Information Technology and Society: An Exchange of Australian and Chinese Perspectives

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Abstract

University students often regard the development of professional or “soft” skills as unimportant or unnecessary, often struggling to appreciate the need for the development of such skills and to relate those skills to real-life situations. This is also true for students studying technical disciplines, like Information and Communication Technology (ICT), and of great concern to educators and industry, particularly in view of the increasingly networked and globalised Information Technology (IT) world. Australian ICT students need to develop an awareness of the role of ICT in their own society and beyond to gain a global perspective and an appreciation of the impact of culture on responses to ethical dilemmas, security challenges, and threats to privacy. Given Australia’s role in the Asia-Pacific region, the development of cross-cultural professional awareness in students in the West-East context is of particular interest.

The difficulty for ICT educators is how to develop cross-cultural professional awareness in their students. This discussion paper outlines the difficulty and describes an approach to address the issue. The proposed approach involves four integral elements: (1) a real-life ICT context, (2) immersion within the target society (Australian students on a short-term study at a Chinese university), (3) working in culturally mixed teams (an Australian student paired with a Chinese student), and (4) formative assessment tasks. The paper details the four-pronged “East-meets-West” approach and reflects on its potential to improve cross-cultural professional ICT skills in aspiring Australian and Chinese ICT professionals.

1. Introduction

In ICT roles, there is an increasing emphasis on employees having “soft skills”, i.e. people skills. While technical ICT knowledge is essential, it is also increasingly important for ICT professionals to be able to relate to the requirements of the users (often international ones), manage projects, work with teams and, increasingly, work in a global professional context.

According to the 2006 report of the Department of Communications, Information Technology and the Arts (DCITA, 2006), titled “Building Australian ICT skills”, ICT will continue to be increasingly embedded in business and ICT professionals will need to work in multidisciplinary teams which will require problem solving abilities, negotiation skills and a capability to understand the needs of customers and project colleagues. Moreover, the report indicates relationship management will grow as one of the main areas of expertise of the ICT profession. This will require ICT professionals to acquire skills in “managing intangibles, negotiating among different parties and coordinating outcomes among geographically distributed parties with different work agendas and cultures” (DCITA, 2006, pp. 51-52); this will include managing relationships between overseas service providers and domestic customers.
Yet, in spite of the growing demand for professional skills, the feedback from businesses and companies all over Australia continues to be the same: “happy with the technical skills, but soft skills are a continuing issue” (MMV, 2010, p. 27); ICT graduates with strong professional skills continue to be on industry wish list. In this context, the ‘industry demands’ perspective must be taken into account when designing curricula for ICT university courses. However, how should these professional skills be developed in students?

A popular approach to the development of professional skills in ICT students is the incorporation of dedicated units into ICT curricula. Typically, such units are designed to provide students with a broad introduction to the field of ICT and an introduction to the soft skills of problem solving, interpersonal communication, and team work; examples of dedicated units include “Introduction to the Computing Profession”, offered at Victoria University in Melbourne (http://www.vu.edu.au/units/ecb1252). Another approach is the use of Project-Based learning (PBL), well recognised as one of the most interesting instructional strategies in the field of technical careers (Ponta, Donzellini & Markkanen, 2002). The PBL approach aims to involve students in authentic real-world tasks that enhance learning. Students usually work in teams and design and implement “whole system” solutions in environments designed to simulate professional situations. And, the approach strongly supported by industry is that of on-the-job acquisition of soft skills through work integrated learning (WIL), co-operative learning, industry-based learning (IBL), internships, sandwich year, or work experience ICT students (DCITA, 2006; MMV, 2010). In Australia, a number of universities offer ICT students such opportunities as an integral part of their courses.

While the above listed approaches have the capacity to develop soft (behavioural) skills, including a broader view of technology, they are usually constrained to the local Australian environment. An increasingly pressing demand is the development of awareness of the role of ICT in the global context, as ICT technologies, systems, and applications are no longer constrained by national borders. Likewise, the ICT workforce is increasingly mobile. Australian ICT professionals travel to work overseas and ICT professionals born overseas come to work in Australia; they currently account for 40% of the national ICT workforce (MMV, 2010). Hence, there is a need to incorporate international perspectives and cross-cultural awareness into the development of professional skills in students. For Australia, the development of cross-cultural professional awareness in students in the Australia-Asia context is of particular interest. This paper outlines an approach to the development of such awareness in Australian students in the context of ICT security and privacy.

2. Cultural differences in the context of ICT security and privacy

The use of the internet and the associated ICTs is increasing rapidly every year thanks to growing infrastructure, widening accessibility, decreasing costs of computing devices, and increasing proliferation of applications in various areas of everyday life from banking through telecommunication, insurance, shopping, tourism, hospitality, and social networking just to name a few. At the same time, new technologies, and the increased ability of computer systems to gather and process large amounts of data available on a global scale, bring new threats to data security and privacy. Moreover, the increasing globalisation of ICT means that those threats have risen from an ICT issue to a topic of strategic importance to businesses and governments all over
the world (Poulos, 2012; Rogerson & Prior, 2008). The concerns for data security and privacy now transcend national borders and have become a global issue.

Security threats can include information warfare, cyber espionage, cyber crime, hacking, or cyber terror, and come from a variety of sources, including criminals, hackers, virus writers, foreign nations engaged in information warfare, and employees working within an organisation. Cyber crime and cyber espionage are having a real impact; according to Twomey (2010), an estimated one trillion dollars of intellectual property is being stolen each year, and billions of dollars are stolen from financial institutions.

The ubiquity of the internet and new internet applications have increased the variety and volume of the available private information (personal profiles, bank and credit card information, job applications, resumes, photos, video-clips, personal communications), and simplified the process of accessing it – it is often only a mouse click away. This personal information too is subject to privacy threats including data theft, infiltration of personal browsing histories, gathering of statistics on users, or spreading spyware (Schafer, 2010).

However, there are differences between Western culture and Chinese culture in what constitutes privacy and what action should be taken in response to the invasion of personal privacy (Feng & Hughes, 2009). Generally, the Chinese perspective is that private data is data that others should not know about, such as information about family property or love life. In Western cultures, on the other hand, the list of items considered to be sensitive personal data is much more comprehensive and includes salary, religion, a woman’s age, marital status, sexual life, and political preference (Feng & Hughes, 2009). Thus, what may be accepted as harmless information sharing in one country, may be regarded as privacy breach in another country; and, an information system that includes personal data may be acceptable in one country, but it may be considered a security risk in another country. Perceptions of security are influenced by cultural differences and social environments (Feng & Hughes, 2009).

There are also differences in the relation to responses to ICT security issues. In China, there appears to be much greater belief that legislation can be a means of securing private data; in Western societies concerns about data security persist in spite of legislation dating back over twenty years. Legislative frameworks and technical countermeasures notwithstanding, both Western and Chinese societies agree that education is the key to addressing data security and privacy issues, and that an understanding of cultural differences, which guide the way people act, is essential to the success of the global ICT society (Li, Shin, & Sanders, 2007).

3. The proposed approach
Traditional ICT education programs expend effort in developing professional awareness within their home culture but rarely expose students to the professional norms of other societies. Globalisation means that graduates are likely work offshore in their future professional lives, so it is incumbent on good programs to prepare their students to undertake assignments abroad. This is particularly true for Australian students who are trained within a traditional Western education system but are likely to have professional working lives within the culturally diverse Asia-Pacific rim. To this end, students who gain awareness of the region’s cultures in a meaningful professional exchange would be advantaged in their job readiness.
As a core unit of study within the Bachelor of IT (Network and Systems Computing) at Victoria University, ECB2112: Security, Privacy and Ethics, the unit affords students the opportunity to examine and discuss ethical dilemmas, security challenges and privacy concerns brought about through the use of ICT in society. This year, a new feature is being introduced into the unit namely, examination of professional ICT issues within contrasting societies, Australia and China, and analyses of the impact of cultural perspectives in deciding each country’s respective response to security and privacy concerns. The approach uses historical ICT case studies, or scenarios, which help focus and foster student discussion, in that these real-life scenarios describe situations where there are no ‘right answers’, just alternative ways to view the problem and decide outcomes. For instance, the use of Google street view and mobile phone tracking to locate a kidnapped child as detailed in http://news.bbc.co.uk/2/hi/technology/7820984.stm raises a number of security and privacy concerns for which there may be several viewpoints. Most importantly, the approach incorporates an exchange of perspectives between Australian and Chinese students using the scenarios as a starting point for discussion.

To give students the opportunity to reflect on another culture whilst using their own culture as a basis for this reflection, reflection is encouraged and sponsored through a set of staged tasks and formative assessments. Initially, Australian students are asked to read and discuss a controversial situation concerning a security challenge or threat to privacy. From this written scenario, they distil the issues, explore its various aspects, comment on possible solutions, and decide an appropriate response in their own society. Meanwhile at their home campus, Chinese ICT students in a parallel professional development unit explore the same scenarios within their own cultural framework. The next task involves both the Australian and Chinese students independently researching the role of ICT in each other’s society. Students look for publicly available information on professional norms, and on how the foreign society views and behaves in the scenarios under consideration. This research task is shown in Figure 2, where both Australian and Chinese students explore the foreign (to themselves) cultural perspectives. Up until this point, the research task exposes students to an alternative culture only remotely; it is performed in relative isolation and with no authentic contextual cultural experience related to it.

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Figure 1: Australian and Chinese students research assigned ICT scenarios and professional norms of the foreign culture.
Following the preparatory research carried out in their own countries, the Australian ICT students gain a more comprehensive perspective of the role of ICT in the Chinese culture, through a visit to China and further hands-on collaboration with their Chinese counterparts. Students form Chinese/Australian “buddy” teams to examine and discuss their scenarios. This promotes the exchange of cross-cultural views as illustrated in Figure 2. Together, the buddy teams present their individual and shared perspectives to other class members, thereby propagating cross-cultural perspectives within the bi-national group. In summary, the meaningful development of cross-cultural awareness is supported by four integral elements:

1. **a real-life ICT context**, where students examine real-life ICT situations and analyse the issues and responses within their own society and the different society;
2. **immersion within the target society** where Australian students participate in a short-term study visit to a Chinese university;
3. **working in culturally mixed teams** – Chinese/Australian “buddy” pairs; and
4. **formative assessment tasks** where the assessment tasks comprise research exercises, a written reflective component, and team presentation.

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Figure 2: Australian and Chinese perspectives of each other’s native culture

A pilot of this approach is being undertaken in April, 2012 when Australian students will travel to China on a short study visit to undertake the exercise with their Chinese hosts. A report of this experience will be made at the WACE conference in June, 2012.

4. **Concerns and constraints**

There are several concerns and constraints that relate to the design and implementation of the outlined approach. Firstly, any program needs to be culturally sensitive and aware of the topics and scenarios that could be considered inappropriate or too contentious for student discussion; for instance, some topics on ethics and professional behaviours, particularly if they are related to government policy. Consequently, it has been decided to restrict the choice of scenarios to
security and privacy issues and in addition, liaise closely with the Chinese academic hosts regarding selection of scenarios.

Secondly, organising a bi-national study experience raises the issues of timing and logistics. The timing of the experience needs to suit both the hosts and visitors and it needs to align with the schedule of academic programs in both countries. Further, there needs to be synergy in the curricula and the proposed outcomes for students. One more major difficulty is the logistics of translocating a group of students across borders. Aside from the mechanics of organising group transportation, there are travel costs to consider including international airfares and accommodation; these and other costs need to be met by participating students and/or their university.

Thirdly, there is a question of equity of participation particularly where the costs of participation might be prohibitive to some students, or they may not meet passport or visa requirements. In these cases, suitable alternative study experiences need to be provided. Possible technological solutions such as social networking between students of both cultures could go some way into providing this alternative.

5. Conclusions
For Australian and Chinese ICT students, the acquisition of ICT professional ‘soft skills’ and, in particular, cross-cultural awareness, is as crucial as the development of technical skills. This paper outlines an ‘East-meets-West’ approach that enhances student cross-cultural awareness and ‘soft skill’ development through a bi-national study experience supported by a contextual study of real-life ICT scenarios. Students develop cross-cultural perspectives and ‘people skills’ through a set of formative assessment tasks involving analysis, discussion, research, teamwork, and presentation. They start the tasks in their home environment and gradually engage in the foreign culture all the way to a personal experience of working with Chinese team-mates at a university in China.

Australia faces a substantial challenge in adapting its education and training systems to face the new skills requirements of the global economy. Ultimately, strong holistic, hybrid ICT and professional skills will be demanded to translate and deploy technology and make Australia competitive in the global market; skills that are necessary for Australia to be able to fulfil its ambition of becoming not only a “knowledge society” but an “innovation society”. The approach outlined in this paper aims to respond to this demand.

Globalisation and digital convergence has raised complex and difficult questions regarding access to information, the right to privacy, intellectual property rights, and cultural diversity. As the process of globalisation continues to accelerate, international perspectives about privacy and security will soon converge and people, including ICT professionals, will hold the key to solutions to privacy and security issues.

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References


