
STRANGE BEDFELLOWS? THE CHALLENGES OF COMBINING BUSINESS COMMUNICATION WITH IT SKILLS FOR COMPUTING DEGREE STUDENTS

Deirdre Billings
UNITEC Institute of Technology,
New Zealand

ABSTRACT

This paper discusses the development of a new *Professional Skills for IT Practitioners* computing degree course. The seemingly strange bedfellows – software and communication skills – were seamlessly integrated within a constructivist framework to form a course where students were encouraged to be active lifelong learners, engaging in optimum peer dialogue, collaboration, and reflective practice.

INTRODUCTION

UNITEC is a large institute of technology based in Auckland, New Zealand. The School of Computing and Information Technology (SCIT) offers programs from certificate to doctorate level. In 2001 the School of Computing and Information Technology reviewed its Bachelor of Computing Systems (BCS) degree program. As part of the resultant program restructure it was decided to combine two, first-semester, compulsory, 12-credit courses to form one, 18-credit course to commence in second semester, 2002. The two component courses were,

- 1) *Business Communication*, previously taught by the School of Communication,
- 2) *Packages*, previously taught by SCIT.

The new level-5 course was to be taught in the first semester of the degree by SCIT lecturers, and was to have the new title *Professional Skills for Information Technology Practitioners*.

Academic staff feedback on this proposed strategy was generally positive as Bachelor of Computing Systems student evaluations on the previous two separate courses had in the past been somewhat negative. *Business Communication* had been viewed with student suspicion on two fronts – its business focus and, in particular, its connection with the perceived “touchy-feely” world of communication. This course’s perceived isolation from the real world of information technology was cause for concern from both a student and lecturer perspective. The *Packages course* had also received adverse evaluations with both students and some lecturers criticising the high emphasis on teaching basic software skills that many students

had already mastered prior to entry to the degree.

The difficulty was deciding how to merge two seemingly very disparate courses – incorporating soft personal communication skills on the one hand and hard technical software skills on the other – into one holistic meaningful course.

THE COURSE DEVELOPMENT PROCESS

A development team of three lecturers was formed and planning for the new course commenced in April, 2002.

The team’s research for course development included considerable dialogue and consultation with the lecturers teaching the higher-level degree courses and with industry representatives.

The team’s brainstorming development process focused on commencing with a “blank sheet”, creatively speaking, rather than attempting to artificially merge aspects of the original learning concepts considered to be outdated and inappropriate for the new course.

Each team member took responsibility for aspects of course development that particularly interested them or in which they had specialist knowledge. For example, one lecturer developed and managed the majority of the online aspects of the course, including the delivery software, and another team member researched and reviewed resource material that might be supportive, and prepared the course documentation.

CONSTRUCTIVIST IDEOLOGY

Constructivism is a learning theory describing the process of knowledge construction supported by the application of constructivist practices in educational environments and elsewhere. As Osberg (1997) so rightly points out, constructivism is not a spectator sport. Knowledge construction is indeed highly active and involves both cognitive (Cunningham, 1988, 1993) and physical constructions (Harel & Papert, 1991) of meaning, through the development of mental paradigms or schemas (Johnson-Laird, 1980) together with physical or virtual knowledge representations (Duffy & Jonassen, 1992; McLellan, 1996; Mones-Hattal & Mandes, 1995; Papert, 1993; Winn, 1993, 1994; Winn & Bricken, 1992; Winn, Hoffman & Osberg, 1995).

The constructivist-development approach for the new course aimed at ensuring a student-centred, cooperative learning environment, with a flexible mode of both delivery and assessment methodology in order to engage the students and enhance the meaning-making process. The focus was on active student learning activities, using kinesthetic, visual, and auditory modalities, fostering opportunities for dialogue and creativity and providing a rich, safe, and engaging learning environment (Brooks & Brooks, 1996). The course framework allowed the students to construct knowledge and understanding, with the lecturer's role being that of facilitator rather than knowledge-bearer (Zemelman, Daniels & Hyde, 1993). Towards this end, rather than being relegated to passive receivers of information, the students were to be actively engaged in their learning experience as much as possible (Negroponte, 1995; Cunningham, 1992; Kraft & Sakofs, 1989). As Osberg (1997) stated,

There is great promise for deeper understanding and appreciation of the creative, generative process we call learning when a student is aware of scholastic expectations and understands how to effectively review and critique his or her own work (p. 4).

The cooperative learning course aims were further met by creating multiple opportunities for personal relations to facilitate the learning of both subject content and interpersonal skills within particular cultural and political domains.

Five stages of classroom social activity were particularly relevant to the aims of the course, the development of the learning activities, and the reinforcement of lifelong learning strategies:

1. engagement,
 2. exploration,
 3. transformation,
 4. presentation,
 5. reflection.
- (Green & Reid, 1990)

In particular, Dewey's (1916) educational philosophy was considered highly relevant for today's professional IT world and thus to the development of this course. These significant dual advantages of social participation are,

- enabling student understanding of the intention and purpose of certain learning tasks and facilitating the internalisation of specific rules;
- facilitating production of cultural forms, rather than a simple reproduction of existing cultural forms.

COURSE TIMETABLING

There was considerable challenge in attempting to capture all professional skill elements for the successful IT practitioner in one course to be taught for only 4.5 hours a week, compared to the prior structure of two courses, each taught for three hours per week. It was decided at an early planning stage that the course would suit being offered in three 1.5 hour blocks as follows,

- one theory lecture for all students in a lecture theatre with good technological media support,
- one practical computer lab session for individual streams,
- one online session to be conducted using Blackboard software.

COURSE CONTENT AND DELIVERY

The primary course-content development criteria for all stages of the course were to ensure compatibility with an online delivery theme, and to ensure as well as strong links between communication skills and the real world of information technology.

A process of brainstorming and focusing on the vital attributes of a successful IT practitioner in

today's world of work produced the following broad, holistic course aims.

Students will be able to,

- participate effectively in a variety of conversations to make meaning, hear alternative perspectives and relay information both as an individual and as a contributing member of an information technology team across technical, gender, age and cultural boundaries;
- define a problem, determine, create, seek, and retrieve the required information from a variety of sources, and utilise this information to effect a solution using information technology to support the outcome;
- translate information needs into an information search strategy that is adaptable to the wide variety of information sources available;
- communicate effectively by exploring the integration of contemporary audio-visual communication tools and software applications with written and spoken communication to prepare presentations and technical documentation that possess both technical accuracy and user friendliness;
- develop a strategy for evaluating personal efficacy, as well as that of the team, in achieving a goal.

The same deliberation process also resulted in a list of essential topics that would form the basis of the final course prescription as follows.

- E-communication
- Email, internet, and chat rooms
- communicating across boundaries of gender, age, race, culture, and technological currency
- Intercultural communication at an electronic global level
- Technical writing and research
- APA referencing
- Internet searches
- Problem solving
- Software skills in MS Office suite
- Effective presentations, including use of IT media
- Effective teamwork
- Code of conduct and ethics
- Networking and interviewing

• Training in IT

The constructivist focus on collaborative learning and deep personal introspection into the learning process (Brooks & Brooks, 1993, 1996) was incorporated in the course framework from the outset. Online discussion-board dialogue and groupwork in the practical sessions and the first two assignments addressed the need for a strong collaborative element; and the reflective journal reporting for the third assignment addressed the need for personal student introspection.

The theory approach – teaching by example

In the theory sessions lecturers would act as role models to demonstrate effective presentation delivery, supported by sophisticated and engaging technological media in a formal-presentation setting. The lecturers would use interactive and group activities and discussions whenever possible to offset this formal learning environment. A visiting panel of experts, and a dynamic, entertaining guest lecturer, were also used to advantage.

A student-centred practical experience

Rather than following the previous *Packages* course learning method by expecting students to replicate mundane practical tasks with which they were often already familiar, two fundamental course aspects were addressed in developing and using students' personal relationship-building skills to share their IT skills and knowledge with their less-experienced fellow students.

The primary course aim of utilising the students' own existing knowledge to advantage was achieved by requiring students to transfer this knowledge through extensive groupwork in the practical sessions and via peer-training opportunities. The more experienced students were thus able to understand that their individual backgrounds, prior learning, and experience were valued and respected. The emphasis on collaborative groupwork in the practical sessions was particularly advantageous in developing the essential team-building skills for the IT industry. This approach was also highly appropriate for catering to the multicultural nature of the BCS students, many of whom had English as a second language.

Unlike the traditional classroom where cooperative learning has been vetoed or regarded as akin to cheating, constructivism views cooperation and mutual exploration as a high priority for effective learning. The focus on cooperative learning frees students to bounce ideas off one another and fosters learning-in-dialogue as opposed to the outdated concept of learning-in-isolation (Brown & Palinscar, 1985; Lewis, 1993). In this course development, therefore, a constructivist-learning-for-transfer approach was taken in allowing students to base their learning on enquiry, thus leading to deep understanding of the new concept and the development of mental content models to be applied elsewhere (Spiro et al. 1992a, 1992b). The benefits of a constructivist learning environment was to be achieved by facilitating holistic learning opportunities, enhancing collaborative and cooperative skills and allowing for metacognitive reflection (Brooks & Brooks, 1993; Resnick & Klopfer, 1989).

Doing it their (online) way

In the first semester of course delivery a great deal of student assistance and instruction in online learning was necessary, but ongoing refinement of the delivery methodology since then has reduced these demands considerably. An introduction to the Blackboard software is given in the first practical class and further, back-up, individual assistance is available to students as required. In addition, online learning guidance notes and copies of student models of previously-completed online logs are made available to students.

The extent of discussion-board contributions fluctuates considerably and it is necessary for the lecturers to constantly remind students that marks are allocated to this activity. Lecturer discussion-board monitoring is vital, especially in the early stages of the course when some students find it difficult to focus on the weekly discussion topic and try to chat to their peers informally, and often inappropriately.

The constructivist learning-for-transfer approach is utilised in the online delivery and assessment methodology in allowing students to base their learning on enquiry, thus leading to deep understanding of the new concept and the development of mental content models to be applied elsewhere (Spiro et al. 1992a, 1992b).

ASSESSMENT

In line with the active nature of constructivist learning, the assessment for this paper was designed to be ongoing, student-centred, holistic, integrated, and aimed at building understanding through reflection and iteration.

In order to remove the traditional educational emphasis on the lecturer as knowledge-bearer, it was decided to integrate student assessment into the theory and practical classes in a very practical way that allowed the students, as much as possible, to make their own choices of topic and delivery dates. A technical writing component as well as practical performance aspect was included in the first two assessment items to ensure those dual aspects of the course objectives had been achieved.

Three assignment assessment items were developed, each covering elements 1-5 of the course aims. These were as follows.

Assignment 1: Interpersonal Presentations, 35%
Assignment 2: Training in Information Technology Skills, 30%
Assignment 3: Online Log and Portfolio, 35%

CONCLUSION – EVALUATING OUTCOMES

Student course evaluation feedback has been favourable overall, with particularly positive comments on the flexibility afforded by the online course component. Student feedback in the first semester of operation focused on difficulties with understanding the online course component and with coping with the weekly online log requirements and related workload. In response to this, lecturers gave a great deal of individual and collective support to students both one-on-one and via specific workshops, handouts, and online notes in order to encourage students in what was a new learning experience for many. The lecturing team also constantly discussed and reviewed the online delivery methodologies and amended the Blackboard delivery format and online log assignment considerably in order to facilitate student understanding and competence. Following ongoing improvements to the learning materials, systems, and assignments, student evaluations have been far more positive and are expected to be even more favourable at the completion of one year of operation.

In addition, the lecturers teaching on this course are finding the course both challenging and rewarding to teach. They find the new course far more meaningful and appropriate for the BCS students. The lecturers particularly value the course's flexible delivery opportunities and the holistic, integrated, student-centred learning approach that acknowledges and utilises students' prior life experiences, knowledge, and skills and fosters personal reflective practice and a lifelong-learning focus. This course allows students the opportunity to master essential learning tools to support them in their future professional and personal lives.

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