

Preparing Student Industry Projects: Instilling the Art of Communication

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Abstract

Students in their third year of the Bachelor of Information Technology (BIT) degree at Whitireia Community Polytechnic (WCP) are required to carry out a 420-hour 'real world' industry project. This project can often prove intimidating and confusing, not only as a technical challenge, but also because students are beyond the 'safe' environment provided by the polytechnic. Many students lack an understanding of organizational behavior and codes of conduct and are often unsure how to deal with their new industry colleagues. At WCP we have developed a second-year second-semester communications paper which has as its focus the teaching of systems thinking and research methodologies and the works of a number of communication theorists ranging from Sherif and Festinger through to Burke and McLuhan. The primary purpose behind this course is not to assist students to write more clearly or construct better sentences but rather to prepare the student to think, reflect and understand the world of communication they are about to enter. While the degree is primarily devised of technical courses devoted to the use of application and design principles, the communications paper is designed to take students out of their technical comfort zone and expose them to the often new world of communication theories. Industry based projects are challenging to the student not only from the technical aspect of the project but also from the aspect of intra and interpersonal communication. Students with high technical abilities may fail a project if their scope of knowledge learnt does not include an understanding of the way individuals and organizations think and act. Graduates of the BIT degree will work in a world that has a transitory view of their technical ability. Employers appreciate the technical knowledge that is relevant for a particular organization, but the value placed on a person who can communicate can be priceless. This paper will highlight the challenges faced by students and reflect on the benefits of the communication course in preparing them for their capstone projects with industry partners.

Introduction

The placement of students in industry for a portion of their education is not new. It is an important way of providing experiential learning for students to develop and practice the skills they will need in industry. It is also a useful method of forging links between educational institutions and the industries they serve. The Tertiary Education Commission (TEC) has, as part of their remit, a requirement to future-proof the New Zealand tertiary system. This has resulted in future-focused strategies. They state that "Increasingly, providers and Industry Training Organizations (ITOs) will need to work with their external stakeholders to develop joint strategies that look ahead and focus on developing the skilled people New Zealand will require in the future, not just on the skills needed for today" (TEC, 2002, p. 19).

Student industry placements are a future-focused strategy. Many placements are in large global organizations that have a history of internship. New Zealand has very few large global corporate organizations and its business environment is mainly made up of small to medium enterprises that may not have the capacity or the structure to take on student placements. Simulated environments may be used as substitutes but these simulated environments may lack the opportunities of work-based placements. Instead many Information Technology courses require final year students to complete a capstone course, usually a directed industry project of some form. "Most computing curricula have a special course, usually taken during part of the final year that is considered a 'capstone' course. This course is required of all students and is supposed to provide a culminating and integrative educational experience" (Clear, Goldweber, Young, Leidig & Scott, 2001, p. 93).

At WCP students in their third year of the Bachelor of Information Technology (BIT) degree are required to work in teams to carry out a 420-hour 'real world' industry project. The project allows

students to apply the knowledge and skills they have learnt in the field of computing to produce a real product for a real client. It also requires the student to put into practice their skills in written, verbal and interpersonal communication, teamwork, problem solving, and critical thinking: “Skills found to be important to IT employers hiring entry level computing professionals” (Beasley, 2003, p. 123). For students, some of the more difficult aspects of the project are related to communication; communication with clients and end-users, communication within the project team and adaptation to a different organizational culture. To assist them in these areas we have developed a second-year communications course to prepare the student to think about and understand the world of communication they are about to enter.

The Purpose

So just how does a course in communication help? Davenport and Prusak (1998, p. 19) state that “knowledge transfer involves two actions: transmission (sending or presenting knowledge to a potential recipient) and absorption by that person or group. Inter-group and inter-project communication, is the key to a successful project”. Simmons, Germans and Ruijters (2002, p. 44) state: “Team learning also means having and creating good communication between team members. Mostly, small multi-functional, autonomous teams function in such a way that people learn from each other, taking over and learning each other’s jobs flexibly”. This method of working is extremely common in the IT environment.

The intent of the communication course is to introduce students to research and give a greater understanding of the process and value of communication through the study of a number of communication theories. Regardless of the role students find themselves in, it is an undeniable fact that that role will require communication. The opportunity for a student to gain employment in the backroom of an organization, programming away in isolation, is far removed from the realities of the modern industry. They will be part of a team, often for a defined period of time, before being moved to another team. They will become an interchangeable part of an organization and their skills will be utilized and maximized to the best advantage of that organization. While at this point readers may be reminded of Orwell’s 1984, this is not our intent; the IT industry is not quite that oppressive. It does require, however, that a student learns to communicate well in a wide variety of situations, that a student can research information in an industry that experiences rapid change, and can negotiate their value in order to remain in employment.

The IT industry has over recent years matured into a more stable and viable career industry for many graduates. Gone are the excessively high paid jobs that were prevalent in the early years of the industry and during the millennium bug crises. Organizations are now seeking an intelligent workforce that is able to learn new skills quickly and is able to communicate knowledge to others. The age of the learning organization is here.

Capstone courses are proving to be useful preparation for this new age. After three years of final year projects at WCP it appears that we have been successful in utilizing imitation environment and work placement techniques to achieve high success rates, with approximately 80% of graduates gaining employment within the first three months of graduation. We are growing a strong client organization base and are increasing the complexity of projects every year. Part of this success, we believe, can be attributed to our second year communications course.

The Communication Course

The communication course is a 20 credit, semester based course that runs in the second semester and again in the summer school program to accommodate students who are entering the third year of the degree through a pathway from a completed two-year Diploma in ICT. The timing of the course is crucial as the students are introduced to research and communication theory before they enter the third-year first-semester Project Management course, in which they are expected to work effectively

in teams, and then graduate to the third-year second-semester industry project. It follows on from a first year communication course introducing the students to writing and presentation skills, interpersonal communication skills and basic communication theory.

The course begins with an introduction to quantitative and qualitative research. It is in this portion of the paper that students become aware that to conduct research means more than just using Google or Altavista. The course then progresses through to an introduction of communication starting with the basic Shannon and Weaver model and expanding into systems theory and the various traditions under which communication is studied.

The challenge is to engage the minds of students who have come to study IT, not communication. At this stage the students have not realized that IT and communication are closely related. We explain it to the students in this way: "If you cannot communicate your intent when designing or developing a piece of software, how do you expect your customers to use it?" Cooper (1999, p. 11), the 'father of visual basic' states that "the obnoxious behavior and obscure interaction that software-based products exhibit is institutionalizing what I call 'software apartheid', where otherwise normal people are forbidden from entering the job market and participating in society ...". He goes on to note that "By purposefully designing our software-based products to be more human and forgiving, we can automatically make them more inclusive, more class and color-blind". Surely then to become more 'human and forgiving', one must have an understanding of humanity's greatest gift, the ability to communicate and reason.

The assignments for the course are designed to challenge the student, both in giving each student a difficult topic to research and the equally difficult task of reporting back that research in a form that can be understood by their peers.

Stowers and Barker (2003) suggest six strategies for teaching and evaluation. While these strategies were created for business communication classes the strategies work equally well for the communication course. The strategies are:

- Goals - Linking the assignments to the overall learning outcomes of both the course and the degree.
- Invest time early – Students are given the reasoning behind the course from the outset of the course.
- Make assignment expectations clear – Students are left in no doubt about what is expected and the amount of effort that is required on their part. This can be a challenge for students who have come through the pathway of a completed two-year diploma as the manner of learning is often more piece-meal.
- Establish connections – The students must establish the connection of the assignment with the overall goals of the course.
- Tailor to audience – The assignments should address a specific audience.
- Evaluation – The feedback must be of use to the student.

The assignments for the communication course incorporate these strategies. In the first assignment each student draws the name of a communication theorist out of a hat. Their task is to research and write a 4000-word report on the theorist(s), their theory, and how it relates to IT. There is usually little problem with the theorist chosen as, generally, all of the theorists are unknown to the IT students. The student is not left completely without a starting point as all theorists used are referred to in the course text *A First Look at Communication Theory* by Griffin. This text was chosen for several reasons; it is readable, it is supported by the author's own website and comes with interviews with many of the theorists on a CD-ROM, a media type much liked by IT students. The theorists chosen have produced theories in the areas of interpersonal communication, group and organizational communication, and cultural and gender communication. The purpose of studying the theories is to encourage students to think more deeply about communication and how it relates to the IT industry. In their report, students may disagree with the theory but are then required to critique it in an organized framework, as well as suggest alternatives. Students who agree with their assigned theory are required to explain why they agree and give examples from their own life experience.

The second assignment requires students to give a 20-minute presentation on the assigned theorist(s) and theory. Often the information found through university web sites and peer-reviewed journal articles is couched in language totally unfamiliar to the student. Academics are as protective of their industry as IT experts are of theirs. The task of the presentation, therefore, is not to recite back to their peers a series of words and phrases that mean nothing to the audience, but rather to present to their peers their understanding of the theory in their own words. This is one of the best methods we have found to promote understanding of the theory and the point of view of the theorist. To a large extent it is irrelevant whether the student has understood or totally misunderstood the theorist, provided the effort is made to research and cite correctly. A misunderstanding becomes a useful tool as this then forms a basis for discussion, evaluation and learning in the class.

An aspect of the communications course is the development of a better understanding of ethical issues. It is difficult for students to discuss such theories as 'standpoint theory', which focuses on the standpoint of women and other groups on the margins of society, without the debate raising both moral and ethical issues. This particular theory is not limited to female students. Often the debate is better when a male student has been assigned such a theory.

The third assignment involves the students working in small groups to apply communication theories to a case study involving an IT issue. The students are required to work effectively as a team to research the issue, apply relevant communication theories to the issue and to produce a written report and group oral presentation. The case studies presented involve issues of organizational communication and culture, and are designed to help students improve their teamwork skills and gain a better understanding of the environments in which they will be working during their industry projects.

We stated in the abstract that the purpose behind this course is not primarily to assist students to write more clearly or construct better sentences but rather to prepare the student to think about, reflect on, and understand the world of communication. However, the ability to write concisely and clearly is of increasing importance in a world that has become increasingly embroiled in litigation. Although we have not reached the levels of concern evident in the USA, the need to be clear and concise is important.

Many students come to higher education with an attitude that all information is contained within 30-second sound-bites and that these snippets of information are all that need to be recited when presenting information to others. While such a style may be suitable for an advertisement spot, it fails to impress upon the student the value of communication. It is important for students to also understand what they are writing and why. Our communication course requires the students to present their research reports and oral presentations to a high standard and reinforces writing and presentation skills learnt in their first year. These skills will also be needed to produce the documentation and presentation required for the capstone project.

Like many courses in the New Zealand education environment the numbers of international students are high. There have been many articles published on the difficulties and challenges of international students. While the challenges of English as a second language (ESL) issues are similar to many other courses, the issue of the material in the course makes little difference to either an international student or a domestic student. The first leveling point is that the theorists and theories covered in the course are likely to be alien to both groups due to the newness of the subject and the academic nature of the writing. Both groups of students may need assistance and support to initially understand the basic propositions of their theory. The second leveling point is that the majority of the theorists are from a USA context. This in itself proves interesting because not only is the United States context often alien to the New Zealand mindset, it is certainly alien to a large number of international students who come from an Asian or Eastern culture. Indeed, this proves to be a source of much debate on the validity of certain theories that have a particular Western view of the East. This is not to say that international students do not present challenges on the communication course. Basic ESL skills need to be addressed in order that capable students are accepted on the course earlier rather than later.

The Outcome

Students emerge from the communication course with a better understanding of why communication is important. Until this time many of their courses of study have been technically based and 'chunked' into areas of expertise; database, programming, and so on. The courses in the third year expand to include issues of communicative design, structure, and methodologies. With an introduction into the vast arena of communication students appear to better understand the concepts discussed. The students enter their industry projects equipped with a broader range of communication skills and a deeper understanding of the communication issues than one first year paper in communication can provide. Many of the challenges that students face in the capstone projects are communication related. Students must apply their understanding of communication theory to understand and work within organizational cultures, to deal effectively with clients and to interact successfully as a team. Students involved in project work often comment on the benefits knowledge of communication brings in the 'real world', often in ways they had not appreciated before. Carver (cited in O'Hara, 2001) states that there are few more important educational goals than making students realize and appreciate the extent to which the topics they study are relevant to their lives.

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