

Culturally Appropriate Acceptance Models for Civic Engagement Systems in Saudi Arabia

Emergent Research Forum papers

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Abstract

Information systems that support civic engagement for the public good are a promising new category of technology-mediated social participation. However, adoption of these smart-phone enabled systems varies widely across countries. Building off existing research on how culture mediates technology acceptance, we seek to develop a culturally appropriate model from the ground up that can help explain this cross-cultural difference, with a specific focus on the Kingdom of Saudi Arabia as a test case. This process involves mapping constructs from existing models, such as UTAUT, and theories, such as the Expectancy Theory of Motivation, to the cultural context and developing new constructs when no appropriate match is available. This paper reports early results from field work conducted in Saudi Arabia to generate these mappings.

Keywords

Technology Acceptance, Civic Engagement, Culture, Context, Kingdom of Saudi Arabia, Model Development, Technology Mediated Social Participation Systems.

Introduction

Understanding the conceptual mapping and effectiveness of information systems models across cultures is a critically important task for our maturing discipline. Growing research in this area has highlighted many key dimensions of difference, but has provided little guidance about how to deeply translate the models and their concomitant instruments. This article will present early results of an ongoing effort to construct a culturally appropriate technology acceptance model from the ground up through validation of existing model constructs in a specific cultural context.

Technology acceptance is one of the most investigated research areas in Information Systems. In fact, the most cited paper in the field is the one that introduced the Technology Acceptance Model (TAM) by Fred Davis in 1989 (Venkatesh et al. 2007). The TAM is the most widely used of several theories and models that were developed to explain and predict the acceptance and adoption of new technologies. It is founded upon the belief that technology acceptance and use can be explained in terms of the user's internal beliefs, attitudes, and intentions. According to Venkatesh, the TAM postulates that an individual behavioral intention to use a piece of technology is determined by first "Perceived Usefulness (PU)" and second "Perceived Ease of Use (PEU)" (2000). The former is a measure of how much a person believes that using a technology would improve their job performance whereas the latter is a measure of how an individual perceives the effort required to learn a new technology.

Because of the popularity of TAM in adoption research, some scholars have criticized it as being overused (Benbasat and Barki 2007). However, this overuse of one model does not limit researchers' exploration of other models and theories that could better predict the adoption and use of new technologies (Goodhue 2007). One of the TAM's shortcomings is that it neglected the influence of social and control factors on behavior despite the fact that these factors have been found to have a significant influence on IT usage motivations (Taylor and Todd 1995). Another criticism is that the TAM is usually validated by using a measure of behavioral intention to use rather than actual usage. Turner's Study (2010) has extended the work by Legris (2003) of the relationship between TAM variables and actual use. Their systematic

literature review shows that the behavioral intention is likely to be correlated with actual usage. However, the TAM variables PEU and PU are less likely to be correlated with actual usage.

Building off of the TAM, a more comprehensive model to predict technology acceptance is the Unified Theory of Acceptance and Use of Technology (UTAUT). Since its inception, scholars have used the UTAUT to characterize usage motivations and predict technology adoption in different contexts. Researchers have stressed the importance of revalidation and extension of acceptance models in general and of the UTAUT in particular (Silva 2007), which has been done in several domains including: Healthcare (Kohnke et al. 2014), Mobile Banking (Oliveira et al. 2014), E-Government (Alshehri et al. 2013), and Social media (Escobar-Rodríguez et al. 2014).

In a recent study, Van Belle and Cupido (2013) adapted the UTAUT model to determine the key factors that influenced citizen's intentions to participate in South African local government via mobile phones. Their findings suggest adapting the model for different countries as culture could impact the configuration of adoption factors. Another study by Gupta (2008) found the TAUT to be a valid model to help understand the adoption and successful use of technology in developing countries. Oshlyansky (2007) collected data from nine countries around the world to validate the UTAUT cross-culturally. They concluded that the UTAUT model can provide an insight into cultural differences and values in terms of technology adoption and use.

On the other hand, there is a body of research that suggests behavioral models do not universally hold across cultures and so cultural differences between countries may impact the acceptance and use of information and communication technology (ICT) (Srite and Karahanna 2006). This is contrary to previous studies' findings and calls for a more detailed investigation—*Do behavioral models universally hold across countries and cultures?* Cultural differences play a crucial role in the applicability of these general acceptance models. Evaluating them in different countries does not simply mean adding a construct, a new box or two, but rather evaluating the relevance of the existing model in the context and repairing them where they break. Context should be a critical component of our theorizing. This paper is motivated by Gary Johns work on the essential impact of context.

“Imagine conducting a research study in which you expect variable x to cause variable y but instead discover that y causes x. Imagine doing a study in which you anticipate a strong positive relationship between two variables but instead find a strong negative relationship. Imagine conducting an investigation in which the base rate of some crucial organizational behavior varies by a ratio of 35:1 between subsamples. Surprises of this nature should surely capture our attention, and they are frequently a product of our failure to consider contextual influence when doing research.” (Johns 2006, p. 386)

Our objective in this research is to investigate the factors that motivate the acceptance of Technology Mediated Social Participation Systems (TMSPs) in the cultural context of the Kingdom of Saudi Arabia (KSA). The ultimate goal is to develop a new culturally-relevant configuration of an information systems model (and accompanying instrument) that will be optimized to predict the acceptance of mobile systems for civic engagement in the KSA.

Technology Mediated Social Participation Systems in Saudi Arabia

Technology-mediated social participation systems enable people to interact with each other and organizations that are meaningful in their civic life. Users need to accept the underlying technology, mobile phone applications in our case, to participate in this manner. Thus, the key problem is how to make TMSP systems socially usable and acceptable.

The focus of this study is TMSPs that are designed for the public good. These kinds of systems are well accepted in Western countries, but not as well accepted in countries such as Saudi Arabia. These systems are usually developed for smartphone platforms as they offer an immediate, contextual medium for participation leveraging their onboard camera and GPS locator. The ability to capture a geolocated picture makes participation through smartphones easy and effective.

One promising class of TMSPs is public service improvement systems. Common applications include community policing, crime prevention, neighborhood maintenance, and incident reporting (Brush et al. 2013; King and Brown 2007). Lately, several governments have begun to use these systems to encourage

citizens to report incidents in their neighborhood to the local agencies, such as a broken street lamp or a street water leak. In this context, citizens can use the incident reporting systems as a self-service application(Meuter et al. 2003).

The Kingdom of Saudi Arabia has inherited a rich history of civilization that shapes the culture and society of the Arabian Peninsula. Religion in particular, as a part of the national culture, plays an important role in setting the social norms, patterns, traditions, practices, and daily activities of Saudi society(Al-Saggaf 2004).In order to understand the acceptance and adoption of new technologies in Saudi Arabia, it is important to consider the full national context of the country. Saudi culture is determined by various unique aspects that distinguish it from other countries. Arab societies in general are collectivist cultures, which encourage dependence on family members and friends. Understanding the cultural values, context and dimensions for the study targeted population, Saudi citizens, is crucial in developing TMSPs acceptance model and identifying the key factors that influence the acceptance of these systems.

Contextual TMSPs Acceptance Model Development

In this paper we report the first stage of ongoing research that aims to evaluate the relevance of existing acceptance models t TMSPs in Saudi Arabia. We seek to integrate constructs that map well to Saudi culture and develop new constructs where none currently exist. To accomplish this in the context of Saudi Arabia, we followed Johns(2006) recommendation of starting the research in the field collecting primarily qualitative data.

Two data collection techniques are used: focus groups and individual interviews. The purpose of using focus group in the early stage of research is to provide initial insight into the existing and emerging factors, both social and technical, affecting the acceptance of TMSPs used for public good in KSA.Focus groups are used to help us better understand the factors that influence public engagement in their communities. Moreover, the aim of these focus groups is to obtain more in depth information to understand and to develop new factors to test in a survey instrument being developed in the next phase of the research.

After collecting enough data from the focus groups, the theoretical model of TMSPs acceptance will be generated. Following the initial version of this model, another round of qualitative data collection will start in the form of individual interviews. The goal of conducting individual interviews is to cover any aspects or factors that were not caught during the first round of group interviews. It will also help in refining and finalizing the model of acceptance prior to validation.

Focus Groups

Focus groups are often used during the exploratory stages of a study(Krueger and Casey 2000). Their main purpose is to draw upon respondents' attitudes, feelings, beliefs, experiences, and reactions in a way in which would not be feasible using other methods, such as observation, one-to-one interviewing, or surveys. As our technology use is embedded in our social lives, participant's beliefs are best revealed via the social dynamics of an interactive group interview. Four focus groups were organized. Three of them were held in the study's main site the Kingdom of Saudi Arabia(two occurred in eastern region of the kingdom and the third was conducted in the capital, Riyadh). However, the first one was held in the United States at an East Coast university with Saudi citizens who were international students. These inaugural participants were recruited from the English Language Center at the university whereas the remaining groups were recruited through personal contacts and referrals. Each focus group had 4-6 participants and lasted between 60 and 100 minutes. All four focus groups began by introducing the topic and breaking the ice by offering some refreshments. All sessions were conducted in Arabic, audio recorded, and transcribed. Additionally, we received participant permission to take photographs. The session transcripts were then coded to identify concepts, relationships, and patterns present within and across the four groups. We conducted a focused content analysis to identify motivational factors of TMSP systems acceptance(Miles and Huberman 1994).We followed Creswell's recommendations on how to analyze a qualitative data. These steps included:(1)preliminary exploration of the data by reading through the transcripts and writing memos; (2) coding the data by segmenting and labeling the text; (3) using codes to develop themes by aggregating similar codes together; (4) connecting and interrelating themes; and finally, (5) constructing a narrative. The trustworthiness of the empirical phase of this study was

achieved by ensuring that the participants in the groups and individual interviews were both diverse and representative of the target population.

Focus Groups Findings

The focus group transcripts were analyzed in Arabic. Keywords were extracted manually from the transcript and those that passed a threshold of at least 5 unique mentions across at least two groups were clustered, resulting in 60 emergent themes [Table 1]. With these keywords in hand, we went back to the literature to determine whether these themes conceptually aligned with any existing theoretic constructs. In order to broadly covered all factors, we linked the extracted themes to the original UTAUT model. We modified and extended it by integrating the Expectancy Theory of Motivation(Vroom 1964)which postulates that an individual will decide to behave or act in a certain way because they are motivated to select a specific behavior over other behaviors due to what they expect the result of that selected behavior will be. We also incorporate the Sense of Community Theory (McMillan and Chavis 1986) which is a concept in community psychology that focuses on the experience of community rather than its structure, formation, setting, or other features . This resulted in a hybrid model grounded in the forty-four themes that emerged from the focus groups. This model is still under development and individual interviews reoccurring now to deepen our understanding of these relationships. This will help us iteratively refine the hybrid mode.

Cost of Technology	Positive Outcome	Easiness	Tangible Results	Tech Reliability	Transparency
Awareness	Peer Pressure	Critique Acceptance	Infrastructure	Education Level	Lack of Trust
Privacy	Gender	Feedback	Functionality	Monetary Reward	Time Saving
Frustration	Comm Membership	Religious View	Decision Making	Solving Problems	Effort-to-Benefit
Bureaucracy	Availability	Measurable Actions	Design Quality	Quick Reaction	Role Model
Saudi Mentality	Recognition	Communication	Shared Participation	Appreciation	Resistance to Change
Collaboration	Age	Despair	Social Loafing	Feeling Good	Effort Saving
Ignorance	E-Readiness	Influence	Extended Family	Enforcement	Marketing
Useful	Fun	Info Quality	Nepotism	Documentation	Indirect Benefits
Not priority	Passive Interaction	Social Change	Legal Concern	Tech Support	Giving a Charity

Table 1: Keywords extracted from focus groups

Model Construct Development

The keywords identified in the focus groups tend to belong to one of three categories that are relevant to the technology acceptance models:

- A universal term that turns out to have the *same* meaning used in an existing model;
- A universal term that turns out to be *different* than the meaning used in an existing model;
- A unique term that is only relevant to the cultural context of the Kingdom of Saudi Arabia.

Based on the focus group participants we found that a term such as (Easy to Use) aligns well with the meaning commonly used in validated technology acceptance models. For example, one participant said:

“I will use an app to report a shop when I don’t have to learn how to use it. I think if the app is easy to use and its language in Arabic, then I will use it ! I think these app should be as easy as using a phone to do the same task”(FG2P4)

This aligns well with the PEU construct of the TAM: *The degree of ease associated with using a particular kind of technology.*

An example of a universal term that does not conceptually align with an existing model is (Social Influence). This term is defined as: *the degree to which a user perceives that important others believe they should complete a particular task.* The difference in meaning here comes from the representation of “important others”. Traditionally, this includes family, friends, and colleagues(Schofield 1975). However,

Saudi participants stated that important others include their extended family members, cousins, neighbors, role models, and tribal officials. Figure 1 illustrates how the identified themes from [Table 1] contribute to model's construct development.

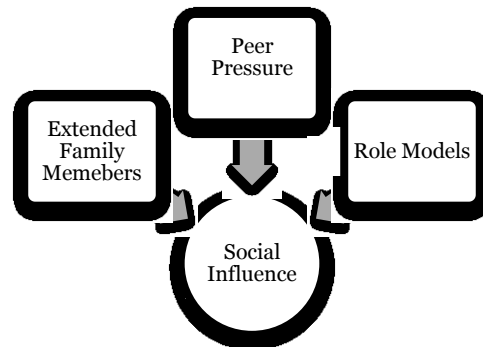


Figure 1: Illustration of Model Constructs Development

Finally, a concept is that uniquely relevant to Saudi Arabia context is (Nepotism). We found this cultural factor is frequently mentioned across focus groups. Several participants made it clear that they might not accept or use this kind of technology to report one of their relatives who happens to be a shop owner.

Conclusion

This paper reports preliminary findings from the first phase of the ongoing development of a culturally appropriate acceptance model of TMSPs for Saudi citizens. The findings show that existing universal models may partially predict the acceptance and use of new technologies. However, they fail to include some contextual and cultural constructs that can be identified by conducting field work to understand the context and environment where the technology will be used. The next phase will be a validation of the model through surveys. Ultimately, this will result in an accurate instrument that is able to predict technology acceptance for civic engagement systems in KSA and will provide general insight into how common information systems models vary across cultures.

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