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# PUTTING PS INTO IS: DEVELOPING PROFESSIONAL SKILLS AND ENHANCING EMPLOYABILITY THROUGH CURRICULUM INITIATIVES IN INFORMATION SYSTEMS

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## Abstract

*Debate about the content of Information Systems (IS) in undergraduate courses often involves balancing the individual skills-based components within a degree, the broader discipline-specific knowledge required and more generic IS skills. Curriculum discussions invariably concern the use of specific software packages, programming languages or development methodologies and seek to answer the question of how to prepare students for the exponential rate of technological change that make the IS profession both exciting and challenging. In recent times, another distinctive set of skills has dominated curriculum discussion – Professional Skills. The need for profession-specific employability skills has been influenced by changing funding models of the Commonwealth government to Australian universities. Australian universities are committed to both developing graduate capabilities and enhancing graduate transition to work and curriculum aims to reflect those aims. This paper reports on curriculum initiatives within the Bachelor of Business (Information Systems) at Victoria University, Melbourne, and focuses on one mandatory unit of study, BCO 1102 Information Systems for Business, to examine strategies for developing Professional Skills for IS students. The paper draws on student evaluations of the unit's efforts to develop communication and team skills and concludes with some suggestions for future directions.*

*Keywords: Graduate Capabilities, Professional Skills, Information Systems, Curriculum.*

# 1 INTRODUCTION

Universities around the world are working in the knowledge that “Courses that deliver improved employability will prosper; those that make false promises will disappear” (Browne 2010 cited in Andrews and Russell 2012). The need to prepare graduates for vocational and professional outcomes has been the subject of much industry- (Precision Consultancy 2007), government- (DEST 2002) and university-lead research (Patrick et al. 2009) in Australia. There is general agreement that universities have a role to play in the development of skills, attributes and capabilities that will equip students for the world of work well beyond entry level positions. There is also general agreement that “how Australian universities prepare their adult students and graduates for the world-of-work should be critically appraised” (Smith et al. 2009: 14) – and so this paper contributes to that critical appraisal and to ongoing evaluations in the Faculty of Business and Law at Victoria University (VU), Melbourne that seek to understand the effects of curriculum initiatives that aim to develop Professional Skills (PS) and enhance students’ employability. This paper describes some of the curriculum changes in a first-year, mandatory Information Systems (IS) unit of study<sup>1</sup> in Business degrees at Victoria University that were introduced to contribute to the development of Professional Skills – in particular communication skills and team work skills.

## 2 PROFESSIONAL AND EMPLOYABILITY SKILLS

Universities in Australia have over 10 years of developing and assessing graduate attributes which include a range of employability skills or Professional Skills. Each university has devoted considerable energy to defining its unique graduate attributes and universities have developed a number of approaches to embed the development of employability skills in the formal curriculum or as a part of the wider student experience. The push to ensure that university graduates have the skills and knowledge necessary to both become employable and to contribute to the economy of the country has come from industry, students, universities and the government: “Governments, industry, universities and the professions agree that Australia needs graduates who are well educated and fully employable” (Universities Australia 2008: 1). The Bradley Review of Australian Higher Education encourages universities to become internationally competitive through teaching that supports “a highly productive and professional labour force” (Bradley et al. 2008: 5). Clearly, Australian universities are expected to develop curriculum that will enhance the country’s workforce with highly employable graduates. As the then Deputy Prime Minister, Julia Gillard stressed

Australia needs a highly regarded, high quality and internationally relevant education and training system, one which provides students, both Australian and international, with the skills and knowledge they need to participate fully in our globally engaged economy and society (Gillard 2009).

Since then, the Work Integrated Learning project has been launched (2011) which aims to ensure that more university students can undertake real-world job placements as part of their studies to produce more graduates with the skills the Australian workforce needs. This is a joint initiative of Australian Chamber of Commerce and Industry (ACCI) and Innovative Research Universities (IRU) and its aim is to increase graduate employability. This project is explicitly about work experience placements – long considered a key strategy for developing Professional Skills and enhancing employability – but also one that is usually limited, selective, elective or exclusive. That is, not everyone who wants to can undertake work-integrated learning (WIL) for a variety of reasons (Patrick et al. 2009) including limited relevant places, suitability to curriculum, financial reasons and family commitments. Beyond work-placements and other forms of work-based learning such as industry mentoring or project-based learning, other curriculum initiatives are also required to ensure that all students have the opportunity to develop employability or Professional Skills.

### 2.1 Global Professional Skills

The idea that graduates’ employability skills are underdeveloped is common not just in Australia but also in China (Patridge and Keng nd) and Malaysia (Bakar et al. 2007; Singh and Singh 2008). The global nature of the employability problem is important as VU teaches IS in Malaysia, China and Hong Kong. In the context of Transnational Education (TNE), then, the employability skills and professional learning needs of Australian

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<sup>1</sup> According to VU’s *Courses and Pathways Policy* (2011), a unit of study is a single component of a qualification that has been accredited for a whole Australian Qualifications Framework (AQF) qualification.

business and students also need to be relevant to all of our offshore cohorts. The global focus on graduates' employability skills is in part emerging from the realisation that discipline knowledge, which may well be in-depth and extensive, is not in itself sufficient to enable graduates to successfully take on professional roles in the changing work environment of knowledge economies. Discipline knowledge does not confer Professional Skills – although discipline expertise is required of the professional. A typical work environment in a globalised knowledge economy might be expected to routinely use team projects. Further, a team-based approach to work highlights the need for communication skills – including intercultural communication skills. Team and communication skills are essential for all workers, alongside the ability to work in settings of cultural diversity in international or globalised settings.

## 2.2 Graduate Capabilities and Professional Skills

Recent research in the field of IS has focussed on the industry's dissatisfaction with graduates' "personal qualities and interpersonal skills" (Koppi and Naghy 2009: 10). Koppi and Naghy's comprehensive, Australia-wide report (2009) asks how an industry-relevant curriculum can balance "fundamental knowledge, skills, current technologies, business understanding and *generic attributes*" (Koppi and Naghy 2009: 42, emphasis mine). VU's Graduate Capabilities are generic Professional Skills or generic attributes that all students should be able to demonstrate at graduation. These skills are in addition to the specific knowledge and skills associated with the discipline area of students' degrees. Generic skills combined with discipline expertise and industry knowledge become Professional Skills (PS); that is, skills particularly aligned to the profession. Graduate Capabilities provide a core of Professional Skills that build on the academic skills and discipline-specific knowledge with a focus on applying theory, academic knowledge and technical skills in a particular professional or industry context. Employability skills are a subset of graduate capabilities. Employability skills include communication skills, teamwork skills, problem solving skills, self management skills, planning and organising skills, technology skills, life-long learning skills and enterprise skills (DEST 2002). The DEST definition does not include intercultural skills – which are often regarded as a subset of communication skills. Communication skills include non-verbal communication skills such as body language as well as stylistic concerns such as pronunciation, intonation and volume.

The prominence of employability skills or graduate capabilities in the Australian curriculum is due to a number of drivers (students, industry and professional bodies), policy directives and funding requirements of State and Federal governments. Most students enrol in business degrees at VU to improve their employability prospects and VU graduates' transition to employment is supported by a range of preparatory initiatives within the curriculum and through extra-curricular programs. All courses taught at VU embed six Graduate Capabilities. In addition to their technical and field of discipline-specific knowledge and skills, the VU graduate is able to:

1. problem solve in a range of settings;
2. locate, critically evaluate, manage and use written, numerical and electronic information;
3. communicate in a variety of contexts and modes;
4. work both autonomously and collaboratively;
5. work in an environmentally, socially and culturally responsible manner; and
6. manage learning and career development opportunities.

Australia's Department of Education, Employment and Workplace Relations (DEEWR) identified eight employability skills desired by industry. The Employability Skills are:

- Communication skills
- Team work skills
- Problem solving
- Initiative and enterprise skills
- Planning and organising skills
- Self-management skills
- Learning skills
- Technology skills (DEEWR 2011).

VU's Graduate Capabilities have been mapped to the DEEWR Employability Skills.

It is important to note that, while employability skills are presented in lists which suggest the separateness of each item, these skills are interconnected and need to be developed and assessed in an integrated way. The “typical ‘generic skills [that] cluster around key human activities such as communication, working with others, gathering and ordering information, and problem solving” (Hager and Holland 2006) are best developed actively and concurrently. “Team-based teaching and learning activities and assessment tasks offer an interactive and highly social way of achieving a comprehensive approach to teaching employability skills” (Woodley and Armatas 2010) and this is the approach that has been adopted in the unit of study *Information Systems for Business*.

While curriculum debate in Information Systems (IS) has often concentrated on the makeup of the individual skills-based components within a degree, there has always been broader arguments about the balance of specific, often technical, skills and more generic IS skills (Shackleton and Bentley 2008). These discussions usually revolve around the use of specific software packages, programming languages or development methodologies, and often reflect the changing nature of the IS discipline. Curriculum discussions invariably seek to answer the question of how to prepare students for the exponential rate of technological change that make the IS profession both exciting and challenging and how to develop the skills that will enable graduates to work in multi-disciplinary teams in workplaces of the future (Koppi and Naghy 2009). In a word, our university graduates need to be employable – in Australia, around the world, now and in the future. What employable means beyond being ready to work in a particular industry in a narrow sense is questionable – and whether universities’ only role is to produce employable graduates is another concern. Most universities in Australia, however, recognise that students, rightly, expect to be employable having completed a degree. In the changeable, even volatile, profession of IS, employability in a periodically and spasmodically uncertain market is a pressing concern.

### **3 INFORMATION SYSTEMS IN AUSTRALIAN UNIVERSITIES**

Drawing on Gable’s work (2006) that asks the question, “To what extent is Information Systems a distinct and mature discipline in Australia?”, it is significant to consider the integration of IS expertise within business units in the wider context of IS teaching. IS, as Gable suggests, is an academic discipline that is relatively young and is still evolving a sense of its disciplinary and professional identity. IS sits variously in Science or Business faculties. Certainly, IS is sometimes overlooked as a separate field of study as it is so enmeshed with other discipline areas. IS has long been regarded as existing “between technical and business disciplines, encompassing a range of applied and instrumentalist topics, and interacting closely with many other disciplines” (Clark 2006, cited in Gable 2006). The multidisciplinary relevance of IS emphasises the importance of both communication skills and team skills for the IS graduate.

While some academics argue that IS, for example, is a distinct discipline with a “foundational core” (Weber 1999), this distinctive segregation is not useful for developing IS professionals with a practical and theoretical understanding of the broader business world. For students, the need to embed IS capability into every discipline area is a “no brainer”. For academics and institutions, this integrated approach might be more difficult to achieve due to historical, administrative and political reasons. It is widely acknowledged that the future identity of any profession or discipline is determined in part by the education undertaken by undergraduates of that profession. At VU, the future identity of Information Systems as a discipline and profession is strongly influenced by teaching and learning approaches of the university that includes developing students’ Graduate Capabilities and a commitment to Learning in the Workplace and Community.

The Information systems qualification at VU aligns with one of the six ICT education streams identified by Australian Universities Teaching Committee (AUTC) (2001). The Bachelor of Business (Information Systems) (BBIS) focuses on information systems “within business commercial computing” (AUTC in Koppi and Naghy 2009: p.10). As such, graduates *may* go on to do programming and data base development but, more typically, BBIS graduates from VU focus on systems development and analysis; they understand that IS is not just computing and they develop a full understanding of where IS fits in supporting business. IS graduates from VU’s Business degree, then, are more likely to focus on systems development and gravitate to careers in areas such as business analysis. In order to develop IS graduates who have both a generic understating of the role IS plays in business decision-making, students undertake Business Law, Accounting for Decision Making, Economic Principles, Business Statistics, Introduction to Marketing and Management and Organisation Behaviour. In many respects, the IS offered as a Business Degree specialisation is a classic IS degree which develops in students a grounding in Information Systems which can lead to more detailed IS expertise, an awareness of business needs and contexts as well as the Professional Skills that all graduates require. In a whole-of-degree approach, a range of units of study hone the development of Professional Skills – including the

capstone unit *Computing Project* and third year unit *The IS Professional* as well as three, multidisciplinary Professional Development units.

## 4 INFORMATION SYSTEMS

Claims that graduates with IS specialisations are in short supply (Koppi and Naghy 2009) should both concern any knowledge economy and galvanise universities into developing a challenging, relevant curriculum that engages students and equips them with lifelong learning skills to underpin their professionalism. It has been over a decade since Information Systems (IS) undergraduate courses in Australian universities were over enrolled with eager school leavers happy to have secured a scarce place. Since that time, student numbers in most IS programs have declined dramatically (DEST 2007). The result of reduced applications at VU has been a cut to course offerings, school closures, staff retrenchments and the merging of programs to enable IS to survive. Moreover, while many smaller institutions have been severely impacted, many of the Australian 'Sandstone' universities have severed or reduced any connection to IS. By 2005, only three years from the peak in 2002, undergraduate IS enrolments at Australia universities had declined by as much as 40% while the international market for students, which had previously expanded IS courses even more, was almost non-existent (Lea 2006). In 2008, previously booming courses in IS folded. At VU, the newly created Electronic Commerce degree, created in 2001, was closed 4 years later. In the USA, enrolments in IS declined by as much as 70% in most colleges and universities despite a demand for business graduates with a technical background (Granger et al. 2007). IS was recognised as the least preferred major by undergraduates (Koch and Kayworth 2009). "IS-related programs are perceived ... as being a discipline to avoid, especially as it relates to career potential" (Tastle et al. 2008). Yet, at the same time, there was an increasing demand for highly skilled ICT graduates driven by increasing reliance of business and governments on computer technology and the global competition for skilled ICT personnel (AGIMO 2007).

The response to the declining enrolments in IS has been varied and, at times, novel. Although there is some anecdotal evidence to suggest IS degrees, particularly those with a specific focus such as enterprise resource planning or supply chain management, have remained steady or increased slightly, the popularity of IS undergraduate degrees remains comparatively low. Importantly, Tastle et al. (2008) note the urgent need to change IS curriculum: "the long-term future for IS education seems bleak at best unless the IS curriculum is reoriented to address these critical issues that are also apparently neglected by some businesses, and our instruction is modified to make IS graduates more appealing and productive to business. But is such a reorientation possible?". A balance of IS and Professional Skills could make IS a more attractive qualification.

There has long been debate about the content of Information Systems undergraduate courses (Koppi and Naghy 2009). In Australia, universities are reasonably free to determine their own curriculum – especially the teaching approaches – and are often only limited by accreditation requirements, internal accreditation limitations and resourcing considerations. In many cases, the IS curriculum is determined by explicit learning outcomes set by professional bodies like the Australian Computer Society (ACS). In recent times there has been more specific research on the graduate skills of IS undergraduates as they enter the workforce (McMurtrey et al. 2008: 102, Koppi and Naghy 2009) and on curriculum requirements in IS degrees that will adequately prepare students for a changing work role (Nagarajan and Edwards 2008). Certainly, some researchers have observed a shift from a focus on programming to a new expectation that graduates "are expected to perform at a higher level of complexity, quickly understanding the business domain and driving projects to completion" (Benamati et al. 2010). Nagarajan and Edwards (2008) make an important point when they note that the multidimensional nature of the industry means that "simple definitions of the needs of employers are not possible." The skills required, then, include team, leadership, communication, project management, critical thinking and problem solving in addition to a broad understanding of business and the business context. Changes to *BCO 1102 Information Systems for Business* are a part of wider efforts at VU to address critical issues facing IS-based undergraduate education while simultaneously increasing the attractiveness of the degree to incoming students. What students think of some of those changes are related below.

## 5 LIWC AT VICTORIA UNIVERSITY

There are three key ways that universities have adopted to develop profession ready graduates: work placement, graduate capabilities embedded in the curriculum and extra-curricular career development. While work placement is one approach to Professional Skills development that traditionally sees students located in a particular workplace for anywhere from a few weeks to a year, work integrated learning at many institutions has become a broader activity that now, in addition to internships or work placement, might include industry-based

projects completed at the university, field trips, industry experts being involved in curriculum development and delivery, mentoring and simulations. The development of Graduate Capabilities or Professional Skills through industry engaged and professionally relevant curriculum is not just encouraged at VU, it is a policy requirement. The university's Learning in the Workplace and Community (LiWC) Policy requires that all courses have a minimum of 25% assessment that is LiWC – that is, assessment must be relevant to industry, it must aim to develop Professional Skills and it must demonstrate some form of industry engagement. In IS units of study at VU, industry engagement is typified by industry projects provided and supervised by industry experts, assessment that is co-assessed with industry, industry guest speakers, software that is currently used in industry and work placements in IS roles in any number of industries.

## **6 INFORMATION SYSTEMS AT VICTORIA UNIVERSITY, MELBOURNE**

VU's extensive 2006 review of Business programs surveyed business practitioners, HR managers, VU Business alumni and VU Business academics. In the survey, over 700 respondents in Australia ranked the Professional Skills and knowledge required of the work-ready business graduate. The most desirable or essential personal attributes in graduates included such qualities as motivation, enthusiasm and initiative as well as cultural awareness and sensitivity. Respondents overwhelmingly ranked Professional Skills such as capacity to work in teams and oral communication skills as essential. VU's Business Review recommended the development of three Professional Development (PD) units to be delivered in all Business degrees to specifically develop, over three years, these highly ranked and required skills (Clarke et al. 2006). In addition to this separate, multidisciplinary vertical mandatory professional development stream that runs through the business degree, discipline areas would also attend to developing Professional Skills that were specific to their areas – or in ways that best reflected work practices and teaching approaches of their discipline. Each degree had to meet the 25% assessment requirement of the LiWC Policy and so the responsibility for developing Professional Skills was dispersed and encouraged a whole-of-course approach to curriculum design.

While the development of Professional Skills is of general interest across all degrees, it is vital to complement or reinforce general understandings of what skills and attributes business and the professions require with discipline-specific information. Studies in the United States mentioned by Benamati et al. (2010) suggest that IS managers also expect graduates to have, in addition to IS skills, project management and business domain knowledge as well as leadership, team work and communication skills. Arguably, the Professional Skills required in Information Systems strongly combine both technical and non-technical components and require creative as well as systematic approaches to problem solving and critical thinking. Importantly, universities in Australia must ensure the development of these generic Professional Skills (McMurtrey et al. 2008) over more narrow programming and other activities that are increasingly being outsourced (Luce and Matta 2010). The question for curriculum developers and academics, however, is how to achieve a balance between technical and non-technical skills sets.

The School of Management and Information Systems at VU is part of the Faculty of Business and Law. The main undergraduate course is the Bachelor of Business (Information Systems) where students complete seven business core units of study, seven IS-related specialisation subjects, seven electives and a vertical professional development stream of three units of study. The survey results reported here focus on a mandatory first-year unit of study, *BCO1102 Information Systems for Business*, a part of the Business Core. The major focus of *BCO1102 Information Systems for Business* is the ways in which computer-based information systems can support decision making in organisations and businesses. Even though IS can be regarded as a fairly technical area, it is also true that one of the most important elements of an information system is people. Employability skills, Graduate Capabilities and Professional Skills, especially those related to communication skills, critical thinking and team work, are particularly important to the IS professional. All IS graduates need to know what role they can play and what role information and communication technologies (ICT) can play in supporting a range of business decisions. *Information Systems for Business* examines the theoretical side of IS as well as personal productivity tools such as spread sheets and databases and it does this through a range of assessment tasks, resources, classroom-based activities including individual and team work and online activities.

Learning activities and assessment tasks in *Information Systems for Business* are designed to both optimise the development of discipline expertise for beginners – many of whom will not be IS professionals but who are more likely to be in other business roles that require some understanding of IS – and concurrently increase the Professional Skills that will enable students to demonstrate that they have discipline expertise. Through a range of varied activities in lectures and tutorials, students often work collaboratively to research and communicate

their understanding of information systems in discussions, written assignments and oral presentations. The team-based learning activities are a key means through which students begin to develop communication, project management, negotiation and time management skills – all vital Professional Skills. Assessment tasks such as written and oral business presentations are expected to emulate the language, standards and genres of the workplace. In the final oral presentation, for example, students are expected to dress and present themselves in a formal manner as appropriate to a workplace. A range of teaching approaches encourage the development of critical thinking and communication skills including the popular Spread Sheet Challenge for which students are required to develop a small information system to help solve a number of problems in a limited time. Case studies drawn from real businesses offer teams of students the chance to develop skills in problem identification, solution generation as well as IS knowledge. Scenarios and case studies encourage students' learning to learn capacity, communication skills and problem solving abilities in complex problems that require an IS solution.

## 7 METHODOLOGY

Students in *BCO 1102 Information Systems for Business* were surveyed about curriculum changes in 2011 that sought to develop both Professional Skills and discipline knowledge. The current research adds to the ongoing evaluation of professional learning and the development of graduate capabilities as part of a longitudinal study at Victoria University. Each school contributes to the development of skills and aspects of industry engagement to enhance students' employability and to promote graduates' Professional Skills so it is difficult to discern which unit of study, let alone which activity, might best contribute to the development of employable graduates. Student perceptions of the effectiveness of learning activities in *BCO 1102 Information Systems for Business* that aim to develop Graduate Capabilities, especially communication and team work skills, were gathered through student responses from an online survey that was distributed via the unit's WebCT shell.

Of the 478 students enrolled in *BCO 1102 Information Systems for Business* in semester 2, 2011, 149 responded to the online survey. The survey questions sought to collect a range of responses from students on a number of quite specific aspects of the unit – from what they thought of the text book to what they thought of particular assessment tasks. The surveys were voluntary and completely anonymous. Students were not obliged to respond and there was no identifying information requested or supplied by students. The survey included a mix of closed and open-ended questions. The closed questions asked students to rate aspects of the unit using a five-point Likert-type scale: 'unimportant' (1); 'moderately important' (2); 'important' (3); 'very important' (4) and 'essential' (5) or similarly ranked but more colloquial descriptors: 'Didn't like it at all' (1); "Could see some value in it but it could have been much better" (2); "OK. I learnt something from it" (3); "Didn't mind it. A few hassles...but happy with many aspects" (4) and "Really good. Of great value in reinforcing concepts" (5). The use of colloquial and casual language is deliberate. Not only is the language colloquial, it reflects both the distinctive style of the unit's coordinator as well as typical student responses to the activities - and so personalises and contextualised the requests. The casual language also seeks to encourage students to respond more accurately than if the language made no attempt to reflect their experiences or feelings. For many closed questions, students were also invited to comment. Closed questions are good to create statistics from enforced responses but it was important to obtain the unique responses that come from open-ended questions (Sekaran 2003; De Vaus 2002). One hundred and forty nine students completed the survey from a total of 478 representing a response rate of over 30%, which is not ideal but reasonable for web-based surveys. Any verbatim comments from the survey are anonymous and de-identified and are represented in the text in italics and quotation marks.

## 8 FINDINGS AND DISCUSSION

Earlier VU research using student evaluations and focus groups of business students, including IS students, in Melbourne, Hong Kong and Malaysia suggest that students have mixed views about the development of Professional Skills and about teamwork and communication skills in particular (Woodley et al. 2010). Typically, students not only express concerns about fairness of team assessment but also see the benefit of developing networking skills and intercultural skills (Armatas and Woodley 2010). Most students appreciate that undertaking team work is an expectation in the "real world" and that, through team activities, they develop other skills – such as communication, negotiation and time management skills (Armatas and Woodley 2010). The survey conducted in *BCO 1102 Information Systems for Business* in Semester 2, 2011 confirms many of the general perceptions expressed by VU business students about employability skills. The survey also provides specific feedback on some of the teaching approaches adopted in *BCO 1102 Information Systems for Business* with the aim to develop those skills.



The IS online survey was made available to all students in Melbourne, Kuala Lumpur and Hong Kong. It was posted as an announcement in WebCT which all students are expected to access at least weekly over the semester. No students from Hong Kong responded to the survey at all which is disappointing as they are exclusively IS students. 16% of survey responses were from Malaysia and 84% of responses were from students in Melbourne. It is not known how many of the Melbourne responses were from international students. The survey was administered at week 9 of a 12 week unit and covered such items as self-assessment of computer knowledge and understandings of Professional Skills, attitudes to resources, group work and lecture styles. Nearly 70% of respondents self-assessed their computer knowledge (computers/computer applications) prior to commencing the subject as reasonable (48.5%) or good (21.2%). Given that a significant amount of learning activities take place using online activities (discussion, tests and programming), it is important to address the 26% of respondents who rated their computer knowledge as limited (24%) or none (2%). In relation to activities designed to develop communication and team skills such as online discussions, mid-lecture discussions, class presentations and group work, 64% of respondents found the online discussions “helpful” (37%) or “absolutely fantastic” (17%). Most respondents were positive about lectures and 17 students specifically made positive comments about the mid-lecture discussion and words commonly used about the positive aspect of lectures include ‘engaged’, ‘interaction’ and ‘involved’ with one student noting that students needed to be ‘more active than sitting back’. Only 2 students thought that mid-lecture discussion was ‘a waste of time’. 80 students took the opportunity to write a comment about lectures and most were positive.

Responses about group assessment were mixed. Clearly variables such as the skills and enthusiasm of team members can influence the student experience and attitude to team work. Asked specifically about the group assignment, respondents were mostly positive, as can be seen in the 5-point Likert-type scales below:

1. “Didn’t like it at all” - 13.1%
2. “Could see some value in it but it could have been much better” - 11.1%
3. “OK. I learnt something from it” - 15.2%
4. “Didn’t mind it. A few hassles...but happy with many aspects” - 39.4%
5. “Really good. Of great value in reinforcing concepts” - 21.2%

Asked if or the extent to which the group assignment helped them to develop Professional Skills such as problem solving, team work and presentation skills, the responses from students were more negative:

1. “Not at all” - 11.1%
2. “A little bit” - 22.2%
3. “A reasonable amount” - 30.3%
4. “Quite a bit” - 22.2 %
5. “Really useful” - 14.1%

Overall, the data from the online survey corresponds with earlier research that suggests that for a large number of students in IS, team work is a positive and beneficial experience and one that is clearly linked to skills and behaviours expected of a workplace (Armatas and Woodley 2010). When team work is bad, however, it can be spectacularly bad. One student wrote a typical negative response in the ‘any final comments’ section: “*Working in groups is very difficult ...some of the members don’t follow, don’t cooperate or do their work...it is very difficult to find good members.*” Perhaps group learning activities need to be distinguished from and encouraged over artefacts produced by a team. There seems to be somewhat polarised student views about the usefulness of the team assignment in developing Professional Skills. Clearly, the lack of perceived development of Professional Skills directly attributable to the group assessment in the current survey could be due to various factors including the common one of a negative team experience. Students’ negative view of the link between team assessment and Professional Skills could also be due to the fact that team assessments are not unique to *Information Systems for Business* or even to the formal curriculum. Further, Professional Skills can be developed in a range of contexts – from part-time work to student leadership programs – and it is notoriously difficult to isolate where, precisely, problem solving, communication or team skills are being developed. Finally, it could also be the case that some students were not sufficiently aware of what Professional Skills are nor metacognitively aware of when or how they might be developing them. Of course, a less savoury explanation of why over a third of students said that the link between team assessment and the development of Professional Skills was “Not at all” or only “A little bit” is that the task needs to be better designed to more explicitly and effectively develop students’ Professional Skills and tutorials need to see students actively practising and receiving feedback on these skills. These themes have all informed curriculum redesign for 2012.

## 9 CONCLUSION

There are several issues that emerge from the survey of students in *Information Systems for Business* and many issues that become especially clear because of the survey's many comments. One important consideration in attempts to develop Professional Skills alongside specific IS knowledge is the need to achieve a balance in the development of Professional Skills. *Information Systems for Business* must be concerned, and concern students, with IS rather than team work or communication. The very purpose of a foundation IS unit is to introduce students to IS knowledge. Given the limitations of a 12-week semester and despite creative use of online resources and activities, to what extent can high-end generic skills be developed when the primary focus of the unit is IS? Another important consideration concerns teams and requires further investigation: team selection, preparing students to work in teams, ensuring fairness in teams (including monitoring individual inputs and outputs) and the governance of team behaviours all need further examination and support. In addition, teaching staff need support to teach in a team-based approach as the facilitation of team activities requires a different skill set than, for example, guiding tutorial discussion or demonstrating a function in a spreadsheet.

Results from the survey of students indicate the need to make the development of Professional Skills a more explicit outcome, especially in regards to the skills expected to develop as a result of group or team work. Student comments also suggest that some form of peer review or individual reflection may be required so that the tutors have at least an indication of individual effort and can mark accordingly. The limited number of student comments on presentations and the need to prepare for professional presentations suggest these activities have not received enough attention to make an impact on students' sense of themselves as professional communicators. Comments about mid-lecture discussions suggest that this activity is valuable to assist learning but hints that they happened only in Melbourne and so are dependent on the facilitation skills and confidence of the particular lecturer. Staff professional development is needed to ensure more consistency and comparability in teaching approaches in and between lectures and tutorials. The need to develop both lecturers' and our students' Professional Skills will be the ongoing focus of professional development activity.

While work placements and highly engaged industry curriculum provide one way to develop students' Professional Skills, a range of teaching and learning initiatives - which often prove to be more inclusive and reach more students than, for example, internships - ensure that all students have the opportunity to develop as IS professionals for a working future that is far from knowable - technologically or culturally. The balancing act of developing an IS curriculum that simultaneously develops a range of Professional Skills will require ongoing iterative evaluation and redesign with timely reference and input from industry and whole-of-course approach to curriculum design.

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