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Cultural Implications Regarding the Use of Mobile Voice Service and SMS

ABSTRACT

Mobile telephony is currently the most popular and widespread communication technology on the planet greatly exceeding that of fixed broadband. The way people communicate is a manifestation of their culture, i.e. general beliefs and core values formed during childhood and reinforced throughout life. Currently, there is little systematic cross-cultural research to explicate the effects of individual's preference regarding the use of mobile communication technologies. This study examines the role of cultural effects regarding the use of mobile voice service and short message service (SMS). We examine that phenomenon at two points in time with a sample of 78 countries using Culture theory, Media Richness theory, and Inter-cultural Communication theory. Findings suggest that some cultural dimensions have a greater impact on a society's usage of mobile voice service and SMS than others, and that the influence varies between them. Conceptual and practical implications are discussed.

KEYWORDS (MOBILE COMMUNICATION, CULTURE, SHORT MESSAGE SERVICE, TEXTING)

INTRODUCTION

Mobile telephony has been the most rapidly adopted technology in history. It is currently the most popular and widespread personal technology in the world. By the end of 2010, there will be an estimated 5.3 billion mobile cellular subscriptions worldwide (ITU World Telecommunication 2009). Along with the growth of mobile telephone, the use of wireless data services – specifically short message service (SMS) – has also grown exponentially. The ITU World Telecommunication estimates currently that, an astounding 200,000 text messages are sent every second.

Mobile telephony appears to transcend income and education levels as access to mobile networks is now available to 90% of the world population and 80% of the population living in rural areas. Despite tremendous worldwide growth in mobile voice and data services, our understanding of how culture impacts individuals' preference and use of those services is limited. Culture and communication are intertwined because the way that people communicate is a manifestation of their general beliefs and core values. As a result, societal and cultural differences are an important factor regarding individuals' preference of synchronous versus asynchronous modes of mobile communication.

The purpose of this study is to examine cultural effects regarding the use of mobile voice service and SMS. We examine that phenomenon at two pivotal points in time; during the period where mobile telephony was experiencing high growth rates, 2003, and when the growth rate began to level off, 2008. This is the first study of which we are aware that examines the relationship between multiple dimensions of Hofstede's cultural taxonomy and the use of mobile voice service and SMS at two points in time.

THEORETICAL BACKGROUND

Culture Theory

Culture is the shared values of a particular group of people, which reflects their values and beliefs formed during childhood and reinforced throughout life, i.e. "a collective programming of the mind that distinguishes one group from another" (Hofstede, 1980, 1991). Perhaps the most influential of cultural classifications is that of Geert Hofstede (1980). His seminal work has inspired thousands of empirical studies which have applied his cultural dimensions at the individual, organizational, and national level of analyses. According to the classification dimensions, certain sets of ideals will persist in all countries and will vary in their magnitude across geographic regions. The dimensions are national-level analysis and are standardized to allow multiple country comparison (Ford, et al 2003).

There are a host of cultural dimensions proposed by a number of authors (see Leidner and Kayworth 2006 for a review). However, we focus on Hofstede's framework rather than others, given evidence that it has had the greatest impact. Hofstede's first four dimensions constitute the most used and most recognized dimensions as a whole or separately in study involving cultural issues in management and organizations. Those dimensions and a brief description follow in Table 1.

Dimension	Definition
Power Distance (PDI)	the extent to which the less powerful members of a society accept and expect an unequal distribution of power
Individualism (IND)	the extent to which members of a society are integrated into strong cohesive groups
Uncertainty Avoidance (UAI)	the extent to which members of a society feel threatened by uncertain and unknown situations
Masculinity/Femininity (MAS)	the extent to which a society attributes qualities such as assertiveness and material success to men, and modesty and quality of life to women

Table 1. Cultural Dimensions (Hofstede, 1980)

In this study, we focus on the effects of Hofstede's cultural variations that are most relevant for the examination of mobile communication behavior from a cultural perspective, i.e. power distance, individualism, and uncertainty avoidance.

Media Richness Theory

Media Richness Theory (Daft & Lengel, 1984) presents the idea that the degree of richness is an intrinsic property of a communication medium and is dependent on the capacity of the medium to process equivocal communication. According to MRT, richer media helps to facilitate the reduction in equivocality by enabling the ability to overcome different frames of reference and also provides the capability to process complex messages. Media that are low in richness are more restrictive and are less appropriate for resolving equivocal issues. Face-to-face communication is considered to be the richest, while other media are thought to be leaner since they have fewer contextual cues and slower feedback compared to face-to-face (Daft et al. 1987). Although critics argue that communication richness is dependent upon the social context in which communication occurs, in addition to the inherent properties of the communication medium, (see Markus 1994; Ngwenyama and Lee 1997), MRT has enjoyed a history of extensive application and usage. With the explosive growth of the Internet, computer mediated communication, both synchronous and asynchronous, has become the most widely-used method of communication.

Intercultural Communication Theory

Edward Hall's (1976) model of low-context and high-context cultures is one of the dominant theoretical frameworks for interpreting intercultural communication. Hall defined low-context and high-context cultural dimensions as the extent to which people are aware of and pay attention to situational and contextual cues when interpreting messages. As a result, high context cultures tend to communicate in a manner where individuals prefer to draw inferences from direct or implied information whereas members of low context cultures prefer information to be stated directly. For instance, email implies explicit content and will not be very useful as a means of communication for a high-context individual as it cannot inform the receiver of the contextual basis of the message. In general, as noted by Martinsons & Westwood (1997, p. 220) "Computers do not convey the necessary richness of meaning in a high context communication environment". In that same vein, Calhoun et al. (2002) conducted a study involving IT employees in Korea (a high-context culture) and the U.S. (a low-context culture). Findings revealed that the Korean employees experienced greater levels of frustration due to "information overload" than did their U.S. counterparts because the information systems provided more information they were able to absorb. Hall made a number of other distinctions between high-context and low-context cultures. In high-context cultures information is widely shared and thus requires extensive cultural programming. High-context cultures emphasize consistency whereas low-context cultures emphasize change and mobility. Cultures that are highly contextual appreciate slow, indirect messages whereas low-context cultures have a preference for fast, direct messages. High-context cultures make extensive use of information networks and tend to employ more holistic thinking where low-context cultures are the opposite. Hall described cultures as being either primarily high-context or low-context, but notes that cultures could be arranged on a continuum.

RESEARCH HYPOTHESES

The hypotheses that underlie this study are presented below.

Power Distance

Individuals from high power distance cultures expect and accept differentials of power and inequality than do their low distance counterparts. Communication varies in distance ranging from face-to-face communication to indirect computer mediated communication. Compared to face-to-face communication, text-based asynchronous computer mediated communication lacks visual and auditory cues (Walther 1996). An essential point to be made is that whether the preference is for lean or rich media depends to a great extent to which that power distance is wished to be maintained. For instance, superiors who want to maintain the distance with their subordinates would prefer rich contextual communication that reflects an appreciation of respect and status as suggested above. On the other hand, individuals in a high power distance culture with less of a need to maintain the differential of status would instead be free to use a lean method of communication. Prior research determined that social networks using mobile communications devices were largely comprised of family and friends who exchanged short, text frequent messages (Campbell & Russo, 2003). Given that mobile networks are available to more than 90% of the world population, it stands to reason that even in high power distance countries, the majority of mobile phone users are not those in a position of superiority wishing to maintain their power and prestige and would thus be more likely to take advantage of the freedom and convenience provided by asynchronous mobile communication over that of its synchronous counterpart. Consequently, we hypothesize the following:

H1: PDI has a stronger negative linear relationship with mobile voice service than SMS.

Individualism

In individualist cultures, individual rights and goals are dominant whereas in collectivist cultures, the focus is on strong cohesive groups. Individualists are less concerned with the thoughts and actions of others and tend to communicate directly (Singelis & Brown, 1995). Mobile voice service and SMS are based on personal handheld devices; therefore, the extent to which a person is an individualist is a relevant issue. While some people are focused on the utility of mobile phones, others perceive the device as a cultural artifact, i.e. a fashion accessory and/or a status symbol. Prior research found evidence that some mobile phone users consider their devices as an extension of their physical selves (Ling & Haddon 2003; Gant & Keisler, 2001). Individualists tend to be independent thinkers and more likely to focus on seeking information about themselves rather than others. As a result, individualists are more likely to be early adopters of a technology as compared to their collectivist counterparts. During its early stage of diffusion, the mobile phone was an expensive item usually used by the business elite. In the later stages of diffusion, texting experienced rapid and widespread growth as mobile phones became a ubiquitous, personal communications tool used by the general population. We anticipate that cultures high in individualism would have a preference for mobile voice services as opposed to texting and that this effect would be more pronounced particularly in the early stages of the diffusion process. Based on the reasoning above, we hypothesize:

H2: IND has a stronger positive linear relationship with mobile voice service than SMS, especially at the early stage of cell phone diffusion.

Uncertainty Avoidance

Members of cultures high in uncertainty discourage deviation from norms and encourage compliance with rules, whereas cultures with low uncertainty avoidance encourage creativity and innovation (Triandis, 1989). Cultures high in uncertainty avoidance also tend to avoid risk and ambiguity. Media Richness Theory posits that communication is needed to reduce uncertainty and equivocality. We anticipate that cultures that are high in uncertainty avoidance and thus reject uncertain and unknown situations will likely consider rich media as their communication medium of choice. Cultures low in uncertainty avoidance are more likely to communicate using media that lack richness and contextual cues that high uncertainty avoidance cultures would find undesirable. While asynchronous communication eliminates spatial and temporal constraints, synchronous communication eliminates the uncertainty surrounding whether the intended individual actually received the communication and is responsive to it. Lastly, Ross (2001) found that, in general, uncertainty avoidance has a negative relationship with the extent of technological adoption and use. Therefore, we expect those using mobile technology devices in high uncertainty avoidance cultures would be more likely to make use of their devices for traditional phone calls rather than texting. As a result, we hypothesize the following:

H3: UAI has a stronger negative linear relationship with SMS than mobile voice service.

METHODOLOGY

Hofstede (2001) explained that in order for studies to be generalizable to all cultures in terms of findings regarding dimensions of cultural variability, data from a minimum of 10 to 15 societies are necessary. Otherwise, researchers are in danger of treating cultures as individuals. In this study, we examine 77 countries for which Hofstede's cultural dimensions are available. A listing of those countries along with the associated dimensions is available at http://www.geert-hofstede.com/hofstede_dimensions.php. In addition, and for convenience, a listing of the countries appears in the Appendix. Observations for each country's mobile voice service and SMS usage data were collected from the International Telecommunications Union database. Analyses were conducted using linear regression. The independent variables are the four cultural dimensions which predict the mobile voice service usage and SMS usage as the dependent variables. The mobile voice service and SMS usage data were both divided by the population of the respective country to obtain the data on a per capita basis. Given that mobile networks are available to more than 90% of the world population and 80% of the population living in rural areas, we did not control for variables typically controlled for in studies examining relatively more expensive information and communication technologies such as personal computers. In addition, the combination of pre-paid service plans, extremely affordable mobile devices, and the ease of use of mobile voice service and SMS, provide evidence that mobile devices and communication transcends income and education.

RESULTS AND DISCUSSION

The purpose of this study was to examine the role of cultural effects regarding the use of mobile voice service and SMS. Data were collected for the years 2003 and 2008 due to the pivotal role they played in the mobile communication revolution. As mentioned in the introductory paragraph, mobile communication was experiencing a high growth rate during the year 2003, while the growth rate began to level off during 2008. Results are summarized in Table 2 below indicating the regression weights and significance levels.

Cultural Dimension	2003 VMS	2003 SMS	2008 VMS	2008 SMS
	Regression weight*			
PDI (power distance)	β_1 : -.399*	β_1 : -.106	β_1 : -.411*	β_1 : .105
IDV (individualism)	β_2 : .384*	β_2 : .194	β_2 : .048	β_2 : .026
UAI (uncertainty avoidance)	β_3 : -.007	β_3 : -.314 ¹	β_3 : -.066	β_3 : -.318*
	**: significant at 0.01 level; * significant at 0.05 level; ¹ significant at .059			

Table 2. Results

By and large, the hypotheses put forth in this study were supported though the beta weight for uncertainty avoidance in 2008 had a level of significance that was somewhat marginal, i.e. .059. Findings in this study generally support the contention that culture has an impact on individuals' usage of mobile communication in terms of mobile voice service versus SMS and that relationship varies depending on the cultural dimension and the point of diffusion. Overall, power distance had a stronger negative relationship with mobile voice usage than SMS and this seemingly contradictory relationship was explained in terms of individual's desire to maintain the status differential present in high power distance cultures and the contextual differences. Individualism, on the whole, had a positive relationship with both mobile voice usage and SMS, particularly in the earlier stage of diffusion of mobile phone devices prior to SMS experiencing widespread usage. Lastly, uncertainty avoidance had an overall negative relationship with both mobile voice service and SMS, but that relationship was stronger for SMS than with mobile voice service based on the need for uncertainty reduction that is indicative of that particular type of culture.

This is the first study of which we are aware that examined the cultural impact of both modes of mobile communication in this manner. The majority of IS studies examining culture at the national level of analyses from an information technology perspective have examined the phenomenon with regards to organizational sub-groups employing various types of management and organizational information technologies (see Leider and Kayworth 2006 for an extensive review). We have

addressed this gap in the literature by examining a broad-based information technology that is widely applicable to the general population.

IMPLICATIONS

There are important theoretical and practical implications of this study. From a conceptual perspective, our findings suggest that some cultural dimensions have a greater impact on a society's usage of mobile voice service and SMS than others, and that the influence varies between them. Practically speaking, the mobile device manufacturing and marketing landscapes are extremely competitive as many consumers have abandoned their land lines, and are relying instead on mobile communication devices as their exclusive method of communication. Therefore, knowledge regarding the cultural dynamics of consumer's communication preferences and patterns during a communication technology's peak growth rates and also when the growth rates are declining, can be useful as a part of on-going manufacturing and marketing strategies.

CONCLUSION

Results of this study reinforce the viewpoint that researchers must consider the cultural and societal contexts when examining preferences for mobile communication technologies. As new communication technologies continue to pervade our daily lives, it is important for researchers and practitioners alike to be mindful of the reciprocal relationship between people and technology; while new technologies influences the manner in which people live, the manner in which people live influence the ways in which they think about and make use of technologies.

REFERENCES

1. Calhoun, K., Teng, J. Cheon, M. James T. C. Teng (2002) Impact of national culture on information technology usage behaviour: An exploratory study of decision making in Korea and the USA, *Behaviour & IT*, 21, 4, 293-302
2. Campbell, S., & Russo, T. (2003). The social construction of mobile telephony: An application of the social influence model to perceptions and uses of mobile phones within personal communication networks. *Communication Monographs*, *70*, 317-334.
3. Daft, R. & Lengel, R. (1984) Information richness: a new approach to managerial behavior and organizational design. In: Cummings, L.L. & Staw, B.M. (Eds.), *Research in organizational behavior* 6, (191-233). Homewood, IL: JAI Press.
4. Daft, R. & Lengel, R. and Trevino, L. (1987) Message equivocality, media selection, and manager performance: Implications for information systems, *MIS Quarterly*, September, 355-366.
5. Ford, D., Connelly, C., and Meister, D. (2003) IS research and Hofstede's Culture's Consequences: An uneasy and incomplete partnership, *IEEE Transactions on Engineering Management*, *50*, 8-25.
6. Gant, D., & Kiesler, S. (2001). Blurring the boundaries: Cell phones, mobility, and the line between work and personal life. In B. Brown, N. Green, & R. Harper (Eds.), *Wireless world: Social and interactional aspects of the mobile age* (pp. 121–132). London: Springer
7. Hall, E. T. (1976). *Beyond culture*. Garden City, NY: Anchor Books.
8. Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Newbury Park, CA: Sage.
9. Huang, L., Lu, M., & Wong, B. (2003). The impact of power distance on email acceptance: Evidence from the PRC. *Journal of Computer Information Systems*, *44*, 93-101.
10. Leidner, D. and Kayworth, T (2006) A Review of Culture in Information Systems Research: Toward a Theory of Information Technology Culture Conflict, *MIS Quarterly*, *30*, 2, 358-399.
11. Ling, R., & Haddon, H. (2003). Mobile telephony, mobility, and the coordination of everyday life. In J. Katz (Ed.), *Machines that become us: The social context of communication technology* (pp. 245–266), New Brunswick, NJ: Transaction Publishers.
12. Markus, M.L. (1994) Electronic Mail as the Medium of Managerial Choice, *Organization Science*, *5*, 4, 502-527.
13. Martinsons, M., Westwood, R. (1997). Management information systems in the Chinese business culture: An explanatory theory, *Information and Management*, *32*, 5, 215-228.
14. Ngwenyama, O. and Lee, A. (1997) Communication richness in electronic mail: Critical social theory and the

- contextuality of meaning, *MIS Quarterly*, 21, 2, 145-167.
15. Ross, D. N. (2001). Electronic communications: Do cultural dimensions matter? *American Business Review*, 19, 75-81.
 16. Singelis, T. , & Brown, W. (1995). Culture, self, and collectivist communication: Linking culture to individual behavior. *Human Communication Research*, 21, 354-389.
 17. Walther, J. (1996). Computer-mediated communication: Impersonal, interpersonal, and hyper-personal interaction. *Communication Research*, 23 (1), 3-43.

APPENDIX

Countries Used in this Study			
Argentina	Germany	Malaysia	South Africa
Australia	Ghana	Malta	Korea (Dem. Rep. of)
Austria	Greece	Mexico	Spain
Belgium	Guatemala	Morocco	Suriname
Brazil	Hong Kong, China	Netherlands	Sweden
Bulgaria	Hungary	New Zealand	Switzerland
Canada	India	Nigeria	Tanzania
Chile	Indonesia	Norway	Thailand
China	Iran (Islamic Rep. of)	Pakistan	Trinidad and Tobago
Colombia	Iraq	Panama	Turkey
Costa Rica	Ireland	Peru	United Arab Emirates
Czech Republic	Israel	Philippines	United Kingdom
Denmark	Italy	Poland	United States
Ecuador	Jamaica	Portugal	Uruguay
Egypt	Japan	Romania	Venezuela
El Salvador	Kenya	Russia	Viet Nam
Estonia	Kuwait	Saudi Arabia	Zambia
Ethiopia	Lebanon	Sierra Leone	
Finland	Libya	Singapore	
France	Luxembourg	Slovak Republic	