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ABSTRACT

The perceptions and practical experiences are important influences when creating and developing online learning experiences in cross cultural contexts. In this study, 15 educational designers studying for their Master's Degree were asked to contribute their interpretations to an ongoing study of what meaning and interpretations were generated from a series of different learning environments offered via the Web. Course materials were designed in Australia and delivered into Hong Kong, Special Administration Region, China. Students did not always interpret the visual information in the manner expected by the original designers. This paper discusses the outcomes of the investigation in relation to students' perceptions of the appropriateness of the interface design guidelines when applied to a number of exemplary Web sites, highlighting the cultural differences encountered. (Author/AEF)

Recognition of Cross-Cultural Meaning When Developing Online Web Displays

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Abstract

The perceptions and practical experiences are important influences when creating and developing online learning experiences in cross cultural contexts. In this study fifteen educational designers studying for their Masters Degree were asked to contribute their interpretations to an ongoing study of what meaning and interpretations were generated from a series of different learning environments offered via the Web. Course materials were designed in Australia and delivered into Hong Kong, SAR, China. Students did not always interpret the visual information in the manner expected by the original designers. This paper discusses the outcomes of the investigation in relation to student's perceptions of the appropriateness of the interface design guidelines when applied to a number of exemplary WWW sites, highlighting the cultural differences encountered.

As tertiary studies turn to on-line delivery and courses become truly global, educators, course designers and instructional designers must now transcend national boundaries and cater for their 'new' clients those with backgrounds as diverse as the cultures they live in. The increasing popularity and utilisation of the World Wide Web (WWW), has led to a proliferation of course offerings which explore web design and construction. It is timely for principles, priorities and values to be examined closely in order to evaluate the appropriateness of the content presented. Questions can be raised whether meaning and communication between cultures can be achieved in relation to the material being presented. As Duffy and Cunningham (1996:171) warn 'idiosyncrasies of construction lead to an inability to communicate'.

As educators we know that all students come to subjects with different thinking and learning styles but now as we approach this unique learning situation the diversity is much more transparent, as we attempt to realise the needs of students from other countries and cultures. At times the lack of shared meaning can make communication difficult for people of different cultures. (Duffy and Cunningham, 1996). Content is often developed for courses assuming that a common culture exists.

According to AlHunaiyyan, Hewitt and Jones (1999), 'culture is a discernible variable in interface acceptance and interfaces should be designed to accommodate users' cultures'. This sentiment has been echoed by several other authors including Del Galdo, 1996; Fernandes, 1995; Uren, E.; Howard, R.; & Perinotti, T. 1993. In an effort to examine whether this statement is true and, if the content and learning experiences presented for WWW courses is authentic and appropriate, this study sought to uncover any anomalies that may exist in the area of interface design. Within the post-graduate Master of Education program an on-line subject, Cognition and Interface Design, was presented for students from both the Wollongong, Australia campus and the Hong Kong, SAR campus. The study examined the appropriateness

of the content and the interface guidelines for web construction, which had been developed in the Australian context.

Theoretical Background

In recent years researchers of technology-supported learning environments have embraced constructivism by providing educators with sets of design guidelines and instructional design goals (Cunningham, Duffy and Knuth, 1993; Savery and Duffy, 1995; Duffy and Cunningham, 1996). At the same time researchers in the area of visualisation and interface design have developed and proposed design guidelines for computer interface (Laurel, 1990; Tognazzini, 1992; Misanchuk, Schwier & Boling, 2000).

Accepting the tenet that learning is the process of constructing knowledge, Duffy and Cunningham (1996) suggested, through a social constructivist framework, knowledge is context dependent and that learners are participants in the socio-cultural process. Therefore, taking into account the interactive nature and ability for knowledge construction of the Web, then this type of learning should also be context dependent with learners participating in a socio-cultural process

This investigation firstly, examined the nature of the learning process from a cultural perspective to determine the extent that context plays, and secondly evaluated the applicability of the components or principles of computer interface design when they are applied in differing cultural settings, in particular, in contexts different from their North American original viewpoints. The questions that guided the study were:

1. Do cultural differences exist in guiding instructional designers as they undertaken webpage design and construction?
2. Can a set of web design principles developed in one cultural context be applied successfully in another cultural context?
3. What cultural differences or context issues should be considered when developing on-line courses for multi-cultural cohorts?
4. Is culture a discernible variable in interface design?

Methodology

The study has been implemented in 2000-2001 within the Cognition and Interface Design postgraduate subject. The first cohort has completed a preliminary pilot study in 2000 and the second implementation occurred in December-February 2000. Fifteen students from Hong Kong developed an evaluation tool, in the form of a rubric, which has been be applied to a number of WWW sites that were deemed exemplary. These sites were chosen with Chinese and English language origins. Sets of four design principles have been formulated based on current research and have formed the framework for this evaluation. A large number of design principles exist in the area of visual and interface design, such as, colour, layout, backgrounds, etc. For the purpose of this study only four design principles or premises were extracted from the work of Williams and Tollett (2001). They were alignment, contrast, proximity and repetition.

In summary, Williams and Tollett describe the four principles as:

> **Alignment** simply means that items on the page are lined up with each, when aligned the page is cleaner and more organised therefore they communicate better;
>
> **Contrast** is what draws your eye into a page, if two elements (such as type, rules, graphics, colour, texture) are not the same, make them very different, contrasting elements create a hierarchy of information allowing the user to skim the information;
>
> **Proximity**: the principle of proximity refers to the relationship that items develop when they are close together, i.e. in close proximity, when two items are close they appear to have a relationship, to belong together, group items together that have some relationship, items that are not close in proximity appear as separate elements, spacing arrangements provide visual clues as to the meaning and importance of different information, the visual spaces create a hierarchy of information;

Repetition: the concept of repetition is that throughout the site you repeat certain elements that tie all the disparate parts together, items such as navigation buttons, colours, style, illustrations, format, layout, typography are all elements that can unify a site.

Fifteen students were asked to identify four Chinese WWW sites each that they considered exemplary in their visual design. The students all had prior experience in web design evaluation through previous coursework. Criteria for evaluation included items such as Content and Strategy, Visual Style, Navigation and Graphic Design. The study was conducted in two phases. Firstly, students were asked to identify four exemplary Chinese WWW sites and second they were given the four Williams and Tollett design principles and asked to apply them to the first four web sites that they had chosen. They were then asked to identify any cultural differences evident.

Results

The results are discussed following the four design principles or premises proposed by Williams and Tollett (2001).

Alignment

It appears that alignment is a principle that may vary according to cultural context. In this study the alignment of text on the screen design used on the Chinese sites was an important factor. According to one student 'owing to the cultural style and characters of Chinese, the left edge is not necessarily the beginning of the text'. While Williams and Tollet contend that indentation and left aligned text is preferable, traditionally Chinese characters for formal writing is presented in a vertical format with writing from right to left (although the Western influence has allowed in some instances for writing characters to be read from the left as well). Therefore, in this context the text would be generally centre aligned and indentation is not a requirement in Chinese writing. From the small sample of Chinese WWW sites chosen for evaluation, centre alignment was the preferred principle. Many sites also used a frame format where the screen was divided into either two or three segments with centre or left alignment within each cell. As another student responded 'Chinese designers always centered the topic and the content for most Chinese thinks [sic]

Contrast

Generally, the sites chosen used bold contrasting elements with many animated effects. Many sites used a variety of font sizes, some headings quite large in relation text size. Colour was used in many of the sites to differentiate particular elements. Many students commented on the 'bolding of topic headings and the significantly bigger font size to bring attention'. Within blocks of texts comments were added that 'important information was appropriately bolded or coloured for focal points'.

Proximity

On the whole, the students commented that proximity in the web sites chosen followed the principle outlined by Williams and Tollett. Text was aligned closely to graphics and images that provided understanding. The centre alignment of the text did allow for space between the concepts but generally this was used in a vertical format and generally for headings only. A number of students commented on the 'clumsy' nature of the sites and the 'crowding' of the sites. As one student stated 'the spacing arrangement is not strong enough to provide a visual clue to the meaning and importance of different information'.

Repetition

Generally, according to the student evaluations, the Chinese sites used repetition as described by Williams and Tollett. On the whole, a consistent and predictable set of navigation tools, graphics, colour and style was carried throughout the sites chosen allowing for ease of navigation. As one student stated of the sites chosen 'the repeated approach simplified navigation and ensured that they were built with a consistent rhythm and unity across the sites'.

Conclusion

This study has resulted in a number of interesting findings that would be significant to on-line course developers, instructional designers and researchers of computer interface design.

Firstly, it appears from this study that there are cross-cultural differences existing between Western designed WWW sites and Chinese developed sites. This is significant for a number of reasons in relation to on-line learning and the content provided for off-shore students. Content is being presented to students from base educational institutions with vastly different cultural contexts. In this case, Western instructional designers using Western design principles being delivered to Chinese students

Secondly, it is important to note that students were asked to choose the exemplary sites first, before being given to the principles by Williams and Tollett. This ensured that students did not purposefully seek sites that demonstrated the principles proposed. In fact, generally the students accepted the principles as 'gospel' and then commented that some of the sites chosen were not exemplary after all because they did not demonstrate the principles. For example one student stated ' the page looks not so neat and not so clear to communicate by the users' [sic] although this site was chosen by the student as exemplary. This is significant for two reasons. First, the reason the students may not have readily found agreement with the principles was because culturally the visual design was different and second, the Western-based principles proposed were being adopted without question because they were part of the course content delivered. The fact that the students noted discrepancies should indicate the tensions and difficulties in matching the visual design and navigation of the sites to the four principles.

Many students commented on the crowded nature of the screen design. Many elements, including animated graphics were added to the pages, generally for embellishment, as one student commented 'flashing graphics caused distracting of users eyes'. Perhaps some parallel could be drawn between the visual impact of the often-cluttered neon explosion of the street signage and decorations experienced by first time visitors to Hong Kong. From experience with other web sites, this perception of more interesting visual appeal being equated with a number of "cute" visual effects appears to be culturally-based. In addition, the use of written Chinese on several sites has additional impact by virtue of the nature of the written language and how it is parsed into grammatical structures. As grammar is derived from the context in Chinese writing this also means that context is used to construct meaning as the text is read. This has immediate implications for how the text is laid out and designed for quick recognition and selection. In particular, web sites are designed to attract and focus attention rather than being "read" the visual representation of ideas through characters can be working in several ways and further studies are required to identify which factors are operating under which circumstances.

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