

International Students' Co-op Placements: The Co-op Experience

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Abstract

For many co-op programs, the placing of full-fee paying international students can lead to difficulties from finding suitable placements through to enculturation into the workplace. Previous research has focused on institutional difficulties but very little research has investigated the concerns that such students encounter. Preliminary findings show that this cohort of international co-op students gain an understanding of science and engineering and also gain a greater knowledge about their specific discipline as a result of their placement work. The students also discussed their reasoning for attending an overseas university, their expectations of an overseas co-op program and their concerns that they face within the program. These findings along with future investigations are presented here.

Introduction

This paper intends to address the issues and concerns that full-fee paying international students' encounter during the process and preparation for a cooperative education (co-op) placement. Remarkably, it seems little research has investigated the issues that these students may encounter and instead have focused on institutional and employer related matters. The literature suggests that the internationalizing of co-op has given rise to a variety of issues, such as problems with finding employers to hire foreign students (Reeve, 2005), difficulties with immigration, language and communication skills (Coll, 2003), and perceptions of differences in cultural and business practice compared with local students (Coll, 2004). Many universities and technical institutions rely on enrolments of international full-fee paying students because of the impact they have on institutional finances. For example one New Zealand university reports having doubled the income generated from international students over a two year timeframe to ca. \$72 million, some just over 16% of total student enrolment (New Zealand Trade and Enterprise, 2005). A similar situation exists at the institution in which the present work was conducted, where some 13% of students are full-fee paying internationals. But despite the recognized issue that these entities encounter what affect does this have for international students who choose to do a co-op degree? The expectation by these international students would be that they undertake placement work, but what occurs is that these students encounter problems with gaining placement work due to the perception that they lack in English speaking skills, that they are perceived to require more time and effort with training than a domestic student and that they may also have a different working culture. The research reported here addressed the following objectives, and sought to:

- Gain an understanding of factors that influenced full-fee paying international students to study science and engineering
- Investigate reasons full-fee paying international students chose to study abroad
- Gain an understanding of what science and engineering means to these full-fee paying international students, and
- Identify concerns for full-fee paying international students, before and during their work placements.

Overall the aim of this research was to gain an understanding of the perception of full-fee paying international students' involvement within a co-op program in science and engineering, with a particular focus on concerns and issues that students have encountered during the co-op program. An insight to the understanding and interpretation of science and engineering and scientist/engineer also was investigated.

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Methodology

Interview Protocol and Techniques Employed in the Study

The data transcribed are a collection of qualitative, semi-structured interviews which are observed from a sociocultural perspective. A qualitative approach allows for rich, in-depth explanations which are necessary for this type of research as it allows the researchers to understand the perceptions of these students and the consequences of the events that have occurred within their work placement. It also investigates their views on science/engineering, and how it allows for the emotional/affective dimensions of the experience to be attained (Coll, & Chapman, 2000; Garavan, & Murphy, 2001). This research is conducted from an interpretive paradigm utilising a semi-structured interviewing technique where emphasis is placed not only on the researcher to ask the questions but also on the interpretations that the researcher comes to (Denzin, & Lincoln, 2003). With this technique it allows for the explication of any issues that arose and further investigation if necessary.

Triangulation of Data

Placement reports were examined along with follow up interviews to clarify ambiguity that arose within the transcripts. Placement reports are completed by all co-op students in Science and Engineering at the University of Waikato which is a requirement for the assessment of a co-op placement, students are required and encouraged to reflect on their personal development throughout the duration of a placement. This 'Review and Reflection' section was of particular interest to the researchers as this was compared to responses obtained during the interview. In instances where ambiguity arose in the transcripts, participants were interviewed again to clarify any uncertainties or misunderstandings.

For any theoretical concept there should be at least three empirical indicators (measurements, observations, datum evidence, etc.) looked at (Wengraf, 2001). Guba (1981, cited in Carruthers, 1990) also described triangulation as a necessity to obtain data from multiple perspectives using a variety of methods which is relevant to the process of research (Jick, 1979, cited in Carruthers, 1990).

Sociocultural Views of Learning, and Cooperative Education

Sociocultural views of learning are appropriate for this type of investigation since they allows the focus to be placed on the situatedness of learning through participation in a context; and thus provides an opportunity to view the learning of the classroom and the workplace as within distinct communities of practice (Eames, & Cates, 2004; Eames, & Coll, 2006). Learning that does occur is based on the relationship between the student and the environment, and its historical and social surrounds, as well as internal aspects such as individual's beliefs, knowledge and cultural factors (Eames, 2003; Murphy, & Ivinson, 2003).

Context of the Study

All interviews and research were conducted at the School of Science and Engineering at the University of Waikato. The co-op programs are: the Bachelor of Engineering (BE) and the Bachelor of Science and Technology (BSc (Tech)) degree, both being four year degrees with six and 12 months work placements respectively. The BE degree was introduced to Waikato in 2001 and this was taken on board by the Cooperative Education Unit who facilitate the work placement component as performed for the School's founding co-op degree, the BSc(Tech). Due to the increase in enrolments with the introduction of the engineering degrees, the number of co-op students has also likewise increased with some 200 students involved in the program every year. Science and Engineering currently have a enrolment of 1172 Effective Fulltime Students (EFTS) with full-fee paying international student enrolments comprising 13% of this population. The School consists of five departments, offering a variety of majors and specified programs.

Sample Description

The participants were identified from class lists of those that are enrolled in the co-op programs (as described below) at the University of Waikato. They were specifically chosen if they self-identified as being a full-fee paying international student. The sample of students represented a number of different nationalities, primarily Asian with other nationalities (such as Pakistani). All of these students were enrolled in engineering degrees with the following degree majors: three mechanical and two software engineers, two electronics engineers, two biochemical engineers, and one materials and process engineer. To date, six males and two females have been interviewed.

Research Findings and Discussion

At the time of the interviews, these full-fee paying international students were at varying stages within their co-op degrees, that is, some had either completed a placement or were yet to complete one. Those that had completed a placement gave more developed responses to questions pertaining to science and engineering (all names used in citations below are pseudonyms).

Reasons for Studying Science and Engineering

To gain an understanding of these students background it was of interest to investigate their reasons for studying in a field of science and engineering. The most profound response by these students was due to a family influence. Family involvement in careers of science or engineering was a direct reasoning for these students to continue in the same line of work. Others identified that they were hobbyists who had a general interest in “cars and machinery” and “interested in programming.” Some of these students recognised that they would have competition for employment with not only domestic students but other international students as well. This was perceived to be a major concern and also a deciding factor for some to therefore enrol in different degrees.

At the University of Waikato, the majority of the full-fee paying international student enrolments are in the Bachelor of Management degree (45% of the total university international enrolments). Mark, an electronics major had initially anticipated a degree in management, but felt that this would hinder his career opportunities upon completion and so therefore chose to study in a field of engineering.

I noticed that a lot of international students applied for the Bachelor of Management and Computer Science [degrees], and I thought; yeah up to four years later most of the students will apply for the same job, which is not good for me.

Reasons for Studying Abroad

New Zealand was a choice of destination to study for various reasons, parental/family influence was again a main factor, where students mentioned that extended family members living here were a reason, others stated that parents saw New Zealand as providing a better educational opportunity compared to their home country “my mother think[s] that Chinese education [is] not so good for me.” And other students were directed to attend here by their parents, “Because my mother said so.” For others it was the prestige to be studying in an English-speaking university where they perceived the education to be of a better quality. One student discussed the tertiary education being superior in the Western countries and that his experience with a university at home in China lacked facilities, was over-populated with “substandard lecturers.” Students also felt that they would have more flexibility within course selection. Ultimately, the majority of these students intended to “find employment in New Zealand and migrate here.” Primarily, because they perceived that their skills will not be relevant to their choice of career within their home country. Conversely, others also spoke of feeling they had become enculturated in their New Zealand work environment, and considered that the working culture was different in their home country. Craig discussed his perception on the difference in working etiquette: “A typical work week here involves working Monday to Friday, 9-5, but in

China, it is common for people to be working on [a] Friday evening which is not expected of New Zealand people working here.”

Full-fee Paying International Students Placement Experiences

The international students gave responses that were similar to those obtained from domestic students in previous research (Eames, 2003; Paku, & Coll, 2005), where it was found that they were also able to enhance their learning by engaging in new skills as well as developing upon skills previously learnt at university. For some, it was a learning experience to be working and in particular in a science related field which provided them with work practice and an understanding of the work environment. Most important was that these students were able to learn about their industry and in particular their field of study that they are embarking on. For other international students it was a gain in personal self esteem and confidence: “It’s put up my confidence I wasn’t really confident on the technical side and how good I’m going to be in the industry.” This cohort of students felt that they were able to interact both on a professional and social level with their fellow employees, and for most this was seen as a great opportunity to be able to practice and develop upon their communication skills. Previous research shows that international students from Thailand improved on their communication skills during a placement and in particular their English language skills (Coll, 2003). Craig, a software engineering student discussed the development of his communication skills during his placement.

So yea communication is the biggest thing I learnt from the first placement and how to talk to people and things like that. Now I find it [communication] much better than about a year ago...but still I haven’t got to the point [where] I am 100% confident, like sometimes when we talk to people because we don’t know all the vocabularies, sometimes you are feeling a little ashamed to ask, yeah, with understanding what I’ve been told and sometimes you spend a little bit more time try[ing] to think what that guy told me, and sometimes it doesn’t straight go into my mind.

Full-fee Paying International Students Views of Science and Engineering

The understanding and the perceptions of science was a direct influence of students’ placement experiences which again was similar to responses obtained from domestic students (Eames, 2002). These international students had a more concise understanding of engineering and being an engineer compared to science and scientist. In general, engineering was seen as a practical subject involving skills, developing things and involving a concept of machinery. Science in contrast, was often answered briefly, responses were somewhat immature and described as “being research,” and “the way of the world.” So whilst some of these students had difficulty in responding to what a scientist was, in general they perceived a scientist as being someone that “researches,” “finds new information and formulas,” thus “providing the theory for the engineer.” The majority of these students clearly distinguished between the two roles of a scientist and an engineer and did not see them to have similar or the same roles.

Full-fee Paying International Students Concerns Before and During their Work Placements

Despite these full-fee paying international students feeling that their communication skills developed during a work placement, they also felt that communication was a major concern for them. Understandably, all of these students have English as a second language. Mark had concerns about not being able to cope with the work because of a lack of understanding of the meaning of terms or concepts used in the industry: “Once you get the project you never do that before, you never heard of it before and so you are a little bit confused or afraid [as to whether] you can handle it or not.” Other’s like Jack, a mechanical engineering student, were concerned about “not being able to relate to peers” on an informal level, and were concerned about “not understanding colloquial terms.” As was Dionne, another electronics engineering student: “It is really hard to fit into their conversation

sometimes, because they are too professional and at a different level so they will be talking politics and science, and it's just hard to catch up [understand]."

Mark and Craig both felt that their skills that they were learning here in New Zealand would probably not be that relevant in their home country. Mark said, "I think the electronics technology in New Zealand is [much] more developed than in China also I think that it's a good idea to keep learning some knowledge, some research in New Zealand." Craig endeavored to find a job in New Zealand, as he felt that it would provide him with better relevant work experience as well: "Since I have learnt [my] skills here, I will practice [my] skills here."

The full-fee paying international students in this study also were concerned that they might be treated differently to other employees, and for most it was very important to enculturate into the work environment. This did occur for one student, Sam a biochemical engineer, where he felt that he was singled out, which initially created a lot of personal grief for himself: "I got to work in the control room, a place that people in the factory have to earn to work in over time, I felt that they [factory people] had a grudge towards me because of the way I was treated." Due to the nature of his job Sam was employed to work on a research project for a three-month period, and as a consequence he was required to work in the surroundings of other engineers who provided supervision for him.

Conclusions

From the students interviewed, it seems that cooperative education is a useful learning tool for these full-fee paying international students. Their understanding of science and engineering improved due to their placements, and the placement also provided them with an insight to their future careers as engineers. It has helped these students to address concerns of self confidence and personal esteem, they have been able to put their communication skills into practice and through their work placement have learnt new and applied skills. Future strategies will involve further interviews and investigating other issues that arose pertaining to support infrastructures and whether there is any perceived need for this to be in place for international students.

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