



TEACHING & LEARNING
RESEARCH INITIATIVE

NĀU I WHATU TE KĀKAHU, HE TĀNIKO TAKU

CASE STUDY 5

A collaborative approach to enhancing student learning and team work:

Institutional Report on the Teaching and Learning Enhancement Initiative at Victoria University of Wellington¹

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¹ This is a Teaching and Learning Research Initiative project: Unlocking Student Learning: The Impact of Teaching and Learning Enhancement Initiatives on First-year University Students.



Background and context

The Victoria University of Wellington component of the national Unlocking Student Learning project focused on the undergraduate Information Systems (IS) programme in the School of Information Management (SIM). With input from the university's academic development unit, and the commitment of a very dedicated and engaged group of teaching and administrative staff from SIM, a series of Teaching and Learning Enhancement Initiatives (TLEIs) have been implemented. These aim to improve student engagement, retention and pass rates, retain good tutors and enhance departmental culture.

The course investigated in this project was INFO102, a large first-year required course for IS and Electronic Commerce majors at Victoria University. The course is taught twice a year (in the second and summer trimesters) by two lecturers, accompanied by five tutors in the second trimester and one tutor during the summer trimester. Behind the scenes, the course and tutors are supported by SIM's undergraduate programme manager, who co-ordinates all tutors, assessment and marking, and deals with student administrative issues. Overseeing the smooth running of the course in the context of the degree programme is the school's undergraduate programme director.

The discipline of IS relies on students having an understanding of the fundamentals of information technology (IT) as well as a practical and applicable appreciation of business concepts. In effect, IS teaches students about the nexus connecting people, organisations and technology. Although IT is not the core component of an IS degree, it is integral to students' understanding of the discipline, and they require core technical competencies in order to advance through an IS degree. However, not all IS students at Victoria have been keen on or capable in the technical elements of core courses in IS. Nor have all students been prepared for the team work that such a business- and industry-focused degree requires. The TLEIs introduced in this project aimed to address both the technical and team work issues faced by students in IS.

The following case study outlines a collaborative team approach to teaching and learning in INFO102. The introduction of various initiatives that encourage more team work within the teaching team (which includes tutors, lecturers and the programme director) are considered, alongside initiatives to encourage student teamwork (such as revised assessment practices and study groups). This team approach has resulted in improved attendance at classes and workshops, a higher pass rate, better preparation of students for second-year papers, and a more motivated pool of tutors.

The collaboration

This project acknowledges that tertiary teaching and learning involve a complex set of relationships. Although the research project directly involved only three members of the course teaching team and two academic developers, many others contributed to the project indirectly. The research included students, tutors, lecturers, the course co-ordinator, the programme manager, the undergraduate programme director and academic developers. This case study aims to demonstrate that all parties can contribute to enhanced learning outcomes for students.

All three members of the course teaching team directly involved in this research project undertake vastly different roles in the 100-level programme in SIM: Helen² directs the undergraduate programme and has taught INFO102 in the past; Peter is the undergraduate programme manager and co-ordinates the tutors; and Stephen is a lecturer in INFO102, and has been both a tutor and a student in SIM in the past.

All of the team have had various forms of contact with the Academic Development Unit (ADU) in the past and with both academic developers involved in this project: Anthony (the ADU director) and Sarah (a lecturer in the ADU). When Anthony and Helen initially discussed the project, the goal was to investigate the co-ordination effort required to run two large undergraduate courses: INFO101 and INFO102. However, when Sarah saw Stephen give an excellent presentation on changes to the assessment in INFO102 at a tutors conference, the

² Pseudonyms have been used.

team decided to narrow the focus to INFO102 alone, and to look at the various TLEIs already implemented by the team and those happening as a result of the collaboration on this research project.

The collaboration between the course teaching team and the two academic developers in this research project did not involve the academic developers giving the team advice about what to change, or what interventions to implement. Rather, the academic developers served more as sounding boards during team meetings to discuss potential changes, or, more often, as facilitators for collecting data on the impact of the changes implemented by the team. The following section outlines the various TLEIs developed by the team and investigated in collaboration with the academic developers.

The interventions

INFO102 introduces students to key technical competencies and skills, and until 2005 it was taught using traditional methods such as lecturing, self-paced supervised workshops, and one big end-of-term project. The project team decided to focus their attention on INFO102 because of the following issues:

- high fail and attrition rates
- low attendance at lectures
- poorly timed assessment (resulting in little or no feedback for students and an unbalanced marking load for lecturers)
- students being ill-prepared for second-year technical courses
- ineffective use of tutors, and a high attrition rate within the tutoring pool.

Over six iterations of the course, several innovations and interventions have been introduced, which have transformed staff and student motivation and led to improved attendance and performance. The two key areas of change focus on improved tutor hiring and support, and more efficient and flexible assessment practices.

Improved tutor hiring, support and responsibilities

The most significant change to the tutoring system in SIM occurred in 2006, when the school decided to create new senior tutor positions and appoint a head tutor. Senior tutors are recruited from the ranks of previous SIM tutors and take responsibility for helping to prepare tutorial and workshop materials and run tutor meetings. At least one, and sometimes two, senior tutors have been involved in each second trimester iteration of INFO102 from 2006. Tutors are expected to report any issues to their senior tutor, who then reports to the head tutor.

The head tutor position was developed to work in conjunction with Peter, the undergraduate programme manager and tutor co-ordinator, and to run internal tutor training (over and above the generic training provided for all new tutors across the university by the ADU). This new hierarchy of tutoring positions (see Figure 1) has meant that the school is more likely to be able to keep good tutors on staff for longer than in the past by creating the opportunity for them to move up the ranks.

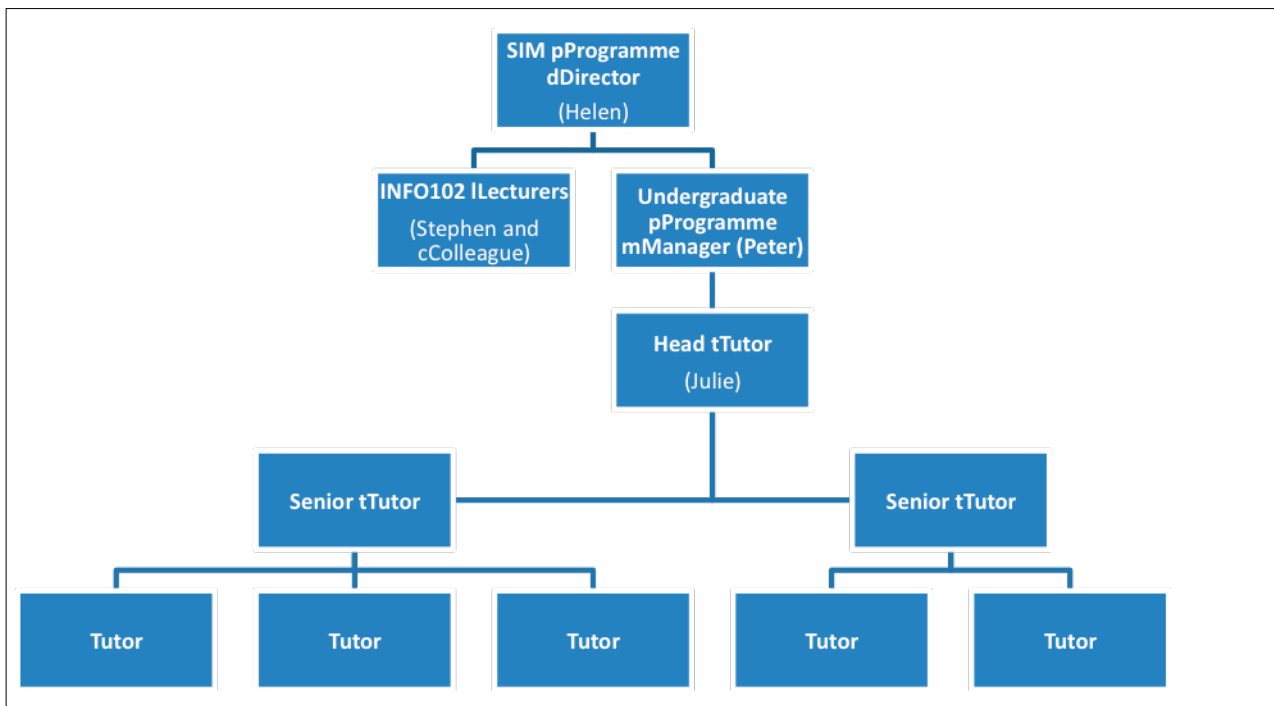


Figure 1: The new teaching team hierarchy for INFO102

Another important feature of the new tutoring regime in SIM has been the introduction of a recruitment and interview process for hiring tutors. In the past, tutors would be appointed if they expressed an interest and demonstrated that they had good grades. Most tutors taught for only one iteration of the course. Now all tutor positions are advertised within the school and more widely across the university through various media (emails, posters, weekly bulletins, etc.). Tutors must submit a CV and be shortlisted before being interviewed by the programme manager. The interview includes a 5-minute teaching demonstration/presentation, as well as a series of scenario-based questions that probe a potential tutor's capacity for handling difficult situations in class. All returning tutors must re-apply for tutoring positions.

Once all tutors have been appointed, the school hosts a function to welcome them to the staff. The head of school and course co-ordinators, along with many of the regular academic staff, attend this function, at which tutors are introduced to key staff and receive a name badge that identifies them as a SIM tutor. Because all the SIM tutors are themselves still students, this function serves as an important step in helping them to feel a valued part of the teaching team within the school. Wearing the name badge at the first INFO102 lecture, where they are introduced to students, helps to reinforce their important role on the teaching team.

Tutors now play a more pivotal role than pre-2006 tutors did in terms of leading workshops and marking student work. For example, in workshops, tutors now mark various milestones in students' project work, meaning that students get much more timely feedback on assignments (and lecturers are not doing so much marking at the end of each trimester). They also sign off on students' workshop requirements each week (students earn bonus points for completing all workshop requirements). Another responsibility given to tutors is that each week a different tutor is assigned to monitor the INFO102 Blackboard course site and answer any student questions. These questions are then also discussed during the weekly teaching team meetings.

All tutors (including the senior tutors and head tutor) meet with Peter on a weekly basis, allowing the tutors to bring concerns from students to the attention of staff higher up in SIM, as well as enabling Peter to share information and concerns from the administrative and managerial staff with the tutors. The weekly meetings also serve as marking and moderation meetings, when necessary, and the course lecturers also attend. These regular meetings have created much more of a team-oriented culture within the department.

Since 2006 Peter has also developed an alumni database of former SIM tutors. Updates on what these former tutors are now doing, where they are working, their successes and career paths are shared at the

welcome function to encourage new tutors. Some of the former tutors also return for the end-of-year tutor function, which includes a *Tutor Idol* competition, a shared meal, a photo gallery of the year's events, and the presentation of certificates to all completing tutors.

Changes to assessment practices and course structure

As well as all the changes to the tutoring systems, support and training described above, major changes were made to the assessment and structure of INFO102 from 2005 onwards. Table 1 is taken from an earlier paper,³ which describes the key issues and the interventions introduced in response to those issues.

Table 1: Timeline of INFO102 interventions

| Problem | Intervention |
|--|---|
| Low engagement | Use of relevant IS examples In-lab video materials Discussion boards Wiki Workshop "buddy" system |
| High plagiarism | In-lab marking by software inspection |
| Poor knowledge retention | Management of the topic scope (doing a smaller number of topics well). Use of relevant IS examples |
| Low pass rate | Instructor-led workshops: involved a management commitment to keeping a "high bar" and higher resource levels |
| Synchronised teaching/assessments | In-lab marking Staged assignments |
| Lack of timely feedback | Staged assignments (fast feedback) |
| Knowledge transfer across course instances | Wiki knowledge base |

Source: Sylvester and Hooper, 2007

As Sylvester and Hooper (2007) state in their paper, "all of the interventions described [above] have been retained for subsequent instances of the course. To that extent, they are regarded as successes" (p. 166). The key intervention—at least the one that brought the work of the teaching team to the attention of the academic developers and instigated the collaboration on this research project—was the introduction of staged marking of the project assignment, as detailed in Table 2.

³ A. Sylvester & V. Hooper (2007). *Overcoming teaching challenges in a foundation IS course: An intervention study*. Paper presented at the 11th Pacific Asia Conference on Information Systems (PACIS): Managing Diversity in Digital Enterprises, 3–6 July 2007. Retrieved 30 October 2008 from <http://www.pacis-net.org/file/2007/1294.pdf>.

Table 2: Staged marking of the project assignment in INFO102

| | Task 1 | Task 2 | Task 3 | Task 4 |
|----------------|-----------------------------|-----------------------------|-----------------------------|--------|
| Week 7 | Can be completed and marked | | | |
| Week 8 | | Can be completed and marked | | |
| Week 9 | | | Can be completed and marked | |
| Week 10 | Model answer given | | | |
| Week 11 | | Model answer given | | |
| Week 12 | | | Model answer given | |

Source: Sylvester and Hooper, 2007

This scaffolded approach to the project assignment has reaped dividends for students and teachers. Students receive more feedback, on a regular basis, and are given flexible time frames in which to submit their work. As a result, students without an in-depth technical or programming background can take the full 3 weeks for each section of the project, receiving feedback during the process and a model answer at the end of each section. On the other hand, advanced students with more technical or programming expertise can submit their milestones early each week and have the whole project completed and marked by the end of week 10. This staging of the assignment work also means that the teaching staff are not burdened with a large pile of marking at the end of each trimester, especially as the tutors are able to mark the bulk of this work in workshops.

One final intervention relating to assessment was introduced in 2007 by the programme manager. It involved putting students into study groups of four to five students, who were expected to work together in and out of tutorials. To encourage all students to attend tutorials, the study groups were asked to complete an online quiz together each week; if all students in the group completed all seven quizzes, all group members received bonus points, counting towards their final grade.

Data collection

The key role of the academic developers in this project has been to help the course teaching team to collect data that might help to measure the impact of the various TLEIs they implemented in INFO102. To this end, the following data were collected over six iterations of the course.

Table 3: Student evaluations data for INFO102, 2005–2007

| | Tri 2, 2005 | Tri 3, 2005 | Tri 2, 2006 | Tri 3, 2006 | Tri 2, 2007 | Tri 3, 2007 |
|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Course evaluations | Y | Y | N | Y | Y | Y |
| Tutor evaluations | N | N | Y | Y | Y | Y |
| Lecturer evaluations | Y | N | Y | N | Y | Y |

Table 4: Focus groups and interviews conducted with INFO102 staff and students

| Person/group | Date conducted |
|---------------------------|----------------|
| Tutors | 24 Sept 2007 |
| Students 200 level | 13 Sept 2007 |
| Students 300 level | 19 Sept 2007 |
| Programme director: Helen | 13 Sept 2007 |
| Course lecturer: Stephen | 9 Oct 2007 |
| Programme manager: Peter | 8 Oct 2007 |

Table 5: Questionnaires conducted with INFO102 students

| Type of questionnaire | Month conducted |
|--------------------------|-----------------|
| Study groups 1, T2, 2007 | August 2007 |
| Study groups 2, T2, 2007 | November 2007 |
| Pre-summer 2007 | November 20 07 |
| Post-summer 2007 | January 2008 |

We also tracked enrolment levels and grade attainment in INFO102 and a subsequent technical course, INFO241.

Findings and discussion

A key focus of the project team was to encourage a team-based approach to the development and teaching of INFO102. Such collaboration was designed to achieve three separate but related goals:

- an enhanced departmental culture and atmosphere
- a replication of the collaborative effort required in the IT and IS industries
- improved retention of first-year INFO students into second-year papers.

The following results demonstrate that all three of these goals have been achieved in various ways.

Enhanced departmental culture through improved tutoring practices

Before 2005 INFO102 students indicated that they did not see much value in tutorials and workshops, though they still appreciated the tutors' input. For example, one student commented that

the tutors were really, really important. They helped you with your assignments and stuff, and if I didn't have the help from the tutors I don't reckon I would have even passed.

When pre-2005 INFO102 students were asked during the focus group what the best thing about INFO102 was, the majority identified the first assignment, because "there were all sorts of real world examples" and it was to do with things that "you might actually do when you finish your degree; it's not just fake things". In contrast, when current students were asked about the best aspects of INFO102, they commented on tutors almost exclusively.

In all the written feedback from students on the 2007 course evaluation ($n = 62$ written responses to the question "What aspect of INFO102 most helped your learning?"), a clear majority of students (76 percent) identified their tutors or the tutorials as the most helpful aspect of INFO102. The other comments identified 11 other key aspects that helped their learning (see Table 6).

Table 6: Aspects of INFO102 that most helped learning: Ranking of comments from trimester 2, 2007, end-of-course evaluation

| Aspect of INFO102 that most helped learning | No. of responses | % of responses |
|---|------------------|----------------|
| Tutors and/or tutorials | 47 | 76 |
| The lectures and/or the lecturers | 5 | 8 |
| Practical examples | 4 | 6 |
| Discussion forum in Blackboard | 3 | 5 |
| Assignments | 3 | 5 |
| Textbook | 3 | 5 |
| Design of the course | 3 | 5 |
| Study groups | 2 | 3 |
| PowerPoints | 2 | 3 |
| Peers | 1 | 2 |
| Quizzes | 1 | 2 |
| Workload ("forced me to make an effort") | 1 | 2 |

In the focus group that involved students who had just completed INFO102 in 2007, students were unanimous that tutors were the backbone of the course. They described their tutors as very helpful, knowledgeable, accessible and willing. A general theme seemed to be that tutors understand what it is like to be students themselves, so the INFO102 students felt willing to approach them, talk to them and ask them questions. They also said that the tutors offered different perspectives on the challenges they faced when completing the course assignments, and that all of the tutors encouraged group work, interaction and getting friends to help each other. A final comment from the recent students' focus group was that the SIM department, in general, cultivates a good sense of community.

These themes were replicated in the tutors' focus group, where all the INFO102 tutors for 2007 commented on improvements in the course since 2005 (all but one of the tutors had tutored on the course in previous years, and all had been students on the course at some stage). They felt the new teaching team hierarchy was working very well and said that they all felt a strong sense of being part of the wider department team as a result of this new structure. The tutors also identified a strong push from SIM management to encourage a team-based culture within the department as a means of replicating industry practice, where graduates will be expected to work in teams and collaborate on a regular basis.

Such a culture emboldened the tutors to push for more team work within tutorials and workshops, and a key theme to come out of the tutors' focus group was a move away from "spoon feeding students" towards more problem-solving activities, challenging questions and a better preparation for future technical courses and the real world: "We teach them that it's alright to ask for help and to collaborate with your peers, because that's what you'll be doing in the working world."

Preparation for team-based work environments

Pre-2005 students complained in their focus group that they were given no opportunity to interact with classmates, and so since late 2006 students have been encouraged by tutors to work co-operatively and have been expected to participate in more team-oriented activities in workshops, tutorials and online. One key innovation was Peter's introduction of study groups in 2007. In the first tutorial, students were randomly assigned to study groups of four or five students. Groups were expected to help each other to complete the weekly online quizzes, posted on the course Blackboard site on a Monday and closed on Fridays (multiple attempts were allowed). Students were only required to complete four of the seven quizzes, but if all members

of the study group completed all seven quizzes, each individual would have an extra 2.5 percent added to their final grade for the course.

To assess the impact of the study groups on students' perceptions of their learning, two questionnaires were conducted: one just a few weeks after the study groups were introduced and one at the end of the course. The first questionnaire generated 77 responses, 58 of which included written comments. The second produced 79 responses, with 64 written comments. The following table shows the responses to the 10 questions, all requiring a response on a Likert Scale, where 1 = strongly agree and 5 = strongly disagree (except for question 1, which asked for a yes or no response).

Table 7: Study group questionnaire responses

| Question | Beginning of trimester | End of trimester |
|--|------------------------|------------------|
| Study group met outside class | 12% yes | 63% yes |
| Study groups encouraged collaboration with other students | 60% agree | 56% agree |
| Study groups helped me complete online quizzes better than if I had done the quizzes alone | 13% agree | 19% agree |
| The study groups were a waste of my time | 18% agree | 20% agree |
| Being in the study group helped me feel more a part of the university community | 40% agree | 24% agree |
| I made new friends through the study group | 48% agree | 67% agree |
| More university courses should use study groups like these | 52% agree | 47% agree |
| Study groups should not be used in INFO102 again | 17% agree | 18% agree |
| Study groups should be an ongoing feature of INFO102 | 49% agree | 56% agree |

Near the beginning of the course very few study groups had met outside of class time, but by the end of the trimester nearly two-thirds of groups had made the effort to meet outside class. There was a small improvement in students who agreed that study groups helped them to complete the online quizzes better than if they had done the quizzes alone, and an increase in people who said they made new friends through their study group. Other questions showed a slight, but statistically insignificant, decrease in agreement. The encouraging results are that for questions related to collaborative work, students generally agreed that there was an improvement, and the majority of students agree that study groups should be an ongoing feature of INFO102—despite their initial dissatisfaction with the group assessment component.

A comparison of the written comments from the two questionnaires shows a shift from the beginning of the trimester, when students were primarily concerned with what they perceived to be an unfair allocation of grades for study group work, to a recognition at the end of the trimester of the benefits of the study groups.

Table 8: Summary of written comments on study group questionnaires

| Beginning of trimester | Percentage of overall comments | End of trimester | Percentage of overall comments |
|------------------------------|--------------------------------|----------------------------------|--------------------------------|
| Unfair grade allocation | 31% | Benefits of study groups | 45% |
| Benefits of study groups | 26% | Unfair grade allocation | 26% |
| Usefulness of online quizzes | 17% | Poor composition of study groups | 18% |

The last question asked students to respond to the following statement: “Please use the space below to tell us anything more you’d like us to know about the study groups and online quizzes in INFO102”. Fifty-eight respondents wrote comments, the largest group of which (31 percent) were related to the unfairness of the extra grades being dependent on all group members. The next most common written feedback related to the social aspect of study groups: 26 percent commented that study groups helped them to meet other people and engage more actively in class. Finally, 17 per cent commented positively on the usefulness of the online quizzes.

By the time of the second questionnaire, the majority of comments were no longer about the unfairness of the weighting of the group work aspect of the quiz; rather, students were very positive about the study groups having enabled them to meet and work with new people (nearly half, 45 percent, of all written comments related to peer support, interaction and friendship). There were still 17 comments (26 percent) related to the unfairness of the 2.5 percent weighting for group completion of the quiz, but this percentage had dropped from the first questionnaire. A handful of respondents also commented negatively on the study groups (18 percent of comments), most commonly referring to the composition of their particular group, the forced nature of the interaction, or the inappropriate room set-up (fixed, tiered seating) in some tutorial rooms.

Preparation for technical courses

One of the goals of the teaching team was to make INFO102 a better preparation ground for more technical courses, such as INFO241. The course co-ordinator for 241 had been complaining that students were coming to his course unprepared in a technical sense, and that 102 had not laid the foundation necessary to pass his course. The head of programme also recognised this as a big issue and identified the following goal in collaboration with the academic developer: to find out if and how 102 was preparing students for 241 and other technical courses.

At the end of the third-trimester 2007 course we asked students by questionnaire how well they thought INFO102 provided them with preparation for technical courses such as INFO241 and INFO222, and the mean was 2.0 on the following scale: 1 = a great deal, 2 = quite a bit, 3 = some, 4 = very little, 5 = not at all. This was a very encouraging response. However, these students had not yet taken either of the second-year courses and so did not really know how useful the preparation would *actually* be, which is why we also asked former students the same question during focus groups.

Pre-2005 students expressed dissatisfaction with the preparation 102 offered them for 241, as reflected in the following comments:

I thought it was a huge jump from 102 to 241; I basically went into it [241] without any knowledge because I couldn’t remember anything from 102.

I started from zero again.

By contrast, after the changes to the assessment in the second half of 102 (the staged project) and a focus on tutors guiding but not spoon-feeding students in workshops and tutorials, students who recently completed 102 thought that it had prepared them very well for 241 and other technical courses, such as 222:

The second half of the course content was really good because it prepared me for 241. Also, the workshop; the tutors were very encouraging and helpful for the students.

INFO102 helped prepare me for 241 because we got to do some coding, but it wasn't all the same thing; the course was split into two and the first half is actually quite a lot like INFO222 because basically the whole course is diagrams and that's basically what we've been doing, so that's set me up. I sort of know what they want from diagrams; it's just like they've given me a broader perspective of what I could have expected.

Another major change occurred in INFO102 in 2007, which affected how well students would perceive themselves to be prepared for future technical courses and for life in the world beyond the university: a new programming language was introduced. SIM moved from using Visual Basic as its primary programming language to using C#. The following table shows results from a questionnaire at the end of the trimester 3 course in 2007, which shows promising evidence of students' perceived readiness for dealing with future programming challenges.

Table 9: Students reporting an increase in knowledge of C# since taking INFO102

| | Mean score | Percentage | | | | | |
|--------------------------------------|------------|------------|------|---------------|-----|----------|------|
| | | Very high | High | About average | Low | Very low | |
| Knowledge of C# before taking course | 4.3 | 0 | 6 | 24 | 6 | 64 | 100% |
| Knowledge of C# since taking INFO102 | 2.6 | 0 | 35 | 65 | 0 | 0 | 100% |

A final question we asked 2007 students was about preparation time for INFO102. We wanted to know how much work they thought they would need to do outside of class, and how much work outside of class they *actually did*, per week. Overall, students indicated that they spent *more* time preparing for INFO102 than they had expected (see Table 10). This corresponds with the tutors' focus group comments that the course expects more of students now than before 2006. One tutor said:

One thing I really like about the course this year, and the nature of the students, is that they're putting a lot more work in. In previous years it kind of felt like we were giving them a free lunch. It was like, 'Here's the second half of the course; if you get stuck we'll help you out'. But this time, people were actually reading the materials. They're actually doing the work and there's this extra little book that they actually read.

Another tutor agreed, saying, "I think the students have involved themselves a bit more. They're putting a lot more effort in than they used to."

Table 10: Students' predicted and reported hours spent on readings, study, assignments, etc. for INFO102 outside classroom hours

| | |
|-----------------|--------------------|
| Expected | 7.4 hours per week |
| Actual | 7.8 hours per week |

Major course improvements

Although student numbers have dropped (a phenomenon occurring across the School, especially after the introduction by another school of a Bachelor in Information Technology degree), one key improvement in the course has been a decrease in the course fail rate, which is obviously a good outcome for the course teaching team. Perhaps more significantly, there has been an increase in the percentage of students sitting the final exam (or, in the case of trimester 3, completing all assessment), even when the fail rate was higher, as in trimester 2, 2007, when the new C# programming language was introduced.

Table 11: INFO102 enrolment, retention and pass rates

| | Tri 2, 2005 | Tri 3, 2005 | Tri 2, 2006 | Tri 3, 2006 | Tri 2, 2007 | Tri 3, 2007 |
|--|---|-------------------------|---|-------------------------------------|---|------------------------------------|
| No. of teaching staff | 1 lecturer Tutors (@ 1:20 ratio) 1 co-ord | 2 lecturers 2 tutors | 2 lecturers 1 senior tutor Tutors (@1:20 ratio) 1 co-ord | 2 lecturers 2 tutors 1 co-ord | 2 lecturers 1 senior tutor (@ 1:20 ratio) 1 co-ord | 2 lecturers 1 tutor 1 co-ord |
| No. enrolled | 321 | 59 | 228 | 54 | 179 | 37 |
| No. sat exams / completed all assessment | 258 | 50 | 199 | 43 | 159 | 32 |
| Percentage completed course | 80 | 85 | 87 | 80 | 89 | 86 |
| Percentage pass | 87.2 | 82 | 91 | 85 | 73.7 | 84 |
| Percentage fail | 12.8 | 18 | 9 | 15 | 26.3 | 16 |
| | | | | | C# introduced | |

The project team collected student evaluations each year of the course overall, and of each individual teacher, through the university's formal student evaluation system. Students register their opinions of course quality on a scale of 1 to 5, with 1 being the best and 5 the worst, in response to a variety of questions. Means are calculated for each course and then for each department and each faculty. Table 12 shows the means for INFO102 from trimester 2, 2005, through to trimester 3, 2007 (the university-wide mean for 2007 is also presented in the grey row at the bottom of the table).

Table 12: Course evaluation means for INFO102, 2005–2007

| | Well organised | Information clearly communicated | Assessment prep helped me learn | Feedback on work helpful | Content & presentation stimulated interest | Value of material | Overall quality of teaching |
|-------------------------|----------------|----------------------------------|---------------------------------|--------------------------|--|-------------------|-----------------------------|
| 2/2005 <i>n</i> = 61 | 2.1 | 2.2 | 2.8 | 2.9 | 2.9 | 2.5 | 2.5 |
| 3/2005 <i>n</i> = 22 | 1.6 | 1.5 | 1.9 | 2.1 | 1.8 | 1.5 | 1.5 |
| 2/2006 <i>n</i> = 41 | 2.0 | 1.9 | 2.3 | 2.6 | 2.2 | 2.2 | 2.2 |
| 3/2006 <i>n</i> = 15 | 2.0 | 2.1 | 1.9 | 2.4 | 2.2 | 2.1 | 1.9 |
| 2/2007 <i>n</i> = 75 | 2.2 | 2.0 | 2.0 | 2.7 | N/A | 2.2 | N/A |
| 3/2007 <i>n</i> = 14 | 2.0 | 1.4 | 1.8 | 2.2 | 2.1 | 1.8 | 2.4 |
| 2007 norms | 2.0 | 1.8 | 1.9 | 2.2 | 2.2 | 1.9 | 2.2 |

As Table 12 shows, students' opinions of the course have improved since 2005, especially in relation to the assessment (a 1.0 improvement from 2005 to 2007) and stimulation of student interest (a 0.8 improvement).

Improvements in student opinion of the course can also be clearly seen in the evaluations conducted on the course lecturers and some of the tutors (it is not a requirement for all teachers to have their teaching evaluated, so not all lecturers or tutors are represented in the following tables). The two main lecturers (Lecturer 2, who

did not take part in the research project because he was on sabbatical for much of the time, and Stephen, one of the project team members) both recorded an improvement in their overall effectiveness from 2005 to 2007. Stephen shows a 0.2 improvement, while Lecturer 2 moved from 2.1 in 2005 to a very impressive 1.3 in 2007. Significant improvements are also seen in clarity of communication, stimulation of interest, and attitude towards students.

Table 13: INFO102 lecturing evaluations data, 2005–2007

| Lecturer | Clarity of communication | Organisation of teaching | Stimulation of interest | Attitude towards students | Overall effectiveness |
|-----------------------------|--------------------------|--------------------------|-------------------------|---------------------------|-----------------------|
| <i>2005 Tri 2</i> | | | | | |
| Stephen (<i>n</i> = 79) | 2.2 | 1.9 | 2.9 | 2.3 | 2.4 |
| Lecturer 2 (<i>n</i> = 28) | 2.0 | 2.1 | 2.4 | 2.2 | 2.1 |
| <i>2006 Tri 2</i> | | | | | |
| Peter (<i>n</i> = 138) | 2.0 | 1.7 | 2.0 | 1.7 | 1.8 |
| Lecturer 2 (<i>n</i> = 99) | 1.7 | 1.7 | 2.1 | 2.0 | 1.8 |
| <i>2006 Tri 3</i> | | | | | |
| Lecturer 2 (<i>n</i> = 26) | 1.2 | 1.2 | 1.7 | 1.3 | 1.3 |
| <i>2007 Tri 2</i> | | | | | |
| Stephen (<i>n</i> = 53) | 1.9 | 2.1 | 2.4 | 1.2 | 2.2 |

The two returning tutors for whom we have data (Julie, who is the head tutor, and one of the senior tutors) also showed improvements. Given that both received already impressive evaluations the first time they were evaluated for INFO102, it is not easy to show significant improvements. As Table 14 shows, both Julie and the senior tutor showed a 0.2 improvement in overall effectiveness from 2006 to 2007. Julie also showed significant improvements in communication, organisation and attitude towards students.

Table 14: INFO102 tutor evaluations data, 2005–2007

| Tutor | Clarity of communication | Organisation of teaching | Stimulation of interest | Attitude towards students | Overall effectiveness |
|---------------------------------|--------------------------|--------------------------|-------------------------|---------------------------|-----------------------|
| <i>2006</i> | | | | | |
| Julie (<i>n</i> = 15) | 1.6 | 1.7 | 1.4 | 1.6 | 1.4 |
| <i>2007 Tri 2</i> | | | | | |
| Julie (<i>n</i> = 20) | 1.1 | 1.1 | 1.7 | 1.0 | 1.2 |
| Tutor 2 (<i>n</i> = 27) | 1.5 | 1.8 | 1.9 | 1.1 | 1.7 |
| Tutor 3 (<i>n</i> = 13) | 1.0 | 1.1 | 1.4 | 1.0 | 1.0 |
| Senior Tutor 1 (<i>n</i> = 25) | 1.4 | 1.6 | 1.8 | 1.0 | 1.8 |
| <i>2007 Tri 3</i> | | | | | |
| Senior tutor 1 (<i>n</i> = 21) | 1.8 | 1.9 | 1.6 | 1.2 | 1.6 |

The role of the ADU

The academic developers in this project did not set out to create and implement a TLEI themselves, nor to tell the course teaching team what to change. Their aim was to help the team focus on and gather data about various interventions that were already underway or in the wings for INFO102. The team never saw the academic developers as central to the TLEI process; they saw them as providing support and motivation:

I certainly have a very positive view of the ADU and think it is a net asset. We should have it there. It's very helpful for us to give some validation to what we're doing; otherwise we would kind of feel we were going it alone. Having that, being able to reach out and have somebody say, 'Well, actually, what you're doing is really innovative and you're doing a good job', that's important. (Stephen)

Whatever one learns from the ADU, you sort of feed in somehow. You talk to lecturers. You talk to the programme manager, talk to tutors, talk to your head tutor, and it all sort of feeds in that way. (Helen)

Both Anthony and Sarah saw their roles as sounding boards and conduits for the course teaching team, not as people involved in the interventions themselves. They provided a different perspective on the changes being made, and enabled the team to look at the TLEIs from a different angle, with eyes open for good research-based teaching and learning practice, as well as good IS practice:

They can act as a catalyst for best practice, because I don't believe we've got an exclusivity on good ideas, but we also haven't got an exclusivity on the nature of our problems, in that Computer Science does programming, Geography does programming, Engineering does programming—there are lots of disciplines that use that style of learning and the ADU's got contacts where they can reach out and actually pick up some good ideas from other areas that might save us having to reinvent the wheel. (Stephen)

The ADU are not particularly technically focused, and this is a technical course, but in terms of providing tutor support or course design support, or things like thinking about self-paced learning, it's their type of educational approach that's been very useful. (Helen)

This project has focused on a number of interventions and initiatives and looked at the overall impact on the course and the students. None of the course improvements can be attributed to the ADU, but as the comments below from Helen and Stephen show, their role was catalytic.

The value add from the ADU has been very strong in Sarah's encouragement for research to happen on 102. Without Sarah providing us with some energy that, 'Hey, this is interesting enough that you should write it up' [the conference paper probably wouldn't have happened]. It's had a catalytic effect rather than a direct effect. We haven't tended to use the ADU for designing the interventions and designing the changes ... they tended to ask us the critical questions ... But Sarah is very much a mentor and has that catalytic effect. Things happen not as a direct consequence but as a result of providing some energy to a situation. And it doesn't have to be direct, and that happens to be a style that works for me, so I keep going back. She's somebody that I reach out to because that approach works. (Stephen)

We've written a couple of papers on 102. One of the papers we wrote with Sarah last year for the TERNZ conference, and by discussing those aspects, one becomes more aware of the theoretical underpinnings and actually, you think, 'Well, things are going alright now. Why are they going alright?' We didn't know why they were working and when you [go] back to the theory, which is what the ADU could do, they could sort of give us some of the theoretical framework and could see where there was something we haven't really attended to. (Helen)

Conclusion

With clear gains in student *and* teacher performance, INFO102 has obviously made some significant improvements. It is difficult to attribute specific improvements to any one TLEI, and it is even more difficult to attribute any of these improvements to the academic developers' role in the process. However, both the TLEIs and, in an indirect way, the academic developers have obviously had some impact on the way the course teaching team chooses to approach its teaching, design and evaluation of INFO102.

Whether the TLEIs examined in this report are responsible for the improvements identified through the research is not easy to determine. The eventual project took the course teaching team and the academic developers beyond the tutor training and support that was identified as a desirable initiative early on in the project. The research also looked at the impact of the teaching team's initiatives in flexibly designed assessment and enhanced workshop and teaching practices. Thus, the overall focus of the Victoria University project was on evaluating the various initiatives taken (with and without the influence of the academic development team) to enhance gateway first-year courses in SIM. We identified a goal of documenting and evaluating systemic change that is potentially transferable across courses and disciplines, and believe that we have done this by demonstrating effective tutoring and assessment practices.

The overall TLEI project question asked how academic development can more effectively help university teachers enhance first-year students' learning outcomes and success. The Victoria University team did not set out to address this issue in such a direct way, in part because the relationship already established between the academic developers and the course teaching team did not lend itself to such direct intervention. Instead, we wanted to find out whether effective, sustainable, systemic changes to teaching and administrative practices would have a bearing on students' learning. Our tentative answer is yes, and the changes are being embedded more deeply within departmental practice as a result of this project.



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