

A case study: Do discipline-based programmes improve student learning outcomes?

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Abstract

This paper contributes to the growing body of knowledge that supports a discipline-based approach to academic and language development. To address the academic literacy needs of both international English as an Additional Language (EAL) and domestic students, universities are moving from generic to embedded models of teaching. This project was motivated by the realisation that students had unmet needs in terms of the academic competence required for successful tertiary study. This demonstrates a lack of educational integrity on behalf of the universities to ensure that students gain sufficient academic and language skills for success in first-year university study. This paper reports on the use of a teaching and learning model which demonstrates the effectiveness of embedding the development of academic and language skills within a particular discipline for EAL students and others. The unique contribution of this paper is that it uses a team-taught approach across two disciplines. It shows that discipline management specialists working in conjunction with English language specialists provide a reconsideration of teaching and learning strategies and modes of assessment that lead to better outcomes for both students and staff. Success of the programme was indicated by student assessment, attendance data, student evaluations, and reflection of peer teaching practices. Finally, the paper makes recommendations for the inclusion of embedded programmes in first-year university study using a diagnostic tool to determine specific student needs. Longitudinal studies need to be undertaken to ascertain specifically whether the benefits of discipline-based programmes are sustained in the longer term and additionally why many “at risk” students do not participate in the programme.

Introduction

Birrell (2006) reported that at least a third of overseas students completing their degrees at Australian universities had an English “score below the level normally required for employment as professionals in Australia” (p. 53). Although these students gained entry to university, it is clear that by the end of their degree many had still not attained the minimum standard required to study in an Australian university.

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Johnson (2008) claims “the tertiary sector has become increasingly dependent on international students to supplement domestic enrolments” (p. 241), which has led to significant and complex issues of educational integrity. These include the recruitment of students without the language or intercultural skills required to meet the demands of academic study. Without educational interventions for these students, the challenges may prevent them from successfully completing their studies. Universities around Australia who accept these students into their programmes, therefore, have the responsibility to ensure that the necessary supports are in place if they are to claim some measure of educational integrity. As a result, the manner in which provision of an environment where language and academic skills are developed has been recommended through the Good Practice Principles for English Language Proficiency for International Students in Australian Universities (DEEWR, 2008).

Literature review

Studying in an institutional context in a foreign or second language is an enormous challenge for international students. The literature over almost two decades (Burns, 1991; Reid, Kirkpatrick, & Mulligan, 1998; Wilson, 2003; Johnson, 2008) is clear about the difficulties of studying at university for international students. For instance, “... when students begin tertiary study, they enter not just one but often several new, and potentially contrasting communities of practice” (Wenger as cited in Johnson, 2008, p. 239); that is, students need to adjust to different cultures, namely the host country, Western university education and their particular discipline, which is referred to in this paper as the academic specialisation chosen by students, such as management or economics.

Furthermore, the technical aspects of academic language present major difficulties for international students. Johnson (2008), in her study of the pedagogical challenges facing international students in New Zealand, pointed to the difficulties of comprehending the complex wording of assignments and in particular, the use of terms such as “evaluate” and “discuss”. Moreover, the sheer volume of reading is a significant impediment to successful study. Johnson further supports this view by stating that “they felt that although they could cope in English at the vocabulary (word) level, understanding extended discourse was difficult” (2008, p. 236).

Apart from the pedagogic and cultural factors, lecturers have also found that students who achieved the minimum International English Language Testing System (IELTS) university entry requirements still struggle to meet the demands of university programmes. In linguistically demanding programmes an IELTS score of 7.0 is considered “probably acceptable” but students with an IELTS score of 6.5 will require additional language support (IELTS Handbook 2005, p. 5). The authors’ own study at the University of Canberra College (UCC) (Maldoni, Kennelly, & Davies, 2009) found three main reasons for these difficulties: insufficient language skills, lack of familiarisation with Australian and university culture, and inadequate academic skills.

However, the problem of university study is not limited to EAL students. Anecdotally, the experience of lecturers at the University of Canberra (UC) suggests that domestic students also have difficulties with studying at university. Wingate (2006), in her study in the United Kingdom (UK) found that traditional students are not adequately prepared for independent study required at universities. In Australia, Slattery (2008) reports that Monash University has implemented an English introductory programme for all students regardless of linguistic background because students did not demonstrate adequate academic and language skills for university study. Thus, research clearly shows that domestic students also need the development of academic literacy, that is to say, the core knowledge, skills and other requirements to successfully participate in a particular discipline at university.

This paper reports on a discipline-based programme embedded into a first-year unit at UC. The programme targeted students enrolled in Introduction to Management (ITM), a core first-year unit with an average semester enrolment of over 300 students from various degree programmes, and the study examined, using student attendance, assessment data, student evaluations and reflection of peer teaching practices, whether regular participation in the programme had a positive effect on their learning outcomes.

The paper firstly explains the reasons why a number of universities are moving from generic to embedded models, describing the institutional context which gave birth to this programme, its specific objectives and learning strategies used in the delivery of the Unit Support Programme (USP); how students were selected, and the use of a team-teaching approach across two disciplines. It considers the results for both regular and non-regular participating groups, and the impact of collaboration across the faculty on the success of USP. Finally the paper recommends strategies for the long-term sustainability of these programmes and considers the issue that many 'at risk' non-attending students have poor learning outcomes.

Embedded model of teaching and learning

There is much discussion about what kind of intervention a university should provide to improve the academic and language skills of its students. Most Australian universities offer an assortment of generic academic skills provision. However, there is concern about the effectiveness of these programmes (Bretag, 2001; Durkin & Main, 2002; Wingate, 2006; Dowling & Ryan, 2007; Baik & Greig, 2009) for at least two reasons: subject content and knowledge become divorced from the relevant disciplines resulting in poor attendance by students most at risk and this approach fails to recognise the needs of every student. Lea and Street (1998) used the term "academic socialisation" (p. 199), to acknowledge that all students regardless of background need support in developing effective academic skills in the discipline, particularly in writing.

Embedded models which incorporate academic skills as an integral part of the programme of study are being adopted in an increasing number of Australian universities, such as Griffith, Melbourne (Baik & Greig, 2009), Wollongong (Skillen, Bronwyn, Percy, Tootel, & Irvine, 2003), Macquarie University (Evans, Tindale, Cable, & Mead, 2009) and universities in the UK (Luton, Kent, Queens) (Wingate, 2006, p. 466) in order to meet the specific academic skill needs of students. Among the many benefits, students gain valuable academic skill development while simultaneously learning about discipline content; students develop an in-discipline vocabulary which will provide for extended discourse; and students may seek clarification of tutor expectations from this programme (Durkin & Main, 2002). Bretag (2001) further comments that "...integrated content-based ... courses taught by appropriately qualified language specialists working within faculties, is a highly effective model..." for improving student learning in the discipline and proficiency in the English language. This is affirmed by Bruner (1975), at a more general level, who suggests that the appropriate knowledge and ability of language, as taught through a specific curriculum, enables the student to better analyse problems arising. Additionally, results of students in specific discipline areas have improved through the teaching of analysis and summary skills in reading (Friend, 2000). Finally, Meldrum and Tootell (2004, p. 48) attest to "the importance of ensuring that literacies are aligned with subject content and assessment practice".

In this project, the authors (who are also the programme convenors and the USP teachers) adopted an embedded model of teaching and learning (see Figure 1) in three units across two disciplines. Content in the discipline was used in a support programme to provide academic skills and language development with the overall aim of improving learning outcomes for students.

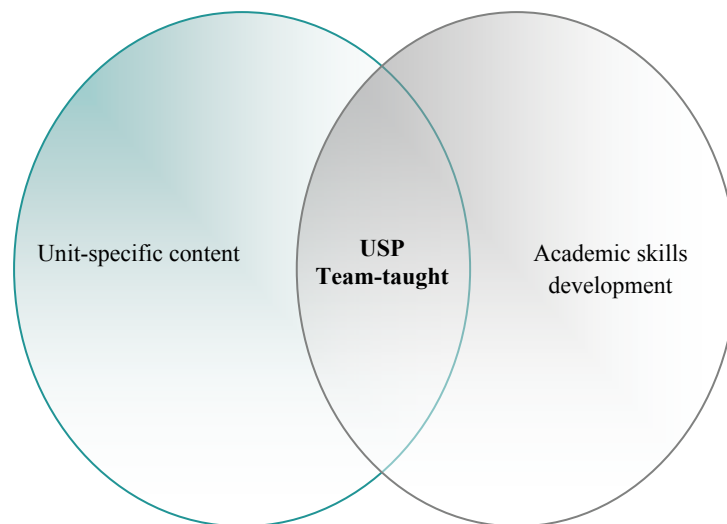


Figure 1. Unit specific model

The three parts of the model are: **Unit specific content** incorporating management theories and practices; **Academic skills development focusing on** critical reading, analysis and academic writing; and the **USP team-taught** applying management theories to practice. It seeks to show the interaction of the two areas (management content, and language and academic literacy) in the one programme, indeed in the one classroom.

The team-teaching feature of this embedded model is represented by teachers from the discipline of management and a language specialist. The benefits of team-teaching are canvassed in the literature (Fuller, Awyzio, & McFarlane, 2001; Bretag, Horricks, & Smith, 2002; Levy, Yellowly, & Farmer, 2005), particularly when students clearly require the attention of academics from different disciplines. For the purposes of the USP, team-teaching is defined as a team of two teachers across disciplines involved in the development, preparation, delivery and evaluation of a programme of learning for the same group (Goetz, 2000). Some of the many benefits to team-teaching reported in the literature include “an enriching and supportive environment both for the students and the academic staff” (Levy et al. 2005); enhancement of student engagement with the learning process, and recognition and understanding of the specific types of text that make up the discipline, along with the development of their own practice as participants in the chosen discourse of the student (Purser, Skillen, Deane, Donohue, & Peake, 2008, p. 14). Many of these benefits applied to the teachers during the project.

Another feature of the use of the embedded model over time is the development of momentum across the entire unit teaching team. In their research into developing academic literacy in context, Purser et al. (2008) noted deeper learning for the students and also “raised awareness among faculty-based academic staff” (p. 6) of how the nature of discourse is transferred into the written ability of students within their discipline. For example, they noted that “the faculty academic...now talks as we do, and assumes literacy teaching and resource development as part of their regular work” (p. 6).

Institutional context

The UC has an enrolment of 5,748 (equivalent full-time student load, EFTSU) students, comprising 1,385 (EFTSU) internationals and 4,363 (EFTSU) domestic students (University of Canberra Annual Report 2008-2009). The UC houses a

number of pathway programmes in its UCC, one of which offers the equivalent of first-year university to EAL students and others who do not meet the necessary university entrance requirements. It was in this environment that a discipline-based ESL reading unit was introduced into a management unit, specifically aimed at international students in 2002 to improve student learning in the discipline and overall competence in English (Maldoni, Kennelly, & Davies, 2009). The results of this initiative at UCC, which has been running for seven years, indicated that the reading programme (now compulsory for all students) had facilitated comprehension of discipline-specific content; improved proficiency in both reading and writing; increased confidence in participating in tutorials, and impacted positively on the ability of students to successfully meet the assessment requirements of their discipline units. In particular, the figures in Table 1 demonstrate that students attending the programme had an improved pass rate to those who did not attend.

Table 1:
Sample pass/fail rates from UCC 2002-2007

Discipline-based reading programme	Pass	Fail	Total
No support programme	33 (67%)	16 (33%)	49
Support programme	32 (87%)	5 (13%)	37
Total	65	21	86

(Maldoni, Kennelly, & Davies, 2009 and unpublished data from Wheeley & Maldoni, 2007).

The project

The successful experience at UCC described above gave birth to this project, which was funded by a teaching grant from the UC. It allowed for the introduction of the discipline-specific programme, renamed Unit Support Programme in the mainstream university environment. The USP was introduced into ITM (a first-year prerequisite unit for a number of degrees in the Faculty of Business and Government) and its success led to the expansion into two additional units (Kennelly, Maldoni, & Davies, 2008 unpublished report). The USP aimed to enhance the learning experiences of EAL and other students with insufficient academic and language skills for success in first-year university study.

The specific objective of this project was to ascertain whether discipline-based programmes improved student learning outcomes. The project drew on the data from six consecutive semesters (2/2006–1/2009) of the USP supporting the ITM unit. The intended practical outcome of this research was to improve competence in academic and critical literacy skills while simultaneously building English language competence. In addition, the programme would enable students to become independent learners in the long-term. The academic skills consisted of students learning essential critical reading skills, including skimming, scanning, and summarising in writing and discussion using content within the discipline. Deeper analysis of the texts involved synthesising and evaluating through writing and collaboration with other students. In addition, the skills required to approach academic assignments and written exams successfully formed a large part of the programme. The fact that the content was immediately relevant in both their tutorial programme and assessment requirements made the effectiveness of the programme more transparent (Maldoni, Kennelly, & Davies, 2007).

The USP consisted of a one hour workshop (held each teaching week) designed to run parallel to the ITM unit. That is, the USP expanded on lecture content, considered

tutorial questions and provided “just in time” support for assessment tasks in a framework of academic skill development. The workshops were enhanced with the use of a weekly worksheet which concentrated on the theory and application of management principles in a milieu of academic and critical literacy development. The programme was facilitated by two teachers, an English language specialist and a management discipline expert. In the main the authors filled these two roles and are referred to as USP convenors. They worked closely with faculty staff, thus the ITM unit convenor and the unit tutors.

Total unit enrolment averaged 300 per semester with EAL students representing about 28% (from enrolment records kept by unit and USP convenors). Initially all EAL students were invited to join the programme if they experienced difficulty understanding the content. However, not all EAL students were deemed to be at risk and increasingly some native English speakers were identified in this category. In fact, the programme tended to attract older, more mature students (Kennelly & Tucker, 2010 not yet published) who perceived they were struggling, but in some cases were actually deemed to be high achievers. As a result, the educational integrity of providing all students, regardless of background, with the academic skills development required became a key motivator for USPs from this point on. In the past few semesters, more accurate tools have been used to identify those students who might benefit from the programme with the use of diagnostic tests, assessment marks and tutor observations. The students selected for USP by the convenors were those who they considered to be at risk students, that is, whose applied English competence demonstrated that they were in danger of failing this unit, primarily those with poor English skills. Students were then divided into two cohorts: those who attended regularly and those who attended irregularly. Results were obtained using student attendances at USP, student unit assessment and evaluation, and observations of USP convenors.

Results

Attendances

In each semester attendance was recorded for each USP cohort. Table 2 identifies the average number of students who attended each class and the total number of attendances. It is clear that there has been an increased interest in the programme and this has resulted in a six-fold increase in average class size since the inception of USP.

Table 2:
USP student attendance

Semester	ITM USP	
	Average class attendance	Total no. of student attendances
2/2006	5	62
1/2007	8	99
2/2007	12.1	146
1/2008	19	230
2/2008	16.3	196
1/2009	30	363

Assessment

Table 3 shows the average final result for ITM students in each cohort in each semester. The USP cohorts were made up of students who attended regularly (five or more workshop sessions out of 12) and those who did not attend regularly (or not at all). These figures are in line with the UCC figures (see Table 1) which showed that

students attending a support programme were more likely to obtain a higher final mark than those students who were identified as at risk, but did not attend.

Table 3:

Numbers of students in each cohort with average final results for ITM

Semester	Assessment of regular attending USP cohort		Assessment of non-regular attending USP cohort	
	No. of students	Ave final mark	No. of students	Ave final mark
2/2006	11	57.3	10	45.5
1/2007	12	58.5	12	48.4
2/ 2007	21	60	36	54.5
1/2008	13	62.5	14	50.5
2/2008	19	61	20	51
1/2009	45	63.3	42	61.5
All semesters	121	61.5	134	54.5

The at risk students, represented in the non-regular attending cohort were identified by early unit assessments and feedback from tutors. Table 2 shows that 255 students had their assessments tracked during the life of the project. On average those of the regular attending cohort achieved 7% marks higher than the non-regular attendees and this is consistent with Baik and Greig's findings (2009) with a similar ESL undergraduate group. With the exception of semester 1/2009, most non-regular attendees either failed (40%) or achieved very low pass marks. (Note that in the attending cohort the failure rate was 8%, much lower than in the non-attending cohort). In a number of cases in each semester these students were advised that their progressive assessment showed they were at risk, but many, despite this knowledge, declined offers to attend the USP.

Student evaluations

The project ran for six semesters in total and student evaluations were conducted in each semester. Data from a sample of evaluations from students enrolled in ITM and who had attended the USP is presented from three semesters. In total, 102 students submitted evaluations: 53 attended regularly and 49 attended irregularly. Given that more than half this population attended the USP workshops adds credibility to the following student insights.

When asked to comment on the usefulness of the programme, the regular attendees agreed that the programme had assisted them to understand management theories and concepts; participate more confidently in tutorials and workshops; and prepare more effectively for major essays, tests and exams. Preparation for assessment was a major feature of the evaluation responses and students cited the following reasons: *more practical explanations of theories (real-life examples); clarification of requirements of assignment questions; and the application of critical analysis to theories and concepts* (USP student evaluations during the project).

The final part of the questionnaire asked students to comment on whether they would like to see the USP continue. All students endorsed the continuation of the programme. The most common reason for this was that it provided a support system,

particularly for first-year and/or EAL students; assisted students to successfully complete assignments; and helped not only EAL but also local students. For instance, it gave assistance to those who were struggling, especially students who could not understand lectures. Interestingly, one student summed up the benefits of the programme with this statement: it “provides an opportunity for students to learn more, understand better and have good grades” (USP student evaluations 2/2007).

Information was also sought on how the programme could be improved in subsequent semesters. Students commented that the one hour duration of the classes was too brief to prepare students sufficiently for the unit; however, this proved problematic with large numbers. Others stated that the USP should be integrated across other management units and be more usefully targeted towards students in need.

Observations of authors

Unit assessment results, attendance at USP, student evaluations and reflections of the authors were triangulated in order to evaluate the success of the programmes. At risk students who did not attend USP regularly were also tracked. As these figures have been compared in six units in addition to the figures from UCC (see Table 1), the data represents more than 340 students strongly indicating the benefits of participation in USP. Some of these are included below:

- Student participation in the USP lowered the assumptions made by tutors about assessment criteria. For instance, the small group nature of USP encouraged students to explore assessment guidelines and marking criteria, therefore reducing the expectations made by teachers that students understand.
- The intimate nature of a USP class (generally less than 20 students as tutorials can be up to 35 students) allowed for small group discussions with the teachers and the opportunity to engage in a discipline discourse (tutors began attending USP in semester 1/2008).
- Inviting successful past USP students to explain the benefits of the USP to prospective students (in 1/2008 and 2/2008) appeared to have increased initial attendance at the USP.

Another successful element of the USP was the integrated model (see Figure 1) of team-teaching between the academic and language specialist. In this project the skills of the language and discipline specialists allowed for greater, more robust reflection on student learning and teaching. EAL students, in particular, had the advantage of being exposed to the skills of a language specialist, who was aware of the cultural implications underpinning academic texts, while the discipline lecturer was able to explain and apply the relevant theories. Cross disciplinary team-teaching benefits the teachers by bringing two different perspectives to the questions of planning and delivering the teaching strategies, and by providing each other with peer feedback (Kennelly 2007-2009). This demonstrated that reflection on practice and on learning objectives informed the planning for the next sessions in terms of what teaching strategies had worked well and what needed to be improved.

Notwithstanding these benefits, the following challenges remain:

- For the teaching team it was difficult to contend with the diverse and specific needs of all students. This was partly due to the fact that students seemed to attend only when particular assessment tasks were the focus of the USP. Indeed, poor lecture attendance proved problematic for at risk students because they had less understanding of the theories and concepts of management when they attended the USP.
- Analysis of unit assessment by unit tutors continued to report significant numbers of at risk students not attending tutorials (Peer reflective sessions 2008).

Collaboration

During semester 2/2008 and semester 1/2009 there appeared to be a synergy and momentum operating as the team of unit convenor, USP convenors and unit tutors were working together. In part, this may be the result of greater recognition of the strategic importance of the work of tutors in the USP. As the maintenance and improvement of the USP relies heavily on successful collaboration, the authors worked at explaining and supporting the unit convenors and tutors in their understanding and use of the programme (a team of seven staff). All unit convenors participated in the USP workshops so they could see the teaching and learning strategies demonstrated. All tutors (both tenured and casual) also attended at least two paid workshops as part of their training, and this encouraged the feedback between the USP convenors and the tutors, enriching the quality of the USP by providing a dialogue about the needs of each student at risk. Tutors came to understand the value and benefits of the material and integrated this material into their tutorials.

The collaborative process was also enhanced at the faculty level as the authors facilitated open seminars at the end of each semester. Results of the programmes were presented, evaluated, and future action discussed. In turn, these successes have contributed to a faculty-wide understanding and support of the USP. In particular, this success has led to the Dean of the Faculty financially supporting the continuation of the ITM USP (from 2/2007), allowing the allocation of the teaching and learning grant for the expansion of the USP into two other units in the faculty (Kennelly, Maldoni, & Davies, 2008, unpublished).

Discussion

A number of findings have been made from the results of the project. The first finding was that the number and range (in terms of competence in academic skills) of students attending USP increased. Total attendance figures increased by about 50% since the programme commenced, on average, each semester. More than 340 students attended one of the USP workshops under consideration. In part, this was because USP seemed to make a considerable difference to the final marks of those attending students. As a result, the programme now also attracts more academically able students, not just students at risk. However, students at risk are becoming more aware of the presence of the USP and there are indicators that more are interested in attending a support class.

Nonetheless, results also showed that many at risk students are still not attending. In fact non-attending ITM at risk students (see Table 3) steadily increased from semester 1/2008. Data from all ITM USPs (see Table 3) show that 134 at risk students did not attend the USP (or attended only once or twice) and achieved an average grade of 54.5% as opposed to the attending cohort (121 students) which achieved an average grade of 61.5%. The authors believe that the University has an obligation to ensure that all students, clearly disadvantaged because of their English language competence, must have the opportunity to gain the skills necessary to be successful at university study. Therefore, we would expect a significant majority to take up some form of assistance. A take up rate of only 47% for USP suggests a possible lack of educational integrity. In other words, there were students deemed at risk who did not take advantage of the USP opportunities available. One colleague suggested that the rationale for poor attendance amongst these students might be "that the weaker students find it easier not to attend classes at all...It is just too embarrassing to go to...small classes and be asked questions. It simply adds to the stress or the workload or both" (Maldoni, Kennelly, & Davies, 2007, p. 13). Bretag (2004) supports this view by adding that "a significant number of students who could not even read the textbook, were still likely to fall through the cracks" (p. 537).

In addressing this challenge, numerous suggestions were made, including a clearer and earlier identification of at risk students introducing a diagnostic writing exercise in the first lecture, using the first Multiple Choice Question test results and observing oral communication in the first tutorial.

Conclusions

USP has now been delivered nine times within the faculty, eight semesters sequentially for ITM, with more than 400 students participating in at least one of these workshops. The confidence of the tutors has grown as they have become more accustomed to using USP workshop material in their tutorials. Many dozens of students are passing ITM that would potentially have failed. Evidence points to the positive impact on the retention of these students at UC (Kennelly & Tucker, 2010, unpublished research).

The perennial problem of some at risk students not attending USP, going on to fail, and in some cases “dropping out” remains. Research to date suggests that the at risk students do not attend for the following reasons: work commitments; perception of a stigma attached to participation in the USP; unawareness of their lack of ability in the discipline; misunderstanding the nature of the USP. Data from USP 2/2008 and 1/2009, where average numbers were 16 and 30 per class respectively, suggests that as many as 40 at risk students per semester were identified and did not attend USP.

An area for future study would be to determine if students in their subsequent studies maintained similar levels of achievement. Currently, a project to interview at risk non-attending students is underway at UC.

Do discipline-based programmes improve student learning outcomes?

The research from UCC (see Table 1 Maldoni, Kennelly, & Davies, 2009) is relatively convincing; that is 95% of second language students who attended USP passed and the majority of those who did not attend the USP failed. Therefore the authors felt that a strong causal relationship existed. However, at UC the students were a more heterogeneous group in terms of language skills and cultural understanding, and the programme was voluntary. The question raised as to how the findings can demonstrate a causal relationship between improved assessment over the semester and attendance at USP became evident. Other variables, which were not tested in this study, which could be attributed to this improvement include: self-selection into the USP by more motivated students; the investment of more time on assessment items by USP students; the maturity of the students; and greater support for these students from tutors, Academic Skills Programme (ASP), and assistance from peers. The tracking of the two cohorts and the triangulation of assessment results, attendance data, student evaluations and the authors’ observations over six semesters suggest that participation in USP is an important factor in improved learning outcomes for students, a contention which is also made by Baik and Greig (2009, p. 412).

The following improvements are being considered for the future expansion of a university-wide programme for the support of first-year at risk students:

- Continue to use an embedded model (see Figure 1) with a diagnostic tool to ensure at risk students are identified and required to attend USP. There are various diagnostic tools available for use, such as Bonanno and Jones’ (2007) MASUS (Measuring the Academic Skills of University Students) test from the University of Sydney which measures the academic skills of university students;

and an ITM discipline diagnostic tool which measures students' recognition and understanding of management terms.

- The introduction of a compulsory credit-bearing course in academic and discipline language skill development (see Borbasi, 2010; Bretag & Kooymans, 2002, for examples of universities with content-based or academic and language skills courses for credit such as Griffith University, University of Sydney, University of Melbourne and University of South Australia) in conjunction with the use of the diagnostic test (see no.1 above) would ensure that access to support for students at risk would be mandatory. A similar programme (ITM) implemented at the UCC for second language students has been compulsory since 2007 (Maldoni, Kennelly, & Davies, 2009).
- A consideration at UC is a change of approach from a needs-based to an academic socialisation model (Lea & Street, 1998); that is integrating all students into the particular discipline orientation programme. According to Wingate (2006), many universities still base their support on a deficit model for weaker students. However, inducting all students into an academic discourse might be a more effective model. For example, writing may need to be taught explicitly within the unit by discipline tutors. "Although this approach is regarded as highly effective in developing student learning for university and beyond, its implementation is difficult due to the institutional support and resources required" (Wingate, 2006, p. 467). Furthermore, the authors believe that a USP might still be required for some at risk students.
- Collaboration needs to continue and be expanded on a university-wide basis. This will be further enhanced with greater funding to more first-year units, which will allow team-teaching processes and peer feedback to be extended to develop the cross-disciplinary teaching teams required by multiple unit support programmes. The implementation of these measures will ensure that the educational integrity of our student learning processes will be enhanced.
- Continue to market USP to potential students using the pass/fail data of some previous 400+ USP students; invite a fluent EAL student in the first lecture of each unit to explain the benefits of the programme; and ensure that the USP follows the lecture on the same day.

Embedded academic skills programmes appear to make a significant difference to the learning outcomes of EAL students and others. Data presented suggests that participating students have a significant advantage when taught in an across discipline team-taught programme. Importantly, this work contributes to the educational integrity of the university. Further work is required in meeting the needs of those at risk students who are not supported in developing the competence required to be successful at university study.

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