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A generalised adoption model for services: A cross-country comparison of mobile health (m-health)

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ABSTRACT

Which antecedents affect the adoption by users is still often a puzzle for policy-makers. Antecedents examined in this research include technological artefacts from the Unified Theory of Acceptance and Use of Technology (UTAUT), consumer context from UTAUT2 and psychological behaviour concepts such as citizens' channel preference and product selection criteria. This research also investigated cultural domination on citizens' behavioural perception. The data for this study was collected among citizens from three countries: USA, Canada, and Bangladesh. The findings suggest that the UTAUT model could partially shape technology artefact behaviour and the extended UTAUT must consider specific determinants relevant to cognitive, affective, and conative or behavioural aspects of citizens. The model helps policy-makers to develop mobile healthcare service system that will be better accepted. The finding also suggests that this mobile service system should reflect a country's cultural traits. These findings basically extend the theoretical concept of UTAUT model to articulate adoption behaviour of any complex and sensitive ICT related issues like mobile healthcare system.

1. Introduction

Starting from the last century, substantial advancement and revolutionary accomplishment of the health-care service system helped citizens to create enormous expectations in identifying and accepting new health-care services (Kahn, Yang, & Kahn, 2010; Kim, 2012; Weiner, 2009). Citizens, as an essential, precious, and emergency product, demand health-care services to be flexible, accessible, available, and compatible with a maximum price-value trade-off. They also prefer to streamline their enormous expectation for cost-effectiveness, quality, efficiency, and life-pattern-congruency from health professionals (Wu, Wanga, & Lin, 2007). Countries like the USA and Canada have taken initiatives to implement electronic and mobile health recordings, the UK and Sweden have introduced global positioning systems (GPS) in monitoring ambulance schedules, and the Netherlands have experimented with a wireless network in communicating an emergency trauma care system (Geier, 2006). There was a contemporary urge for restructuring the health-care service delivery pattern by keeping it consistent and congruent with a mobile, dynamic, and flexible lifestyle of an ICT-driven and dominating society which appealed to health professionals and ICT consultants to design and implement a mobile health-care service system professionally; it's 'buzzed' as mobile-health or m-health.

The central concept of this system lies in the underlying paradigm which refers to offering the right health-care system to the right patients continuously at any time and any place; even keeping regular daily life activities through remote wireless communications as well as modern ICT-related technological equipment (Shareef, Kumar, & Kumar, in press). The typical communication of m-health is the following: any RFID equipment with different sensors capable of measuring different physical changes of the patients, and location identifiers that can be used by the patients. This equipment may be worn as a wrist band, embedded in living spaces, or implanted in the body (Halpern et al., 2008). With integrative software support, the patient's smartphone continuously monitors, records, analyses, alerts, and communicates with both patient and hospital professionals from a remote place. Medical professionals are connected with the smartphone of the health-care service receiver by laptop, tablet PC, PDA, or other wireless-based Internet communication.

Since on-the-spot health service is offered through m-health, it is a new public health service system that has been adopted across countries in the world; this study of modelling citizens' complex buying behaviour is exploratory in nature. However, strong evidence from scholarly studies and cross-cultural theories regarding cross-cultural implications for complex buying behaviour increases our intention to

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reveal the cultural impacts on the integrated health and technological adoption behaviour for citizens toward m-health. Pavlou and Chai (2002) addressed adoption behaviour for Chinese and USA citizens and, in the light of Hofstede's (2001) cultural dimensions, revealed that any attempt to formulate a standardised ICT-related citizen behaviour model is impractical.

Therefore, explicitly, the focused objective of this study is to integrate adoption behaviour for an ICT-based mobile health service that would reflect the market aspect of citizens' preferences and reveal a cross-cultural impact and differences on this intrinsic and extrinsic adoption behaviour. The study is engaged in streamlining a generalised acceptance behaviour of citizens shedding light on an integrated theory in predicting citizens' preferences and further exploring any plausible differences in antecedent beliefs reflecting dissimilarities in cultural traits. The authors investigated the behaviour among citizens of three countries: namely, the USA, Canada, and Bangladesh which have predominant and conclusive differences in cultural traits according to Hofstede (2001).

The reminder of this submission is structured as follows: the next section will briefly present theoretical concepts such as adoption behaviour and citizens' preference and cross-cultural effects relevant to the topic examined in this submission. This is then followed in Section 3 by a detailed discussion on development of a conceptual model and hypotheses formulation as a basis for undertaking empirical work. Section 4 then provides a detailed account of the research methodology utilised, scale development, sample selection and data collection. The results from the empirical analysis are presented and discussed in Section 5. A detailed discussion follows on the theoretical and practical implications in Section 6. Finally, Section 7 presents key conclusions and briefly discusses limitations of this study and future research directions.

2. Theoretical concepts

2.1. Adoption behaviour and citizens' preference

Citizens' adoption behaviour for m-health depends on the citizens' preference to replace the old system (Shareef et al., in press). If citizens, specifically patients, using the traditional health-care service by physically moving to hospitals/clinics to get face-to-face contact with medical professionals may deem the m-health service system physically and psychologically more advantageous from any perspective; they might even create a preference for behavioural intention to adopt the mobile health-care service system — m-health. This research encompasses citizens' adoption behaviour as a continuous preference for a new system by replacing the old one by starting from awareness and familiarity of the system. Technological, behavioural, and social beliefs of the system's functional, organisational, and professional's benefits will render it congruent with a life pattern comprising of an attitude toward using it (Shareef, Kumar, Kumar, & Hasin, 2013). Finally, the intention to use it will lead to actual acceptance behaviour.

Citizens are not engaged in buying or pursuing m-health as a regular product. Its purchase frequency, oriented with only intended patients, is insignificant to general citizens (Shareef et al., in press). In the m-health service system, self-service technology is predominant which exhaustively needs self-explanatory skills. From the perspective of a health-concerned matter, m-health-related issues potentially deserve high importance from consumers in the light of usage (Yu, Wu, Yu, & Xiao, 2006). Therefore, systematic adoption of m-health manifests a complex buying behaviour, and consumers integrate several pre-occupational beliefs to justify their actual behaviour. In this type of buying behaviour, which is not relevant to and captured by the theory of mere exposure where frequency of information exposure may dictate final interaction behaviour, market researchers are interested in identifying consumers' preference which is enormously characterised by extended problem solving (Howard & Jagdish, 1969).

2.2. Cross-cultural effect

Posey, Lowry, Roberts, and Ellis (2010) conducted a study among British and French online users to augment and formulate their behaviour and recognised that cultural differences play a crucial role in predicting actual behaviour. From an extensive analysis of consumers' behaviour of two different cultural samples, they concluded that acceptance behaviour of consumers for any complex technology-related issues are dominantly controlled and moderated by cultural traits. Therefore, while determining adoption behaviour for consumers, researchers must consider and manifest cultural traits; otherwise, any generalised conclusions could be misleading. Donthu and Yoo (1998) analysed cultural influences on service perception among the consumers of four countries – Canada, India, UK, and USA – and noted significant differences in perceiving service quality among consumers having different cultural traits. Espinoza (1999) explored consumers' behaviour for North America and Latin America in perceiving service quality and revealed that consumers behaviour is culture bound. The author in a seminal article illustrated cross-cultural differences among consumers of Canada and Peru and remarked with reference to Mattila (1999), that consumers' perception should be determined considering cultural differences.

Winsted (1997) investigated consumer behaviour for ICT in the USA and some Asian countries and concluded that a generalised trend could be dispersed due to an impulsive effect of cultural differences. Tajfel's social identity theory (1972) identified that behavioural and social differences among cultures have potential implications on modelling consumers' behaviour.

In the light of the aforementioned illustrations, this study is attempting to conceptualise consumers' behaviour for adopting m-health considering cultural differences among consumers of the three different countries; USA, Canada, and Bangladesh.

3. Model development for predicting consumers' behaviour

Engel, Kollat, and Blackwell (1973) revealed consumers' decision making having five distinct stages with sequential progression such as problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behaviour. Ives and Learmonth (1984) reconciled customer resource life cycle (CRLF) and suggested that it has three sequential advancements with pre-purchase, during purchase, and post-purchase phases. In our present study, since we are pursuing m-health adoption behaviour, governing factors of m-health adoption behaviour as an exploratory marketing concept does not essentially include post purchase behaviour in the adoption model. As adoption behaviour of m-health is a new issue in the marketing field, even a very recent topic in the ICT and wireless communication area, in the very beginning, we are attempted to synthesise some ICT related adoption behaviour of consumers from ICT and marketing literature.

Mallat (2007) studied consumers' adoption of mobile payments. The author's identification in this context is orthogonal to regular behavioural theories like the theory of planned behaviour (TPB) (Ajzen, 1991), technology adoption model (TAM) (Davis, 1989), and diffusion innovation theory (DOI) (Rogers, 1995), and identified that consumers' preference of mobile payment has a complex buying behaviour. Nevertheless, one exemplary distinction for relative advantage concept is notable which is explained as the benefits provided by time and place independent interactions to avoid waiting time (Mallat, 2007). This conceptual definition of relative advantage has certain differences from the regular construct of TAM and DOI comprising personal choice over an old one in terms of time and space benefits. Lichtenstein and Williamson (2006) investigated Australian banking consumer experiences for adoption of Internet banking. Referring to the theory of prospective gratification (LaRose, Mastro, & Eastin, 2001) and reception approaches (Cunningham & Finn, 1996) of mass media theory, the

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