

**A**t The University of Waikato we have been running a cooperative education degree program in the School of Science & Technology for over 20 years (Chapman, 1994; Coll, 1996). During this time we

involved in securing suitable international placements. However, there have been few reports of students' experiences of international exchange placements in the literature (but, see Coll, Owusu-Banno & van Loon, 1999; Dowdle, 1996; Gorman & Scott, 1996). This inquiry adds to the co-op literature in that it comprises an investigation into students' perceptions of their international co-op placements.

## Advantages and Disadvantages of International Co-op Placements: The Students' Perspective

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### Abstract

In this paper we report an investigation into students' perceptions of international co-op placements. The inquiry utilized a naturalistic case study approach, in which the views of 11 science and technology students from the University of Waikato and overseas partner institutions were elicited using semi-structured interviews. The inquiry revealed that students perceive international co-op placements to be highly beneficial, despite experiencing a number of logistical difficulties such as long delays in securing work permits. Other findings include the importance that students place on enculturation into the workplace, along with a perception that international co-op placements substantially enhance self-confidence.

have experienced a student-driven increase in demand for international placements, both from overseas students wishing to work in New Zealand, and New Zealand students wishing to be placed overseas. These placements have been carried out as exchange arrangements facilitated in conjunction with other tertiary institutions. Securing international placements is a complex and resource intensive process (McCallum & Wilson, 1988; Reeves, Schultz, & Laslett, 1997), which frequently proves problematic (e.g., Heller & Geringer, 1984; Lee & Swinth, 1986). In recognition of this fact, the World Association for Cooperative Education (WACE) recently produced a set of guidelines for facilitating international placements (Reeve, Schultz, & Laslett, 1997).

This comprehensive document provides suggestions for addressing the numerous logistical difficulties

### Research Methodology

#### *Research purpose*

The purpose of this research inquiry was to gain an understanding of students' perceptions of their international co-op placements. This research purpose was refined into two research questions:

1. What do co-op students perceive to be the main difficulties associated with their international placements?
2. What do co-op students consider to be the main advantages of completing an overseas placement?

Because the researchers wished to probe students' views in depth, a naturalistic, case study methodology was employed (Guba & Lincoln, 1994; Lincoln & Guba, 1985; Stull, Crow, & Braunstein, 1997).

#### *Sample used in the inquiry*

Participants were selected from a cohort of science and technology majors who formed part of an exchange arrangement between the School of Science & Technology at the University of Waikato and a number of overseas partner institutions. The sample comprised six New Zealand students who had held placements outside New Zealand and five students from overseas

countries who completed co-op placements in New Zealand (see Table 1). Students were purposefully selected to maintain a reasonable gender balance and a spread of science and technology disciplines.

The small number of participants raised ethical issues, such as participants feeling coerced into participation or concerned about the confidentiality of their identity and opinions expressed during the study. Consequently, students were approached via a written request, rather than face-to-face, and participants were identified using pseudonyms in field notes and reports of the research findings.

There are no formal entry criteria for international co-op at Waikato; however, international placements are only offered to third-year students, that is, those embarking on a nine-month placement and who have a sound academic background. Consequently, all Waikato international co-ops have completed a minimum of one three-month placement before embarking overseas. Consequently, placement coordinators screen interested students on the basis of academic records and performance in their initial three-month placement. Overseas partner institutions comprised Australian, English and American universities and a technical institute in the Netherlands. Overseas students visiting New Zealand were self-selected although they typically underwent extensive briefing before final approval. All overseas participants were required to possess sound academic backgrounds although none had prior experience in their subject major.

#### *Data collection*

The principal data collection tool consisted of in-depth, face-to-face interviews (for a detailed discussion of the appropriateness of this approach see Coll & Chapman, 2000). Data triangulation was achieved by examination of relevant documents, such as, student placement reports and literature published by the tertiary institutions participating in the exchange (Denzin & Lincoln, 1998; Mathison, 1988; Peshkin, 1993). Further data were compiled from field notes and informal interviews with employers and placement co-ordinators. The semi-structured interviews utilized an interview guide that consisted of a list of issues identified prior to

the interview (Patton, 1990; Wiersma, 1986). In these interviews, there was not necessarily a set order to the questions and the specific wording used varied from participant to participant. The interview guide thus served as a form of checklist to ensure that all relevant topics were covered. There is a considerable degree of flexibility retained in this approach, making it well suited for in-depth inquiries. This data collection strategy was chosen because it afforded the investigators the opportunity to probe issues of interest in depth, in a manner not easily achievable, using, for example, a survey instrument. In addition, the interactive nature of the interviews allowed participants and the interviewer to clarify ambiguity in questions and responses, something deemed desirable considering English was not the first language for several participants. The use of the interview guide helped to make the data gathering more systematic, facilitating analysis. The checklist of questions used in the interviews was developed from informal interviews with placement coordinators; being a naturalistic inquiry, the checklist was constantly re-examined and modified slightly as the inquiry matured (Guba & Lincoln, 1994; Lincoln & Guba, 1985).

#### *Data analysis*

All student interviews were audio taped, fully transcribed, and participant validated. Participant validation involved participants reading transcriptions of their interviews and confirming that the data represented their views about the issues discussed. In a number of instances further informal interviews were conducted to clarify ambiguity. Data analysis involved the development of a Concept Profile Inventory (CPI) based on methods described in the science education literature (Erickson, 1979, 1980; Rollnick & Rutherford, 1990). Development of CPIs consisted of examination of interview transcripts for expressions and statements that could be construed as evidence for conceptions of interest, in this instance students' perceptions of their overseas placements. These expressions were summarized and formed the unit of analysis. By examining the entire set of expres-

**Table 1**  
**Description of participants in the inquiry**

<b>New Zealand Participants</b>					
<b>Pseudonym</b>	<b>Age</b>	<b>Major</b>	<b>Ethnicity</b>	<b>Placement Location (Duration)</b>	<b>Language Competency<sup>1</sup></b>
Linda	24	Earth Sciences	New Zealander	Australia (9 months)	
Denise	20	Earth Sciences	Part-Maori	Australia (9 months)	
Chris	21	Chemistry	English	UK (12 months)	
Brian	21	Chemistry	New Zealander	UK (12 months)	German
Alan	21	Chemistry	Dutch	Netherlands (12 months)	Dutch, French, German
Bob	20	Earth Sciences & Management	New Zealander	USA (9 months)	Afrikaans
<b>Overseas Participants</b>					
<b>Pseudonym</b>	<b>Age</b>	<b>Major</b>	<b>Ethnicity</b>	<b>Placement Location (Duration)</b>	<b>Language Competency<sup>1</sup></b>
Sarah	21	Biological Sciences	Dutch	New Zealand (6 months)	Dutch, German, French
Lisa	21	Biological Sciences	Dutch	New Zealand (6 months)	Dutch, German, French
Steve	20	Chemistry	English	New Zealand (12 months)	German, French
Don	22	Mechanical Engineering	American	New Zealand (6 months)	French, Latin
Neil	20	Electronic Engineering	Swiss-Croatian <sup>2</sup>	New Zealand (12 months)	Swiss-German, Croatian

<sup>1</sup>All participants were proficient in English.

<sup>2</sup>Australian Citizen.

sions in the transcripts, we were then able to gain a global perspective of the participants' views. These views were then organized into a series of categories forming a Conceptual Inventory for an individual participant. Commonality of views among participants' conceptual inventories was deduced from examination of the individual inventories, and used to address the research questions. Our interpretations of the research findings are described herein and are supported by extracts from the transcriptions. Transcriptions have undergone light editing (e.g., removal of repeated words or phrases, and changes of tense) to make them more readable.

## Results and Discussion

### *Students' perceptions of difficulties associated with international placements*

The first research question concerned students' perceptions of difficulties encountered in their international placements, with the research findings summarized under subheadings derived from CPIs.

### *Delays in immigration processing and travel plans*

Students routinely encountered difficulties and delays in the processing of work permits and other immigration requirements. In many cases this resulted in considerable anxiety as a result of delays caused to travel plans and complications with anticipated starting dates. Steve's description of the process required to obtain his New Zealand

work permit is typical.

*Interviewer:* You came to New Zealand with a work permit. Do you want to tell me how that happened? Did you organize that or did your University organize that?

*Steve:* It was a nightmare. We had to apply to New Zealand House, my placement coordinator and myself. She wrote off to New Zealand House asking for immigration forms, they then sent them back to the University and I had to fill out loads and loads of forms.

*Interviewer:* Roughly how long did it take to get your work permit?

*Steve:* It seemed like ages. I think I applied in May and I didn't get the visa until two days before my flight was leaving.

*Interviewer:* You had the flight already booked?

*Steve:* I had a flight booked yes and we were hoping that I wouldn't have to change the flight times. It probably took over a month from them receiving it until I actually got my passport back with a visa in it.

Similar sentiments were expressed by other international co-ops travelling to New Zealand. Sarah, from the Netherlands, commented, "I had a lot of trouble. It took nearly six months" and Lisa likewise stated, "it was a lot of hassle, a lot of running around." Don, travelling to New Zealand from the USA, was required to procure an international plane ticket before securing a work permit: "when you submit a work permit you have to show you have gained entry. So I had to produce a copy of my ticket." This led to considerable anxiety when there were delays since his ticket was non-refundable, and at the time his employment was not confirmed: "I was getting nervous. I had just spent almost a thousand [US] dollars and I didn't have an offer of employment." The most extreme complication was that experienced by the Australian student, Neil. His first choice for an international placement was America. However, he reported, "I was unable to get a working visa." Consequently, his international placement occurred in New Zealand, his second choice. New Zealand students travelling overseas expressed similar views. For example, Bob stated that "it was all really rushed

and I had to actually cancel flights. It was very stressful, because everything was like done at the last minute."

### *Cost*

All participants were required to pay for their own international transport; consequently, few participants had saved any money upon completion of their placements, despite in some cases being quite well paid. Because students were briefed in advance about living costs, these were typically as expected. However, even when the students were able to save money, they usually spent it on local or nearby international travel. Brian's response was typical.

*Interviewer:* How did you find the salary overall?

*Brian:* Well when I first got there I had a little note saying what my salary would be. I converted from [English] pounds to New Zealand dollars and I was overjoyed. Everybody warned me that it would be much more expensive over there, which it was. Overall I lived, I managed to save a considerable amount of money, which I then spent travelling. So really, they were paying me more than enough.

*Interviewer:* Had you anticipated saving money before you went there? Was that something that you planned to do?

*Brian:* It was something that I planned to do yes, but I wasn't sure how successful I was going to be. When I started living there I worked out how much it cost for rent and food every week. I realized that I could save at least half of my pay.

Chris likewise spent most of his accumulated savings on travel, "I was able to save a bit and then spend it all on trips"; and Lisa commented, "I managed to save some money as well, basically I was just saving money to visit places in Australia."

Lack of money inhibited local travel in some instances, since it precluded transport options like the purchase of a motor vehicle. This was perceived as a significant disadvantage since one of the principal intentions of going on an international placement was to travel within the host country. This situation arose for students on placement in New Zealand, where local transportation services are limited and expensive by comparison with more

populous countries such as in Europe and the USA as pointed out by Steve.

*Steve:* Well I haven't got to see anything other than Hamilton [New Zealand] at the moment other than the ski field. I mean, I'd like to go and see anything, basically go and see Rotorua and Auckland.

*Interviewer:* What inhibited you in that?

*Steve:* No car, that's basically it.

Interestingly, in some cases cost to the individual arose from apparent inequities in host co-op programs as explained by Sarah.

*Sarah:* If you go overseas, if you stay in Europe you get \$3000, just because you are going overseas in Europe. So when you go to Germany, you are just three hours away from Holland, and you get \$3000. But when you go to New Zealand or anywhere around the world you get nothing.

#### *Lack of relevant work skills*

Difficulties in securing international placements meant that a number of the participants were put into placements for which they lacked the appropriate academic background and training. For example, Bob, an Earth Sciences major, undertook a chemistry placement, while Don, a mechanical engineer, took a civil engineering placement. This produced some initial anxiety as seen in Bob and Don's responses.

*Interviewer:* Did you feel that you had an adequate educational background for the tasks they wanted you to do?

*Bob:* Um, sort of yes and no, because it was a different field from what I studied. But I'd picked up the way to research and I learned how to learn things quickly.

*Interviewer:* What field of study had you done before you went?

*Bob:* I had done Management and Earth Sciences and the placement was environmental chemistry.

*Interviewer:* Had you done any chemistry in your undergraduate degree at all at that stage?

*Bob:* Not really. No.

*Interviewer:* None at all?

*Bob:* No. But I just picked it up as I went along.

*Don:* I was just keeping an open mind. I just wanted to learn something because I was outside

my field; I figured that you aren't really going to advance your mechanical degree that much here.

*Interviewer:* So has that broadened your engineering knowledge in a sense?

*Don:* Yeah. That combined with the fact that it is international work.

This sentiment was echoed by other students with Denise commenting that "I went into that placement not knowing anything other than basic lab skills," and going on to state "it didn't take me long to get up to speed."

A relevant factor may be that examination of these students' academic transcripts revealed that participants were academically high-achievers. This, coupled with the fact that they were relatively self-confident individuals, meant that the students soon overcame their anxiety and considered that they benefited from different learning experiences. Interestingly, Chris, a chemist who completed a chemistry placement, suggested that background in the subject discipline is not as important as coordinators think and pointed out that "the specific nature of the work was such that you felt it was the type of material that you would be unlikely to be taught at university anyway."

#### *Homesickness and loneliness*

Homesickness and loneliness were significant issues for many students, especially at the early stages of the placement. Linda stated, "Melbourne is not a place to be on your own." Sarah encountered difficulties in that she was initially accommodated with an elderly person, which she found socially inhibiting, commenting "I think it is best if I am with people of my own age." Interestingly, she then secured accommodation with university students. However, this proved unsatisfactory, as she became lonely when they went on summer vacation. Rapid enculturation into the workplace social environment served as the most effective way of alleviating homesickness.

*Steve:* At work my boss has been great. He is a great person to talk to. He tries to be funny.

*Interviewer:* So you find him approachable?

*Steve:* Oh yeah, all of the people at the company are very approachable which makes it a lot easier,

and so if you've got a problem you can just go up and talk to them.

*Interviewer:* That's across all levels of the structure of the organization?

*Steve:* I wouldn't like to go up to the Managing Director and start blabbing about problems with the machines. But all of the Section Heads were really approachable.

*Interviewer:* So you are on quite relaxed terms, quite informal?

*Steve:* Yeah I mean I'm playing cricket with the Section Leaders and that involved going out for a few beers afterwards. So it was pretty relaxed.

*Interviewer:* Is that different to what you expected?

*Steve:* Yes. In England you'd never speak to your boss as much as I have done here in a short period.

Lisa likewise found that social activity with workmates helped alleviate loneliness. "I played volleyball with people from work and sometimes we had lunch and drinks after work." Enculturation into the workplace social environment resulted in friendships that afforded students travel opportunities that were otherwise precluded because of lack of transport or on the basis of cost. Furthermore, students found electronic mail a valuable means of alleviating loneliness and feelings of isolation as seen in Lisa's comment: "when I first started working I felt so bad. I was really homesick. The email really helps. Now I am happy here, it helps that I get a lot of email."

#### *Lack of preparation for placements*

Students universally felt under-prepared for their placements. Specifically, they felt ill-informed about the nature of organizations and the tasks they would be facing during their placements as seen in comments by two New Zealand students, Brian "the fax that I got in New Zealand that told me what I was supposed to do was a little cryptic," and Chris "what I was going to be required to do was never really set up from the start." Students visiting New Zealand also felt under-prepared regarding their work duties and other aspects of their placement, such as climatic conditions. Don, for example, stated, "I didn't have much idea of what I would be doing." More importantly he was unaware that

climatic conditions in his host city were aggravating for asthmatics; this ignorance ultimately resulted in a brief period of hospitalization.

Heller and Geringer (1984) point out that the issue of inadequate preparation has plagued international placements. It is interesting to note that the present inquiry seems to suggest that it is an on-going problem despite efforts by a number of co-op organizations to improve the process (Reeves, Schultz, & Laslett, 1997).

#### *Students' perceptions of the advantages of completing an international placement*

The second research question concerned students' perception of the main advantages of completing an overseas placement with the research findings summarized under subheadings derived from CPIs. Students identified a lesser number of benefits, with remarkable commonality about what the students, coming from quite diverse backgrounds and undertaking diverse placements, perceived as the most important advantages.

#### *Raising self-confidence*

Students universally reported that the major benefit of participating in an overseas placement was that it raised their self-confidence. Brian's rather detailed response summarizes the situation. "I think the greatest thing about travelling is that you have to everyday find a new way of doing things. You have to rely on yourself and just get things done. When you arrive in a place, you don't speak the language, you don't know anyone, you don't have a place to stay, and you've got to go and find somewhere to stay and find out what there is to see and that sort of thing. It is very difficult at first. But once you get used to it, it builds your confidence, and you just learn to go out and be more assertive. I think that is the greatest thing about travelling. It is really just the learning experience and growth that you get through doing that. When I got here I knew the name of one person who was meeting me at the airport, and that was scary. So you have to go out, you have to make friends, you have to do things. Like you have to find a place to stay and you have to get on with your flatmates. I

was struck at how much I've grown over the year. I look back at what I was like before I left and what I'm like now. You do grow a lot. I think if I'd stayed in New Zealand I wouldn't have grown the way that I did and I'd still be five years behind."

Interpretation of these views requires some caution; other studies have revealed that employers and co-op practitioners have observed increased self-confidence for co-ops as a result of locally based work placements (e.g., Mueller, 1992; Sarkali & Jain, 1997). However, students' perceptions found in this work are consistent with other research which found that co-op coordinators observed an increase in maturity and confidence for international co-ops compared with their peers who undertook local placements (Inglis, 1987; Inglis & Lynch, 1990; Ormsby, 1998).

#### *Enhancement of career prospects*

Another widely held perception was that students believed international co-op placements would enhance their career prospects. Students believed that employers would view this as a strong indicator of their ability to cope with new situations, as seen in Chris's comments.

*Interviewer:* Do you have a perception that it has improved your job prospects at all?

*Chris:* I hope so. The fact that you have work experience definitely counts in your favor, and the fact that it was overseas, the fact that you are showing that you leave your roots; you're able to go over for that period of time. Plus it shows, I suppose, that you've got the academic ability, that people over there want you to travel a distance to come work for them for that period of time. I think that helps a fair bit as well. Hopefully it will look very good on my CV, impresses potential employers.

Lisa held a similar view. She stated she believed commercial organizations in the Netherlands would view overseas placements, and subsequent improved English competency, favorably.

*Interviewer:* Do you think having traveled overseas and worked overseas is useful in terms of how an employer will view you when you are looking for other work?

*Lisa:* Yes. The fact that I have had the guts to do

this, and to talk in English shows something about whom I am.

#### *Enhancement of language skills*

For the two Dutch participants, English was one of several second languages. A key objective of their New Zealand placement was to enhance their English speaking skills. Sarah, in particular was concerned about her English language competence "in Holland I was a bit afraid and shy to speak in English, because I think that they would laugh at me." Consequently for her, and Lisa, participating in an overseas placement in New Zealand where there was little opportunity to converse in their first language resulted in a steep learning curve. "I thought if I go to New Zealand for six months, I have to speak English, I am forced to." She went on to comment that she soon developed the ability to think in English, "now I can understand [English speaking] people. When I speak to my parents on the phone I am speaking Dutch, and then between my lines, I say something in English and they don't understand."

It is interesting to note that virtually all the participants in this inquiry spoke some other language before going on an international placement. All students reported a few difficulties in language use, in relation to accents or clarity of speech. Chris commented, "some of the accents took a while to interpret. In my first couple of days I was introduced to a couple of Welsh people and I couldn't understand them. But after a while it grows on you."

The use of colloquialisms resulted in a few instances of minor social embarrassment. Sarah, for example, reported confusion between "dykes" and "lesbians", and Don reported confusion between "rubbers" and "condoms", but neither appeared especially distressed by the experience.

#### *Cultural experiences*

It is an interesting aspect of this inquiry that all of the students possessed an international family background, or were comparatively well traveled before going on the placement. Nonetheless, participants indicated that it was an objective for them to gain experience of a different culture. This was

subsequently realized in their placements. For example, Chris stated "I learned an awful lot over there about English people. I suppose the experience of other cultures...I wouldn't have thought it would be so diverse." Brian, a self-confessed art-lover, revealed that the London art scene was a major plus: "I did the museum circuit in London most weekends. The great thing about London is that they have got museums that you can go back to time and time again and not get bored. I must have gone back to the National Gallery at least eight times. I did a lot of museums and art galleries."

Students visiting New Zealand were more interested in adventure tourism and outdoor pursuits. For example, Don reported that he completed a bungee jump, and Sarah and Lisa enjoyed partaking in a New Zealand "Kiwi Experience" outdoors adventure package tour. Interestingly, several students felt their placements gave them the opportunity to act as cultural ambassadors for their own country. Don's comment was illuminating. "It was interesting. I had heard this before, and I think to a degree I have confirmed it being here. A lot of people think that people in America are obnoxious, especially when they travel in groups. But if you are by yourself, then you kind of say 'I am just like you, there is no difference, I talk a little different, do things a little different' you know, whatever. It was fun to dispel rumors about Americans."

Cultural experiences were not restricted to aesthetic or outdoor pursuits. Several students commented that their international placement enabled them to experience a different business culture as seen in Chris's comment, "an experience of other cultures was fairly important as well as other sorts of business organizations, their sort of style, their attitudes, that sort of thing." It is interesting that a number of overseas students anticipated that the New Zealand business culture would be less relaxed in nature than they experienced. For example, Neil commented "I thought they'd be a lot stricter" and Don found New Zealand "pretty laid back and friendly" but pointed out "I don't think people could be anymore laid back than people from certain areas in the States."

## Summary and Conclusions

The findings of this inquiry revealed that despite the problems, anxieties, and hassles encountered, students perceive an international work placement as a tremendous opportunity. Brian's reflective comments summarize the general feeling succinctly.

"The rewards are so great. In fact it has been the best year of my life. It is something that, looking back at it, it is something I wouldn't want to give up. Before I went I was quite apprehensive because there was such a risk. I didn't want to be so far away from everyone that I knew and that sort of thing. But it was such a great year, I guess I was lucky I got a good job and nice people and had a good experience. So it was something that really is valuable. It is a year that I will probably look back on for the rest of my life."

The participants also recommended that co-op practitioners encourage more co-op students to undertake international placements. As Alan put it: "I'd like to quote a Chinese proverb 'the last one to know there is an ocean is the fish.' What I mean by that is you don't know what you are, living in New Zealand, until you leave it. I feel by going overseas you gain a new perspective of life. I gained new ideas, new ways of thinking."

It is interesting that the students have reported that the greatest advantages are in development of their so-called soft skills such as self-confidence and communication. Some of these skills may have been developed as a result of an overseas experience, with or without co-op work experience. However, the fact that the participants in this inquiry gained these skills in the context of a technical work environment means that they have gained confidence in, for example, the communication of their knowledge to their peers, colleagues, or non-technical staff, in their subject discipline. Marini and Tillman (1999) point out "soft and hard skills [are] needed in today's workplace" (p. 50) and believe "cooperative education helps students develop those skills" (p. 50). This is in accord with the views of employers of technical graduates as reported by Hodges, Rainsbury, Sutherland, and Wong (1998), who found employers rate soft-skills such as communication, report writing and interpersonal skills



highly.

Mehta (1999) believes that knowledge of other cultures is becoming increasingly important. He asserts that the economies of Asia will soon become the major player in international commerce. Consequently, he believes commercial organizations from the USA, Europe and Pacific Rim will increasingly be forced to interact with people from a culture different to their own. Mehta suggests that this is best facilitated by an in-context knowledge of the cultures of Asian nations, suggesting that co-op practitioners "urge students to travel and see the changing economic and political dynamism that exists today" (p. 65) because if "students can get co-op opportunities with them [overseas organizations] either part time during the normal study program or full time by taking a semester or two off, it could be of tremendous value to them" (p. 66). One of the benefits of international experience is that it helps students to gain wider experience and helps to dispel stereotypes (Langford, 1994). The results of the present inquiry support the views of Mehta and Langford that international co-op can serve to break down cultural barriers and produce graduates that possess a more global perspective.

### **Implications of the Inquiry for Co-op Practitioners**

The results of the present inquiry contribute to the co-op literature in that they provide data on students' perceptions of international co-op placements. In particular, the inquiry has helped to identify issues of importance to international co-ops. It seems that, with comparatively little modification to the placement process, a high rate of success is possible, thus allowing students the opportunity to realize the benefits they identified.

Since this is a naturalistic inquiry it is inappropriate for us to generalize the findings. Rather we have followed procedures that represent common practice for naturalistic inquiries. In naturalistic inquiries, generalizability is replaced by transferability. Merriam (1988) describes transferability as "the extent to which the findings of one study can be applied to other situations" (p. 173). Guba and Lincoln (1989) point out that for naturalistic

inquiries the onus is shifted from the inquirer to receiver. Thus the naturalistic inquirer describes the context of the inquiry and provides detailed descriptions of methodology and interpretation: it is then up to the reader to decide if the findings are relevant or pertinent to their own situation. The normal means for facilitating the process of transferability is to provide a detailed description, commonly incorporating extensive portions of verbatim transcript in order to "facilitate transferability judgements on the part of others" (Guba & Lincoln, 1989, p. 242).

The problems identified by students tended to be related to the mechanics of placement facilitation, for example, waiting for work permits, planning travel etc. It might be expected that a potential solution to such problems is to establish good working relationships with international partner institutions (De Qiang, 1993; Lee & Swinth, 1986; Inglis, 1987; Varty, 1996). However, the present work was conducted on a cohort of students for which there was, at least in the minds of the co-op coordinators involved, a coherent and well-structured organization. It is interesting that despite this, students' perceptions were so highly attuned to the 'mechanics' of the co-op placements. It seems that this inquiry points to a disparity between co-op coordinators and students perceptions, as regards how smoothly the international placements proceeded.

The findings of this inquiry afford a number of recommendations. It is recommended that coordinators better prepare their students before going on placement. This should comprise a detailed description of the organization, the duties required and skills necessary for the placement. A further recommendation is that coordinators need to be more sensitive to students' concerns, especially the stress students experience as a result of delays in immigration proceedings. Wherever feasible, every effort should be made to initiate international placements with adequate lead times to complete immigration formalities well in advance of intended travel plans. International co-ops should be placed in organizations that have a preponderance of young people, with an active social environment. Likewise, accommodation should be with young people,

preferably those associated with the workplace and students need easy access to electronic mail facilities.

Such measures would likely significantly ease their enculturation and reduce the likelihood of loneliness.

### Suggestions for Further Research

It seems that despite the establishment of strong partnerships between the co-op institutions involved in the inquiry, there were a number of issues that caused students considerable stress. It may be that other co-op practitioners have formed the impression that international exchange partnerships result in a comparatively stress-free international placement process. However, the results of this study suggest students believe otherwise, and it would be valuable to see how prevalent and widespread this is. Furthermore, given the increasing importance of Asia in the global economy, it would be interesting to conduct a similar inquiry to ours, but in an Asian context.

### References

- Chapman, R. (1994). *Cooperative education in science and technology: The degree that works*. In *Industry and Education — The Cooperative Venture*, Proceedings of the Asia-Pacific Conference (pp. 48-51) Auckland: New Zealand Association for Cooperative Education.
- Chapman, R., & Kirk. (1992). Science and technology management: Designing an undergraduate course. *Research in Science Education*, 22, 225-259.
- Coll, R.K. (1996). The BSc(Technology) degree: Using co-operative education to meet the science education needs of today. *Education Today*, 46(3), 53-57.
- Coll, R.K., & Chapman, R. (2000). Service quality of a cooperative education program: Employers Perspective. *Journal of Cooperative Education*, 34(1), 17-30.
- Coll, R.K., Owusu-Banno, A., & van Loon, N. (1999, March). *International co-op exchange for undergraduate chemistry students: Perceptions of benefits and barriers*. Paper presented at the Annual New Zealand Conference on Co-operative Education. Rotorua, New Zealand.
- De Qiang, L. (1993). The forms of cooperative education and their key elements. *Journal of Cooperative Education*, 29(1), 53-60.
- Denzin, N.K., & Lincoln, Y.S. (Eds.). (1998). *Collecting and interpreting qualitative materials*. Thousand Oaks, CA: Sage.
- Dowdle, K.L. (1996). A students' perspective on cooperative education exchange schemes: My time with slime. In *Proceedings of the Second Pacific Conference on Cooperative Education* (pp. 605-610). Melbourne: Australian Cooperative Education Society.
- Erickson, G. L. (1979). Children's conceptions of heat and temperature. *Science Education*, 63(2), 221-230.
- Erickson, G. L. (1980). Children's viewpoints of heat: A second look. *Science Education*, 64(3), 323- 336.
- Gorman J., & Scott, A. (1996). Blending Tetley GB with Swinburne University students produces all rounders: Experiences of the co-operative education exchange program. In *Proceedings of the Second Pacific Conference on Cooperative Education* (pp. 477-490). Melbourne: Australian Cooperative Education Society.
- Guba, E.G., & Lincoln, Y.S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.
- Guba, E.G., & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (pp.105-117). Thousand Oaks, CA: Sage.
- Heller, B.R., & Geringer, W. (1984). Selected problems of international cooperative education: The USA as a sender and receiver of study-abroad students. *Journal of Cooperative Education*, 20(3), 41-52.
- Hodges, D., Rainsbury, E., Sutherland, J., & Wong, C. (1998, August). *Collaborative assessment: The employers' perspective*. Paper presented at Asia-Pacific Regional Conference, Hong Kong.
- Inglis, T.L. (1987). Nigeria-International links and the role of sandwich placements. *Journal of Cooperative Education*, 22(3), 25-33.
- Inglis, T.L., & Lynch, A.M. (1990). The role of sandwich education in the transfer of quantity

surveying technology to the Third World: The Malawian experience. *Journal of Cooperative Education*, 27(1), 65-68.

Langford, D.R. (1994). Dispelling stereotypes in a multicultural co-op environment. *Journal of Cooperative Education*, 29(2), 27-44.

Lee, J.B., & Swinth, R.L. (1986). Cooperative education as a component of an international exchange program. *Journal of Cooperative Education*, 22(3), 64-71.

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage.

Mathison, S. (1988). Why triangulate? *Educational Researcher*, 17(12), 13-17.

Marini, R.C., & Tillman, R.R. (1999). Giving graduates worldwide the business skills they need through cooperative education. *Journal of Cooperative Education*, 33(2), 50-59.

McCallum, B.A., & Wilson, J.C. (1988). They said it wouldn't work (A history of cooperative education in Canada). *Journal of Cooperative Education*, 24(2-3), 61-67.

Mehta, K. (1999). The dynamism of Asia: Opportunities for cooperative education. *Journal of Cooperative Education*, 33(2), 64-67.

Merriam, S.B. (1988). *Case study research in education*. San Francisco: Jossey-Bass.

Mueller, S.L. (1992). The effect of a cooperative education work experience on autonomy, sense of purpose and mature interpersonal relationships. *Journal of Cooperative Education*, 27(3), 27-35.

Ormsby, P. (1989). A comparison of the effects of study abroad and international student internship experiences. *Journal of Cooperative Education*, 25(3), 56-65.

Patton, M.Q. (1990). *Qualitative evaluation and research methods*. Newbury Park, California: Sage Publications.

Peshkin, A. (1993). The goodness of qualitative research. *Educational Researcher*, 22(2), 24-30.

Reeves, R., Schultz, R., & Laslett, B. (1997). *A guide for developing international co-op programs*. Victoria, British Columbia: Hillside Printing & Copy Centre.

Rollnick, M. S., & Rutherford, M., (1990). African primary school teachers — what ideas do

they hold on air and air pressure? *International Journal of Science Education*, 12(1), 101-113.

Sarkali, J., & Jain, R.K. (1997). Cooperative international engineering education. *Journal of Cooperative Education*, 32(3), 6-15.

Stull, W.A., Crowe, D., & Braunstein, L.A. (1997). An investigation to identify needed research in cooperative education. *Journal of Cooperative Education*, 32(2), 30-35.

Wiersma, W. (1986). *Research methods in education an introduction* (4th ed.). Boston: Allyn and Bacon.

Varty, J.W. (1996). Partnership an essential condition for sound cooperative education practice. *Journal of Cooperative Education*, 31(2-3), 132-139.

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