

# Student Mentors in ICT Education

Aaron Steele  
UCOL  
a.r.steele@ucol.ac.nz

Sarah Snell  
UCOL  
s.snell@ucol.ac.nz

Catherine Snell-Siddle  
UCOL  
c.snell-siddle@ucol.ac.nz

## ABSTRACT

This paper examines the unique learning environment that exists when ICT (Information and Communications Technology) students undertake cooperative education student mentoring roles within the ICT education industry. Specifically, the utilisation of third year (level 7) ICT degree students in mentoring roles for lower level (3 and 4) ICT students is examined. The study presents the results from an initial implementation of a student mentoring programme and discusses a number of factors that emerged from the experience. In particular, reflective comments from the mentoring students are presented and discussed with regards to the overall experience. Although this paper is focused on mentoring within the ICT education industry, many of the issues discussed will likely be applicable across the tertiary education sector.

**Keywords:** Student mentoring, ICT Education

## 1. INTRODUCTION

In many New Zealand Institutes of Technology it is common to have lower level stair-casing programmes that prepare students to enter Level 7 bachelor degrees in ICT and computing (Steele, Snell-Siddle, & Snell, 2012). At the Universal College of Learning (UCOL) the Bachelor of Information & Communication Technology (BICT) degree is preceded by a Level 3 Certificate in Information Technology for Business (CITB) and a Level 4 Certificate for Advanced Computer Users (CACU). Students beginning tertiary education, who do not have the prerequisite entry criteria for the degree programme, often choose or are directed to enrol in either one of both certificate level programmes as a way to gain entry into higher study. The students gain the necessary prerequisite knowledge which then enables them to make the transition into study at degree level. However, student engagement and successful qualification completion within the certificate programmes can suffer due to either student attrition or underdeveloped study skills. Often these students are seen as having the potential to succeed but can fail to capitalise on this opportunity due to various distractions and reasons in what for many is a new learning environment at the tertiary level. Common distractions seen within the certificate student cohort include: social media; gaming; personal social issues; attitude towards learning; self-efficacy; and coping with the freedom afforded by the tertiary environment compared to secondary school.

According to the literature, mentoring can be an effective approach for providing an additional layer of support for at risk students (Luecke, 2004). According to Bell (2002, p. 133) "A mentor is simply someone who helps someone else learn something that he or she would have learned less well, more slowly, or not at all if left alone". The function of a mentor includes the demonstration of the kinds of behaviours, attitudes, and values that lead to success. The mentor is also able to encourage new ways of thinking and acting, and pushes the mentee to stretch his or her capabilities (Kram, 1988; Luecke, 2004).

At UCOL a suggestion was put forward to utilise third year BICT students as mentors for the lower level CITB and CACU students. However, it was quickly noted that in order for this mentoring arrangement to be successful the BICT students would require additional support from the UCOL teaching staff on how to effectively mentor the CITB and CACU students. Interestingly, this mentoring of mentors would essentially be a cooperative education experience for the BICT students in the ICT tertiary education sector. In addition, the relationship between the BICT mentors and the CITB and CACU students also emerged as an interesting topic in of itself. Consequently, the focus of this paper is on the unique relationships that exist in this environment between the UCOL staff, BICT mentors, and certificate students.

Typically, cooperative education or work-integrated learning (WIL) focuses on the learning environment where students participate in an industry based component outside of the educational institute as part of their studies. This work-integrated learning environment is said to require a three way partnership between the student, the workplace and the tertiary organisations (Martin & Hughes, 2009). This partnership usually includes a workplace mentor and an academic supervisor. Interestingly, this partnership takes on a slightly different dynamic when the educational institute is also the workplace. The utilisation of BICT students in mentoring roles within UCOL results in this unique cooperative education partnership where the roles of the workplace mentor and the academic supervisor overlap in a way not normally encountered in cooperative education.

Although the UCOL ICT lecturers are experienced within computing education and are often involved with the supervision of students engaging in traditional cooperative education projects, the role of a workplace mentor is a fundamentally new responsibility. Furthermore this unique situation introduces a number of elements that would not normally arise in a traditional cooperative education environment. These elements include: the overlap of the academic staff member being potentially both a workplace mentor and a supervisor/assessor; the expectation for the student to function and alternate professionally between mentoring and student roles within the institution; professional boundaries (student to lecturer versus collegial relationship); and student privacy and confidentiality. These elements will be discussed further in the following section.

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The underlying research question of this study asks whether the mentoring programme (as described) is effective, and what challenges exist with implementation.

## 2. IMPLEMENTATION

The implementation of the mentoring arrangement at UCOL began with an initial discussion between the BICT lecturers and the CITB and CACU lecturers in order to establish a unified understanding of the role of the mentors and how they would be most effective within the existing programme delivery structures. The next step was identifying suitable candidates who were then invited to participate in the mentoring programme for either CITB or CACU. This mentoring programme was run as a Level 7 Special Topic course which allowed students to gain 15 credits towards their programme of study. Students who accepted the invitation then undertook an induction session where mentoring roles were explained and discussed. At this point, a non-disclosure statement was also signed by the student mentors to ensure confidentiality of CITB and CACU student information. Subsequently the student mentors were introduced to the CITB and CACU classes with approximately 1:10 mentor to student ratio. The student mentees also completed a mentoring consent form during this initial introduction. The planned weekly structure for the student mentors involved four main contact points. First, the mentors meet with the UCOL ICT academic staff (this group functions as the workplace mentorship team) at the beginning of each week to discuss student progress, delivery plans, and mentoring requirements with a workplace focus. Secondly, the mentors discuss the mentoring programme from an academic standpoint with their assigned academic supervisor (who is also part of the workplace mentorship team). Thirdly, the mentors attend mentoring sessions with the mentee students. Finally, the mentors provide a progress report via email to the UCOL academic staff members involved with the programme.

The non-disclosure and mentoring consent forms were introduced as a way to ensure confidentiality of student information. The forms were essentially there to emphasise to the mentors that mentee information was confidential and that it should not be shared with the same liberty as other study related materials. This was required due to the privacy obligations within the ICT tertiary education industry, a principle that academic staff are highly cognisant of, yet is new territory for the student mentors.

As mentioned, in a normal cooperative education environment there is usually a clear distinction between the academic supervisor's role and expertise, and the role and expertise of

the workplace mentor. However in this situation, the two roles overlap in a variety of ways. For example, the academic supervisor also participates as part of the workplace mentorship team. Due to the regular weekly meetings between the student mentors, the mentorship team, and the academic supervisor (as part of the mentorship team), all three parties are able to maintain a strong consistent level of communication. This results in a high level of cohesion between the expectations of the student, the workplace, and the academic institution, a factor which is sometimes a challenge in traditional cooperative education situations (Bates, Bates, & Bates, 2007; Rowe, Mackaway, & Winchester-Seeto, 2012).

Interestingly, during development a unique challenge was identified relating to the dual role of the student mentors. On the one hand they are entering a workplace where they are expected to function and behave professionally with co-workers in a collegial type manner, that is, there to help the CITB and CACU students as part of the teaching teams. However, concurrently these students are also studying at the same academic institute and are also required to interact with academic staff on a student to teacher level. As a result, a clear understanding of these two relationships is required on both the part of the teaching staff and the mentor students in order to ensure professional and appropriate interaction is maintained. Furthermore, an additional understanding is required on the part of the mentor students regarding the mentee students, as they have potential interaction in both mentor to mentee modes and student to student modes. Consequently, in order to help understand and manage these relationships the mentor students participated in a boundaries and expectations induction session at the beginning of the programme.

During the development stages of the mentoring programme a number of concerns were also raised by the CITB and CACU teaching team members which included: in class lecturer and mentor dynamics, consistency of teaching, and the level of help that would be provided. Interestingly, a preference arose for the student mentors to work with the mentee students during separate sessions aside from the regular teaching time. Lecturing staff preferred working with the students without the presence of the mentors. This resulted in specifically timetabled study plus mentor sessions for the students where in the lecturers were not present (see Figure 1). Teaching staff also had to ensure that the direction and guidance the mentors were providing students corresponded to the teaching methods and concepts provided by the lecturer. This was done to guard against the mentors leading mentee students in alternative

	Monday	Tuesday	Wednesday	Thursday	Friday
9-10	Meeting(s)				
10-12	Class	Class	Class	Class	Mentoring
12-1					
1-3	Class	Class	Class	Class	
3-4			Mentoring	Mentoring	Email Report

Figure 1. Initial Mentor Schedule

directions which may have resulted in unintentional confusion. Finally, the mentor students had to be briefed regarding appropriate levels of assistance in order to emphasize the difference between helping and doing.

The first implementation of the mentoring programme was conducted during the first semester of 2014 and involved five student mentors (two female, three male). The following section presents and discusses the outcome and lessons learned from this first implementation.

### 3. RESULTS & DISCUSSION

#### 3.1 Structure Updates

Early on in the semester it became apparent that the afternoon mentoring sessions were proving ineffective and unpopular with the certificate students. This was due to a number of factors such as: student fatigue, childcare and/or work commitments, and other external commitments. Ultimately this resulted in mentoring sessions that were poorly attended, and often those who did attend were already on track and fully engaged with their studies. Consequently, it was decided that a simple shift of the mentoring sessions to a morning slot between 9am and 10am would address some of the afternoon attendance issues with the earlier time being more suitable to the student body. This resulted in a slight adjustment to the weekly mentor schedule (see Figure 2).

Although the rescheduling of the mentoring sessions to the earlier time slot helped improve student attendance it was

mentors and the students needed to reach a level of comfort before assistance could be effectively provided.

“My experience with the students started off a little slow as they were just starting to get used to me being around and helping them. A few students were somewhat shy to ask me for help or ask me to have a look over their work. This I felt was understandable as they didn’t know me and didn’t know what skills I could bring to the table and help them with.”

“Working with students was a bit of a challenge at first, this was due to the fact that I am a student myself and I had to step into the mentor roll. Another challenge was getting the students to open up and allow me to help them when need be.”

“Over the first few weeks my relationship with the students grew and they got used to me being around in class and walking around and asking them about different questions and what they were working on. There were only a few students that were still refusing to let me help them, but I saw this as a plea for help. I started trying to get more involved with these students by sitting down with them more and going over the work they had completed or needed to complete.”

Once a certain level of trust and comfort was achieved the mentors felt they were then able to more easily provide support to the students.

	Monday	Tuesday	Wednesday	Thursday	Friday
9-10	Meeting(s)		Mentoring	Mentoring	
10-12	Class	Class	Class	Class	Mentoring
12-1					
1-3	Class	Class	Class	Class	
3-4					Email Report

Figure 2. Updated Mentor Schedule

noted that many of the students who were most in need of mentoring were still electing not to attend. As a result, the mentoring sessions were reframed to show added value to the students. This included required attendance from students with outstanding resists, and also an additional requirement of pre-assessment mentor checks. This worked well for most students.

#### 3.2 The Mentors’ Experience

As part of the academic requirements of the Special Topic course in which the students were undertaking the mentoring programme, a final report and presentation were completed at the conclusion of the semester. This information coupled with the weekly meetings provided unique insight into the student experience of the mentoring programme. The following section includes quotes from the mentors’ which highlight the key theme’s that seemed to emerge from their perspective.

The first theme that emerged was that there was an initial warming up period where the relationship between the

“By approaching the students as one of the peers not only gained there trust, but allowed them to open up. After this I was able to put on the ‘mentor hat’ and help them with any problems that they had. Talking with the students about the BICT course helped to build a rapport with the students and also informed them of their possible future studies.”

“During the middle of the semester most of the regular students who showed up for the class were very comfortable with having the mentors around and knew they could ask me anything and I would sit down and help them. I started getting involved more and giving the students more feedback on how they could make their work better”

“Over time I got to know the students and they allowed me to help. After that it was smooth sailing from there. I really enjoyed helping the students and working through problems together.”

The mentors also found that different approaches were required for different students.

“One thing I learned is that students all work differently so there is no single approach you can take with them, but in saying that you cannot spend your time trying to cater for every student otherwise you’ll never get anything done. The best method is to cater to most students and to try using a different approach with the rest of the students.”

“The biggest thing I learnt this semester would be the different teaching styles of which you can go about things. Not everyone learns the same and some students either need extra attention or to be left by themselves to get things going on their own.”

“A few students did not really want me to be there so I had to approach them differently and talk to them differently from the other students.”

Another common lesson learned by the mentors was importance of developing the ability to help a student with their work without doing it for them.

“I have learnt to be patient and to not jump in straight away. I needed to let the students do it themselves, and with my guidance they succeeded. If I had jumped in and taken over they would not have learnt how to do it.”

“I also learnt self-control. As a mentor instead of doing the work for the students I guided them on how to do it. Showed them in their books where they could find the answer or showed them websites on how things can be done different ways.”

Being careful to provide assistance at an appropriate level was also another common theme expressed by the mentors.

“The biggest barrier I found with students was the fact that I was mentoring at such a low level and had to make sure I didn’t overcomplicate my explanations. I found that as long as I gave them examples and explained why things worked using face value then they would be able to follow along.”

“If I could give advice to future mentors it would be to make sure you learn the same content as the students so you understand their work... you need to be teaching

them at their level not your level.”

The mentors also commented on the unique relationship they had with the UCOL teaching staff.

“At first it started off slow because I didn’t know the boundaries of what I could and couldn’t say to them about the students and if what I was going to say would be appropriate or not... as time progressed throughout the semester I became a lot more comfortable with them and them with me.”

“Overall working beside the lecturers was a great experience. It gave me the experience of working with someone higher ranked than me but being able to get along and communicate with them in a professional and non-professional manner.”

“Working in with the lecturers that taught the course each week was a great help and meant we managed to stay on the same page in regards to the students. I found it to be a good experience and interesting to see how things work behind the scenes, having always been in the student role until now.”

“Working with the UCOL staff was an entirely different aspect of this paper. Since I have completed this course in a previous year, I had already built a rapport with the lectures. This made it a bit easier for me, but I still had to make the conversion from ‘student’ to ‘mentor’. It was weird at first being on the same level as them. Once I had overcome this it was a lot easier and I looked forward to our weekly meetings.”

In summary, upon reflecting on the semester, the mentors expressed a number of common themes which included: the necessity of building rapport with students, learning to help students without ‘taking over’, providing assistance at an appropriate level, and working professionally with both teaching staff and students.

Interestingly, when the mentors’ experiences are considered a reasonably complex set of multiple relationships begin to emerge. Figure 3 provides a graphical representation of numerous roles and relationships that emerged during the implementation of the mentoring programme.

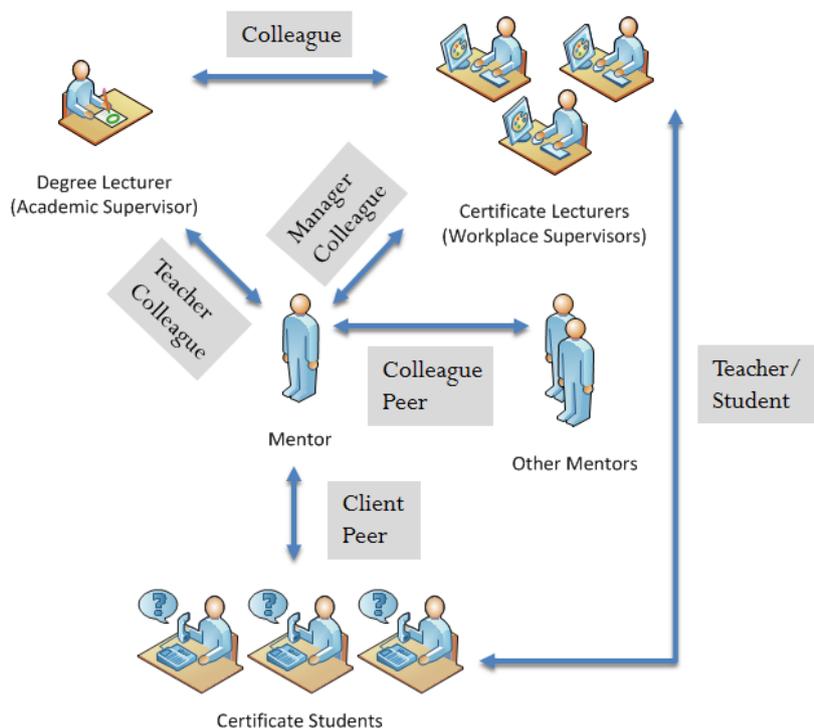


Figure 3. Mentor Programme Relationships

#### 4. CONCLUSION

This paper has presented the results of an initial implementation of a student mentoring programme within an ICT educational environment. It has also included feedback on the programme from the mentoring students. Based on this information a number of enhancements are proposed for the next iteration of the programme which is scheduled to take place during semester two, 2014. These enhancements are detailed below.

The mentoring sessions will become compulsory for any students with outstanding resits on assessments. The aim of this is to help ensure that mentoring is provided to students who are in need of specific assistance.

All assessments will require students to obtain pre-submission check offs from the mentors. This has been included in order to help students learn the value of mentor input as well as providing a mechanism that will improve submission quality and reduce resit requirements.

Mentors will be further utilised during regular class time in order to provide teaching staff with additional assistance during practical activities. This will also help mentors become more cognisant of classes current progress in terms of both teaching and learning.

The mentoring team will also engage with an institutional student learning coach who has expertise in motivating and mentoring students. This learning coach will also be able to provide the mentors with guidance around relationship boundaries, effective strategies for motivating students, and building rapport and trust.

In addition to the existing assessments, the mentors will also be required to keep an individual work log that will detail mentoring activities. This will exist as a running record of the students engaging and the type of assistance provided. Ultimately, this will also help provide a mechanism to track and measure the effectiveness of the mentoring.

Future work will likely include reporting back on the second iteration of the mentoring programme in light of the

aforementioned enhancements. In addition, although the mentoring programme has been implemented within an ICT educational environment it could also be applied across other disciplines. Consequently, future work could also include the application of the mentoring programme in different fields of study.

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