Cross-cultural Web User Interface Design for Indigenous Internet Users

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This project investigated 1) Australian web designers’ cultural perceptions towards Australian Indigenous users and 2) Australian Indigenous cultural features in terms of user interface design. In doing so, it reviews the literature of cross-cultural user interface design by focusing on feasible models and arguments to articulate and integrate Australian Indigenous Internet users’ cultural needs of web user interface. The online survey results collected from 101 Indigenous users and 126 Web designers showed a distinctive difference between them on the integration of Indigenous users’ cultural in Web sites. The interview data collected from 14 Indigenous users and 14 web designers suggested practical approaches to the design implications of Indigenous culture.

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1. Introduction

Australian Government has provided support for Indigenous Australians in communities to access computers, Internet and training to be able to participate in the digital economy. It is believed that Indigenous Australians’ active usage of Internet resources can contribute to the digital economy in this multicultural society. In spite of the increase of Indigenous people’s participation in the digital economy and rapid growth of Australian Web industry, the practical as well as theoretical discussions of cross-cultural interface are weakly grounded. The research project aims to articulate Indigenous cultural aspects of Web user interface design in order to facilitate Indigenous Internet users’ effective usage of Internet and active engagement in Internet resources.

2. Cross-cultural Web User Interface Design

Understanding cultural difference is one of the key factors in the digital economy that reflects user-service provider relationships, communication channels and user expectation levels of information service function (Kettinger, Lee & Lee, 1995). In particular, web user interface is deeply influenced by cultural difference because cultures have difference patterns of social behavior and interactions (Marcus & Baumgartner, 2004). This implies that culturally appropriate user interface design can contribute to increasing Indigenous Australians’ effective Internet use and engagement in the digital economy.

Cultural appropriateness of user interface design directly impacts on the user’s perception of credibility, trustworthiness and user acceptance of web sites (Vatrapu & Pérez-Quiñones, 2006) and the web site development process and design methods (Clemmensen et al., 2009; Vatrapu & Pérez-Quiñones, 2006). However, there is a lack of studies and statistical data in cultural web user interface for Indigenous Internet users. As a result, web designers and developers have tended to deal with culture as a fixed unit that needs to be modeled in a web site (Kamppuri, Tedre & Tukiainen, 2006).

The conception of cross-cultural web user interface has been introduced in web design area because of the necessity of localization and internationalization (Jagne & Smith-Atakan, 2006; Marcus, 2001) and regarded as the highest level of web design evolution (Grudin, 1990; Kamppuri et al., 2006). Marcus (2001) defined cross-cultural user interface design as cultural dimensions embedded in interface design to the extent that users’ thinking, acting, and feeling are deeply influenced by cultural characteristics. Based on the anthropologists’ cultural models1, the interface design researchers and practitioners have

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1) Hofstede’s cultural dimensions (1991), Hall’s cultural factors (1976),
proposed cross-cultural user interface components and elements. Their common beliefs are that web is cultural artifact, so that the cultural models offer a way to understand and measure differences and similarities of user experience. As a result, they have insisted that cultural features can be embedded into their proposed user interface elements.

3. Indigenous Cultures

Dumont (2005) highlighted the five key concepts that define Aboriginal Intelligences. First is Aboriginal centeredness that Aboriginal people are securely and confidently centered within their worldview and intentionally embrace the Aboriginal perspectives. In practice, individuals cannot exist with separating them from their collectivistic identity. In other words, understanding their collectivistic identity is to affirm and assert Aboriginal seeing, relating, thinking and doing as being inherent and central the Aboriginal way of knowing. Web designers should aim to know their collectivistic needs rather than individual needs.

Second is Aboriginal consciousness that affirms the primary and encompassing nature of Aboriginal awareness, thought, knowledge and conceptualization. Individual Indigenous users are primarily motivated by their collectivistic consciousness, so that web designers need to assess all aspects of sensing, knowing and experiencing of Indigenous users in line with their collectivistic needs on use of web site. Aboriginal thinking and being need to be conceptualized in line with web interface principles before visualization. Otherwise, the visualization will only reflect individual needs that may not correctly respond to the Aboriginal consciousness.

Third is Aboriginal capacity to total responsiveness that they recognize their function from spirit, mind and body. The Aboriginal consciousness cannot be accessible by attaching weight to one of them. The approach to spirit, mind and body should not be dichotomizing – treated separately, rather dialogical in which the three are inseparable entities.

Understanding Aboriginals needs involves the spirit, the mind and the body. Conceptualizing Indigenous needs in web design processes is more spiritual, which opens the mind and body to meet their collectivistic needs. Then the conceptualized collectivistic needs can be directed more to the mind and body. In other words, Indigenous users will be more willing to engage in the development process and actively participate in the web as a community. Web designers should not see the web user interface as the result of a problem with functionality and/or aesthetic in terms of the individual users’ body (functionality) and mind (aesthetic).

Fourth is Responsiveness and connectedness to the collective whole. The collective consciousness is built on their value systems that place the connectedness and the responsiveness to the collective whole at a high place in the priority of values. This is an issue of prioritization in web design processes. Collectivistic needs precede individual needs and the former often shapes the latter. In other words, individual needs will emerge from the collectivistic needs when the former is being conceptualized. Web designers need to approach the Web user interface for Indigenous users in such mechanism.

Five is Aboriginal value-based seeing, relating, knowing and doing that value systems of kindness, honesty, sharing, strength, respect, wisdom and harmony serve to maintain their collective whole through the connectedness and the responsiveness. Aboriginal value systems are continuously shaped by the collectivistic needs. The Aboriginal consciousness is constantly enhanced by the Aboriginal centeredness where Individuals are responding and connected to the collective whole. Such mechanism re-emphasizes the importance of Aboriginal (collectivistic) thinking and being in understanding of Indigenous user needs in web interface design.

Aboriginal thinking and being is characterized by a holistic solution for web user interface design. Web designers are at the forefront for changing the web interface landscape that they need to adopt Indigenous approaches that result in Indigenous user friendly web sites. This is a great challenge for web designers to practise the holistic solutions to the extent that

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Trompenaars’ and Hampden-Turner’s cultural factors (1997), and Victor’s LESCANT model (1992)
white Australian system, individualistic, set and structured, is not working with Aboriginal cultural values and learning styles (Sonn et al., 2000). However, there is no specific guide for both Indigenous and non-Indigenous web designers to enhance Indigenous users’ cultural values and assess their practices for Indigenous user friendly web sites. Yet Australian education field has made some discussion on this matter that explains Indigenous learners’ cultural features in comparison with white Australians. It is worthwhile to review this for understanding of the differences although it is not specific enough for Indigenous user friendly web sites.

A recent empirical study on Indigenous pedagogy is Yunkaporta’s (2010) *8 ways Aboriginal Pedagogy.* First is *Deconstruct / Reconstruct* that organizes holistic, global and scaffolded and independent learning orientations. Second is *Learning Maps* that is a visualized form of the overall structure. The map needs to visualize processes for learners to follow. Third is *Community Links* that means accommodating their group-oriented, localized and connected to real-life purposes and contexts. Fourth is *Symbols and Images* that serve their visual-spatial learning and utilize concrete and abstract imagery to build symbolic meanings in support of learning new concepts and content. Fifth is *Non-verbal* that refers to a predominance of kinaesthetic and practical actions in learning and the way Aboriginal learners test knowledge non-verbally through experience, introspection and practice. Sixth is *Land-links* that refers to a connection between land and knowledge. Seventh is *Story-sharing* that makes use of personal narratives in knowledge transmission and transformation. Eighth is *Non-linear* that refers to the impetus for transformation come from multiple processes simultaneously and their thinking and perception are not constrained by the serial and sequential nature of verbal thinking.

The key difference between the 8 ways Aboriginal pedagogy framework and the other studies in cross-cultural web interface design is that the former lays in the application of Aboriginal cultural processes rather than a fixation of content with cultural models. Therefore, the framework should be more appropriate for the cultural interpretations of the user interface components – concept design, information design, interaction design and interface design.

### 4. Study Design

A proposed study design was the interpretations of Indigenous cultural features in connection with the user interface components based on an eight design categories of Indigenous culture. The interpretations were utilized to develop the online survey of the perceptions of both Indigenous users and web designers on cross-cultural web interface design and to create the interview questions for both the participants.

#### 4.1 Online survey results

101 Indigenous Internet users and 126 web designers responded to the online questionnaires which consist of four main sections of demographic data, general views of culturally designed web sites, cultural needs of web user interface design and open comments. The responses of the Indigenous Internet users indicated their high awareness of Indigenous cultural features in Australian web sites. However, it can be seen from the web designers’ responses that they did not pay much attention to the issues of embedding Indigenous cultural variations in the design of web sites. This lack of attention may be due to the fact that most of the web designers are non-Aboriginal people who know little about the Indigenous culture. Another reason might lie in the fact that the population of Indigenous people is quite small (2%) in comparison with the whole Australian population and with such small proportion, the Indigenous people are not the potential users that web designers target at.

#### 4.2 Interview results

14 of each group of questionnaire respondents were invited to take part in the e-mail based semi-structured written interviews about their understandings and methods of cross-cultural Web user interface. The interview results indicate considerable differences between the Indigenous Internet users’ preferences and the designers’ understanding and methods in web design. The difference may result from the fact that most of the web
designers who participated in the interviews are non-Aboriginal people and their understanding and methods of web design are influenced by their own culture (Vatrapu & Pérez-Quinones, 2006) which is much different from the Indigenous culture.

5. Findings

The research findings can be divided into five topics: 1) web designers’ capability of inter-cultural competence needs to be developed for creative and innovative problem-solving, 2) design education needs to respond to inter-cultural education in a multiculturalized and internationalized environment, 3) web designers need to (be able to) change their design approach with the proposed eight design categories of Indigenous culture - holistic structure, global navigation, group-oriented community, inclusive visual communication, relation-centered connection, narrative information and synthetic engagement, 4) stakeholders can modify and extend the cultural user experience framework by utilizing anthropologists’ cultural dimensions, and 5) transcultural methodology is proposed for a proliferation of discourse on the cultural user experience framework in web industry.

6. Conclusion

The project involved a number of people and undertook three different methods of data collection to validate the research findings. This project demonstrated a large perceptual and conceptual gap towards cross-cultural web user interface design between Indigenous users and web designers. This has not been done elsewhere. The project covered the participants’ concerns, philosophies, approaches, beliefs, attitudes and values on web design and proposed practical implications and recommendations for cross-cultural web interface design. The most prominent outcomes should be that 1) the project developed the cultural user experience framework and its exemplary matrix for effective communication and collaboration between Indigenous users and web designers and the evaluation results validated its feasibility, 2) it provided empirical and scientific data and practical recommendations in order for stakeholders to bridge the perceptual gap and 3) it provided evidence-based discourses for the necessity of a new way of thinking about web design in a multiculturalised and internationalized learning/living/working environment.

References