

Effects of Various Cultural Attributes on Web Browsing Behavior of Developing Countries' Online Community

Anoud¹ and Dr. Manzoor Ahmed Hashmani²

Abstract— The invention of computer and the Internet has provided a new channel for establishing inter personnel communication, and attracting clients for optimizing business for organizations. As the number of web users increases day-by-day, web based commerce is booming. But before going to design a website, the organizations must consider several attributes (specially the cultural aspects) of their target customers. What design elements can be used to attract them, what can hurt someone's feelings, how different colors are interpreted in a particular region and how the people are inclined towards their cultural values etc? This difficulty arises due to the cultural diversity, as different users belonging to different cultures may interpret the same website in an entirely different manner. As the electronic environment of the World Wide Web evolves daily, it increases the likelihood of international participants and transactions. It is very important to analyze the behavior and response of Pakistani online community that how they react to these factors when working on internet. On the basis of the results of this research, organizations will be able to design more attractive and meaningful websites that can capture more attention of the Pakistani online community.

Index Terms— Cultural Attributes, WEB Browsing Behavior.

I. INTRODUCTION

THE web-based commerce is a booming and expanding phenomenon, every stakeholder wants to analyze the behavior of the user/client. In this environment users are consumers. Understanding consumers' expectations and how they feel about the websites they use has recently become more important [1]. Badly designed websites frustrate users and cause them to leave as they cannot find what they need. For e-tailers who rely on the Internet to conduct the sales, this is a serious implication as it means a potential loss of online sales [2].

¹Lecturer, Department of Software Engineering, Mehran University of Engineering and Technology, Jamshoro. (email: anu_anoud@hotmail.com)

²Professor, Faculty of Engineering, Sciences, and Technology, Iqra University, Karachi (email: mhashmani@yahoo.com)

With the fast development and increasing use of the World Wide Web as both an information seeking and an electronic commerce tool, web usability studies grow in importance [3]. In developed world such analysis has been the focus of research community enabling them to know a lot more about the behavior of a user. However, in developing countries, especially in case of Pakistan, so far no such analysis has been made. The behavior of a citizen of Pakistan and the developed world, obviously, is anticipated to be different because of substantial cultural differences. A good place to start before designing a website is with the five cultural dimensions defined by Geert Hofstede: power distance (distribution), individualism versus collectivism, masculinity versus femininity, uncertainty avoidance and long-term versus short-term orientation [4]. Hence there grows a need for behavioral analysis of online users, so this work has carried out analysis in terms of web content visited, for Pakistani online community.

As major purpose of this research is to analyze the interests and behaviors of clients, so this work has been carried out in two phases, initially a survey was conducted. The authors of the work have designed and distributed the questionnaire to 200 people, to find out the purpose of Pakistani people who get online. Then questionnaire has been analyzed in terms of people with different genders, ages and diverse professions. In the second phase, about 20 websites currently hosted, belonging to different organizations have been examined based on cultural markers. As research has already identified that some web page design elements that may be cultural or genre specific, consequently influence web page design and usability [3], [5]-[9]. So in the second phase, certain cultural markers are identified and analyzed with respect to the expected behavior of Pakistani community. Finally recommendations are suggested for designing websites, based on the survey results and cultural markers analyzed in the study for attracting Pakistani online community.

II. METHODOLOGY

First of all, we assumed seven hypotheses according to the expected behavior of developing countries community, and then a survey has been conducted containing several

questions. The Questionnaire has been designed very specifically to extract the required information from the target audience, which may belong to different gender and qualification class. After conducting the survey, the answers have been compared with our assumed hypothesis to explore the nature of Pakistani online community. In second phase a checklist was prepared to analyze and evaluate the running websites in Pakistan and their cultural markers. Finally both the checklist observations and the results of questionnaire were merged, and recommendations are suggested to design websites for attracting the Pakistani online community. Figure 1 illustrates the overall picture of the study.

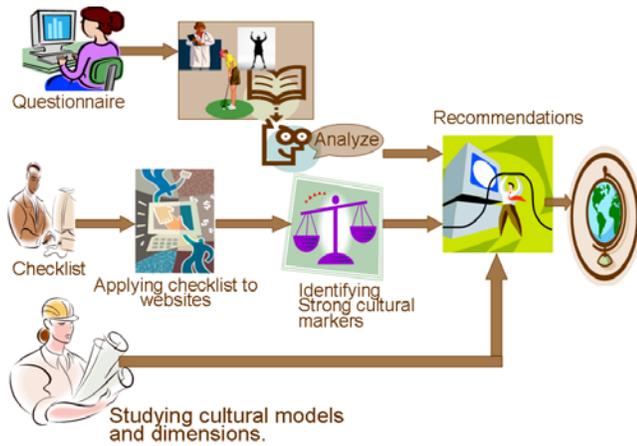


Fig. 1. Theme of project

III. HYPOTHESIS ASSUMED

At the beginning of the survey we had laid 7-Hypothesis, according to the expected behavior of online community in developing countries. Assumed hypothesis are given below.

H1. Men are supposed to have more experience than women, therefore they are more likely to use web skillfully.

H2. Students who seek for higher education are supposed to use web more frequently.

H3. Researches doing research are more likely to use web for longer hours than those who do not.

H4. Un-educated people are assumed not to be on the net at all.

H5. More males are supposed to use the internet for addicted/find-pleasure (finding new things/features/functions).

H6. More females are suppose to use internet for getting information about health & beauty tips, weight reduction techniques, fashion updates and interior designing etc.

H7. Since the Internet is nescient in Pakistan, less people are expected to be using it for more then 6 years.

IV. QUESTIONNAIRE DESIGN AND CONDUCT OF SURVEY

Questionnaire has been designed very carefully, and it

comprises of three main sections. The first section helps to collect the personal information of the responders, i.e., gender, age group, education level and profession. Authors have included four options for age-group, i.e., teenage (13-19 years), 20-29, 30-60, and onwards. It is quite expected that teenagers have different behaviors as compared to other age groups, and likewise other age groups differs from each other in variety of factors such as experience, busy life, having more responsibilities and so on. Education level has been divided in three categories i.e., uneducated, up to secondary and up to higher. Uneducated category is included, so as to find out whether uneducated people use web and for what purpose? The second section helps us to collect the background information of the responders i.e., their computer skills, level as a web user etc. The third section is aimed at knowing the purpose of responders to use the web, about their inclination during surfing and their likes and dislikes.

Authors have tried to distribute the questionnaire uniformly keeping in mind a number of factors such as male to female ratio, education level, age group, diverse professions, computer skills, level as a web user etc. A total of 200 questionnaires were distributed, out of which 100 were males and 100 females and these target audience belongs to diverse professions including engineering, finance, law, medical, arts, advertising, marketing, sports, etc.

A. Design Attributes and Cultural Markers in Pakistani websites

The skills to develop and design contents for websites are referred to as web designing. Attractive and effective in terms of having complete knowledge and friendly interaction websites capture huge number of users from the entire world.

TABLE I

INTERPRETATION OF DIFFERENT COLORS IN DIFFERENT COMMUNITIES

Country	Pakistan	China	Japan	Egypt	France	USA
Color						
White	Peace	Death Purity	Death	Joy	Neutrality	Purity
Green	Prosperity Safety	Dynasty Heavens	Future Youth	Fertility Strength	Criminality	Safety Go
Red	Danger	Happiness	Anger Danger	Death	Aristocracy	Danger Stop
Blue	Change	Heavens Clouds	Villainy	Faith Truth	Freedom Peace	Masculine
Yellow	Happiness	Birth Wealth	Grace Nobility	Happiness Prosperity	Temporary	Cowardice Temporary

Specially, the organizations that plan to carry their business through internet need to develop effective and attractive websites. In addition to user interfaces, web developers also need to take care of cultural attributes, needs, interests, symbols and colors of the target users. Different cultural markers must be taken into consideration before designing a website, because same thing may be interpreted in different ways. Table 1 shows the interpretation of different colors in different communities.

The cultural markers that are focused in this study/research include language, images, colors and Layout. These cultural markers help us to recommend and design better visual interfaces for the websites. In general Pakistani websites have

- Meaningful titles and useful links
- Not much flash animations that may cause users frustrated
- Take reasonable time to load the home page
- Clear and informative internal and external links
- Islamic and Sensational Quotes
- Avoiding any sort of pornographic material

V. RESULTS OF SURVEY

The results of the survey are almost according to the expectations with a few exceptions as well. Results have been arranged according to different aspects and are compared with initially assumed hypothesis.

A. Purpose of Using Internet

The study/research reflects that about 82.5% of sampled Pakistani community (165 from 200) uses internet in their daily life activities (among them 54.5% Males and 45.5% females). This shows that male gender is more frequent user than female, which supports our first hypothesis. It further shows that about 37.75% of Pakistani online community uses internet for educational purpose while a large portion almost 78% uses internet for entertainment and about 73% uses internet for communication. Majority of the female internet users are using web for health, beauty tips, interior design, etc. This supports our H6 hypothesis. A very small portion of internet users are associated with research and higher education, which need attention as well. Table 2 shows the web users and their web usage purposes.

Internet Age group based Statistics for Internet Utilization Survey shows that people belonging to different age groups, including teenagers, mid and old ages, all use internet in their daily life activities. Table 3 shows the results of survey arranged according to age group. The internet users belong to different age-groups. They can be categorized in different age groups to analyze their likes and dislikes. Total 15.54% users (24 of 165) fall into 13-19 years age group, 53.93% (89 of

165) comes into 20-29 years age group and 31.51% (52 of 165) are from 30-69 years age group.

TABLE 2
PAKISTANI WEB USERS' PURPOSE OF WEB USAGE

Purpose	Male	Female	Total
Education	18.25%	17.5%	35.75%
Research	10.30%	5.45%	15.75%
Entertainment	45.46%	32.72%	78.18%
Communication	38.18%	35.15%	73.33%
Reading News	21.21%	20%	41.21%
Banking	0.6%	-	0.6%
Online News	7.27%	1.21%	8.48%
Shopping	2.42%	-	2.42%
Job search	10.31%	10.90%	21.21%
Getting Information	10.91%	29.09%	40%
Relaxation	1.82%	1.21%	3.03%
Addicted	12.12%	8.28%	20.60%
Killing Time	0.6%	-	0.6%

TABLE 3
AGE GROUP BASED DISTRIBUTION OF WEB USERS

Age group	Male		Female	
	samples	web access	samples	web access
13-19 years	15%	11%	15%	13%
20-29 years	50%	48%	50%	41%
30-60 years	35%	31%	35%	21%
more than 60 years	0%	0%	0%	0%
Total	100%	90%	100%	75%

Figure 2(a-c) shows the interest and purpose of internet users according to their age group. These results justifies our hypothesis that more young males use internet for entertainment & communication, where as more young females use internet for getting information related to health, kitchen, beauty tips etc.

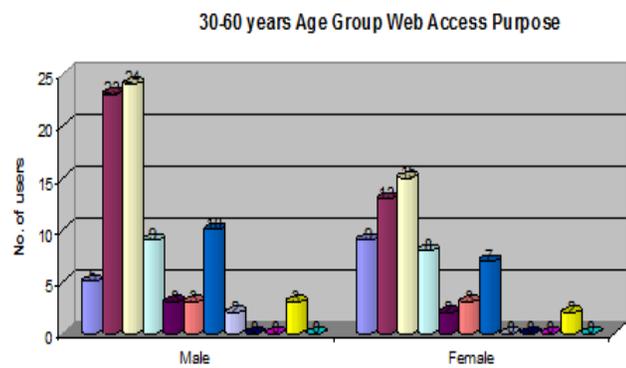
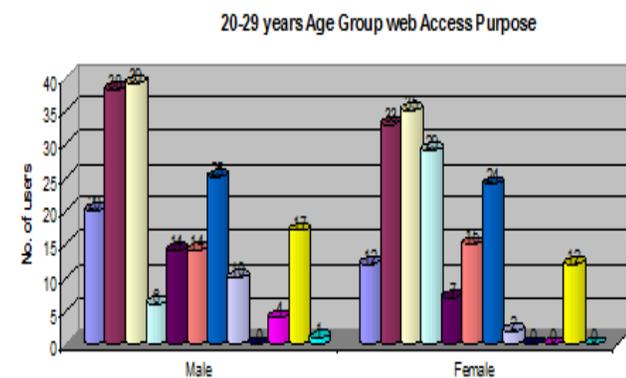
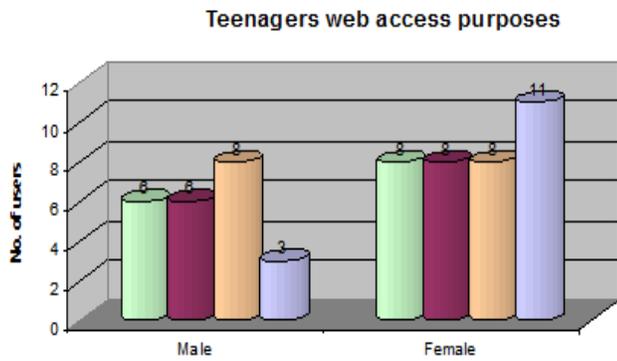


Fig. 2(a-c). Purpose of Internet users according to their age group

B. Education Level based statistics for Internet Utilization

The distribution of web users according to their education qualification is illustrated below in Table 4.

Results represents that males are more educated as compared to females, even photographers, carpenters and drivers of male gender are educated. Males are more educated up to higher education by 20%. Females are having more education up to secondary by 20% comparing with males. This indicates the fact that females usually do not go for higher education in our society. Survey results do not verify our hypothesis about un-educated people that is “Un-educated people are assumed not to be on the internet at all”. It is

concluded that even un-educated people also use the web, however, un-educated females are found not to be on the web at all.

TABLE 4
EDUCATION LEVEL BASED DISTRIBUTION OF WEB USERS

Education level	Male		Female	
	Samples	Web access	Samples	Web access
Un educated	5%	2%	5%	0%
Up to higher	75%	71%	55%	48%
Up to higher	75%	71%	55%	48%
Total	100%	90%	100%	75%

C. Profession based statistics for Internet Utilization

Figure 3 illustrates the result for all web users having profession diversity regardless of their gender and age group. It is obvious that more students are found on the web that is 15.75% (26 out of 165 users). Thus “Students who seek for higher education are supposed to use web more frequently”. Thus our hypothesis is verified.

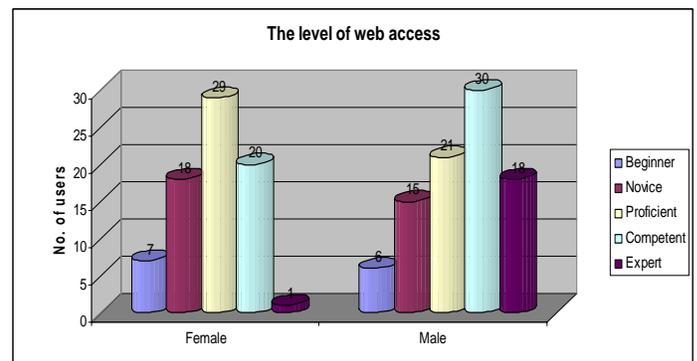


Fig. 3. Profession based web access in Pakistan

D. Utilization Statistics for level of expertise of Internet Users

Figure 4 indicates the level of web users. It shows that male community is having high level of web accessing. 12% males are expert as compared to 1% females and 30% competent comparing with 20% of females. The beginner’s ratio of females is found more while comparing with male beginners. This indicates that females normally use the web with routine work and similar type of working where as males are accessing the web with more skills and hence they are having more experience. Thus our hypothesis “men are supposed to have more experience then women therefore they are more likely to use web skillfully” is verified.

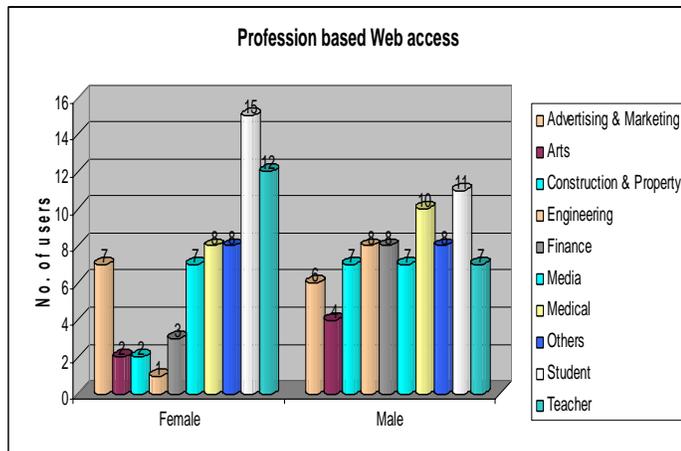


Fig. 4. Level of expertise of Pakistani Internet users

Further it was revealed that almost 92% of internet users are attracted towards websites that contains some Islamic stuff or sensational quotes relating to history, while 98% of the internet users avoid traversing websites that contain any type of porn stuff. In this work 20 websites belonging to different Pakistan based organizations have been analyzed and there is no any noticeable cultural diversion on any of the website. At last Pakistani community is a bit inclined towards Green & white colors because of their emotional attachment, and few symbols including crescent and star.

VI. RECOMMENDATIONS

On the basis of the work done, certain recommendations are suggested for designing the websites, in order to attract online community of Pakistan. As result shows that male gender is more frequent user of internet in Pakistan, this reflects that men are more oriented towards electronic lifestyle. Therefore firms can get more attention of online users by designing websites attracting male community in Pakistan. The majority of the female internet users are interested in health, kitchen and beauty tips, therefore firms looking to target females must take care of this fact. This is also proved that youth is more interested in internet for communication and entertainment; therefore organizations can get more hits from Pakistani youth by keeping this fact in mind while designing websites. Even some business-oriented site can get more hits if it has some entertainment stuff attached.

One very important aspect that authors assumed initially regarding un-educated people was that they do not use internet at all. This has been disagreed in survey. Results shows that even un-educated people do surf on the internet in Pakistan. Therefore websites, designed to help & facilitate uneducated people will definitely get more popularity. As results shows that students pursuing higher education, are very important

part of Pakistani online community. Therefore websites, having certain educational stuff will get more number of users in Pakistan. Finally, generalizing the behavior of Pakistani online community, they are oriented towards Green and White colors because of their emotional attachment, while they avoid websites having shocking colors or some pornographic stuff in majority.

VII. CONCLUSIONS

In this work, we have evaluated the overall behavior of the Pakistani online community that how and why they use Internet, and how websites should be designed in order to attract more and more Pakistani community on internet. Different companies and firms are shifting their physical existence to electronic one. Therefore in order to promote their business on internet, organizations should be aware of the expected behavior of their target customers. So this research has been done in order to suggest recommendations for designing websites targeting Pakistani online community.

ACKNOWLEDGMENT

The authors are thankful to Engr. Moazzam Jawaid, lecturer, department of Computer Engineering, Mehran University of Engineering & Technology (MUET), Jamshoro for providing necessary help.

REFERENCES

- [1] P. Zhang, G.V. Dran, P. Blake, V. Pipithsuksunt, "A comparison of the most important Website features in different domains: an empirical study of user perceptions", Sixth American Conference on Information Systems (AMCIS) 2000, pp.1367-1372.
- [2] Gek Woo Tan, Kwok Kee Wei, "An empirical study of Web browsing behaviour: Towards an effective Website design", Elsevier-Electronic Commerce Research and Applications 5 (2006), pp. 261-271.
- [3] P. Zhang, R.V. Small, G.V. Dran, S. Barcellos, "Websites that satisfy users: a theoretical framework for Web user interface design and evaluation", Thirty-second Hawaii International Conference on System Sciences (HICSS) Maui, Hawaii, 1999.
- [4] Cook Jack, Finlayson Mike, "The impact of cultural diversity on web site design", SAM Advanced Mahagement Journal, http://goliath.ecnext.com/coms2/gi_0199-5037876/The-impact-of-cultural-diversity.html as viewed on 10 April 2009.
- [5] Radmila Juric, Inhwa Kim, Jasna Kuljis, "Cross Cultural Web Design: An Experiences of Developing UK and Korean Cultural Markers", Information Technology Interfaces, 2003. ITI 2003. Proceedings of the 25th International Conference, 16-19 June 2003, pp.309-313, ISSN: 1330-1012.
- [6] Badre Albert, "The Effects of Cross Cultural Interface Design Orientation on World Wide Web User Performance", A technical report, GVU Tech Reports. <http://www.cc.gatech.edu/gvu/reports/2001/>.
- [7] A. Badre and Laskowski S. The Cultural Context of Web Genres: Content vs. Style, Proceedings of the 7th Conference on Huniun Factors and the Web, Madison, Wisconsin, June, 2001.
- [8] N Barber W. and Badre B. Culturability: The Merging of Culture and Usability, Proceedings of the 4th Conference on Human Factors and the Web, Basking Ridge, NJ, 1998.
- [9] Sung H. Building a Culturally Competent Web Site: An Exploratory Study of Cultural Markers in Multilingual Web Design. Proceedings of SIGDOC 2001, Santa Fe, New Mexico, US October 2001, p 95-102.