A FRAMEWORK TO SUPPORT GLOBAL CORPORATE M-LEARNING: LEARNER INITIATIVE AND TECHNOLOGY ACCEPTANCE ACROSS CULTURES

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ABSTRACT

Corporations are growing more and more international and accordingly need to train and develop an increasingly diverse and dispersed employee based. M-learning seems like it may be the solution if it can cross cultures. Learner initiative has been shown to be a disadvantage of distant learning environments, which would include m-learning. Consequently this study will look at the influence of Hofstede's cultural dimensions on Learner Initiative (LI) and how LI influences technology acceptance of m-learning. A prototype will be designed and shown to representatives of various cultures along the cultural dimension who will then answer a questionnaire. Responses will be evaluated in two phases with the first phase focusing on the cultural influence on LI and the second phase focusing on how LI influences technology acceptance.

KEYWORDS

Learner Initiative, M-learning, Technology Acceptance

1. INTRODUCTION

Similar to other forms of e-learning, one of the benefits of mobile learning is the ability to offer concepts in various formats, ranging from static text to interactive modules, to meet the needs of different learners. But if the learner will not attempt to access the information or cannot incorporate the information due to cultural differences, there is little chance of achieving the desired learning outcome.

Corporate Training and Development departments are often tasked with training a globally dispersed, multi-cultural employee population in a cost effective and consistent manner (Holmes 2009). In an attempt to reach a greater percentage of these employees, many companies are turning to m-learning. According to a 2013 mobile learning survey "…73% of organizations are actively engaging in mobile learning in some form and 87% plan to increase usage over the next 12 months"(Brandon Hall Group 2013). While some m-learning may be created as multi-platform web-based learning, others take a more native approach attempting to take advantage of the contextual features inherent in smart phones and phablets. These contextual features can allow learning to happen when and where it is needed.

M-learning has its roots in distant learning. The correspondence courses of the 1990s are now web based courses accessible via the internet and increasingly in mobile friendly formats. Tuckman (2007) noted that the reliance on learner initiative was a major disadvantage of web-based distance learning. In this case, initiative would be the ability to independently assess a need to for learning, find value in using a mobile learning app to satisfy that need, and thus begin the mobile learning process. Given that m-learning is ubiquitous in nature and is being designed to be used as needed, it will be up to the learner to assess a need and initiate the learning process. A learner will need to feel it is within his or her power and interest to initiate m-learning. Accordingly Lerner Initiative (LI) is an important aspect of m-learning that must be accounted for. When looked at it from a cross cultural perspective, differences in cultures could affect what is perceived as being within ones control and thus the ability to assess the need for and take action to initiate m-learning could be very different.

This paper will propose research as part of a Ph.D. candidacy that will look at LI as part of technology acceptance across cultures research. Initially the paper will look at the research that has focused on cross cultural technology acceptance. The following section will look at the research objective and discuss LI with regards to Hofstede's cultural dimensions and LI as a construct of the technology acceptance model. Finally the paper will concluded by looking at the study where it is now and where it can grow.

2. RESEARCH BACKGROUND

Technology acceptance has been the topic of numerous studies since the 1980s. Some of these studies, such as DeSanctis et al (1994) and Orlikowski (2000), propose taking a holistic approach which incorporates actual everyday technology usage. Other studies suggest a structured technology focused approach. One such structured approach is the Technology Acceptance Model (TAM). It is one of the most widely used and accepted theories in Information Sciences for understanding and predicting technology acceptance. The TAM was the result of Davis' doctoral research where he showed, as seen in Figure 1, that the Perceived Usefulness (PU) and the Perceived Ease of Use (PEOU) of a system directly impact the Attitude Toward Usage (A) which then impacts the Behavioral Intent (BI). Since the introduction of the model, it has been validated and extended.

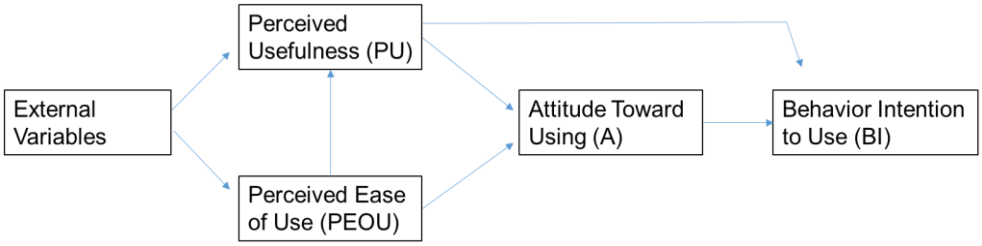

Figure 1. Technology Acceptance Model (Davis et al. 1989)

The Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh et al. (2003) endeavored to combine the TAM with elements of seven other acceptance models. The UTAUT looks at four factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. While it has been used to research the cross cultural acceptance of technology, it has not been used to the extent that the TAM has.

Given the focus on LI as an element of initial attitude and intention, the use of a model such as the TAM, will not only allow for that initial perspective, but also for the incorporation of cultural elements in a manner consistent with past research. That being said, as the TAM itself does not include a cultural element, a corresponding model will need to be accounted for.

One such cultural model has been developed by Hofstede, a leading researcher of cross cultural values orientation. His work has been sighted in the majority of IT related cross cultural studies. He defines culture as the "software of the mind," as it is something that is "programmed." It is something that is learned and experienced from childhood on and becomes more ingrained as time passes. Between 1967 and 1979, Hofstede surveyed IBM employees in over 70 countries to find out how values in the workplace are influenced by culture. The findings of his study should not be interpreted as saying that every individual holds the same values dear, but rather a culture in general tends to identify with certain values over others. His study allows people working and communicating across cultures to have an understanding of how the unwritten and unspoken rules of engagement change when working with a new culture. He was able to statistically categorize these value orientations into dimensions of national culture. These dimensions are Power Distance (PDI), Individualism versus Collectivism (IDV), Masculinity versus Femininity (MAS), and Uncertainty Avoidance (UAI). Table 1 looks at what these dimensions are as well as general implications of how those dimensions correlate with technology acceptance according to a comprehensive literature of IT research conducted by Gaspay et al (2008).

Table 1. Dimensions of Hofstede's Cultural Values Orientation and implication for technology acceptance

Dimension	Explanation
Power Distance (PDI)	A culture's preference for hierarchy vs. equality. The lower the power distance, the more equality is valued.
Individualism versus Collectivism (IDV)	The cultural preference either toward the individual or the group. In other words, is the individual responsible for him or herself or is the extended network responsible for the group
Masculinity versus Femininity (MAS)	A culture's prefers competition and achievement vs. collaboration and compassion
Uncertainty Avoidance (UAI)	A culture's comfort level with uncertainty and ambiguity

With regards to how these dimensions affect the acceptance of technology, a comprehensive 2008 IT literature review was conducted by Gaspay et al. (2008). For all for dimensions a relationship was shown between a culture's values orientation and that cultures inclination toward technology acceptance. High PDI was shown to inhibit adoption, diffusion, and innovation of new technology while cultures tending toward Collectivism in the IDV dimension were more inclined to adopt technologies that facilitate group and interpersonal relationship building. It was also shown that both MAS and UAI negatively correlate with technology acceptance.

In 1991, based on research by Bond and supported by Hofstede, the dimension of Long-Term Orientation (LTO) was added. Long Term Orientation looks at how much a culture is interested in indulgence today as opposed to investing for a time in the future. In 2010 two more dimensions were added. As a result of research by Minkov, a fifth dimension of Pragmatic versus Normative (PRA) was added. This dimension, however, corresponds at least in part with the already existing LTO dimension. The 6th dimension was a result of Minkov's analysis of the World Values Survey data and was title Indulgence versus Restraint (IND). Indulgence versus Restraint (IND) looks at the preference of society toward gratification vs. strict social regulations (The Hofstede Centre 2014). No research was found tying the latter two dimensions to IT usage.

Table 2 looks at past research which incorporated Hofstede's model with technology acceptance. After a literature review, focusing on how m-learning research analyzed cultural dimensions in combination with technology acceptance, was conducted and few sources were found, the scope of the research was extended to also include studies of technology acceptance outside the realm of e-learning and m-learning.

Table 2. Comparison of Models used to determine Technology Acceptance

Paper	IS Model	Cultures	Hofstede Dimensions
Im et al. 2011	UTAUT	Korea v. US	PDI, IDV, UAI, MAS
Straub et al. 1997	TAM: PU & PEOU	Switzerland, Japan, and the USA	PDI, IDV, UAI, MAS
Zhao, Tan 2010	TAM: PU, PEOU, IM (Intrinsic Motivation), BI	China & Canada	PDI, IDV, UAI, MAS
Terzis et al. 2013	Computer Based Assessment Acceptance Model (CBAAM)	Greece & Mexico	PDI, IDV, UAI, MAS
AL-Jaafreh 2011	TAM: PU & Cultural Dimensions yield BI	Jordan v. Western	PDI, IDV, UAI, MAS
McCoy et al. 2007	TAM: PU PEOU, BI		PDI, IDV, UAI, MAS

These studies show that the TAM has proven to be not only a viable model but also the most commonly used model when incorporating the Hofstede dimensions to research technology acceptance across cultures. In each of the studies, the technology acceptance results were compared on a country by country basis with

the expectations set forth by the cultural dimensions. In each case, the results positively correlated with expectation indicating that culture does have an impact on technology acceptance. As Li (2010) showed, it can even impact how and why we access information when looking for answers in the workplace. M-learning offers the ability to personalize training to a person's style, needs, and schedule but we need to make sure that we understand the cultural implications that lead the learner to initiate the learning process.

3. RESEARCH OBJECTIVE

The proposed research will study the need to consider LI as a part of m-learning technology acceptance across cultures. Tuckman (2007) discussed the disadvantages of distant web based learning which includes the reliance on learner initiative. Mobile Learning is being designed to be flexible and personal, when, how, and where the learner needs to learn. This necessitates however that the learner is able to assess a need and feels sufficiently in control of his or her own learning to initiate m-learning. Given the impact LI is believed to have on m-learning, this research proposes first looking at the correlation of the cultural dimensions with LI and then as a construct with the TAM to test for acceptance of m-learning. As in previous research, the construct will be calculated on a country by country basis then compared with the expectations set forth by the cultural dimensions. In order to remain consistent with this previous research the study will only calculate for the first four Hofstede cultural dimensions. The first step in the two step approach will be to look at the impact of the four dimensions on Learner Initiative (LI).

H1 - Power Distance (PDI) will have an impact on LI
H2 - Uncertainty Avoidance (UAI) will have an impact on LI
H3 - Individualism versus Collectivism (IDV) will have an impact on LI
H4 - Masculinity v. Femininity (MAS) will have an impact on LI

The second step will be to look at LI with respect to the TAM. As seen below in Figure 2, the hypothesis is that LI will impact PU and it will impact A.

H5 - LI will impact PU and A of mobile
H6 - LI will impact PU and A of mobile

Hypotheses H7 – H10 will remain consistent with the TAM in that PEOU will continue to impact PU and A which will impact BI.

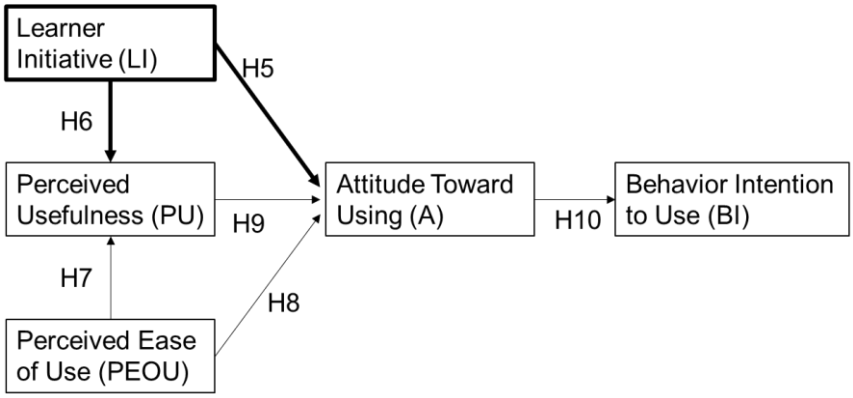

Figure 2. Technology Acceptance Model including Learner Initiative

To conduct the study, a prototype will need to be designed and created in order to make sure questionnaire participants have the same concept of what aspects of m-learning the questions refer to. A web based questionnaire will be devised of questions related to the hypothesis. The participant base will represent different cultures along the spectrum of Hofstede's cultural dimensions. Prior to the questionnaire, participants will be exposed to the prototype and then answer questions about m-learning applications. As indicated above, LI will first be considered with regards to the Hofstede dimensions followed by tabulations for fit with the Technology Acceptance Model. Partial Least Squares Structural Equation Modeling (PLS-SEM) will be used as the statistical modeling technique.

4. CONCLUSION

Learner Initiative is a needed construct in assessing technology acceptance of m-learning across cultures. This research will focus primarily on the relationships using Hofstede's cultural dimensions to investigate the effects of culture on Learner Initiative followed by the impact of Learner Initiative as a construct of the Technology Acceptance Model. The usage of an m-learning prototype will give questionnaire respondents a base line concept of the m-learning applications being questioned. Although this research is still in the very early stages, it is expected that future research can investigate how contextual elements inherent in mobile devices can address differences in LI through processes and application functionality so that learners in different cultures can achieve the desired learning outcome.

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