



A New Collaborative Digital Social Space

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Abstract

To understand the web design principles in a Digital Social Space (DSS) that can attract multiple national cultures into one SNS platform, Internet communication users from different cultures were chosen as targets for this investigation, using questionnaires to collect user preferences on a digital social space. Social network sites (SNS) evolved within a short time into a popular Internet-mediated tool that is being used worldwide on a daily basis. Though presumptions in interaction through SNS create bias in web design, that does not translate well into foreign cultures. Results revealed that different culture groups have different understandings of online communication tools in a Digital Social Space (DSS).

Keyword: Social Networking Site, Digital Social Space, Culture

Introduction

Past research has revealed that non-English speaking users prefer web sites that are designed for their cultural background. Absence of cultural consideration in web design is much more likely to offend other cultures. Global businesses and organisations have a higher chance of success if their websites are created with multiculturalism as the design focus. The implication of this revelation in relation to users' approach to social network sites from different cultural backgrounds has yet to be determined.

The current standards in web design are largely focused on English content. However, non-English content differs in usability concept that is considered acceptable by its respective local users, which indicates the need to design beyond the common web usability that is normally only considered for English content. In particular, the unique functionality of social network sites also emerged new awareness in usability that is not evident in

traditional understanding of heuristics, but may hold the key to the mystery of cross-cultural social network design.

Digitalized Social Networking Site (SNS) has experienced dramatic growth since the end of the twentieth century and more users from multiple cultural backgrounds to date. Numerous organisations are convinced by its popularity to take advantage of SNS as a new approach to promoting. People around the globe also enjoy the functionality that SNS has offered them, keeping them connected, shared and able to create ideas with others. This trend in rapid growth of SNS usage presents a demand in SNS localisation, especially a platform that fits in the context of their national culture.

The aim of this study is to explore the importance and significant web elements of cross-culture integration through a Digital Social Space (DSS) in creating ideas of project, examining the current approaches to Multi-cultural SNS design in general, discovering potential relationship

between SNS usability and cultural approach to social network sites, as well as barriers that need to be overcome in designing a cross-cultural social network.

Social Network Sites (SNS) and Culture

Social network site (SNS) is a web application for individuals to build and maintain social connections, which may be related in real life or share similar personal interests. The functionalities of SNS are largely akin to online forums, chat rooms and community portal sites, including public posts, private messages, profiles, personal and group status updates and announcements, all with flexible privacy settings. However, SNS stood apart from these social-oriented websites by making the users' social connections visible to other users, resulting in the expansion of social connections that may otherwise never happen (Boyd & Ellison 2008). Social-oriented websites before SNS never contained this layer of information transparency that allows users to associate each other by their existing social connections.

The type of social site in this research refers to a genre of website: SNS, such as MySpace, Facebook and Twitter, etc. SNS is defined as a web service for sharing public profile, maintaining a list of social connections and allowing users to traverse the said connections, within a specific social context (Boyd & Ellison 2008). In this definition, social network site is implied to be both a communication medium, as well as a platform for an individual to make a virtual presence on the Internet.

Social network sites (SNS) are often referred to by other interchangeable terms such as "social networking sites" or "social media". Boyd and Ellison argue that social network sites should only be referred to with the noun "network", which imply the individual social connections that social network sites are made to maintain, instead of the verb "networking", which implies the action of communicating with others (Boyd & Ellison 2008). There is yet a formal terminology for social network sites

to be recognised, but it has already made a significant impact to the communication process for individuals.

Cultural Elements in Social Interactivity

The trend of cultural awareness in user experience stresses a multicultural approach to web design. As the trend in satisfying user experience changes, so do the factors that capture the attention of users. Since global users are beginning to be aware of cultural adoption in websites, web multiculturalism becomes a key to capturing user attention. Users are most likely to turn away from a website if their attention is not caught within a short time frame (Noiwan & Norcio 2006, Alostath et al 2010), and with the raise of cultural awareness, it becomes important for web designers to consider the different cultural backgrounds of their audience, especially if the website targets a global audience.

Cultural value is an intangible element in multiculturalism that often poses difficulty to multicultural web design. Hofstede's (2012) study on cultural dimensions since 1980s provides a measurable interface for other researchers in multiculturalism to gain a better understanding of the values, beliefs and behaviours from other cultures. The cultural dimensions are the basis of many researches in discovering differences in web browsing behaviours in other countries. Marcus and Gould (2000) compared web interfaces from different countries where the following cultural characteristics varied: power distance, individualistic value, masculinity, uncertainty avoidance and long-term orientation. The countries in which these characteristics differ are mainly Asian and Western.

In general, Eastern and Western cultures are where the main differences reside. The cultural context between Eastern and Western culture vary greatly in terms of life style, language, beliefs and many other cultural characteristics (Barnum 2010). This main difference can be described as holistic verses analytical approach to interpreting information on the web, where Eastern cultures are mostly

holistic and Western cultures are mostly analytical (Snelders et al 2011). This difference can also be identified as high and low context cultures, where high context cultures interpret more information from imageries (which apply to most Asian culture) and low context cultures interpret more from text (Barnum 2010, Nantel & Glaser 2008). As the majority of popular web content to date is presented from America, which is considered a low context country, there are many other subtle cultural factors yet to be discovered for web usability in other cultures (Alostath et al 2010).

SNS for Learning

Since the stabilisation of communication features in SNS, it has since been adopted for specialised purposes beyond generic, everyday social bridging and bonding. These purposes range from business, career progression, organisational interests, to education. SNS has become an optimal communication tool that simulates social and group-based learning in real life, to the point that learning with SNS is entirely possible (Lockyer & Patterson 2008). Along with the social elements that come with learning via SNS, SNS also facilitates emotional support during the learning process, improving students' ability to absorb knowledge (Greenhow & Robelia 2009). What was initially taken as another entertainment medium has been regarded with the potential for knowledge seeking.

The Power of Sharing

As SNS became popular, normal websites have also undergone changes in response to the spread of SNS usage: websites that weren't normally used for social purpose have either converted to a SNS itself or are integrated with SNS elements (Boyd & Ellison 2008). Twitter in particular simplified the process of embedding a "feed widget" with real time micro-blog updates on any website, by simply including an automatically generated JavaScript. Business websites, community portals, online forums and even chat rooms now have such SNS widgets integrated into their

usual interface for real time announcements, particularly small and mundane matters that might not warrant a complete article. Blogs and news sites now have "like" and "share" buttons for content sharing via popular SNS, making content sharing more convenient for users other than emailing information to other users. Organisations have now resorted to stakeholder communication via SNS rather than emails or telephones. SNS has an impact on the web beyond its popularity as a standalone communication application, but also as a new functionality to the web itself.

These trends in web development amount to the ability for users to share information at ease. Just as the original philosophy of SNS, which SixDegrees.com intended, the ability to traverse through a web of social connections will expand social circles beyond a confined social space, it goes for knowledge distribution. The ability to share, coupled with social support, makes SNS exceptionally attractive for e-learning and educational purposes (Downes 2005, Greenhow & Robelia 2009). Common web usability presumptions made by developers include content positioning, visual metaphors and user behaviours local to the developers' cultural background. These presumptions are the result of cultural bias shaped into the minds of individuals by their surrounding cultural environment (Kiyokawa et al, 2012). This study narrows the scope of the factors where bias and presumptions exist in cross-cultural SNS usability to these three areas: information retrieval, social politics and high-low context rationality.

A New Digital Social Space (DSS) "InnoWorks"

A new DSS for learning called InnoWorks is an idea sharing system developed by academics and a web designer. It aims to borrow the elements of social networking to form an idea of collaboration platform. A questionnaire survey was conducted in a class of 33 university students in Australia, in which the use of InnoWorks for idea sharing and collaboration was a requirement for the class. As a new DSS for

managing different ideas, InnoWorks is made for innovators with new ideas to collaborate and refine ideas as a group. Innovators are the individual users who have an idea to share and seek opinions to refine the ideas into workable plans. Innovators with common interests can come together as a group to rate and refine ideas together. Individual users, which are also innovators in InnoWorks, can use a variety of SNS features built into the website such as sharing status, maintaining personal profiles and updating relevant events in addition to contributing and rating ideas.

Study Approach

A survey was performed for InnoWorks users first to collect data related to layout-centric analysis. This was the first survey developed for the purpose of this thesis, thus the scope was limited to one of the three research questions only at the time. The cultural diversity of this environment is an ideal source of information for the research of multicultural SNS. The student feedback survey of InnoWorks consists of a mix of questions that are directed towards development feedback and for the purpose of this research. Crucial data directly

related to this research are those involved with the user's cultural background. Other development feedback oriented questions will also provide insights to usability preferences from different culture.

Chi-squared association test was performed on the gathered data for correlation between cultural background and preferred design features. Statistically, the amount of data gathered is not large enough for all the Chi-tests that were performed, but a plausible result was drawn from this questionnaire analysis that, the length of stay of the student in Australia has a more significant impact on the student's opinion on the choice of colour theme used in InnoWorks (see Figure 1).

A user's physical exposure to the local area has an increasing impact on the preference of SNS usability, the longer the user remains in a geographic location, despite the user's cultural origin or heritage. In which case it may be beneficial to vary SNS designs based on a user's geographic location, which technically is easier to detect over the Internet than the users' cultural backgrounds, thus lessen the cost of development at least marginally

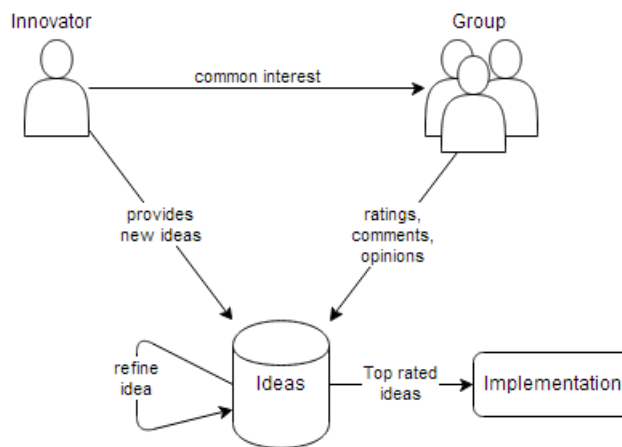


Figure1: An illustration of the basic functionality in InnoWorks

Data Collection and Analysis

All the p-values above are higher than 0.001, therefore the tests are unable to

confidently reject H_0 , or the hypothesis that cultural factors have no correlation with user experience of InnoWorks at the standard p-value benchmark.

There are still some p-values that are close to the $p < 0.001$ benchmark. Length of stay in Australia has the closest correlation with user experience on InnoWorks colour theme ($p = 0.009$). Users' first language has a sparse correlation with experience on ease of use ($p = 0.024$). Length of stay also has a sparse correlation with ease of use

(0.026). Minitab was unable to produce a Pearson Chi-squared p-value for length of stay in Australia and social learning experience of the users, because there is only 1 record of a user who stayed in Australia for less than 5 years and has experienced social learning prior to InnoWorks.

Table 1: Summary of all p-values gathered

	Country of birth	First language	Multilingual	Length of stay
SNS experience	0.171	0.979	0.375	0.115
Social learning experience	0.948	0.744	0.067	N/A
InnoWorks Recommendation	0.101	0.275	0.073	0.126
East of use	0.118	0.024	0.579	0.026
Useful	0.849	0.247	0.335	0.484
Helpfulness	0.895	0.424	0.506	0.629
Colour	0.119	0.450	0.966	0.009

Between the p-value benchmark and the actual p-value results produced from the survey, it is highly likely that there are not enough amounts of data to prove the correlation of cultural background and user experience with InnoWorks. It is still possible to lower the p-value to prove that the null hypothesis is false if more InnoWorks user experiences are gathered, particularly for length of stay in Australia

and the colour theme of InnoWorks. According to the cross tabulation between length of stay and opinions on colour theme, it appears that users who stayed in Australia for more than 5 years are more likely to find the colour theme of InnoWorks acceptable, whereas those who stayed for less than 5 years are more likely to reject the colour theme of InnoWorks.

Table 2: Minitab output of the cross tabulation - the number of users who like the colour theme is roughly inverted between those who stayed in Australia for longer and those who did not. Vice versa for those who do not like the theme. (percentage wise)

	Colour preferences			All
		Dislike	Like	
Length of stay in Australia	5+ years	8	18	26
	Less than 5 years	6	1	7
	All	14	19	33

In the p-value table, length of stay in Australia contributed an overall lower p-value average for the user experiences in InnoWorks. It is likely that length of stay in

Australia is a viable choice of cultural element to base future multicultural usability researches on. Users with varied length of stay in Australia have different

degree of cultural exposure and cultural adoption: the longer one stays, the more likely the original culture of the user is converted to the current location.

The next lowest p-value from first language and ease of use may indicate another potential relationship between cultural background and user experience with InnoWorks. According to the cross tabulation in Appendix B, those who speak English as first language find InnoWorks easy to use, but not as easy for users who do not speak English as first language. This may indicate the idea that users' first language does have an impact on the ease of use of a website.

Similar interpretation can be drawn from length of stay in Australia and user experience on ease of use on InnoWorks with third lowest p-value - those who stayed in Australia for longer may find InnoWorks easier to use than those who have not stayed for long enough. An interesting observation can be seen from the p-values on social learning experience. The high p-values from country of birth and first language suggested that social learning is a new genre of web application for users of any cultural background, but users with knowledge on multiple languages yield considerably lower p-value in comparison to those two cultural factors.

Table 3: Cross-tabulation between social learning experience and multilingual experience

	Prior social learning			
		No	Yes	All
Multilingual	No	14	0	14
	Yes	15	4	19
	All	29	4	33

According to the cross tabulation above, all users who have experienced social learning are those who also speak more than just English. It suggests that users who have knowledge in multiple languages may be interested easily in new web applications, and have used social learning in the past for cross-cultural learning

Usefulness and helpfulness of InnoWorks yielded overall high p-values that have a relationship between cultural factors and these two user experiences is unlikely. Unless more data are gathered for this questionnaire to lower the p-values, usefulness and helpfulness of InnoWorks might not produce any significance to future research on multicultural SNS usability. Western users appear to be heavily influenced by peer opinions towards their content, which is an interesting observation since Western users are mostly individualistic. It is worthy to note, however, while peer opinions matter less significantly to

Eastern users compared to Western users in this study, Eastern users' attitude towards publishing content on the internet may be already mutually communicated through their culture that peer opinions become more or less the same.

In this context, Western culture is more likely to see different opinions that catch the attention of Internet users. Western users are seen to be motivated more by bonding relationships, just as much as Eastern users. It was believed from the literature review that Western users might be motivated largely by entertainment from SNS, although it has now also become evident that bonding relationship is the long-term intention for any SNS users. Western users seem to be more immersed with their choices of communication tools, evident by a higher rate of instinctive usage (using the tool without consciously knowing) and an initiative to customise application settings to their personal preferences. Western users also appear to

use online communication tools more for personal conversations rather than group-based communication, which match the theory of Western culture being individualistic, and vice versa for Eastern culture using communication tools for group purposes as a collectivist society.

Conclusion

This study presented a study of cross-cultural SNS usability that confirmed a relationship between cultural factors and user experiences through a DSS. Eastern users. It was believed from the Western users motivated largely by entertainment from a DSS, although it has now also become evident that bonding relationship is the long-term intention for any SNS users. Western users seem to be more immersed with their choices of communication tools, evident by a higher rate of instinctive usage (using the tool without consciously knowing) and an initiative to customise application settings to their personal preferences. Western users also appear to use online communication tools more for personal conversations rather than group-based communication, which match the theory of Western culture being individualistic, and vice versa for Eastern culture using communication tools for group purposes as a collectivist society.

Cultural studies are challenging due to many barriers involved that are foreign in nature, including language, cultural values and social context from the respective nations. Computer-mediated tools on the internet have been spreading quicker than studies that attempt to understand how these tools can better fit into different cultures with their unique, distinctive characteristics. As SNS ascended to be part of Internet users' lives for most parts of the world, the continued learning and understanding of cultural awareness in design and development can achieve a true multi-cultural mind set, for the benefit of both developers and users.

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