Abstract

With ever increasing pressure from technological and social transitions to teach competence in Interaction Design, new teaching methods and syllabus need to be explored. This study presents an approach to develop cultural characteristic focused syllabus in Interaction Design. This study hypothesizes that an internationalized cross-cultural society will be the next frame-shift of the social structure. Working with this hypothesis, this study applies comparative study methods in exploring an Australian and Japanese Interaction Design education practice. In addition, an analysis of theory and practice in relation to the current development of interaction design education is demonstrated. Most importantly, this study takes into account the cultural contexts which affect interaction design characteristics in these two countries. Based on the findings, an enhanced cultural context design model in Interaction Design is proposed, which intends to reflect the progressive transitions in Interaction Design Education across these two countries.

Keywords

Interaction Design, Design Education, Cultural Context, Cross-Cultural Study, Comparative Study

1. Introduction

Interaction design has been considered as a major design methodology in the Human-Computer Interaction field, which has been constantly contributing to bridging individual user experiences within various social & cultural contexts by utilizing the latest information technologies. With the revolutionary development of information and communication technology, such as the advent of Web 2.0 technology and the progressive implementation of RFID & mobile technologies, in addition to the focus of user interface and interaction usability, the focus of interaction design also embeds various contextual interrelationships (Beyer & Holtzblatt, 1998, p.3). From the early 1990s, the design field has been paying increasing attention to social contextual analyses, so that interaction between people and systems, systems and systems, and systems and society have become a more regular feature (Dourish, 2001). As a consequence, the main challenge of interaction design is shifting from achieving
usability, efficiency, attractiveness, and playfulness for individual user’s interaction (Norman, 2004, p.26) to individual (personal) system interaction with relevant systems. From the user perspective, this shifting companied by technology development together support new communication platforms provide enormous increase of social and cultural interaction possibilities, the various social contexts are playing a more significant role in people's social lives which is been recognized with more cultural characteristics even before (Huang & Deng, 2008). The major design issue is shifting from one-to-one interaction, to the interaction between the user and the contextualized cultural ambient and social environment. Following this shifting, interaction design education should also focus on providing students with a foundation theory and related design process to understand user’s action as inevitable cultural conduct.

Since social context is one of the most important issues of modern interaction design theory, it’s crucial to understand the culture that sustains a whole society (Huang & Deng, 2008). Especially in Asian countries, people’s social behaviors and activities, cultural standards and recognitions, the overall social interactions and cultural traditions always significantly influence people’s decision-making. And the cultural differences oriented decision-making became to the ambitious target of globalization for many commercial software and online applications (Marcus, 1993; Marcus & Gould, 2000). Cultural preferences have become one of the most significant subjects and focuses of fulfilling users’ cultural and social needs (Bourges-Waldegg & Scrivener, 1998; Strøm, 2006). Based on such a cultural stand, in this paper, terms like cultural contexts have been used as an analyzing tool to thread the structural and contextual influences back from the user’s original living environment. There is a rapidly increasing trend to modulate user’s interaction patterns from a cultural perspective, especially when we try to deal with sensors, physical computing, tangible interfaces and intelligent ambient environments.

Hofstede (1980) defines culture as “the collective programming of the mind which distinguishes the members of one group or category of people from another.” A culture can be distinguished as a set of shared characteristics within a group of people, and these characteristics include thoughts, values, and behaviors (Choi, Lee, Kim, & Jeon, 2005; Huang & Deng, 2008). For the purpose of human–computer interaction, Honold (2000) also defines culture based on concepts provided by Ratner (Ratner, 1997), Shore (Shore, 1996), and others. He advocated that culture does not determine the individual’s behavior, however the modularity of thinking, perceptions, and actions are significantly affected by it. This notion of cultural impact provides a need for modularity within the recent interaction design methodology, it has been used to explain people’s unconscious actions, language, and even thinking, which derives from their cultural background, knowledge and beliefs (Kövecses, 2006, p. 69). For instance, the design of mobile phones needs to incorporate a wide range of cultural factors concerning
users, organizations, practices and environments in order to most effectively perform its intended role throughout the use process (Jung & Chipchase, 2008). Similar cultural localization needs can be easily seen from the internationally popular interactive home game device, Nintendo Wii, e.g. the study by Yashiro successfully described cultural elements, which have significantly influenced Wii game design for different markets. (O'Hagan, 2009; Yahiros, 2005). This trend demonstrates how cultural impacts influence interaction design in real industry, while at the same time showing how a successful interaction design always induces users to reorganize and recombine their interactions, in order to ‘... improve the relevance of their actions in and sense making of a particular situation’ (Ringberg & Reihlen, 2008, p. 923).

This paper proceeds in three parts. First, it introduces the background and a cultural-focused characteristic of a collaborative curriculum development project which involves one Australian and one Japanese university. Then, it presents a case study of new interaction design syllabus development with the intention of revealing the cultural perceptions that have been neglected in most current interaction design curriculums globally. In addition, an enhanced cultural model is proposed.

2. Comparative Research of Two Interaction Design Programs

Thus, this research proposes an approach to accelerate the Interaction Design transitions by taking into account the cultural impact of Interaction Design Education. To do this, it is necessary to comparatively study two education programs from a cultural perspective across two different countries and cultural circles. This project builds on a case study undertaken at an Australian University in Melbourne Australia and a Japanese University in Tokyo Japan, and the discussion focuses on identifying the impact on the pedagogical development based on qualitative comparison research method.

Above all, due to the extensive definition of Interaction Design which across various disciplines; in this study, the disciplinary stand of Interaction Design has been defined across Industrial Design and Media Design domains. The first focus is the course structure and teaching contents. Our main motivation in this study is to help our graduates to achieve higher competitiveness in interaction design industry. To do so, gaining an understanding of what interaction designers need to be effective practitioners in various industries is vital, which is strongly oriented by local culture. From the industry perspective, the most needed interaction designers are the designers can design interactive products and systems to answer specific market users. Those user’s customs, styles, behaviors, and perceptions are all strongly influenced by their cultural context. The main goal of this project is to achieve a cultural oriented syllabus by comparatively research the pedagogical arrangement within Australian and Japanese counterparts. This research started from the social and cultural contexts of interaction design, where various industries are shifting to a new paradigm based on cultural change and developing technologies. This shift requires new design methodology for future design practice, which requires rethinking of interaction design in tertiary education. To inspect whether the course
syllabus and teaching contents of interaction design provided by these two participated universities truly match industrial requirements, expectations and cultural contexts, it is necessary to examine the whole course contexts, students’ knowledge background and syllabus. In the next section, one unit has been chosen from each university by participated lecturers; through the comparison research we intend to figure out a way to integrate cultural context focused framework for interaction design education.

2.1. Positioning Participating Programmes

The pedagogical approach has been employed in the teaching of both ‘Interaction Design’ at the participating Japanese university and ‘Contextual Design’ at the participating Australian University. As the final research target, to achieve a cultural-context centric interaction design syllabus, we arrange a course called ‘interaction design’ in the Japanese University which takes interaction design theory as main, contextual design theory as supplementary; as the contrast, we arrange two courses called ‘Design in Context’ and ‘Professional Context’ takes contextual design theory as main, interaction design theory as supplementary (Table1). We comparatively observe the differences of teaching contents and students’ outcome in every stage; intend to find out the ideal structure of this syllabus.

This project has explored teaching methodologies within Interaction Design and Contextual Design programs across both under-graduate and post-graduate levels; and intends to articulate a comprehensive framework for interaction design education.

In the Japanese university, two undergraduate second year classes from Industrial Design have been involved in this project; while in the Australian university, one master’s course work class and one honours (fourth year) class from Multimedia Design have been involved. Each class contains around 25 students. The undergraduate degree in Japan is a four year course, and the master’s degree in Australia takes 1.5 years.

Table1. Positioning Participating Programmes

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2.2. Probing Related Background Knowledge

There are obvious differences between the participating courses from both universities. In developing collaborative curriculum, it is crucial to build up understanding of the background knowledge of participating students. The Interaction Design course in the Japanese university has been expanded into two semesters: titled ‘Interaction Design 1 & 2’. There is no unit titled Interaction Design in the Australian university’s existing curriculum. So we re-formed an existing unit called ‘Design in Context’, with respect for the original teaching objectives, while adjusting the curriculum to be appropriate to our study needs and synchronized in terms of key lecture topics and technology support.

In the Japanese university, the ‘Interaction Design 1’ unit aims at teaching basic Interaction Design concepts to students, such as “affordance” and “interface” (Figure 1). This is followed by learning the processes of field observation and design concept creation. Students observe and understand the concept of “affordance” from the environment containing the user, the space, the facility, the product, and so on, within the university. By exploring and assigning specific meanings to the design objects within cultural contexts, students design object (product) oriented concepts first, followed by designing interface oriented concepts. There are also some presentations by students to help them to proceed through their subject and keep them on track. For example, they take pictures of objects then analyse them from an ‘affordance’ perspective. They also talk with each other about the meanings of their presentation to inspire their image making.

Figure 1. Frame of ‘Interaction Design 1’ in participating Japanese university

For the Australian university, the situation is more complicated than our Japanese counterpart, as we have to separately analyse the pedagogical arrangement for the undergraduate (honours) students and the postgraduate group. In the undergraduate (honours) curriculum, we focus on the students who
come from the same university, and are all studying on the local campus. The Interaction Design related Major units have been titled: ‘Interactive Design for Web Technology’, and ‘Interactive Design for Games and Web Applications’. Interaction Design related theories can also possibly be taught in some design studio units, such as: ‘Individual Research Project’, ‘Group Research Project’, ‘Design Studio’, etc. However, after observation of the above units, there was no obvious evidence to demonstrate that adequate Interaction Design related theories have been previously taught to students. The ‘Web Technology’ related design theories are fairly limited in terms of supporting further Interaction Design study.

In the postgraduate (masters) curriculum, students may enrol in either Semester 1 or 2. Students’ knowledge background may be from any design discipline. If students take this unit in the third semester of their master’s course, they will have Interaction Design related basic knowledge from the core unit ‘User-Centred Design Research/ Studio’, and may also have supportive knowledge from an elective unit called ‘Information Design’. However, if students take this unit in their first semester, we have to assume that they don’t have any Interaction Design related background knowledge.

Based on the above probe, from the perspective of related background knowledge, we can summarise that the participating Japanese students have basic knowledge to support their Interaction Design study, but the Australian students do not.

3. Syllabus

To implement the course delivery method which focuses on the cultural context issues, there are obvious necessities to rebuild the course plan. In this case, especially in integrating a cultural-focused collaborative teaching method, and utilizing an online learning environment, we had to adjust our in class teaching methodology.

In rearranging the course syllabus, we started by clarifying the final teaching outcomes in detail. What do we want our students to learn as they interact with the course material? How can the syllabus provide more space in the student’s mind to develop new ideas with cultural characteristic, and develop relevant critical-thinking and research skills? The syllabus needs to be re-formed with a culturally sensitive structure to encourage students to develop new concepts, exercise and present more cultural-critical-thinking skills, and develop research skills in more cultural depth. During the whole developing process, it is also crucial to keep in mind that the focus of this course is Interaction Design. One of the most important objectives is supporting the ‘interactivity’ of the students’ learning process, communication, and outcomes.

The cultural characteristic can be seen from this ‘interactivity’. For instance, reviewing the students’ learning process through their final design outcomes, it is very interesting to identify the cultural differences between Japan and Australia, from the initial stage of ‘theme setting’. For example, Figure 3 is an Australian student’s online interactive 3D prototype, which is named an ‘Interactive Pasta
Cooking Assistant System’. This theme fully reflects the localized cultural-characteristics of a Melbourne user’s needs.

Figure 3: The sample screenshot of an Australian student’s online interactive 3D prototype for the topic ‘Interactive Cooking Assistant System’

As a comparison, Figure 4 presents a Japanese student’s concept, allocating his design outcome as a ‘Business Cards Exchanging System’. This theme also fully reflects the localized cultural-characteristics of a Tokyo businessman’s needs.

Figure 4: The sample screenshot of a Japanese student’s concept of a ‘Business Cards Exchanging System’

The course objectives can be set broadly, the students can develop their research directions based on their own interests. In this course, the major objectives will focus on the following aspects:

- Cultural theories: the contextual design methodology and process are crucial for students’ interaction design practice.
- Creativity based on contextual redesigning: encourage students to open their minds and create concepts which are related to cultural contexts analysis, and present an interaction focused systems or services design as the final design outcomes.
- Cultural research strategies: explore relationships between behavior and culture. The field research-observation studies have been designed as part of the syllabus in order to explore features of the different culture needs, understand relevant contexts, and most important how user carry out their lives and achieve cultural needs within the current environment. The Ethnographic Archive has been introduced in both courses as the main research strategy of observation, students tasks are to gather user related living materials known as the Human Relations Area Files (HRAF) (Berry, Poortinga, Segall, & Dasen, 2002, p.236).

- Cultural interactivity concepts expression skills: provide opportunity for students to learn the most practical and advanced methods of idea expression for this interactivity focused unit. In the Australian university side, an Interactive 3D technology called ‘Viewpoint’ has been introduced in this syllabus, to express various contexts three-dimensionally and interactively.

- As the final design outcome, Cultural-Contexts-Aware focused design method has been introduced. Students need to design interactions which communicate cultural awareness and atmospheric aspects within a specific cultural environment (Dourish, 2001).

The shared key word for both sides of the teaching objectives is ‘context’. Students study how to grasp technology, culture and social contexts through the observation of user’s local daily lives, express the contexts into a Contextual Diagram, then based on this diagram to form mental model of an interactive system, at last carry out Interaction Design Outcomes (Figure 2).

4. Discussion

The primary purpose of this paper is to draw attention to future Interaction Design education development based on comparatively probing the potentially relevant existing curriculum in both participating universities. Our observations, claims and analysis are based on limited student studies, limited information resources and a tight schedule. To draw a more complete and rigorous paradigm, more participating classes and observations are needed. From the hypothesis that an internationalized cross-cultural society will be the next frame-shift of the social structure, we argue that it is possible to
come up with an understanding of integrating a cultural and social context framework in Interaction Design education.

Based on the experience of this comparative study, it is worthwhile addressing some common difficulties we have experienced. In terms of helping students to achieve cultural contextual sensitive Interaction Design outcomes, we believe there are some parts of the existing syllabus in both universities that need to be significantly improved. Here, instead of suggesting changing each unit of the existing curriculums, which will potentially cause ‘meaningless arguments’, we have summarised the following principles, which we hope can help future curriculum development.

1. Firstly, to help students achieve a successful cross-cultural Interaction Design outcome, at least one collaborative unit across two different countries are needed. As a cross-cultural information resource for students on both sides, the student project review process has been considered as the most efficient information exchange opportunity for students.

2. Secondly, besides knowledge of their specific design discipline, it is also necessary for students to have some prerequisites knowledge of relevant Interaction Design theory, such as ‘User-Centred Design’, ‘Affordance’, ‘Information Design’, ‘System Design’, etc. Furthermore, cultural-understanding focused knowledge such as social patterns, interaction modularity, social cross-cultural psychology etc. are also should be prerequisites knowledge.

3. Finally, contextual design needs to be oriented by user’s lifestyle, behaviour, and cultural activities. Students need to build up analytical thinking to interaction design in group. Perhaps the most effective way to implement the filed observation is to establish a collaborative relationship with somebody who comes from another culture. It is also important to take the filed observations and comparatively and critically analyse the cultural materials by these cross-cultural group. Furthermore, to consolidate this fieldwork, it’s also important to achieve platform for information sharing, especially for transnational circumstances.

5. Conclusions
Based on the findings, a design model in Interaction Design, enhancing cultural contexts, is proposed, which intends to reflect the progressive transitions in Design Education across these two countries. This cross-cultural focused interaction design program provides an opportunity to integrate emerging technology with cutting edge design education practice. In the mean time, it is also important to investigate and assess the feasibility and suitability of the existing curriculum.

While further work is required to refine the achieved pedagogical arrangement, we believe the current model provides a platform to promote greater cognitive participation and knowledge transference among the participant students. We hope that engaging in a dialogue around this approach, and reviewing other cross-cultural comparative research, will provide key solutions for future alteration in Interaction Design education, especially to transnational Interaction Design curricula development.
Acknowledgements

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Reference:


