Comparative study of effect of culture on technology adoption in Pakistan and USA

Hira Syed & Akhtar Nawaz Malik
National University of Sciences and Technology, Islamabad, Pakistan

Keywords
Technology Adoption, Culture, USA, Pakistan, Hofstede's cultural dimensions, UTAUT model

Abstract
In this research, it is examined how the technology adoption is affected by culture using constructs of UTAUT model and Hofstede's Cultural Dimensions. In this comparative study, data from Pakistan and USA is utilized to observe technology adoption in two completely opposite cultures. The technology selected for this comparison is 'Internet Banking'. The comparison of Pakistan and USA reveals that effects of performance expectancy on behavioral intention, effort expectancy on behavioral intention and effect of behavioral intention on use behavior are greater in USA; whereas effects of social influence on behavioral intention and effect of facilitating conditions on use behavior are greater in Pakistan. The cultures with low power distance and high individualism index are less influenced by social norms in contrast to cultures with high power distance index and low individualism index. Similarly cultures with low uncertainty avoidance index and high indulgence index tend to adopt new technology more even if support infrastructure for this technology is not extensive. However, cultures with high uncertainty avoidance index and low indulgence index look for more guarantees and assertions when adopting new technology. It is also found that consumers in Pakistan mostly fall in 'followers and laggards' category, whereas American consumers are mostly 'leaders'.

Introduction
For any country, culture holds great importance. It is the identity of that very nation, encompassing values of past, ideals for present, and hopes for future. From past to present, the development of technologies has altered social dynamics resulting in promotion of new cultural models. In short, culture is affected by adopting technology. However, vice-versa for this statement is also true. Culture also influences technology adoption. It affects the acceptance of technology in a particular nation and use of that technology. Therefore, study of how different nations accept technology and how they use it; and how technology adoption can be increased is essential.

Culture has been defined as the folk-spirit having a unique identity, or as cultivation of waywardness or free individuality. Culture is an integrated system of learned behavior patterns which are characteristic of the members of a society and which are not a result of biological inheritance (Velkely,2002). For this research, Hofstede's cultural dimensions have been used as a measure of culture for Pakistan and USA. Technology Adoption has been studied in many different ways. Some studies analyzed in-depth process of technology adoption, while others focused on associations of technology adoption and influencing variables (Im, Hong and Kang, 2011). There are multiple technology adoption models but for this research 'Unified theory of acceptance and use of technology' (UTAUT) has been used. UTAUT was developed by Venkatesh in 2003 by conjoining and analyzing constructs of eight different models.

This research paper is a comparative study evaluating use and acceptance of technology across two countries with divergent cultures that is in Pakistan and USA by applying constructs of UTAUT and Hofstede's Cultural Dimensions.

Background
Diffusion of product or services in a country is a process by which the technology is communicated and accepted through various channels. With the recent development of information technology and advent of social media, communication channels have increased. Thus, increasing the rate of diffusion. (Im, Hong and Kang, 2011). The findings of previous research suggest that national culture explains a

considerable amount of variation in cross-national diffusion. Hofstede cultural dimensions can be linked directly to diffusion rates in different countries. (Dwyer, Mesak and Hsu, 2005). Takeda and Jain (1991) conducted one of the first researches in this regard. They analyzed culture's influence on diffusion of products in high context versus low context aspects of culture. They found that rate of diffusion is greater in countries that have high context culture (Takeda and Jain, 1991). Few of the previous research find little or no evidence pertaining to effect of national culture on adoption of technology (Dwyer, Mesak and Hsu, 2005). However, many researches prove that consumers in different countries respond differently to new technology and this difference is due to diverse macro-level economic indicators and socio-economic factors (Im, Hong and Kang, 2011). Straub, Keil and Brennan (1997) compared technology adoption in Japan, Switzerland and USA using TAM model. It was found that impact of 'perceived usefulness' and 'perceived ease of use' on consumer's intention to adopt technology were higher in USA than in Japan.

Similarly, Sun and Zhang (2006) gave a set of possible moderating variables on technology adoption. They were voluntariness, nature of tasks and professions, technology complexity, work-oriented technology vs entertainment-oriented technology, individual vs group technologies, gender, individual intellectual capabilities, experience, age and cultural background. Further, Hofstede's cultural dimensions were applied which showed that people in countries with lower power distance, higher individualism, higher masculinity and low uncertainty avoidance , intend to adopt a technology on basis of how useful that technology would be to them in performing different tasks. They also argued that intention of people from countries that endorse higher power distance, lower individualism, less masculinity and higher uncertainty avoidance, to adopt technology is highly influenced by social norms. Sun and Zhang (2006), however didn't test these arguments empirically.

Keeping in review the arguments presented by Sun and Zhang, Im, Hong and Kang (2011) tested the suggestions empirically by comparing technology adoption in Korea and USA. Korea has higher power distance, low individualism, low masculinity, high uncertainty avoidance index, high pragmatism and low indulgence; which is opposite of USA. This study concluded that degree to which system helps the individual in performing tasks was indifferent to effect of culture; however, USA did had preference for degree of ease associated with system unlike Koreans users. On the same ground, it was found that if US users intended to adopt technology, they actually did use it. However, in Korea even if people intended to adopt technology that intention did not always resulted in actual use of technology. Moreover, Koreans were more prone to social efficacy than Americans. (Im, Hong and Kang, 2011)

Lee, Choi, Kim and Hong (2007) carried out research in Korea, Hong Kong and Taiwan, comparing acceptance of mobile technologies in these countries. This research pointed out that variances in technology adoption were greater at individual level than at country level. This research focused on four Hofstede's cultural dimensions namely uncertainty avoidance, individualism, context and time perception and found that national culture does play a noteworthy role when it comes to adopting technology (Lee, Choi, Kim and Hong, 2007).

On the same lines, Al Ghatani, Hubona and Wang (2007) applied UTAUT model to Saudi Arabia to see the influence of culture in a non-western environment. This study tested the moderating variable and indirectly approaches the cultural effect on adoption.Internet Banking was selected as technology to measure technology adoption to avoid superficial use of technology to be considered as adoption especially in case of Pakistanis. Secondly, product of internet banking is intangible. Thirdly, banking is a service that is used by everybody in our target group. Through all these previous research we were able to conclude that national culture does play a significant role in user's acceptance and use of technology. Every single individual is unique, yet society exhibits certain control from which most people do not deviate. Culture describes central tendency of society. Within every country regional cultural differences exist and so do among different countries. These differences in culture do play a considerable role in country's technology adoption.

Development of Hypothesis

This study aims to compare Pakistan and USA in terms of technology acceptance and use by determining relationship between Hofstede's cultural dimensions and UTAUT model constructs.

Performance Expectancy

As per previous research we know that consumers in countries with low power distance and high individualism prefer technology that helps them perform tasks and job more efficiently; hence technologies that are more productive (Sun and Zhang, 2006). Degree of productivity associated with technology has positive impact on user's intention of technology (Im, Hong and Kang, 2011). This degree of productivity is known as performance expectancy which is same as other constructs like perceived usefulness (TAM/TAM2), extrinsic motivation (MM), job-fit (MPCU), relative advantage (IDT) and outcome expectations (SCT) (Venkatesh, Morris, Davis and Davis, 2003). Therefore, it is concluded that people in countries in lower power distance and high individualism can make more independent decisions to adopt a technology and their decision would involve productivity of that technology (Im, Hong and Kang, 2011).

In Pakistan, we have higher power distance than USA and low individualism index. USA's society on the other hand endorses low power distance and very high individualism index. So we can assume that consumers in USA intend to adopt technology if it is useful to them at a higher rate than consumers in Pakistan.

Thus we derive our first hypothesis,

H1: "The effect of performance expectancy on behavioral intention is greater in USA than in Pakistan."

Effort Expectancy

Straub, Keil and Brennan (1997) found that American users prefer technology than is easy to use rather than Japanese users. Users in lower power distance and high individualism tend to make more rational and independent choices when it comes to adopting technology. However, users in high power distance and low individualism culture are more susceptible to moderating factors and social influence; making their decision less independent (Im, Hong and Kang, 2011). Degree of ease associated with using system has positive impact on user's intention to adopt technology. This degree of ease associated with use of system is effort expectancy which is same as constructs like perceived ease of use (TAM/TAM), complexity (MPCU) and ease of use (IDT) (Venkatesh, Morris, Davis and Davis, 2003).

In Pakistan, we have higher power distance than USA and low individualism index. USA's society, on the other hand endorses low power distance and very high individualism index. So we can assume that consumers in USA intend to adopt technology if it is easy to use at a higher rate than consumers in Pakistan.

Thus we derive our second hypothesis,

H2: "The effect of effort expectancy on behavioral intention is greater in USA than in Pakistan."

Social Influence

The effect of social influence would be greater in countries that have higher power distance and collectivist societies as they contain close-knitted setup and people in higher power and position are viewed favorably (Sun and Zhang, 2006). Degree to which individuals thinks that people are important to him or influence his behavior, view the technology in question positively has significant impact on user's intention to adopt technology. However, it can be a positive impact or negative impact (Im, Hong and Kang, 2011). The social influence construct of UAUT model is same as constructs like subjective norm (TAM/TAM2), social factors (MPCU) and image (IDT) (Venkatesh, Morris, Davis and Davis, 2003).

Pakistan has high power distance and low individualism index. Moreover, Pakistan is a restraint society which is controlled by strict rules and regulation. These rules and regulations influence the user's decision to adopt technology. In contrast, USA has lower power distance, high individualism and high indulgence, meaning that consumer in USA are less affected by what society thinks.

Thus we derive our third hypothesis

H3: "The effect of social norms on behavioral intention is greater in Pakistan than in USA."

Facilitating Conditions

If there are more conditions that support the use of technology, then more people will use it (Im, Hong and Kang, 2011). This will play a greater role in countries that have higher uncertainty avoidance index rather than countries with low uncertainty avoidance index. As greater the support available for technology, lesser would be uncertainty surrounding it. Degree to which individual believes that infrastructure exists to support the use of technology, has positive impact on user's use of technology (Im,

Hong and Kang, 2011). This construct of UTAUT is same as perceived behavioral control (TPB), facilitating conditions (MPCU) and compatibility (IDT) (Venkatesh, Morris, Davis and Davis, 2003).
Pakistan has high uncertainty avoidance index whereas USA has lower uncertainty avoidance index meaning that USA user would experiment with new technology even if support is not extensively available.
Thus we derive our fourth hypothesis
H4: "The effect of facilitating conditions on use behavior is greater in Pakistan than USA."

Behavioral Intention

People in high risk-averse cultures avoid changes and are less likely to test the new technology or even adopt it. However, people in low risk-averse culture would not only test the new technology, they are more likely to adopt it, too (Leidner and Kayworth, 2006). Similarly, people in collectivist society are influenced more by social norms in comparison to individualistic society. Since people in collectivist society do not have complete freedom when it comes to adoption, they may not adopt a technology even if they intend to use it (Im, Hong and Kang, 2011). Degree to which one intends to use the system in UTAUT model has significant positive influence on actual usage of technology (Venkatesh, Morris, Davis and Davis, 2003).

Pakistan has high risk-averse culture and collectivist society which is opposite of USA. Thus we can assume that consumers in USA will use technology more, if they intend to use it.
We derive our fifth and final hypothesis as follows:
H5: "The effect of behavioral intention on use behavior is greater in USA than in Pakistan."

Methodology

An online survey was developed based on the instrument developed by Venkatesh, Morris, Davis and Davis (2003) and modified by Im, Hong and Kang (2011). Data was collected from January, 2014 to March, 2014. The research subjects were engineers and engineering students from Pakistan and USA. The subjects from Pakistan mostly belonged to National Telecomm Corporation, Mobilink, Telenor, UET (Lahore), UET (Taxila), COMSATS and NUST; whereas for USA, the survey was distributed among student/faculty of University of Arlington, Texas and via social media. The target group of engineers/ engineering students was selected to minimize the effect of moderating factors and macro economic factors of the country. 60.8% of the respondents were male and 39.2 % were female. Table 1 summarized the participants with respect to their ages. Table 2 summarizes responses with respect to the country of respondents.

Age	Frequency	%
18-24	26	16.5
25-31	81	51.3
32-38	32	20.3
39-45	8	5.1
46-52	6	3.8
53-59	5	3.2
60-66	0	0
Total	**158**	**100**

Table 1: Participants' Age (n=158)

Country	Frequency	%
Pakistan	85	53.8
USA	73	46.2
Total	**158**	**100**

Table 2 : Participants' Country

In addition, Cronbach's alpha was used to measure internal consistency of scale which is summarized below in Table 3. We can see from the table that scales representing constructs of UTAUT model are reliable since value of Cronbach's alpha is greater than 0.7 for all constructs.

UTAUT Construct	Cronbach's Alpha	No. of Items
Performance Expectancy	0.933	3
Effort Expectancy	0.876	4
Social Influence	0.701	3
Facilitating Conditions	0.746	3
Behavioral Intention	0.794	3

Table 3 : Reliability Analysis

Results and Analysis

To analyze results firstly descriptive analysis was carried out followed by correlations and finally hypothesis testing using regression analysis.

Descriptive Analysis

Descriptive statistical analysis is described in this section for better understanding of the participants' opinion. Table 4 and Table 5 summarizes means and standard deviations for Pakistan and USA for each construct respectively.

Construct	Mean	Std. Deviation
Performance Expectancy	3.29	1.358
Effort Expectancy	3.9	1.166
Social Influence	4.13	0.741
Facilitating Conditions	3.86	0.780
Behavioral Intention	3.49	1.133
Use Behavior	3.46	1.211

Table 4: Descriptive Statistics - Pakistan

Construct	Mean	Std. Deviation
Performance Expectancy	4.54	0.476
Effort Expectancy	4.28	0.425
Social Influence	2.67	0.914
Facilitating Conditions	4.09	0.653
Behavioral Intention	4.43	0.461
Use Behavior	4.38	0.757

Table 5: Descriptive Statistics - USA

From above tables we can see that means for performance expectancy, effort expectancy, facilitating conditions, behavioral intention and use behavior are greater for USA than Pakistan. However, mean for social influence is greater for Pakistan. We can also see that standard deviation for data from Pakistan is greater than that of USA.

Correlation Analysis

Table 6 provides correlation analysis for Pakistan, whereas Table 7 provides correlation analysis for USA data. As per following tables we see that correlation among performance expectancy and behavioral intention, effort expectancy and behavioral intention, and behavioral intention and use behavior is greater for USA than Pakistan. However, correlation between social influence and behavioral intention, and facilitating conditions and use behavior is greater for Pakistan. Correlation values for performance expectancy and behavioral intention , effort expectancy and behavioral intention, social influence and behavioral intention, facilitating conditions and use behavior, behavioral intention and use behavior are all significant for Pakistan as their value is less than 0.05.The correlation between social influence and behavioral intention is not significant for USA while other correlations are significant.

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Behavioral Intention	Use Behavior
Performance Expectancy	1					
Effort Expectancy	0.181	1				
Social Influence	-0.341	-0.204	1			
Facilitating Conditions	0.157	0.056	-0.057	1		
Behavioral Intention	0.648 (0.000)	0.189 (0.042)	-0.268 (0.007)	0.368	1	
Use Behavior	0.292	0.109	-0.071	0.284 (0.004)	0.314 (0.002)	1

Table 6: Correlation Analysis – Pakistan

	Performance Expectancy	Effort Expectancy	Social Influence	Facilitating Conditions	Behavioral Intention	Use Behavior
Performance Expectancy	1					
Effort Expectancy	0.32	1				
Social Influence	-0.116	-0.256	1			
Facilitating Conditions	0.136	0.089	0.103	1		
Behavioral Intention	0.812 (0.000)	0.355 (0.001)	-0.162 (0.085)	0.147	1	
Use Behavior	0.403	0.087	0.084	0.256 (0.014)	0.374 (0.001)	1

Table 7: Correlation Analysis – USA

Regression Analysis & Hypothesis Testing

A simple linear regression uses only one independent variable. It describes the relationship between the independent variable and dependent variable as a straight line. The value of R square explains how variances in independent variable will influence dependent variable. The value of ß tells how much contribution independent variable is making to explaining the dependent variable. And the value of Sig (p value) tells whether this contribution is significant or not. The p value should be less than 0.05 for the result to be significant. First we checked the assumptions necessary for regression analysis. For our data, multicollinearity is not an issue as we are conducting simple linear regression. Our data is normal and does not contain many outliers. The influence of these outliers was checked through Cook's distance. The values of Cook's distance were all less that 1 indicating that outliers didn't have much effect on the results. Table 8 describes the regression analysis results for Pakistan and USA.

Independent Variable -> Dependent Variable	Pakistan			USA			Hypothesis
	R^2	% Variance	ß (Sig)	R^2	% Variance	ß (Sig)	
PE -> BI	0.421	42.10%	o.648(.000)	0.659	65.90%	0.812(.000)	H1 Accepted
EE -> BI	0.036	3.60%	0.189(.084)	0.126	12.60%	0.355(.002)	H2 Accepted
SI -> BI	0.072	7.20%	-0.268(.013)	0.026	2.60%	-0.162(0.170)	H3 Accepetd
FC ->UB	0.081	8.10%	0.284(.008)	0.065	6.50%	0.256(.029)	H4 Accepted
BI -> UB	0.099	9.90%	0.314(.003)	0.14	14%	0.374(.001)	H5 Accepted

Table 8 : Regression Analysis

(PE = Performance Expectancy, EE = Effort Expectancy, SI=Social Influence, FC=Facilitating Conditions, BI = Behavioral Intention , UB = Use Behavior)

H1: "The impact of performance expectancy on behavioral intention is stronger in USA than in Pakistan"

As per Table 8, we see that performance expectancy explains 42.1 % (R^2= 0.421) variance in behavioral intention for Pakistan; whereas it explains 65.9 % (R^2=0.659) variance in behavioral intention for USA. Similarly since our sample sizes for both countries are almost equal, we can take ß value into account, too. ß value for Pakistan is 0.648, whereas for USA it is 0.812. The p value for both these values is 0.000, meaning that relationship between these two variables is significant. From above, therefore we conclude

that effect of performance expectancy on behavioral intention is greater in USA than in Pakistan. Hence, our first hypothesis is accepted.

H2: "The impact of effort expectancy on behavioral intention is stronger in USA than in Pakistan."

As per Table 8, we see that effort expectancy explains 3.6 % (R^2= 0.036) variance in behavioral intention for Pakistan; whereas it explains 12.6% % (R^2=0.126) variance in behavioral intention for USA. ß value for Pakistan is 0.189, whereas for USA it is 0.355. The p value for ß for Pakistan is 0.084 which is greater than 0.05 meaning that relationship between effort expectancy and behavioral intention is not significant in Pakistan. For USA, however, p value for ß is significant (0.002). From above, therefore we conclude that effect of effort expectancy on behavioral intention is greater in USA than in Pakistan. Hence, our second hypothesis is accepted.

H3: "The impact of social norms on behavioral intention is stronger in Pakistan than in USA."

As per Table 8, we see that effort expectancy explains 7.2 % (R^2= 0.072) variance in behavioral intention for Pakistan; whereas it explains 2.6% % (R^2=0.026) variance in behavioral intention for USA. ß value for Pakistan is -0.268, whereas for USA it is -0.162. The p value for ß for Pakistan is 0.013 meaning that relationship between social influence and behavioral intention is significant in Pakistan. For USA, however, p value for ß is not significant (0.170) meaning that relationship between social influence and behavioral intention is not significant for USA. From above, therefore we conclude that effect of social influence on behavioral intention is greater in Pakistan than in USA. Hence, our third hypothesis is accepted.

H4: "The impact of facilitating conditions on use behavior is greater in Pakistan than in USA."

As per table 8, we see that facilitating conditions explains 8.1 % (R^2= 0.081) variance in use behavior for Pakistan; whereas it explains 6.5 % (R^2=0.065) variance in use behavior for USA. ß value for Pakistan is 0.284, whereas for USA it is 0.256. The p value for ß for Pakistan is 0.008 meaning that relationship between facilitating conditions and use behavior is significant in Pakistan. For USA, however, p value for ß is also significant (0.029) meaning that relationship between facilitating conditions and use behavior is significant for USA. From above, therefore we conclude that effect of facilitating conditions on use behavior is greater in Pakistan than in USA. Hence, our fourth hypothesis is accepted.

H5: "The impact of behavioral intention on use behavior is stronger in USA than in Pakistan."

As per table 8, we see that behavioral intention explains 9.9 % (R^2= 0.099) variance in use behavior for Pakistan; whereas it explains 14 % (R^2=0.140) variance in use behavior for USA. ß value for Pakistan is 0.314 , whereas for USA it is 0.374. The p value for ß for Pakistan is 0.003 meaning that relationship between facilitating conditions and use behavior is significant in Pakistan. For USA, p value for ß is also significant (0.001) meaning that relationship between behavioral intention and use behavior is significant for USA. From above, we infer that effect of behavioral intention on use behavior is greater in USA than in Pakistan. Hence, our fifth hypothesis is accepted.

Discussion and Conclusions

Findings

The findings of research work after analyzing the results of conducted survey are as follows.

From our first accepted hypothesis, we deduce that Americans intention to use technology is greater if that technology is useful to them and help them perform tasks/jobs more efficiently. Pakistan also had high value of R^2 for performance expectancy, which may not be greater than USA but we do consider the gains we can achieve through using certain technology.From our second accepted hypothesis, we infer that easier the technology is to use, greater would be its acceptance and use in USA. However, Pakistanis do not consider ease of use as factor when adopting technology.

From our third accepted hypothesis, we realize that greater the influence of society, greater would acceptance and use of technology in Pakistan. Once technology gains popularity in Pakistan, Pakistanis adopt technology at a faster rate than USA as they are susceptible to influence of social groups.

Greater the support, greater would be its use. As per our fourth accepted hypothesis, we find that effect of facilitating conditions on use behavior is greater in Pakistan than USA meaning that if more support is

available for product in shape of warranties, etc, Pakistanis would adopt that technology more quickly that USA.

From our fifth accepted hypothesis , we find that effect of behavioral condition on use behavior is greater in USA implying that US users' are more likely to use technology if they intend to use it, in contrast to Pakistani users.

Discussion

In regards to Hofstede's cultural dimensions, Pakistan has a score of 55 for 'Power Distance' which is a little higher than intermediate, meaning that preference for this dimension cannot be exactly determined for Pakistan. However, being on a little higher side, it can be perceived that power is not distributed equally among Pakistanis. Pakistan is a hierarchical society. People are respected in regards to their age and position. Pakistanis expect the most senior person, by age or position, to make decisions that are in the best interest of the group. . Since power of decision solely doesn't rest on the individual, he/she may not be able to adopt a technology even if he/she intends to adopt it. Similarly being susceptible to influence by people at higher position, Pakistani's in order to quench their thirst to be powerful would follow the example of powerful. In short, Pakistan has more followers and laggards than leaders. USA's fairly low score of power distance (40) and one of the highest individualistic score of 91 in the world reflects America's premise of liberty and justice for all. This enables the Americans to adopt technology more swiftly than Pakistanis. Due to high individualism we, see that USA has more leaders. Pakistan has collective society. We act predominantly as members of life long and cohesive group e.g. large extended families which are used for protection in exchange for unquestioning loyalty. Since we act as group , we adopt technology as a group, this is why impact of social norms is high in Pakistan. This also implies that Pakistan has more followers and laggards. People in cultures with high uncertainty avoidance tend to be more emotional, which is true for Pakistanis. We do not like change, rather we resist change. This may hinder our capability to experiment with new technology. USA has lower uncertainty avoidance index meaning Americans accept and feel comfortable in unstructured situations or changeable environments. They are more pragmatic and more tolerant of change. This results in higher technology adoption rate than in cultures with high uncertainty avoidance index. Pakistan's culture is neither completely masculine nor completely feminine. Masculine culture values competitiveness, assertiveness, materialism, ambition and power. However being masculine culture doesn't hinder technology adoption rather it supports it. USA has masculine culture. They value competitiveness, assertiveness, materialism, ambition and power. This is a plus point for acceptance and use of technology. Pakistanis are a restraint society. They have a conviction that gratification of basic and natural human desires related to enjoying life and having fun needs to be curbed and regulated by strict norms. This will result in lower adoption of some technologies. Americans live in indulgent society which allows relatively free gratification of basic and natural human desires related to enjoying life and having fun. This will result in higher technology adoption , as one doesn't have to control their desires and impulses and can adopt any technology just on a whim.

Recommendations

The recommendations fall in two categories, firstly marketing and secondly social and behavioral sciences. As for marketing in Pakistan (Collectivist Country) marketers of technology should focus promotional efforts on opinion leaders and other personalities that have influence on Pakistanis e.g Actor Salman Khan's hair style in his film 'Tere Naam' influenced masses of Pakistani youth to get that hairstyle. In this respect, marketers can also take advantage of rapid word-of-mouth communication in collectivist culture. Furthermore marketing communications should focus on product benefit as they relate to group. The marketing in Pakistan (high uncertainty avoidance index) should emphasize on how much support and warranty is available for the technology to ease the qualms of people and to enable them to overcome their culture's uncertainty avoidance. The marketing in Pakistan (high power distance index) should emphasize first on powerful members of society as they want products that serve to display and enhance their superiority. Then a second promotion should target less powerful members showing that how this technology will elevate their social status. The marketing in Pakistan (low indulgence index) should emphasize on how much value is placed upon the regulations that restrain the society. As for social and behavior sciences, Pakistanis mostly fall in consumer's category of 'followers and laggards'. This may not be an issue as far as marketing is concerned but for Pakistan as society, it needs to raise

awareness through seminars, campaigns for parents, teachers and individuals on enhancing leadership qualities of their children, students and themselves respectively. Secondly high uncertainty avoidance is hindering the potential of many talented people in Pakistan. Campaigns, Seminars , etc for teaching Pakistanis that failure is not the end of life , but another step towards success. As for marketing in USA (Individualistic Country), marketers' promotional efforts may be placed in advertising programs that highlight and symbolize the consumer's consumption and use of technology. Marketers introducing technology in masculine cultures (like USA) should place promotional emphasis on material benefits gained from technology and associated symbolic status its ownership may convey. Marketing in USA (medium power distance index), promotions should place some value on equality but USA is also a masculine culture; therefore marketing technology in a way that it enhances their status would be the right approach. The marketing in USA (high indulgence index) should emphasize on how much fun and thrill would this particular technology would provide the consumer. For normative cultures like USA, promotional efforts should satisfy this culture's fondness for quick results by product. As for social and behavior sciences, USA's indulgence index is very high, this can be a problem for future generations as it is contrary to normative society of USA.

Research Limitations and Further Research

Culture is a very diverse and vast factor. It is accommodating more for few technologies rather than others. The first limitation of this research is that target group consisted only of engineers and engineering students even if it was to limit the macro-economic factors. They are a part of society but they do not reflect the intention to adopt technology of whole nation which comprises of people from all walks of life. Therefore in future a more vast research may be carried out including all kinds of people. In this study, Hofstede's cultural dimensions have been used. His work did receive criticism in early 2000s. Other approaches for measurement of culture maybe used for future research. In our research we used intangible product. The research for different types of products may be carried out to see if there is any different in technology adoption trend for different type of technology.

References

Velkley, Richard (2002). "The Tension in the Beautiful: On Culture and Civilization in Rousseau and German Philosophy". *Being after Rousseau: Philosophy and Culture in Question*. The University of Chicago Press. pp. 11–30.

Immanuel Kant 1784 "Answering the Question: What is Enlightenment?" (German: "Beantwortung der Frage: Was ist Aufklärung?") *Berlinische Monatsschrift*, December (Berlin Monthly)

Hofstede, Geert, Gert Jan Hofstede and Michael Minkov.*Cultures and Organizations: Software of the Mind, 3rd ed. New York: McGraw-Hill. 2010.*

Basham, A.L. (1968), Pacific Affairs, University of British Columbia, 641-643

Tarek M. Khalil (2000). Management of Technology. The McGraw-Hill Companies

S. S. Al-Gahtani, G. S. Hubona and J. Wang, Information technology (IT) in Saudi Arabia: Culture and the acceptance and use of IT, Information & Management 44 (8), 2007, pp. 681-691.

http://geert-hofstede.com/pakistan.html [Accessed April, 2014]

http://geert-hofstede.com/united-states.html [Accessed April, 2014]

K. Bandyopadhyay, The effect of culture on user acceptance of information technology, Communications of the AIS 19, 2007, pp. 522-543.

A. Beaudry and A. Pinsonneault, Understanding user responses to information technology: A coping model of user adaptation, MIS Quarterly 29 (3), 2005, pp. 493-524.

G. A. J. Churchill, A Paradigm for Developing Better Measures of Marketing Constructs, Journal of Marketing Research 16 (February), 1979, pp. 64-73.

M. R. Czinkota and I. A. Ronkainen, International Marketing (7th ed. ed.), Thompson South-Western (2004).

F. D. Davis, Perceived usefulness, perceived ease of use and user acceptance of information technology, MIS Quarterly 13 (3), 1989, pp. 319-340.

S. Dwyer, H. Mesak and M. Hsu, An Exploratory Examination of the Influence of National Culture on Cross-National Product Diffusion, Journal of International Marketing 13 (2), 2003, pp. 1-28

H. Gatignon, J. Eliashberg and T. S. Robertson, Modeling Multinational Diffusion Patterns: An Efficient Methodology, Marketing Science 8 (3), 1989, pp. 231-247.

E. Hall, Beyond Culture, Anchor Books/Doubleday, New York (1976).

K. Helsen, K. Jedidi and W. S. DeSarbo, A New Approach to Country to Country Segmentation Utilizing Multinational Diffusion Patterns, Journal of Marketing 57, 1993, pp. 60-71.

G. Hofstede, Culture's Consequences: International Differences in Work-related Values, Sage Publications, Beverly Hills, CA (1984).

G. Iliofslede, Cultural constraints in management theories, Academy of Management Review, 1993, p. 81-94.

I. Im, Y. Kim and H.-J. Han, The effects of perceived risk and technology type on users' acceptance of technologies, Information & Management 45 (1), 2008, pp. 1-9.

V. Kumar, J. Ganesh and R. Echambadi, Cross-national diffusion research: What do we know and how certain are we?, Journal of Product Innovation Management 15 (3), 1998, pp. 255-268.

V. S. Lai and H. Li, Technology acceptance model for internet banking: An invariance analysis,Information & Management 42, 2005, pp. 373-386.

I. Lee, B. Choi, J. Kim and S.-J. Hong, Culture-technology fit: Effects of cultural characteristics on the post-adoption beliefs of mobile Internet users, International Journal of Electronic Commerce 11 (4), 2007, pp. 11-51.

D. E. Leidner and T. Kayworth, A review of culture in information systems research: Toward a theory of information technology culture conflict, MIS Quarterly 30 (2), 2006, pp. 357-399.

C.-P. Lin and B. Anol, Learning online social support: An investigation of network information technology based on UTAUT, Cyber Psychology & Behavior 11 (3), 2008, pp. 268-272.

J. T. Marchewka, C. Liu and K. Kostiwa, An application of the UTAUT model for understanding student perceptions using course management software, Communications of the IIMA 7 (2), 2007,pp. 93-104.

E. Rogers, M., Diffusion of Innovations (Third ed.), The Free Press, New York (1983).

D. W. Straub, M. Keil and W. Brennan, Testing the technology acceptance model across cultures: A three country study, Information & Management 33, 1997, pp. 1-11.

H. Takada and D. Jain, Cross-national Analysis of Diffusion of Consumer Durable Goods in Pacific Rim Countries, Journal of Marketing 63 (April), 1991, pp. 55-69.

T. Tellefsen and H. Takada, The relationship between mass media availability and the multicountry diffusion of customer products, Journal of International Marketing 7 (1), 1999, pp. 77-96.

V. Venkatesh, M. G. Morris, G. B. Davis and F. D. Davis, User acceptance of information technology: Toward a unified view, MIS Quarterly 27 (3), 2003, pp. 425-478.

Y.-S. Wang, and Ying-Wei Shih, Why do people use information kiosks?: A validation of the Unified Theory of Acceptance and Use of Technology, Government Information Quarterly 26 (1),2009, pp. 158-165.

Il Im, Seongtae Hong, Myung Soo Kang, An international comparison of technology adoption: Testing the UTAUT model, Information and Management 48 (1), 2011, pp 1-8.