important factors influencing the adoption of a mobile based AES in a rural context based on technology acceptance model (TAM). A survey of 327 respondents in rural areas was conducted. Structural equation modeling was employed to empirically test the complex causal relationship of perceived usefulness (PU), perceived ease of use (PEOU), social influence (SI), attitude (At), perceived economic wellbeing (PEWB) and behavioral intention (BI). All the six constructs are reliable and valid. The results show that social influence affects attitude, PEOU, PEWB and PU but not BI. Further, PEOU influences PU and attitude, while attitude and PU predicts BI. It also reveals PEOU and PEWB are antecedents to PU. The findings indicate that neither attitude nor BI is impacted by PEWB. A contribution of this research to the existing TAM literature is that perceived economic wellbeing is an antecedent to perceived usefulness. Finally we discuss the implication of these findings for agricultural extension services.

1. Introduction

Low cost innovation has been a challenge and opportunity for companies. Prahalad (2005) expounded the theory of Fortune at the Bottom of the Pyramid and proposed that business should consider the poor as value-demanding consumers. Low cost innovation does not entitle the producers to compromise on the utility and the benefit of the product. A useful low cost product should benefit the end customer. Unless it benefits him he shall not use it. Intention to use an innovation is governed by perceived ease of use, perceived usefulness, attitude and social influence, as proposed in different versions of Technology Acceptance Model (TAM) (Davis, 1986; Davis, 1989; Davis et al., 1989). The theoretical basis of the TAM model was Ajzen and Fishbein's (1975) Theory of Reasoned Action (TRA). Ajzen and Fishbein (1980) posit that intentions are the most important drivers of human behavior. Warshaw and Davis (1985) define behavioral intention as the level to which an individual has formulated a conscious plan to perform or not perform a specific behavior. Among the many prevailing theories explaining explanation to adoption of technology like mobile based agricultural extension services, TAM is the most widely accepted model.

It has been stated that the intention of using an information system drives the actual use. TAM offers an assessment of the impact of

external variables on internal beliefs, attitudes, and intentions. The perceived ease of use (PEOU), attitude and perceived usefulness (PU) are the predictors of the intention of a user to use the system. PU denotes the extent of an individual's belief that using a particular system would enhance his or her performance while PEOU is the measure of the extent to which an individual believes that using a particular innovative information system would be easy to use. Attitude towards usage (At) is defined as the degree to which an individual evaluates and associates the innovative information system application with his or her job (Davis, 1989). Folorunso and Ogunseye (2008) found that TAM identifies the factors affecting the acceptance and usage of AGROWIT, knowledge management information systems by farmers, extension workers, and agriculture researchers in Nigeria.

TRA addresses the impacts of cognitive components (Guo et al., 2007). Social psychology gives an insight into how an individual's behavior is conditioned by her cognition i.e. her opinion and beliefs about the situation in which she is placed and her assessment of what she is capable of doing (Festinger, 1954). People evaluate their opinion and abilities by comparing with the opinion and ability of others. Classic social comparison theory indicate that individuals most often compare themselves with similar and familiar others such as friends, family, co-workers, and neighbors. For example, an individual may believe that

* Corresponding author.

E-mail address: prof.pranayverma@gmail.com (P. Verma).

<http://dx.doi.org/10.1016/j.techfore.2017.08.013>

Received 22 September 2016; Received in revised form 5 July 2017; Accepted 28 August 2017
0040-1625/ © 2017 Elsevier Inc. All rights reserved.

she is poor compared to a celebrity, but her low social status relative to the celebrities may be far less important to her than being worse off compared with a neighbor with whom she has much more in common and sees every day. Her behavior intention is driven by the need to perform better in the peer group that she is placed in. Thus perceived economic wellbeing (PEWB), an economic outcome of the individuals' comparisons of his current financial situation to his past situation and to other people who are important to him is an equally significant predictor of behavior intention. In a study of rural India, Jain and Hundal (2007) found that mobile services adoption was influenced by the neighbors' usage. Islam and Grönlund (2011) in a study of farmers adoption of AES found that the rural respondents have been seen more relying upon the external pressure than own choice.

More research is needed to develop greater understanding on this important aspect of perceived economic well-being yet; no study has been conducted to study the relationship between perceived economic wellbeing and behavioral intention. In this paper, mobile based agricultural extension service which is meant for the poor farmers has been chosen to study this phenomenon. While there are numerous measures of economic and tangible benefits, a clear, sophisticated methodology for integrating and measuring the intangible perceived economic benefits has been developed for the first time. Understanding of the predictors of Mobile based AES usage could serve a multitude of stakeholders including Government research organizations and new private players in the domain of AES by helping them recognize how to promote that usage.

The paper begins with an introduction of the theme followed by section that covers review of the extant literature. Subsequent sections cover research methodology, data analysis, results, discussions, and the conclusion.

1.1. Agricultural extension services (AES)

Agricultural extension, the practice of gathering, developing, and sharing knowledge about farming and rural livelihoods with rural populations, is an old and common activity (Brunner and Yang, 1949; Fu and Akter, 2016; Rivera, 2016). E-Agriculture and Mobile based AES has emerged as a new application of Information, Communication and Technology (ICT) paving the way for a social change. Some of the African countries have made significant progress in dissemination of information through internet based AES. Agriculture Content (CELAC) program in Uganda has a database of different stakeholders and farmers and they regularly distribute agricultural tips and knowhow through Short Messaging Services (SMS). In Kenya, National Farmers Information Service (NAFIS) maintains a database of voice responses to frequently asked questions related to agriculture; farmers are invited to call in through mobile phones to interact via voice menus with the database, at a cost which is much lower than the cost of speaking directly with an extension worker (Donner, 2009a, 2009b).

It is desirable to develop a framework and propositions for adoption of mobile applications in rural India (Roy, 2013) and promote Mobile based AES to overcome key hindrances to the growth of the agriculture sector. There are several such organizations which provide agricultural extension services in India. In private sector Indian Farmers Fertilizer Cooperative Limited, Nokia, Airtel, Tata Consultancy Services, etc. and public sector organizations including Ministry of Agriculture, research institutions like Indian Council of Agricultural Research (ICAR) and Indian Meteorological Department offer agricultural advisory services such as soil information, weather forecasts and market price. It is desirable to find out the factors that influence the individual to engage in AES, and their relative importance can help in formulating an effective strategy for dissemination of mobile based AES knowledge ware.

2. Review of literature

Behavioral intention to use has been covered extensively in the

extant literature. Characteristics of the system or external factors affect the cognitive factors PEOU and PU (Davis, 1989). Another major element affecting the intention to use an information system is the attitude, which is affected by PEOU and PU, which are the major beliefs of a user. There is evidence in the literature demonstrating a positive impact of PU on attitude (Davis, 1989; Venkatesh and Davis, 2000) and the positive impact of attitude on the behavioral intention (BI) to use (Davis, 1989) and PU on BI (Luarn and Lin, 2005). Furthermore, studies also show that PEOU has a direct impact on attitude and PU (Chen et al., 2002; Davis, 1989). The major constructs used in the study; behavioral intention, perceived ease of use, perceived usefulness, perceived economic wellbeing, social influence and attitude and their extant literature is covered in the following sections.

2.1. Behavioural intention

The concept of behavioral intention is derived from Ajzen and Fishbein's (1975) theory of reasoned action. The underlying assumption is that external variables such as personal values, beliefs and norms produce actions with their accompanying intentions. TAM has been extensively used to explain and predict user behavior of information technology applications (Cheung and Vogel, 2013; Hung et al., 2003; Keat and Mohan, 2004; Kim et al., 2016; Legris et al., 2003).

2.2. Perceived ease of use

Perceived ease of use is described by Davis (1989) as the belief that usage of the system will be free of effort. According to Venkatesh (2000), experience and beliefs are the determinants of PEOU. Pan et al. (2005) posited that perceived ease of use could be treated both as an exogenous and an endogenous variable. It is the most important construct in TAM model (Amin et al., 2014) and empirical studies predict ease of use as a predominant determinant of intention to adopt (Agarwal and Karahanna, 2000; Shen and Chiou, 2010). Perceived ease of use influenced behavioral intent for those, with prior experience in ecommerce settings (Sun et al., 2010). In certain studies, perceived ease of use did not have an influence on intention (Halilovic and Cicic, 2015); adoption of knowledge repository systems did not affirm a significant relationship between PEOU and BI (Tsai et al., 2010). In the original extended TAM model, PEOU did not directly influence intention (Davis et al., 1989). For e-pharmacy application adoption study in Turkey, PEOU did not influence behavioral intention for males (Alasehir et al., 2013).

A three nation study of mobile recommendation found perceived ease of use to influence attitude (Choi et al., 2014). Yet another study of acceptance of localized operating system in Iran found a relationship between PEOU and PU (Saghafi et al., 2017) and this was also reflected in a study of healthcare information systems in Taiwan (Pai and Huang, 2011). Similarly PEOU influenced PU for mobile based application adoption study in Germany (Gurtner et al., 2014) and satisfaction of mobile websites (Amin et al., 2014). In the current context of rural India; it needs to be investigated if PEOU will have significant effect on PU and attitude. Based on the above observations; following hypotheses can be tested for a mobile application like agricultural extension services:

H1. PEOU has a positive effect on PU to use mobile based agricultural extension services in rural India.

H2. PEOU has a positive effect on attitude to use mobile based agricultural extension services in rural India.

2.3. Social influence

Venkatesh and Davis (2000) revised the TAM model by including social influence (SI) processes in predicting the user intention to use a

Download English Version:

<https://daneshyari.com/en/article/7255883>

Download Persian Version:

<https://daneshyari.com/article/7255883>

[Daneshyari.com](https://daneshyari.com)