American Journal of Humanities and Social Sciences Research (AJHSSR)
e-ISSN: 2378-703X
Volume-4, Issue-5-pp-19-24
www.ajhssr.com
Research Paper Open Access

Cultural Impact on Website Design: A Study in India and USA

Khushboo Panchal[1], Kristen Ray[1], and Damian Schofield[1]
[1]*Department of Computer Science, State University of New York, Oswego, New York, USA.*

ABSTRACT : Online shopping is now considered by many to be the future of commerce. Purchasing a product online does notinclude any physical interaction with the product, purchasing decisions are mainly based on images or videos of the product and this, in turn, relies on the quality of the information presented. Hence, theexperience of the users of e-commerce websites is highly dependent upon the user interface and the interaction of users withthe website. According to Statista, in 2018, anestimated 1.8 billion people worldwide purchased goods online. During the same year, global e-retailsales amounted to 2.8 trillion U.S. dollars andprojections show a growth of up to 4.8 trillion U.S. dollars by 2021. [1]

Keywords –*Cultural Dimensions, Web Design, Marketing, Cross-Cultural Design, HCI*

I. INTRODUCTION

The developing growth in online shopping has caused an increase in studies focusing on cross-cultural user behavior on e-commerce websites. Previous studies show that culture could be a key factor impacting on the website's format or layout of the design. Understanding the concept of culture can be difficult as it is mainly about understanding what individual's think, do, and believe. Cultural dimensions are often used to solve intercultural and organizational culture challenges by utilizing an effective and proven framework based on the work of social psychologist, Geert Hofstede [2]. Hofstede's theories focus on how culture can impact the values of a society's members and their behavior.

1.1 Cultural Dimensions

Hofstede's theory of cultural dimensions is made up of sixcomponent dimensions, which are:

- Power Distance Index (PI)
- Individualism vs. Collectivism (IDV)
- Masculinity vs. Femininity (MAS)
- Uncertainty Avoidance Index (UAI)
- Long-Term Orientation vs. Short-Term Orientation (LTO)
- Indulgence vs. Restraint (IVR).

Measured on a 0-100 scale, each dimension describes the cultural differences from varied perspectives [3]. The six dimensions are explained below:

1.1.1 Power Distance Index (PDI)

PDI can be defined as the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally [4]. The higher the score, the members of that society will respect the superior and the seniors; their decisions will be affected by powerful people. With a lower score, the members of society are more independent and make free choices; their decisions are not based on other members of society. Power Distance Index scores are listed for 76 countries; they tend to be higher for East European, Latin, Asian and African countries and lower for Germanic and English-speaking Western countries [2].

1.1.2.Individualism vs. Collectivism (IDV)

Individualism on the one side versus its opposite, Collectivism, as a societal, not an individual characteristic, is the degree to which people in a society are integrated into groups [4]. Individualist is motivated by their own preferences and needs. They are less likely to be affected by others. Whereas, Collectivist is an integral part of the whole group. They are motivated by norms and duties imposed by overall groups.

Individualism Index scores are listed for 76 countries; Individualism tends to prevail in developed and Western countries, while collectivism prevails in less developed and Eastern countries; Japan takes a middle position on this dimension [2].

1.1.3. Masculinityvs.Femininity(MAS)

Masculinity can be defined as a preference in society for achievement and success. Whereas, Feminine is defined as a preference in society for caring for others and quality of life. The women in feminine countries have the same modest, caring values as the men; in the masculine countries, they are somewhat assertive and competitive, but not as much as the men, so that these countries show a gap between men's values and women's values [4]. Masculinity versus Femininity Index scores are presented for 76 countries; Masculinity is high in Japan, in German-speaking countries, and in some Latin countries like Italy and Mexico; it is moderately high in English speaking Western countries; it is low in Nordic countries and in the Netherlands and moderately low in some Latin and Asian countries like France, Spain, Portugal, Chile, Korea, and Thailand [2].

1.1.4.UncertaintyAvoidanceIndex (UAI)

Uncertainty Avoidance deals with a society's tolerance for uncertain or unknown situations. Societies with high UAI, maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas. The one with low UAI societies maintain a more relaxed attitude in which practice counts more than principles [5]. Uncertainty Avoidance Index scores are listed for 76 countries; they tend to be higher in East and Central European countries, in Latin countries, in Japan, and in German-speaking countries, lower in English speaking, Nordic and Chinese culture countries [2].

1.1.5. Long-Term Orientation vs. Short-Term Orientation (LTO)

The Short-Term index society practices the moral behaviors and whereas, the Long-Term index society encourages thrift and efforts in modern education as a way to prepare for the future [5]. Long-term oriented are East Asian countries, followed by Eastern- and Central Europe. A medium-term orientation is found in South- and North-European and SouthAsian countries. Short-term oriented are the U.S.A. and Australia, Latin American, African and Muslim countries [2].

1.1.6.Indulgencevs.Restraint(IVR)

Indulgence stands for a society that allows relatively free gratification of basic and natural human desires related to enjoying life and having fun. Restraint stands for a society that controls the gratification of needs and regulates it by means of strict social norms [5]. Indulgence tends to prevail in South and North America, in Western Europe and in parts of Sub-Sahara Africa. Restraint prevails in Eastern Europe, in Asia, and in the Muslim world. Mediterranean Europe takes a middle position on this dimension [2].

1.2 Choice and Culture

When looking specifically at the PDI, one can see how a country's score may affect how the people of that country make choices and the influence of consumerism on that culture. Countries with a higher score also tend to be more collectivist cultures, making choices that align with their immediate community. Countries with a lower score, often more individualistic cultures tend to value choices and the individual control of those choices. While some studies have focused on identifying the ideal point of availability for consumers [6], others have focused on the difference in choices between countries [7].

In a study undertaken by Iyengar [8] children were given a set of anagrams to solve and a colored marker. Some of the children were told that their parents had chosen a particular anagram for them to work on, for another group the experimenter chose the anagram and another group were free to pick their own anagram. In this experiment, they measured how many anagrams the children completed and discovered that Anglo American children were most motivated when they were given the freedom to choose, and the Asian children were most successful when their parents chose the anagram. This illustrates the way that individuals from certain cultures make decisions, the way options are given or suggested affects how people perceive the choice. It therefore appears sensible to consider investigating to the way options are presented in marketing materials for different cultures.

In research looking into the effects of culture on categorization, there are many factors that also must be considered. Studies have shown that a major source of cultural differences is not based around fixed references but rather in meanings, which may guide attitudes and behaviors. When examining the cultural impact on categorization, native language plays a key role in how certain concepts are categorized [9].

1.3 Impact of Culture on Web Design

Many researchers in the past have used Hofstede's cultural classifications to study differences in different cultures worldwide. Ganguly et al [10] argued that even if detailed information is put on the site the customer may leave the site if they find it difficult to search for the information they want. Other studies have shown that culture could be a key factor impacting online shopping growth and an important underlying determinant of consumer behavior [7,11].

One of the previous studies documented that the cultural dimension ranking of a country has a profound impact on web design [10]. Another study investigated the potential cultural impact on three online retailing stores from China, India, and Thailand. They compared the website design, primary offerings, major features, communication channels, and payment methods in all these three countries. Their analysis showed that the cultural differences lead to diverse feature design and payment method among these countries. They also reported that the cultural dimensions such as large power distance and uncertainty avoidance seem to be a barrier against people's intention to shop online [6].

Research with a similar approach to the current study examined a selection of leading 100 e-commerce websites from China and the United States in order to study the cultural impact of the design and layout of e-commerce website designs. The study focused on the homepage of all the websites by examining the characteristics like color usage, page layout, site content, and interactivity. The results showed that there was a significant difference in the color used for both the country's websites [11].

Table 1. Country Comparison [5]

Dimension	USA	India
PDI	40	77
IDV	91	48
MAS	62	56
UAI	46	40
LTO	26	51
IVR	68	26

Results from past studies further show that culture can be used to better design the websites based on customers' needs and lifestyles. The aim of this study will be to explore the cultural impact on the Adidas website across two countries: India and the United States. More specifically, looking at factors related to PDI on the two versions of the websites. We intentionally chose two countries that had significantly different scores of all the six Hofstede's cultural dimensions (See Table 1). This study will also report any significant differences in user satisfaction with websites from different countries.

1.4Research Hypotheses

The main difference between the US and Indian version of the website was the organization of item categories and location of filtering options. Based on the theory of cultural dimensions,navigation and decision making on these websitescould well be affected by the differences in culture. The score of PDI is high in India compared to the US, and the large power distance index indicates that there are inequalities, which occur in areas such as prestige, wealth, power, human rights, and technology among others [3]. The culture in India has different types of rank inequalities (terms caste, estate and class) used to differentiate society into different functional areas [12].

The research hypotheses for this study are:

- H1: Individuals from India will rate the usability of a websites that emphasize that power is distributed unequally higher.
- H2: Individuals from the US will be more satisfied with a website that has low power distance index.

II. METHOD

To explore the impact of website design layout dependent on culture, working prototypes of the Adidas websites were created using Adobe XD design platform. These prototypes directly replicated the current sites for India and the US). To avoid response bias any visible text was translated into English, and any indication of national identity (such as flags, currency or social media accounts) were removed. The prototype presented to the participant was manipulated as the independent variable and the dependent variables measured were Perceived Ease of Use (PEU). PEU was assessed both for the independent tasks given to participants to complete and for the overall website. Also an assessment of usability was measured using a Post-Study System Usability Questionnaire (PSSUQ) for each site. A mixed design was used to measure both within-subjects PEAU and between subjects PEAU for the overall sites as well as the PSSUQ. To avoid order bias, half the

participants were presented the US site prototype first and the other the Indian site first. The terminology used was consistent for both prototypes.

2.1 Participants

ParticipantswererecruitedusingAmazon Mechanical Turk (MTurk), established protocols for research using MTurk were followed [13]. Each participant was paid $1 as a reward for completing the survey. Two separate surveys were sent out, each presenting the prototypes in a different order (US then India vs India then US). A total of 593 responses were recorded between the two surveys. After filtering out incomplete surveys, 473 responses were used in the data analysis. Since the purpose of the experiment is to explore the cultural impact, we asked participants in which country they currently resided. There were 288 participants from the US, 151 from India and 10 from miscellaneous other countries. This study was reviewed and approved by the State University of New York Institutional Review Board prior to the surveys being distributed on Amazon MTurk. At the beginning of each survey, consent was obtained from each participant.

2.2 Materials

There were two principle metrics used in this study to determine usability and satisfaction with the website prototypes with which the participantsinteracted. A subset of questions from the Perceived Ease of Use (PEU) questionnaire that were relevant to the participant tasks were used to measure the participants' initial feelings about the website prototypes. The System Usability Scale (SUS) was also used to measure the overall user experience when interacting with both prototypes [14,15].

Each participant was given a number of simple tasks to complete on the website prototypes that were specifically created for this experiment.Completion of these tasks allowed the participants to answer the PEU and SUS questions based on their experience with the prototypes. The tasks were crafted to intentionally test the differences in navigation between the two versions of the website prototypes. The questions used can be found in Tables 2 and 3.

Table 2: PEU Survey Metrics

Item	Measure
PEU1	My interaction with the navigation, images, and colors on the website was clear and understandable.
PEU2	Interacting with the navigation on the website does not require a lot of my mental effort.
PEU3	I find the navigation on the website to be easy to use.
PEU4	It is easy to find an item on the website.

Table 3: SUS Survey Metrics

Item	Measure
SUS1	I think that I would like to use this website frequently.
SUS2	I found the website unnecessarily complex.
SUS3	I thought the website was easy to use.
SUS4	I think that I would need the support of a technical person to be able to use this website.
SUS5	I found the various functions in this website were well integrated.
SUS6	I thought there was too much inconsistency in this website.
SUS7	I would imagine that most people would learn to use this website very quickly.
SUS8	I found the website very cumbersome to use.
SUS9	I felt very confident using the website.
SUS10	I needed to learn a lot of things before I could get going with this website.

2.3 Procedure

Participants already had registered accounts with Amazon MTurk and were able to login with their personal credentials and select the survey to complete. There were two surveys posted, the only difference being the order of which the website prototypes were given, either the US or Indian version presented first. For each prototype, there was a total of five tasks the participants were asked to complete. After each task, participants were asked a set of questions regarding specific PEU. After all the tasks were completed for one website prototype, an additional set of questions to determine the PEU for the overall site were asked,and a set of PSSUQ questions were also provided at this point. Participants were then given the other site prototype paired with the same tasks and questions to complete.

III. RESULTS

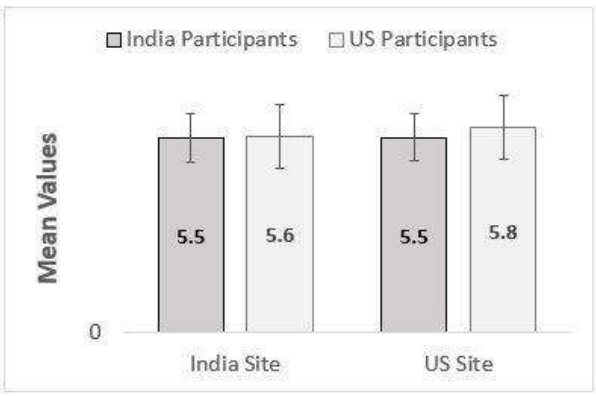
The experiment involved both within and between group analysis of PEU and SUS scores to examine the hypothesis of this study. It was hypothesized that individuals from India would rate the usability higher with the website prototypes that emphasize that power is distributed unequally. Also, the experiment hypothesized that the US participants would prefer the website prototype that emphasizes power is distributed equally. In this experiment, the Indian website reflected an unequal power distribution due tohigher power distribution index features.

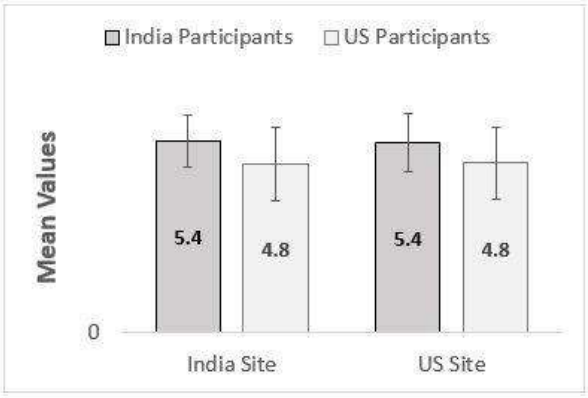
Mean scores for the PEU were compared by the participants country of origin as well as which website prototype was viewed, either the Indian site or the US site. For the participants from India, the mean PEU for the India site was 5.52 (sd = .68) while for the US site it was 5.53 (sd = .678). The difference in scores was not significant enough to support the first hypothesis (Figure 1).

When analysing at the scores of the US participants, they are very similar to their Indian counterparts. The mean PEU score for the India site was 5.61 (sd = .90) and for the US site 5.81 (sd = .90). The US participants did rate the US site slightly easier to use and it is interesting to note that the US participants had a greater deviation in their responses than the participants from India (Figure 1).

Mean scores for the SUS were compared by the participants country of origin as well as which site was viewed, either the Indian site or the US site. For the participants from India, the mean PEU for the India site was 5.52 (sd = .68) while for the US site it was 5.53 (sd = .678). The difference in scores is not significant enough to support the first hypothesis.

When looking at the scores of the US participants, overall they are lower, but within the group the mean is 4.8 (sd = 1) between the different website protypes.





IV. DISCUSSION AND CONCLUSIONS

The purpose of this study was to explore how cultural impact affects a particular e-commerce experience (in this case an Adidas website) across two countries: India and the United States. This study found that overall within groups of countries, there was not a significant difference in PEU or SUS depending on which site was used. The closest to significance was the PEU scores for the US participants, which were slightly higher for the US site, supporting the second hypothesis. There was also no significant difference in the PEU Scores between groups for the India site, but again a slight difference for the US site.

In the SUS scores there was a significant difference for both sites, the US participants rating the SUS lower overall. While interesting, this did not provide enough statistical evidence tosignificantly support the hypothesis.

Current literature in this field, which reports on the effects of culture on website design,often indicates that there are benefits to having differences in design choices for different cultures [3].However, this study did not find significant effects on this particularwebsite's usability based on cultural differences.

There are multiple reasons and factors that could explain the results of this study. In many previous studies, the experiment's focusedon color and visual elements on the websites. In the experiment reported here, the focus was more based around the structural elements of the website. The tasks undertaken by the participants were all related to the organization of the navigation menu on the website. It is possible that this particular websitefeature may be less significantly affected by the cultural differences of the participants.

It is also worth considering the prevalent global effect of US consumerism on international businesses. Historically,in studies that analyzed culture, western cultures cognitive tasks were tested against different cultures and any contexts and any differences noted were interpreted as deficits [9]. In this study,

western standards were not given as a baseline since we worked both within and between the groups in the analysis.

The present study has a few limitations that can be addressed by future research. One limitation is specific to the use of Amazon Mechanical Turk. It was not possible to actively engage with participants and record metrics such as time on task and error rates, which would have provided a more objective measure over the survey questions used. If available, this information could be used to have more quantifiable results on the effects of different structural elements of the website based on cultures.

Another factor was the tasks that the participants performed during this experiment were quite simple. The prototypes of the live websiteswere limited in functionality which means the experimenters were not able to mitigate mistakes that would have caused participants to go out of the scope of the prototype.

In future iterations of this project, it would be beneficial to create a more in-depth prototype and multi-step tasks to test the usability of the site as a whole. It would also be beneficial to do in person testing or other methods to collect more detailed metrics, such as time on task and error rates, for the different websites.

REFERENCES

[1] Statistica, E-commerce Worldwide - Statistics & Facts,available online at URl: *https://www.statista.com/topics/871/online-shopping*, (last accessed 14th April 2020).

[2] G. Hofstede, G.J. Hofstede, andM. Minkov,*Cultures and Organizations: Software of the Mind*,(NY: McGraw-Hill, 2005).

[3] N. Jeyashoke, B. Vongterapak, and Y. Long, Does Culture Matter ? A Case Study on Online Retailing Stores Across Three AsianCountries, in Proceedings of Pacific Asia Conference on Information Systems (*PACIS)*, 2014, 283.

[4] G. Hofstede,DimensionalizingCultures: The Hofstede Model in Context, *Online Readings in Psychology and Culture, 2(1),* 2011, 8.

[5] G. Hofstede, National Culture,available online at URl: *https://hi.hofstede-insights.com/national-culture*, (last accessed 14th April 2020).

[6] A. Chernev, When More is Less and Less is More: The Role of Ideal Point Availability and Assortment in Consumer Choice. *Journal of Consumer Research, 30(2),* 2003, 170-183.

[7] M. De Mooij, *Global Marketing and Advertising: Understanding Cultural Paradoxes*,(Thousand Oaks, CA: Sage, 2010).

[8] S. Iyengar,*The Art of Choosing*,(New York: Twelve, 2010).

[9] D.L. Medin, S.J. Unsworth, and L. Hirschfeld, Culture, Categorization, and Reasoning, in S. Kitayamaand D. Cohen (Eds.), *Handbook of Cultural Psychology*, (New York: Guilford Press, 2007), 615-644.

[10] B. Ganguly, S.B. Dash, and D. Cyr, Website Characteristics, Trust and Purchase Intention in Online Stores:An Empirical Study in the Indian Context,*Journal of Information Science and Technology, 6(2),* 2009

[11] P. Kotler, K.L. Keller, M. Brady, M. Goodman, and T. Hansen, Marketing Management,(London, England: Pearson Education Limited, 2012).

[12] P. Bohannan, *Social Anthropology*(London, England: Holt, Rinehart & Winston, 1969).

[13] G. Paolacci, J. Chandler, and P.G.Ipeirotis, Running Experiments on Amazon Mechanical Turk. *Judgment and Decision Making, 5(5), 2010,* 411-419.

[14] F.D. Davis, Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology,*MIS Quarterly, 13,*1989, 319-340.

[15] J. Brooke, SUS-A Quick and Dirty Usability Scale,*Usability Evaluation in Industry, 189(194),*1996, 4-7.