Observations from Teaching HCI to Chinese Students in Australia

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Abstract
In this position paper we present our view that Chinese international students in Australia are aided by the emphasis on student-centred learning and theory in practice in Australian tertiary instruction, even though this learning culture may contrast with the previous experiences of these students. We base our position on observations drawn from those with involvement in the Human Computer Interaction (HCI) course offered at the Australian National University.

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Human Computer Interaction, HCI Education

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
Human Computer interaction (HCI) is an emerging field in China, with limited course offerings [12]. For many Chinese international students in Australian universities, their first exposure to HCI, a field which is heavily affected by culture, occurs within a Western learning culture. Each learning culture embodies particular beliefs about successful teaching and learning within that context [6]. Therefore, it is important to understand the experiences of Chinese international

students in HCI courses to determine whether their needs are being met in the Western HCI classroom. These insights add to efforts to develop a unified curriculum for HCI education worldwide [3].

The HCI course we focus on emphasises student-centred learning and putting theory into practice, teaching approaches which may appear unusual to Chinese students compared to their previous learning environments. We outline teaching practices that we feel are successful, illustrated by examples from COMP 3900/6390: Human-Computer Interaction: Design and Evaluation, which is an advanced undergraduate and masters level course offered within the Research School of Computer Science at the Australian National University (ANU). We are not asserting that Chinese learning cultures are homogenous, nor attempting to reinforce stereotyping about international students in Western teaching contexts. Rather, we are drawing on our combined observations and experience as lecturers, teaching assistants and students in the course.

Background

A Chinese student in our course echoed observations in the literature that the Chinese learning culture is "formal, disciplined, teacher-centred and didactic" [14], with little teacher-student interaction [8]. The teacher-student relationship has a filial quality, embodying "reciprocity of caring, concern and cherishing" [6] and the instructor is considered the authority on subject matter [8]. Learning is achieved through memorisation techniques that are "meditative", "repetitive" and "contemplative" [14] and not focused on independent thinking and analysis. This approach can be likened to a 'teacher-centred' learning model where power is held by the instructor and students are passive [9].

In comparison, many Western educators advocate for a 'student-centred' approach, where students are responsible for generating knowledge by drawing on their own experiences facilitated by the lecturer [9]. Australian universities are increasingly marketing student-centred philosophies which are "research-led" [1], "problem-based" [4], and "flexible" [1], where students can focus on the topics and content delivery methods which are most interesting and useful to them [9]. These conditions support the 'hands-on approach' to teaching HCI used in this course where students are provided with an opportunity to engage with tangible activities and apply their knowledge to real world examples such as case studies [13]. This tactile learning is well suited to Asian international students, who have previously indicated a stronger preference for this mode of learning than Australian students [10].

Despite the differences in approaches, there is lack of research on Chinese student experience of HCI in a Western context. Rusu and Rusu [11] document the experience of foreign educators teaching HCI to South American students, and the benefits of intercultural and interdisciplinary exchange. Kotzé and Ostreicher [7] address curriculum internationalisation through the cultural issues concerning HCI resource development. There are also preliminary accounts of the teaching of HCI in China where students demonstrated a "creative approach to applying new methods and considering new ideas, keeping their design context in mind" [15], but little work concerning teaching methods for international students abroad, especially in HCI4D.

Student-Centred Teaching and Learning

The HCI course at ANU adopts a student-centred approach facilitating a "shift in power from the expert

teacher to the student learner" [9], in contrast with Confucian traditions favouring "educational relationship hierarchies" [14]. In this section, we outline three ways in which participants were encouraged to leverage their own perceptions of the world which were emphasised as appropriate sources of knowledge.

Firstly, the format of the course focused on information sharing between students as equals in supporting mutual skills development [9], rather than knowledge transmission from teacher to student. The seminars combined brief presentations of theoretical approaches to HCI4D with small group discussion, which is a recommended strategy for educating international students [2]. This allowed students from mixed cultural backgrounds to work together on problems, such as establishing a digital presence for an Australian indigenous community, and present their solutions to the larger group for feedback. Our Chinese participant reported that the group work was beneficial for exploring the material from various cultural perspectives, rather than being limited to the particular lens of the lecturer, a view echoed by domestic student participants. Group work also enabled Chinese students to build confidence in their English skills.

Secondly, the lecturer made explicit the cultural limitations underpinning his knowledge and invited international students to speak with authority about their own culture. In contrast to the significance placed on "gerontocratic" and "male" knowledge in Chinese intellectual traditions [14], the lecturer instead encouraged students from a variety of backgrounds to voice their opinions and experiences to the class. For example, the lecturer presented content regarding a HCI4D project in China, but deferred to Chinese students to add their input as they have a deep understanding of the culture surrounding the project.

Finally, material from student-led discussions formed the basis of examination questions and responses, encouraging students to illustrate answers with their own usability experiences and critical engagement with HCI4D literature rather than memorising course content. The need for memorisation was subsumed by a sheet of written notes which could be taken into the examination. Parameters for group assignments were also set by the students, with content based on their own original data from participant observation. Our Chinese participant discovered her preference for student-centred learning in context rather than memorisation of theory which she had previously experienced in China. This supports the assertion that Chinese students have a desire to explore new ways of learning [5], and refutes the argument that Chinese students may "lack the ability" to succeed within a Western teaching paradigm.

Theory in Practice

We argue that situating theory in practice using case studies and hands on activities has been an effective method of equipping the Chinese students in our course with a "HCI mindset" [7] to engage with HCI projects in challenging environments. This contrasts with the Confucian learning culture where learning comprises "careful study of a canon of texts combined with the practice of moral self-cultivation" [6], with an emphasis on textual learning rather than theory in practice according to discussion with a Chinese student.

One example of a hands-on activity involved the use of wooden swords (bokken) commonly found in the

martial art Aikido to demonstrate tangible interaction as part of requirements gathering for a hypothetical Virtual Reality game (Figure 1). Students were invited to interact with the swords in a supervised environment while taking note of how the interaction felt, including the weight of the weapon and how it felt when the two weapons came into contact. This was followed by discussion on how a user interface could take into account these kinds of experiences. The effectiveness of this activity in communicating design approaches was evidenced by the enthusiasm with which the Chinese student recalled the activity, even after two years. The activity aided her understanding of the concepts despite language barriers. These exercises involving communication and knowledge transition through physical objects, along with accompanying discussions amongst a culturally diverse cohort, enabled students from all backgrounds to experience strategies for undertaking HCI4D fieldwork in environments where communication difficulties exist.

Figure 1 The lecturer and student performing a sword fighting example to demonstrate tangible interaction

Case studies provided context for concepts, and were accompanied by items such as images, videos, academic papers and artefacts. For example, the lecturer accompanied content on designing for disabled users with a presentation from a vision-impaired journalist, who explained and demonstrated his own experiences using assistive technologies. This gave students a personal understanding of user experiences and allowed them to ask questions of a user which could not be achieved through written material. According to the Chinese student, these real examples assisted with long-term retention of concepts.

Conclusions

This paper has drawn on accounts of instructors and students involved with the Human-Computer

Interaction: Design and Evaluation course at the Australian National University from both an Australian and Chinese perspective. Positive accounts of student-centred learning and theory in practice suggests that the use of these methods has resulted in effective outcomes in teaching HCI to international students from China, in spite of potential dissonance with previous learning cultures.

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