SciBoost: A collaborative approach to enhancing Māori and Pacific achievement in Science and Engineering

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Abstract

The SciBoost programme was developed with the intention of improving the retention and achievement of Māori and Pacific students in the Faculty of Science and Engineering (FSEN). It was offered at the University of Waikato from 2013-2016 and consisted of a series of themed academic skills development workshops taught over a two-day period. SciBoost provides an example of successful collaboration between the Māori mentor co-ordinator for FSEN, learning advisors, and science and Māori liaison subject librarians. Its iterative development illustrates the benefits of embedding effective study strategies within a disciplinary context, while embracing a relational approach to teaching and learning that highlights the value of student feedback and reflective practice for improving the experiences of current and future students. However, the demise of the SciBoost programme exemplifies the vulnerability of initiatives that are dependent on relationships between key members of staff, and which are not adequately promoted or endorsed by lecturers and tutors within programmes of study, or structurally embedded into broader faculty and institutional objectives.

Background

Student Learning is part of the Centre for Tertiary Teaching and Learning (CeTTL), which provides centralised teaching and learning development services to staff and students at the University of Waikato. The Student Learning team consists of six full-time senior tutors who work with undergraduate, graduate and postgraduate students across all faculties, as well as a part-time administrator and the Director of the centre. CeTTL is administratively located within the Office of the Pro-Vice Chancellor, but when SciBoost was developed CeTTL was part of Te Kura Toi Tangata: Faculty of Education. In contrast, Māori mentoring units are based within each faculty on the Hamilton campus, as well as at the Tauranga campus

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(University of Waikato, n.d.), and are not part of CeTTL's service provision. While Student Learning provides academic assistance to enable students to succeed in their studies, Māori mentors have a broader mandate, providing academic, pastoral and procedural advice, as well as cultural, social, sporting and recreational opportunities (University of Waikato, n.d.). This structural separation means that, unlike some other tertiary institutions in Aotearoa New Zealand, the University of Waikato does not currently employ learning advisors with specific responsibility for working with Māori, Pacific or International students. Additionally, equity-based funding for Māori students is distributed by the Pro Vice-Chancellor Māori Office to the faculties via the mentoring units and is not directly available to CeTTL.

The SciBoost programme had three main drivers. The first was a recommendation made by the New Zealand Universities Academic Audit Unit (NZUAAU) during the Cycle 4 audit that the University of Waikato develop "a student transition programme that extends beyond orientation and includes, in particular, a comprehensive institution-wide students-at-risk programme to close the loop between enrolment and completion" (Recommendation 5, NZUAAU, 2010, p. 29). It was this recommendation that led to the development of the WaiBoost programme on which SciBoost was modelled, as it created an institutional focus on strategies aimed at retaining, engaging and supporting existing students. This provided an impetus for FSEN to identify and intervene when students considered capable of completing degree programmes were determined to be at risk of not doing so.

The second driver was growing institutional awareness of the success of Student Learning's WaiBoost initiative, which targeted students in Te Kura Toi Tangata: Faculty of Education, Te Piringa: Faculty of Law, and the Faculty of Arts and Social Sciences. WaiBoost was developed as an intensive academic upskilling programme that was trialled as a four-day programme for continuing students in 2011 (Johnson, 2012; Johnson, Haines, & Gera, 2012) and subsequently adapted into a three-day programme from 2013. The goal of WaiBoost was to provide a cohort-based learning initiative that would enhance students' motivation, self-confidence and academic independence, and assist them to develop the metacognitive skills and academic literacies that would enable them to succeed in their studies (Johnson et al., 2012). Its development was informed by collaborative cohort-based pedagogy (Kipnis, Whitebook, Almaraz, Sakai, & Austin, 2012; Lipson Lawrence, 2002), and by the *BOOST Program* at Brock University in Ontario, Canada, which is a non-credit

programme offered to students on academic probation as an alternative to academic suspension (Brock University, 2010; Tsujimoto, 2015; Vasluianu, 2011).

The final and perhaps most significant driver for the SciBoost programme was the desire of the Māori mentor co-ordinator in FSEN to see Māori and Pacific students achieve higher grades in science and engineering disciplines, and to encourage them to persist to graduation and further study in greater numbers. His work, which involved tracking student achievement in individual papers, revealed that the grades of Māori and Pacific students who went on to achieve very well in FSEN often did not reflect this potential in their first or second year of study. Consequently, he was seeking strategies to help Māori and Pacific students overcome this initial transitional delay, so as to improve their confidence, performance in assessment and access to academic scholarships. He also hoped to attract and retain more Māori and Pacific students in FSEN, as there was higher attrition among this cohort than other ethnicities, and his work with students indicated that lower than expected grades often motivated students to change faculty or programme of study, or to leave the university altogether.

Like learning advisors at other institutions, Student Learning tutors have struggled to distance our work from deficit models that position the assistance we provide as "the ambulance at the bottom of the cliff for failing students," rather than as providing a comprehensive service that enhances engagement, learning and achievement for students of all levels and abilities. McMorrow (2017) maintains the belief that learning developers provide "a remedial service" is often "unproblematically accepted" by academic staff, even those who are generally supportive and welcoming of opportunities to work with Student Learning tutors. Similarly, educators who work with Māori and Pacific students have struggled to shake deficit-based assumptions and challenge the perception that their work primarily aims to address Māori and Pacific students' "failure", rather than to enhance the success of these students (McRae, Macfarlane, Webber, & Cookson-Cox, 2010). Mentors and learning advisors in the tertiary sector thus have much in common in terms of their advocacy for the students that they work with, and their frustration about being unable to reach more students because of misconceptions about the nature of their academic work.

With this in mind, it was the intention of the Māori mentor co-ordinator and Student Learning staff that SciBoost would not be marketed solely as a "re-entry programme" for

students who had “failed too many papers” and consequently come to the attention of the faculty because their re-enrolment required the approval of the Dean. The programme was intended to appeal to students who had passed all their papers, but who were seeking to become more effective and efficient learners so as to excel in their studies, as well as to re-entry students seeking to prove that they were taking steps to improve their engagement and academic performance. While it was developed with Māori and Pacific students in mind, it was agreed that it would be open to all students in FSEN.

Advertising on social media and within FSEN promoted SciBoost as a free, pre-semester programme for students who wanted “to take charge of [their] studies, boost [their] learning ability and [their] grades” (Eastwood, 2013). It was hoped that this focus would help to remove any stigma associated with attending SciBoost and that both staff and students would perceive it as a programme for students who wanted to do well, rather than as only suitable for students who had failed papers in their first or second year of undergraduate study. However, although it was anticipated that referrals would be made by teaching staff who knew students’ strengths, weaknesses and personal circumstances, recruitment presented an ongoing challenge. In practice, the majority of referrals were either from academic administrators who were guided almost exclusively by assessment and completion data, or self-referrals from capable students. Despite repeated attempts to clarify how students should be targeted, the desire of academic staff and faculty administrators to shift responsibility for student under-achievement away from those involved in course development and teaching (Whitehead, 2012) and utilise SciBoost simply as a condition of re-entry was never adequately addressed or resolved. This was not unexpected, as it had also been a persistent problem for the WaiBoost programme.

The Development of SciBoost

It was initially proposed to simply include FSEN students in WaiBoost. However, this idea was rejected after the academic skills, literacies and dispositions favoured in science-based assessments were compared to those favoured by the faculties involved in WaiBoost. In particular, there was a concern that WaiBoost focused primarily on the essay as a form of assessment, and did not adequately address the needs of students whose assessment typically involved greater emphasis on experiment reports, and performance in tests and examinations. After consultation between the Māori mentor co-ordinator, librarians and Student Learning

staff, it was decided to trial a parallel programme that could more specifically target the learning needs and preferences of Māori and Pacific students in FSEN without compromising the WaiBoost programme for existing cohorts. The desire to incorporate kaupapa Māori and Pacific pedagogy and principles was also the reason it was decided the introductory session offered by the library would be run by the Māori liaison librarian, rather than the science subject librarian. Student Learning did not have any permanent Māori or Pacific staff when the SciBoost pilot was offered, so a range of learning advisors were included in the programme.

In developing the SciBoost pilot, the Māori mentor co-ordinator reviewed the WaiBoost programme and teaching materials. He used his experience of working with FSEN Māori and Pacific students to identify the academic literacies he considered the most relevant and most likely to make a difference for students in his faculty. While there was some overlap between WaiBoost and SciBoost, notably the importance of time management, he noted that APA referencing and using more advanced features in Microsoft Word had presented significant barriers for many students in the target cohort and recommended that these skills also be included. Anecdotally, he had found Māori and Pacific students tended to lose marks for presentation and formal academic writing conventions, rather than content knowledge, although he also believed that inconsistent revision practices impacted on test and examination performance, which were heavily weighted in overall grade allocation in FSEN. The pilot of the SciBoost programme was thus focused on time management, the need for ongoing note-making and revision, academic integrity and referencing, as well as digital literacies, particularly the efficient use of library databases and word processing technologies.

The *kaupapa* (guiding philosophy) of SciBoost emphasised relationship building, considered critical for working with FSEN Māori and Pacific students, as lack of awareness and engagement with student services was thought to be a significant factor in the transitional delay evident in this cohort. SciBoost was guided by the principles of *manaakitanga* (hospitality) and *whanaungatanga* (caring relationships), which reflected the value placed on enabling students to build supportive relationships with the mentors in FSEN, Student Learning tutors and librarians who could offer them ongoing advice in their studies following SciBoost.

The template for SciBoost was based on WaiBoost, which had recently been condensed into a three-day programme. SciBoost was initially proposed as a three-day

programme as well, but staff availability was a significant constraint, as Student Learning tutors were heavily committed to WaiBoost, as well as other orientation activities, workshops and one-to-one appointments with students. The decision to offer SciBoost as a two-day programme was thus primarily a practical rather than a pedagogically informed choice. When WaiBoost and SciBoost were both operating, they ran in the week before the commencement of each semester, with WaiBoost from Monday to Wednesday, and SciBoost on Thursday and Friday (see Table 1). Furthermore, SciBoost operated within school hours, as it was recognised that parents with school-aged children would not be able to attend late afternoon sessions. This change was also made to WaiBoost from semester B, 2013.

Table 1: *Comparison of the WaiBoost and SciBoost Semester B, 2013 programmes*

	WaiBoost			**SciBoost**	
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9.00am	Welcome, overview and student introductions	Review and consolidation	Review and consolidation	#Welcome and overview	#Review and consolidation
9.30am	Getting started with assessment	Time management	Summarising and paraphrasing	Time management	Test and exam revision strategies
10.30am		***Morning Tea Break***		***Morning Tea Break***	
11.00am	* Library orientation	*Using library databases to find academic resources (separate session for law students)	*Referencing (separate sessions for APA & NZ Law)	Reading and note-making	*Formatting a document in MS Word
12.00pm	Student Panel (past WaiBoost students)	Digital literacy	Student Learning online resources	#Science panel	Introduction to APA referencing
1.00pm		***Lunch Break***		***Lunch Break***	
1.30pm	Taking notes from lectures	Academic reading and note-making	Student reflections, presentation of certificates and farewell	*Using library databases to find academic resources	#Reflection, evaluation and farewell

Note. * indicates sessions led by librarians, # indicates sessions led by the Māori mentor co-ordinator, all other sessions led by Student Learning staff.

Both programmes used a thematic approach to the teaching of academic skills, literacies and dispositions oriented around a hypothetical assignment task. Early iterations of Waiboost

focused on the social impacts of legalising "party pills", but the theme was changed to the (hypothetically) proposed mandatory reporting of child abuse by teachers from Semester B, 2012. This new theme was considered to have more direct relevance for students from teaching, law, arts and humanities, and social science backgrounds, while avoiding negative stereotypes about students' recreational drug use, which had distressed some participants. A similar approach has been used in a programme targeting Ministry of Foreign Affairs and Trade/New Zealand Regional Development (NZAid) scholars, using the impact of climate change on Pacific nations as a theme. The theme selected for SciBoost was the evaluation of strategies to mitigate the ecological impacts of invasive fish species in the Waikato River, as this reflected a research strength within FSEN, had practical application for a range of science-based subjects, and had relevance for *tangata whenua* (local Māori) concerned about the *mauri* (life giving principle) and *waiora* (health) of Waikato waterways.

In both WaiBoost and SciBoost, the selected theme was utilised in workshop activities related to interpreting assignment instructions; structuring a response for a specific audience; locating, evaluating and using relevant academic readings; and paraphrasing, summarising and referencing borrowed ideas appropriately for the specific subject areas that were relevant to individual students. The reinforcement of academic skills, literacies and dispositions was presented as a series of interconnected activities, simulating how students would approach assessment preparation within their subject areas. This was intended to enable students to create connections between learning strategies and the disciplinary skills and knowledge they typically encounter during their undergraduate studies. This approach had the additional benefit of shifting the focus away from the comprehension of workshop resources, as students were able to revisit content and materials with which they were already familiar in subsequent workshops.

Focusing learning activities around a common theme in WaiBoost and SciBoost proved an effective strategy to provoke students from different academic backgrounds to debate and discuss the impacts of disciplinary practices on their thought processes and preferred methods and approaches. This was useful to reveal the assumptions implicit in particular subject areas, a strategy that has been found to be beneficial for students in transition (Johnson, 2012; Peter et al., 2014). The decision to utilise a thematic approach, rather than a series of stand-alone generic skills workshops also reflected a compromise between institutional demands for "bolt-on" pre-semester upskilling initiatives, and the desire

to embed learning development in "built in" integrated and authentic ways (Bennett, Dunne & Carré, 2000; Richardson, 2016; Wingate, 2006). Embedded approaches are preferred by learning advisors, as experience and research highlight that students tend not to see generic "study skills" courses as relevant to their particular programmes of study, especially when learning development strategies are divorced from subject-based content and knowledge (Drummond, Nixon, & Wiltshire, 1998; Durkin & Main, 2002; Wingate, 2006).

The SciBoost Participants

The SciBoost pilot was offered to students during the teaching recess between semesters A and B in July, 2013. There were 18 participants on the first day, and 15 on the second, including one student who attended day two only. On the first day, one student from another New Zealand university accompanied her sister. This *manuhiri* (guest) was welcomed as *whānau* (family) and encouraged to participate in all activities, although some required a student log-in, meaning that she occasionally had to collaborate with her sister. Neither sister attended the second day, as the one who was not a student at the University of Waikato was returning to her own university that day.

Surprisingly, although the programme targeted Māori and Pacific students, they were the minority of attendees. Of the 18 University of Waikato students who participated, half were male and half female, and seven (39%) identified as Pākehā or European, five (28%) as Māori or Pacific, four (22%) as Indian, and two (11%) were international students of other ethnicities. Subsequent SciBoost programmes did manage to attract larger proportions of Māori and Pacific students. Several of the pilot participants had been strongly recommended to attend SciBoost by Faculty staff, as they had underperformed in the 2012 academic year, or in Semester A, 2013 (or both). It is not clear the exact proportion of students who were self-referrals and staff-referrals, but 50% of students who took part in the pilot had failed one or more papers in 2012 or 2013, prior to attending SciBoost.

Evaluating the SciBoost Pilot

The pilot was evaluated using observational field notes, end-of-course evaluation forms, and exit interviews informed by naturalistic inquiry (Bowen, 2008; Guba & Lincoln, 1989; Lincoln & Guba, 1985; Vaioleti, 2006), fourth generation evaluation (Guba & Lincoln, 1989; Laughlin & Broadbent, 1996), Kaupapa Māori research (Bishop, 1998; Gibbs, 2001; Smith,

2012) and Talanoa research (McGrath & Ka'ili, 2010; Otunuku, 2011; Sauni, 2011; Vaioleti, 2006). These methods emphasise non-intrusive observation within the learning environment and the empowerment of participants through holistic approaches that value and validate the *taonga* (thing which is precious and treasured) that participants are willing to share, and the information that they feel it is important to raise in conversation with teachers and researchers.

An observational journal was kept by the Māori mentor co-ordinator during all workshops in the pilot. In addition, informal discussions were held during breaks, and students were asked to complete an anonymous evaluation form at the conclusion of the programme, which contained both Likert response scales and open response questions. Seven participants also agreed to participate in exit interviews with the Māori mentor co-ordinator in the days and weeks following SciBoost. They consisted of three Māori, two Pacific, and two Pākehā/European students (four female and three male). These interviews were held on campus and included the provision of *kai* (food) to recognise the importance of *manaakitanga* and *whanaungatanga*, and the value of *kanohi-ki-te-kanohi* (face-to-face) and *talanoa* (informal spoken narratives) as conversational forms of data collection.

End-of-course student evaluation forms were completed by 14 of the 18 (78%) pilot participants who were University of Waikato students. This feedback highlighted that students valued opportunities to build relationships with staff during the workshops (Students 11, 13, 14). In particular, one student commented that the science panel conversation had been a particularly useful way to get to know some of the tutors in FSEN, as this had involved successful FSEN graduates sharing the "different paths" they had taken to overcome the initial challenges they had faced during their transition to university (Student 14). Participants also indicated that they felt more confident after completing the programme (See Figure 1), that the programme was "well-rounded" (Student 1) and that the experience was a "very helpful and fostering environment" (Student 1).

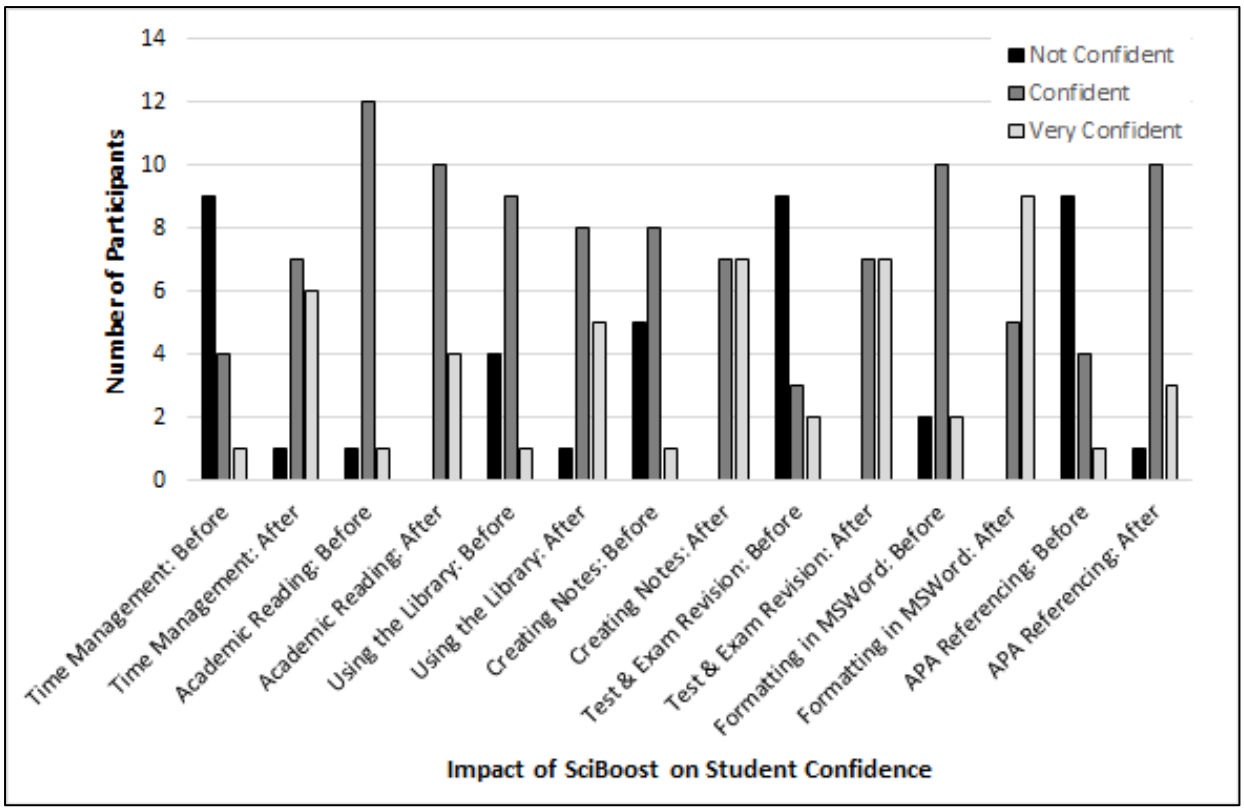

Figure 1: Before and after comparisons from end-of-programme student evaluation forms for SciBoost pilot, Semester B, 2013 (N=14).

Some found the reinforcement of existing skills and knowledge, such as time management and note-making, useful (Students 1, 4), while others found learning how to use the more advanced functions of Microsoft Word and Microsoft Excel more valuable (Students 3, 6). One student observed that it had taken some time to settle into university study and that s/he now felt that s/he was starting to "really enjoy it and [was]… getting better at it" (Student 5). Others commented that they intended to try new time-management, note-making and revision strategies in the coming semester (Student 6), and to seek additional help with APA referencing and other writing and research skills (Student 14). Similar findings emerged from the follow-up interviews, with most of the seven interviewees commenting that they found the programme beneficial and would "recommend SciBoost to others".

Student satisfaction and confidence are frequently dismissed as less reliable predictors of retention, completion and success than independently assessed outcomes (Bennett et al., 2000; Greenan, Humphreys, & McIveen, 1997; Rowan, 2013). However, in addition to self-report measures, tracking of the SciBoost pilot cohort has continued over subsequent years. The latest data reveals that, of the 18 students who participated in the SciBoost pilot, 13

(72%) have now graduated, with two others currently completing Bachelor of Science degrees, and one completing a Bachelor of Engineering (Honours) degree. Only two (11%) have been lost to the institution, having neither completed qualifications nor re-enrolled for 2017. Furthermore, one third of students who completed the SciBoost pilot have re-enrolled at Waikato for further study since graduation, with two currently in graduate diplomas, three in Master's degrees, and one in a PhD programme. In addition, three members of the pilot cohort (17%) have been employed by the university as sessional assistants, and are now involved in teaching undergraduate students in FSEN.

Lessons from SciBoost

During the pilot, staff from Student Learning and the library had attempted to introduce students to as many staff as possible, with the hope that they would then feel comfortable with any staff member. However, feedback indicated participants preferred to spend more time with fewer people, so that deeper and more lasting connections could be made. Subsequent iterations of SciBoost (prior to semesters A and B, 2014; semester B, 2015; and semester A, 2016) therefore involved one key staff member from each area. Evaluation data also revealed that students who developed stronger connections with staff during SciBoost were more likely to be proactive about maintaining these relationships during the subsequent semester, and to continue to seek advice and support when they felt it was needed. This was an interesting finding, as research on cohort-based learning communities usually indicates that longer, residential programmes are better for relationship-building (Lipson Lawrence, 2002), but SciBoost appears to have laid an adequate foundation for many students to continue to engage with the key staff who taught on the programme. Thus, although it is recognised that a two-day intensive programme is unlikely to achieve significant behavioural change by itself, ongoing learning development opportunities were made possible through the establishment of meaningful relationships between staff and students. It is therefore likely that it was the continued fostering of these relationships that contributed to the participants' subsequent engagement and success (Kuh, Kinzie, Buckley, Bridges, & Hayek; Zepke & Leach, 2010; Zepke et al., 2010).

Space appeared to impact on the ability of staff and students to develop meaningful relationships during SciBoost. Neither Student Learning advisors nor the Māori mentor co-ordinator have designated teaching spaces. There is a *whānau* room in FSEN, but this is a

small study space unsuited to cohort-based teaching. SciBoost was therefore hosted by FSEN in a large teaching room used by Earth Science. While this learning space was not ideal, it was familiar to most participants, as first-year classes are often held there. The fixed rows of desks in the Earth Science room made facilitating group work challenging, although the moveable seating meant students could engage in small group discussions and activities. This successfully overcame the risk that students would expect transmissive teaching in a room designed for lecture-style delivery. The room was also large enough that *kai* could be served on the desks at the back of the room, which meant students and tutors tended to remain in the room during breaks, and relationship-building and informal conversations could occur naturally. Students also worked in a computer lab in the library during SciBoost, but some students failed to attend these afternoon library sessions, so changing rooms may not have been ideal.

In a subsequent offering of SciBoost, prior to semester A, 2016, the Earth Science room was not available and SciBoost was instead hosted in a computer lab in FSEN. However, this meant students had to leave the room for *kai*, as food is not permitted in the lab. This cohort of students was notably more distracted by access to technology, and the staff felt they did not develop the same degree of rapport with them, as the group tended not to remain together during breaks. This suggests space may be an important factor in establishing relationships with students, a finding consistent with Bishop (1998, 2009) and Chu, Abella and Paurini's (2013) research, which has highlighted the importance of safe, comfortable and familiar physical spaces for improving the learning experiences of Māori and Pacific learners. Access to suitable teaching space needs to be addressed, if there is to be a genuine commitment to engaging with Māori and Pacific students to enhance their success through learning development opportunities.

When reflecting on SciBoost, all the staff involved felt it had been beneficial, with the Māori mentor co-ordinator, Student Learning tutors, and librarians excited by the level of student engagement during and after each programme. Staff were responsive to the learning needs of students and willing to adapt workshops to address students' questions and feedback. For example, some students commented on the pace and content, which led to some sessions being combined in future iterations. Some participants also felt that the Microsoft Word session contained little that they did not already know, but they struggled more with Microsoft Excel. The science subject librarian responded to this *taonga* by

adapting an existing library tutorial in order to teach how to use the various layout and analysis techniques relevant to students in science-based subjects. Each subsequent iteration of SciBoost was thus slightly different, with adaptations made in response to suggestions from students, including a request to start slightly later to accommodate students with young families and those travelling from the regions. The final occurrences of WaiBoost and SciBoost are illustrated in Table 2.

Table 2:*Comparison of the Semester A WaiBoost (2015) and SciBoost (2016) programmes*

	WaiBoost			**SciBoost**	
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
9.00am	Welcome, overview and student introductions	Review and consolidation	Review and consolidation		
9.30am	Starting your assignment	Taking notes from lectures	Summarising and paraphrasing		
9.45am				#Welcome and overview	#Review and consolidation
10.00am				Reading and note-making	Essay writing
10.30am		***Morning Tea Break***			
11.00am	Time management	Student Learning online resources	Online tools for concept mapping	Revision strategies	Using APA in assignments
12.00pm	*Using library databases to find academic resources	*Evaluating and referencing academic resources (separate session for Law students)	Student panel and programme evaluation	***Lunch Break***	
		Waiboost		**Sciboost**	
Time	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
12.30pm				*Finding and evaluating academic resources	*Working with MSExcel
1.00pm		***Lunch Break***			
1.30pm	Academic reading	Using argument	Student reflections	Time management	#Meet the tutors and mentors
2.00pm			Presentation of certificates and farewell		#Review, evaluation and farewell

Note. * indicates sessions led by librarians, # indicates sessions led by the Māori mentor co-ordinator, all other sessions led by Student Learning staff.

The Demise of SciBoost

Despite positive evaluations from students and evidence of improvements in student retention, achievement and success in FSEN, participation in SciBoost declined from a peak of 40 in Semester A, 2014, to a low of just five in Semester B, 2015. It is speculated that the Māori mentor co-ordinator's annual leave in the lead-up to the Semester B, 2015 programme impacted on promotion activities, exacerbated by a very recent change of staff in the faculty registrar position in FSEN, which was likely to have affected referrals. SciBoost had also not been offered prior to Semester A, 2015, as the science subject librarian was on annual leave (overseas) and the Māori liaison librarian was called to *tangihanga* (a funeral). These experiences indicate how collaborative ventures that are not structurally embedded into institutional practices are vulnerable to the absence of key members from the work team. Another small WaiBoost intake prior to semester A, 2016 of just 10 students, coupled with increasing workloads for staff in other aspects of their work, meant that SciBoost was no longer considered viable, and it is no longer offered at the University of Waikato.

Conclusions

Like tertiary learning advisors at other institutions, Student Learning staff at the University of Waikato are increasingly pursuing opportunities to embed their practice within faculties and programmes of study, so as to engage with built-in approaches that have relevance and immediacy for students, rather than bolt-on approaches that separate academic skills, literacies and dispositions from course content and disciplinary learning (Bennett et al., 2000; Richardson, 2016; Wingate, 2006). However, despite the growing body of research demonstrating the ineffectiveness of generic study skills workshops, many staff within faculties continue to expect this service from learning advisors, with low attendance and lack of student engagement the inevitable results.

When learning advisors actively pursue opportunities to reach students and staff from all subjects and disciplines, they frequently find greater engagement from teaching, arts and humanities, and social science subjects, with those from science-based subjects persistently more difficult to reach. This may be because learning advisors' perceived lack of content knowledge is seen as a barrier. Both WaiBoost and SciBoost attempted to operate in a middle-ground between built-in and bolt-on approaches, reflecting a desire to shift the

common perception that academic literacy and learning development are separate and different from subject content and disciplinary practices (Wingate, 2006). The invitation to work with Māori and Pacific students in FSEN thus presented an opportunity to gain a foothold in a faculty with which Student Learning has historically struggled to maintain consistent contact, and Sciboost's loss represents a significant threat to greater engagement with FSEN.

The demise of SciBoost highlights that the success of embedded initiatives often depends to a high degree on the willingness of faculty staff to "invite us over the threshold", on goodwill, and on the ability of learning advisors and mentors to capitalise on existing relationships. There were many factors that contributed to the unsustainability of SciBoost, but lack of buy-in from teaching staff, lack of faculty and institutional commitment, and changes to staffing are likely to have been significant factors. Staff turnover within FSEN meant the Māori mentor co-ordinator had to continually establish new relationships of trust with staff, and could not rely on existing networks of support built over many years. Promotion of the programme and staff referrals were also a persistent problem, particularly as we hoped to avoid the perception that mentors and learning advisors work exclusively with "remedial", "at risk" or "failing" students.

Structural changes in the wider university, however, signalled the death knell for both WaiBoost and SciBoost. In 2016, the University of Waikato moved orientation events for new students to "week zero" (the week before Semester A commences). This meant staff throughout the university, including Student Learning and library, were heavily committed to orientation workshops in the week WaiBoost and SciBoost would usually run. Although the new academic orientation programme has many benefits for new students transitioning into the university, and for the promotion of the Student Learning service, it is disappointing that these events focus almost exclusively on first-year students, rather than on retaining, engaging with and supporting existing students. This was precisely the issue raised by NZUAAU that WaiBoost and SciBoost sought to address.

The University of Waikato is also in the process of a major university-wide curriculum enhancement programme, which began in 2014 (Bowell, 2016; Cann, 2016). This review will see new "foundation papers" offered in all faculties, including FSEN, from 2018. The redesign of undergraduate programmes has increased workload for teaching staff involved in the development of core papers, as well as requiring major revisions to reduce

200 and 300 level papers from 20 points to 15 points (Bowell, 2016; Cann, 2016). Such structural changes at the faculty and institutional level are therefore highly likely to have undermined ongoing commitment to WaiBoost and SciBoost. While the creation of foundation papers may provide opportunities for built-in learning development for students, Student Learning tutors have not been included in the curriculum review at the faculty, subject or paper level, and anecdotal reports indicate that content knowledge may continue to be prioritised over the development of academic skills, literacies and dispositions.

The final nail in the coffin for SciBoost was the recent resignation of the Māori mentor co-ordinator, who has now left the university. His departure has severed a vital link between Student Learning and FSEN, highlighting how vulnerable learning development programmes are to the loss of key relationships with people who facilitate embedded opportunities for our work. In sharing the story of our short-lived SciBoost programme, we hope that other mentors, learning advisors, librarians and academic staff can learn from our experiences. We believe that SciBoost has demonstrated the value of collaborative cohort-based teaching and learning approaches for boosting the retention, achievement and success of returning students, particularly Māori and Pacific students in science-based subjects, and hope that SciBoost's successes will not be forgotten when future initiatives are developed.

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