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A decade of embedding: Where are we now?

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Abstract

Over the last 10 years the higher education sector has undergone a myriad of changes both in student demographics and the influx of international students. With these changes, concerns about the ability of students to meet the English language and academic demands of tertiary study have come to the forefront. This paper reports on a project of embedding academic literacy into nine units across four disciplines, which spanned the duration of a decade. The paper documents the process by which the Unit Support Program (USP) evolved from a discipline-based reading program in a university preparation context to an embedded, integrated and team-taught approach in the university mainstream. It sought to determine whether the introduction of the program improved student learning in the discipline, specifically in English language and academic literacy development. Using data drawn from over 2500 students relating to progression rates, final grades, participation levels, and qualitative data relating to student and staff perceptions, this longitudinal study demonstrated a positive relationship between embedding academic literacy in the disciplines and student learning. The added benefit of academic socialisation for staff is also a reported result of this study. Although significant ongoing institutional support is needed, this paper advocates that an embedded, integrated and team-taught model should be incorporated into the first year of study.

Using a case study approach, this paper firstly explains the rationale to embed language and academic literacy development within disciplinary contexts; the framework from which the Unit Specific Model emanated; and the team teaching approach used in the delivery of the Unit Support Program (USP) across a variety of disciplines. It considers the comparative results for both participating and non-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 programs.

Introduction

Over the last decade, the higher-education sector has undergone a number of changes. With the Bradley review (Bradley et al. 2008) calling for increased equity and access to university education, a variety of entry pathways have emerged and led to an increase in a number of non-traditional students enrolling at universities. At the same time, and in order to meet a shortfall in government funding, Australian tertiary institutions have been forced to rely more heavily on the international student market, which has shown an exponential growth in the last decade (Dunworth 2010; Bretag 2015). As the international student population has increased, so too have concerns about the ability of these students to meet the English-language and academic demands of tertiary study (Bretag 2007; Dunworth 2010; Brooman-Jones et al. 2011; Arkoudis 2013; Hare 2015). In fact, since Birrell (2006) first reported that the language proficiency of a significant number of international students had not improved by the end of the degree, a growing body of research has emerged indicating that international students continue to lack the appropriate English levels to communicate effectively at both entry and exit points (Bretag 2007; Dunworth, Fiocco & Mulligan, 2012).

These findings are not surprising given that studying in an institutional context in a foreign or second language presents an enormous challenge for international students. The difficulties of studying at university for foreign students are widely established in the literature (Lear, Li & Prentice in press; Beaty, Collins & Buckingham 2014). Among the many difficulties, the sheer volume of academic reading, the research-based nature of written assignments, the need for critical thinking (Davies & Maldoni 2004) and the technical aspects of academic language (Johnson 2008) are all significant impediments to successful study. Wilson (2003) points to the time-consuming nature of reading for those who have little experience of academic texts. The use of technical and discipline-specific vocabulary, denser writing style, complex sentence structures and frequent acronyms compound the linguistic difficulties faced by students in academic reading. Not surprisingly, second-language students take two to three times longer to read a given academic text than does a native speaker (Reid, Kirkpatrick & Mulligan 1998). Additionally, cultural differences in learning styles and differing academic expectations can be problematic. A study into the way international students negotiate the disciplinary requirements of their courses revealed that students' understanding of the requirements of assessment tasks and the important features of academic writing differed significantly from the expectations of academics (Arkoudis & Tran 2007).

Concern about the readiness of students for university, however, is not limited to international students. Demand for access to higher education has also expanded in the domestic market, which now includes students with English as an Additional Language and Dialect (EALD), students who identify as mature-age learners and students from a range of socio-economic backgrounds (Dunworth & Briguglio 2010). In fact, domestic students share many common characteristics with international students, and studies have shown that many are also not adequately prepared for the independent study necessary for success in the tertiary environment (Larcombe & Malkin 2008; Scouller et al. 2008; Wingate 2006).

Given the greater needs of the diverse student population, issues relating to academic literacy and language have become a significant matter for concern in universities. Academic literacy by its very nature is a difficult concept to define. In its simplest form, it is "the ability of students to use the English language to make and communicate meaning in spoken and written contexts" (DEEWR 2009, p. 1). In the plural form, however, as the term is more commonly known (Lillis 2007; Murray & Nallaya 2014), academic literacies encompass more than just language; they are

viewed as a set of distinct communicative practices in diverse genres, contexts and disciplines (Lea & Street 1998), where learning is viewed as a process of enculturation into several discourse communities (Beatty, Collins & Buckingham 2014). Hence, the academic-literacies framework provides students with opportunities to develop an understanding of the diverse literary and language practices in universities. According to the DEEWR Good Practice Guidelines (2009), students require a range of academic literacies, including English language, to be successful; in agreement with current theoretical perspectives on language and learning, these are most effectively acquired if they are embedded within specific disciplinary contexts (Lea & Street 1998; Lillis 2003, 2007; Barthel 2008; Wingate 2006, 2015). This study adopts the academic-literacies framework for understanding university practices (Lea & Street 1998), and aims to make expectations for academic literacy and language explicit by embedding teaching and assessment practices into a discipline-specific context. Specifically, this paper seeks to demonstrate two cases where instruction in academic literacy and language was provided for students within the disciplines over a 10-year period. A case-study approach is often used in research "to generate an in-depth, multi-faceted understanding of a complex issue in its real-life context" (Crowe et al. 2011, p.1). The first case describes the stages of a paired reading model implemented in the University of Canberra College (UC College). The second case describes an embedded, integrated and team-taught model, the Unit Support Program (USP), implemented within the University of Canberra (UC).

A case for the embedded approach

The provision of academic literacy and language for both international and domestic students has since 1998 moved away from generic models (Skillen, Merten, Trivett & Percy 1998), which focused on a deficit model of support for weak students (Wingate & Dreiss 2009), to more collaborative and integrated approaches, which focus on a discipline or faculty-based model (Chanock 2013). Wingate (2006, p.457) is a strong advocate of the embedded, or, as she terms it, the *built-in* approach, "where learning is developed through subject teaching". This is in contrast to the *bolt-on* approach, which separates literacy and language from the process and content of learning. The *bolt-on* approach is typically aimed at developing traditional study skills in the form of guidelines on essay writing or note taking, for example. However, the most significant limitation of this approach is that academic literacy and language instruction becomes divorced from subject content and knowledge. This separation suggests that, as long as these study techniques are acquired, students should be able to study successfully without engaging deeply with subject content (Wingate 2006). This means that separating academic literacy in this way does not readily enhance student learning. Indeed, this assumption fosters only a surface approach to learning and does not guarantee success in mastering the subject content or completing assessment tasks.

As it is now common understanding that academic literacies should be embedded within discipline subjects rather than taught generically outside the subject area, an increase in the embedding of literacy and language development within disciplinary studies has expanded across the Australian tertiary sector. This has led to increasing support for embedded approaches in the literature (Arkoudis 2014; Baik & Greig 2009; Bretag 2007; Briguglio 2007, 2014; Harris & Ashton 2011; Kennelly, Maldoni & Davies 2010; Maldoni, Kennelly & Davies 2009; Maldoni & Lear under review; Skillen et al. 1998; van der Meer & Scott 2008). Moreover, the positive impact of embedding academic literacy with disciplinary learning is also expanding in the international context (for example, work by Andrade 2006; Dowling & Ryan 2007; McConlogue, Mitchell & Peake 2012 with the Thinking Writing network at Queen Mary College; McWilliams & Allan 2014; Wingate 2015). Among the many benefits documented in the literature (Cochrane 2006;

Hattie, Biggs & Purdie 1996; Tinto & Pusser 2006), embedded approaches can produce higher pass marks and greater retention (Bordonaro 2008; Hammill 2007). Indeed, recent research has shown positive outcomes for students in terms of student learning (Mort & Drury 2012), and higher marks among students (Baik & Greig 2009; Kennelly, Maldoni & Davies 2010). Research has also demonstrated improvements in communicative language competency (Maldoni, Kennelly & Davies 2009; Kennelly, Maldoni & Davies 2010; Jackson et al. 2006).

Is there "one" best way?

Wingate proposes an inclusive model of academic-literacy instruction and argues that subject and literacy teaching cannot be accomplished by subject lecturers on their own due to their lack of awareness of the literacy conventions of their disciplines and their inability to use "the meta-language to teach them" (2015, p.130). As a result, best-practice models of academic-literacy instruction need to be based on some form of collaboration between discipline and literacy staff. Briguglio (2007) asserts that to promote a successful learning experience for students from a range of linguistic and cultural backgrounds, literacy staff need to promote close collaboration with academic colleagues. The form this collaboration takes is fundamental to the success of the embedding approach. In their study at the University of Sydney, Jones, Bonnano and Scouller (2001) explored different approaches to faculty collaboration on a continuum of learning support. The continuum included *adjunct* models, where generic or discipline-based support is provided outside the unit; *integrated* models, where academic-literacy staff work collaboratively with discipline staff and the former may teach in the subject area; and embedded models, where the "collaborative design of a curriculum…is the organising principle for the course and which is ultimately taught by subject staff" (Jones, Bonanno & Scouller 2001, p. 12). The *adjunct* models are argued to be ineffective because they are external to the discipline (Wingate 2006). Although the *integrated* and *embedded* models do include collaboration with academic staff, which may well lead to integrating learning support into assessment and curriculum practices, within the integrated models, the role of literacy staff is still one of support only, and in embedded models, literacy staff may not teach within the unit and are therefore not regarded as a critical element of the discipline subject.

In a study focusing on the development of academic literacy for international postgraduate students in the discipline of English for Academic Purposes (EAP), Dudley-Evans (2001) describes a taxonomy of three levels of a collaborative approach to teaching: *cooperation*, where literacy support is provided by way of adjunct classes outside the discipline; *collaboration*, where literacy support is also provided through adjunct classes but the content of this support is negotiated (in consultation) with academic staff; and *team teaching*, where "literacy support is embedded in the discipline subject such that discipline and academic literacy staff co-teach in the same space" (Brooman-Jones et al. 2011, p.3). It is the team-teaching aspect of Dudley-Evans's (2001) model that is argued to be the fundamental aspect of collaboration (Maldoni, Kennelly & Davies 2009; Kennelly, Maldoni & Davies 2010). The models that share the commonality of academic literacy and discipline staff working seamlessly together both in and out the classroom demonstrate best practice for developing academic language and literacy.

Building on the work of Jones, Bonanno & Scouller (2001), Harris and Ashton (2011) adopted the *embedded* model but added a further aspect, *embedded and integrated*, where, in addition to involvement in "curriculum design [and] assessment renewal" (p. 81), literacy staff also worked with academic staff in delivering *class presentations*. In this initiative at Edith Cowan University, the team-teaching aspect of the model was an innovative approach that not only resulted in

improvements in student learning but also demonstrated to students that academic literacy was an important part of the unit content (Harris & Ashton 2011).

In a similar vein, our study builds on the initiative of Harris and Ashton (2011) by extending the *embedded and integrated* aspects of the continuum, and incorporating Dudley-Evan's (2001) *team-teaching* feature to create the *Unit-Specific Model* (Kennelly, Maldoni & Davies 2010) (Figure 1).
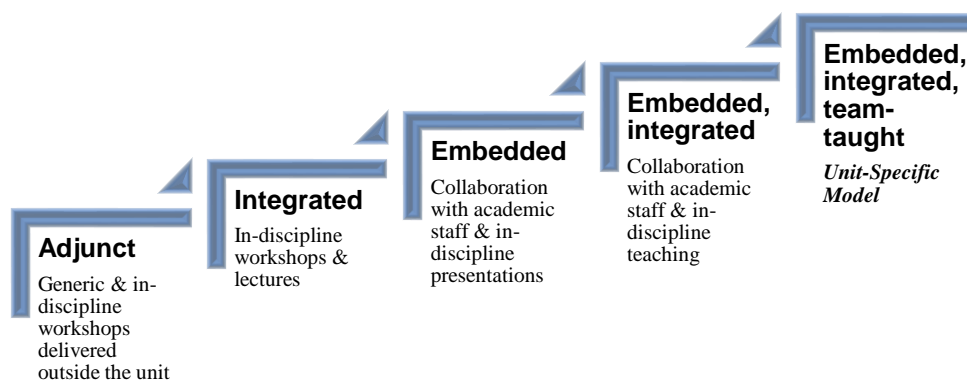

Figure 1. Continuum of collaboration

The Unit-Specific Model comprises three aspects: discipline-specific content, academic-literacy development and the *Unit Support Program* (USP) (Figure 2). This paradigm seeks to show how areas (content and literacy) can be merged into the one program; thus, the Unit Support Program (USP) can be seen as an interdisciplinary initiative that is fully *embedded, integrated and team-taught* within the discipline. Although the program was in addition to the formal study program, all students were given the opportunity to attend and become regular participants to gain the most benefit in terms of academic-literacy development. As opposed to adjunct programs where support is external to the discipline, the USP was delivered on a regular basis by literacy staff employed directly by the faculty. Studies have demonstrated that embedded models of learning are far more effective in faculty-based programs because they lead to improved learning outcomes for students (for example, Baik & Greig 2009; Kennelly & Tucker 2012). The Unit-Specific Model, which aims to enculturate "students into discipline-specific discourses and genres" (Palmer et al. 2014, p.69), represents a shift from a deficit model of academic support. Thus, the USP is part of a faculty-based program and is considered an integral part of the unit by both students and staff. Not only do academic-literacy staff work collaboratively with academics, but they are also actively engaged in the teaching of the unit. This occurs as part of a standard weekly timetabled class, and regular weekly staff meetings are used for developing, preparing, delivering, evaluating and reflecting on their own teaching and learning practices.
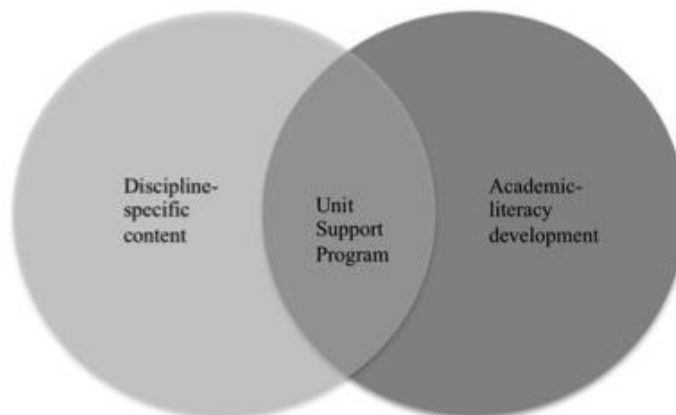
Figure 2. Unit-Specific Model (Kennelly, Maldoni & Davies 2010)

As will become evident in the case studies below, the initial stages of the project began with several variants of this model, commencing with an *adjunct* model and moving to an *embedded and integrated* model in Case Study 1 (Table 1), and finally an *embedded, integrated and team-taught* model in Case Study 2 (Table 2). In this study, we argue that the incorporation of the team-teaching feature of the Unit-Specific Model in Case Study 2 is unique, and that this longitudinal study differs from much of the embedding work cited in the literature. Although the literature reports many instances of embedded approaches that feature relative aspects of team teaching, many of these are applied in adjunct, integrated or embedded contexts only. In Harris and Ashton's study, for example, team teaching was a component of the *embedded and integrated* model; however, the context did not include all the features of the Unit-Specific Model. Specifically, the team-teaching activities were not systematic; that is, they were not incorporated into the workshops on a weekly basis. Rather the team teaching was negotiated between discipline and literacy staff to focus particularly on support with assessment at specified times in the semester (J Ashton, personal communication, 8 February 2016). In contrast to other models, the team-teaching pedagogy is fundamental to the Unit-Specific Model, which is sustained throughout the semester and is systematically incorporated into each workshop to enhance student learning.

Case Study 1 – the UC College initiative (Stage 1)

The UC houses a number of pathway programs in the UC College both at the undergraduate and postgraduate levels. In both cases, UC College offers first-year university equivalent courses to EALD students who study undergraduate and postgraduate units, which are credited toward the final degree. At both levels, there are students who do not meet the necessary English requirements for direct entry into university; they ordinarily face considerable challenges in coping with the demands of tertiary study, particularly academic reading. It was in this milieu that a discipline-based English reading program was introduced into Introduction to Management (ITM), a first-year foundation unit within the discipline of Management, and subsequently extended to seven postgraduate units across four disciplines: Management, Accounting, Marketing and Information Technology.

Specifically, Kasper's *paired reading model* (1995, 1997; Maldoni, Kennelly & Davies 2009) provided new insights into the effectiveness of content-based courses. Studies have shown that students in content-based language instruction courses achieve higher scores in reading-proficiency tests (Tsai & Shang 2010), higher pass rates in content subjects (Kasper 1997) and

improved language acquisition (Song 2006). In light of these findings, the *paired reading model* was adopted as the basis of the discipline-based reading program. The program ran parallel to the targeted units, incorporating weekly discipline-specific content to develop improved reading competence and enhance learning in the discipline. This meant that students attended a weekly *paired reading class* where lecture readings paralleled the main content of the program, as opposed to a generic academic-reading program (Figure 3). Although academic-literacy staff taught these classes, they worked closely with discipline staff to develop curricula and teaching methods, and provide a medium for the development of language and literacy, as well as improved understanding of theory and critical analysis of content in the discipline.
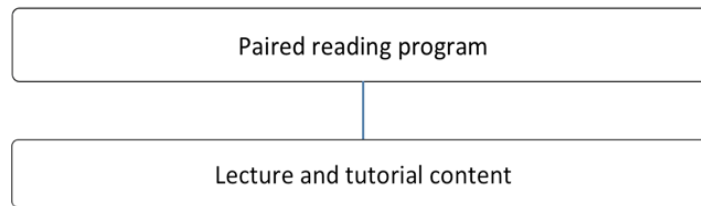

Figure 3. Paired reading model (adapted from Kasper 1995)

Several iterations of this reading program included a *helping class* delivered by the discipline tutor in 2003, then a *paired reading class* delivered by the English/academic-literacy teacher who collaborated with the discipline lecturer from 2004 (Table 1). The reading program became *embedded and integrated* within the discipline, and were the beginnings of the USP – an *embedded, integrated and team-taught model* – which ran for the remaining eight years in the University of Canberra mainstream (Table 2).

Table 1. Paired reading program at UC College (Stage 1)

Year	Program	Discipline	Unit name	Type of support	Project name	Funding
2003	Diploma of Business (UG)	Management	ITM	Adjunct	Helping class (Control group)	UC College
2004	Diploma of Business (UG)	Management	ITM	Paired reading program	Reading program	UC Teaching Grant
	PG Preparation Program (MIB/MBA, MMC, MIT)	Management, Accounting, Marketing & IT	OB, PR, AFM, various IT units	Embedded and integrated		
2005	Diploma of Business (UG)	Management	ITM	Paired reading program		
	PG Preparation Program (MIB/MBA, MMC, MIT)	Management, Accounting, Marketing & IT	OB, PR, AFM, AS, various IT units	Embedded and integrated		

Note: OB=Organisational Behaviour; PR=Public Relations; AFM=Accounting for Managers; AS=Advertising Strategies.

Program evaluation

To evaluate the success of the paired reading program, a range of quantitative and qualitative data was collected to assess whether the introduction of the discipline-based reading program in a

university-preparation context would improve student learning in the discipline while simultaneously developing English-language proficiency. Initially, the collection of data concentrated on a comparative study of two small cohorts of ITM students with (n=10 students) and without (n=8 students) a paired reading program. Scores from pre and post reading and writing tests were compared to establish whether improvements had been made in English proficiency. Pass-fail rates from integrated reading programs conducted at UC College over a five-year period were also included to determine overall performance in the discipline. The following results are consistent with the findings from Maldoni, Kennelly and Davies (2009), and evaluations completed over a three-year period by 200 students (120 and 80 students in the undergraduate and postgraduate reading programs, respectively) demonstrating that the discipline-based reading program:

- Improved proficiency in both reading and writing, with students in the reading program achieving results three times higher in both skills than those who did not participate.
- Improved performance in the discipline, as students who participated in the reading program (representing 40% of the students enrolled in UC College ITM) were also three times more likely to pass the unit.
- Facilitated comprehension of discipline-specific content, with higher assessment results for participating students in the research essay and exam, which represented the major assessments for the units.

In-depth semi-structured student interviews were also conducted with a small focus group at the end of the initial program to gain a deeper understanding of the key issues emanating from the questionnaires. The data revealed that the most valuable aspect of the reading program was the acquisition and use of appropriate academic-reading strategies to help students understand the discipline content. Moreover, students felt more confident in their reading ability, which positively influenced their confidence in other areas, such as tutorial participation and presentations. Interestingly, 92% of respondents overwhelmingly endorsed the continuation of the program, with the most common reason being that "[i]t helps students to really understand what the meaning of the subject is…especially in subjects which require a lot of reading" (Maldoni, Kennelly & Davies 2009, p.9). Although the sample size was relatively small, it was clear that the reading program revealed important findings that warranted further investigation in future studies. With the assistance of an additional UC Teaching grant, continued research allowed for the expansion of a modified embedded model into a first-year UC unit to determine whether embedding academic literacy into the discipline would also improve student learning in the mainstream university environment.

Case Study 2 – the UC initiative (Stage 2)

Based on the success of the UC College study, the collaborative inter-disciplinary project was introduced in 2006 into a first-year prerequisite unit for a number of degrees; specifically, ITM, the same unit that had been targeted in UC College (Table 2). ITM is part of the UC Bachelor of Business Program, in the Management discipline in the Faculty of Business Law and Government (BGL). The embedded program aimed to enhance the learning experiences of EALD and other students who had demonstrated insufficient development of academic literacy for success in first-year university study. At this stage, the reading program was modified to incorporate a wider range of literacies to meet the demands of the mainstream university environment, and renamed the *Unit Support Program.*

Table 2. The USP over eight years at UC (11 semesters) (Stage 2)

Year	Unit name	Type of support	Project name	Funding
2006	ITM	Embedded, integrated & team taught	Discipline Support Program	UC Teaching Grant
2007	ITM, OB		Unit Support Program	Faculty funded
2008	ITM, GBR, OB			
2009-2013	ITM			

During the first three years, the USP was implemented in two other BGL units, including Government Business Relations (GBR) a first-year unit, and Organisational Behaviour (OB), a second-year unit.

USP delivery

The USP consisted of a one-hour timetabled workshop held during the teaching weeks. The workshops were based on the *paired reading model* (Kasper 1995), and had been designed in parallel to the unit. That is, the program expanded on lecture content, considered tutorial questions and provided just-in-time support for assessment tasks in a framework of academic-literacy development. Hence, the USP simultaneously focused on unit content and aimed to develop academic literacy and English-language skills while paralleling the assessment in the unit. The program employed a scaffolded and task-based approach (cf. Beatty, Collins & Buckingham 2014) with a focus on theory, and application of discipline-specific principles in a milieu of academic- and critical-literacy development. This approach is based on the premise that academic genre is best developed in a discipline-specific framework embedded in the students' own area of study. Not only do students attain the assistance they require with both assessment tasks and understanding of unit content; they also develop the essential academic-literacy and language skills required for tertiary study (Maldoni, Kennelly & Davies 2009; Maldoni & Lear under review). The USP aimed to merge these two aspects seamlessly into the teaching and learning environment.

In addition to incorporating a wider range of literacies as part of the new model, another significant change was the use of a *team-teaching approach*, which was a distinguishable feature of the model. For the purposes of the USP, team teaching is defined as a team of two teachers working across disciplines involved in the development, preparation, delivery and evaluation of a program of learning for the same group (Goetz 2000). In this study, the team-teaching feature of the Unit-Specific Model was represented by teachers from the discipline area and academic-literacy specialists, and capitalised on the expertise of staff in disparate disciplines to enhance student learning. Collaboration was extensive, with the USP convenors meeting regularly before and after each USP session during the semester to develop, prepare and deliver workshop content, and reflect on the teaching and learning process. The teaching team informed each other not only about the content of the unit, such as key theories and concepts, but also about the manner in which these might be delivered and integrated into the required assessment tasks. With a view to further integrating the two disciplines and motivating students to attend, unit tutors were invited to attend the USP workshops at the beginning, middle and end of semester, when the workshops focused on preparation for the major assessments.

Another distinctive feature of the USP was the identification, tracking and support of at-risk students to help them succeed within the discipline. The team-teaching aspect of the program was

instrumental in formulating strategies to improve support for this target group of students considered to be at risk of failing the units. Research shows that "institution-wide post-entry language assessments (PELA) are often not completed by at risk students" (Arkoudis, 2014), presumably to avoid embarrassment. For this reason, a number of measures were taken to avoid labelling particular individuals as at-risk students. First, a diagnostic writing task was administered to all students in the first lecture and/or tutorial, and these were assessed collaboratively by both discipline and academic-literacy staff. Second, students were identified by referrals from tutors based on lack of engagement and/or success with the unit. Despite ongoing recommendations, the majority of students attending USP were consistently not those categorised as at-risk. This aligns with Kennelly & Tucker's (2012) finding that attracting at-risk students to support programs such as the USP is the most difficult aspect of this type of program.

Program evaluation

Using figures for attendance, comparative pass-fail rates and student final grades together with written student and staff evaluations over a period of eight years, the study sought to ascertain whether embedding academic literacy into the discipline improved both student learning in the discipline and academic literacy over the life of the project in the mainstream university setting.

Attendance

For the purposes of this study, any student who attended three or more sessions was considered to be a *regular* attendee, and those who had attended one or two sessions were categorised as *irregular* attendees. In each semester, following diagnostic testing, a USP cohort of students potentially at risk of failing the unit was established; however, not all identified students participated in the program. In reality, the program attracted students from a range of backgrounds, including EALD students with insufficient language competence; older and mature-age students who perceived they were struggling with the unit content; and those deemed to be high achievers who wished to achieve superior grades (Kennelly, Maldoni & Davies 2010). Over the eight-year period from 2006 to 2013, USP attendance increased considerably, with in excess of 2,000 students participating in ITM over 11 semesters (Table 3) (the figure was approximately 2,300 students including OB and GBR attendance figures).

Table 3. USP attendance in ITM (over 11 semesters)

Year	Semester	Attendance		
		Average number of students per workshop	Total number of students per semester	Total number of students enrolled in ITM *
2006	2	5	62	212 (178)
2007	1	8	99	305 (247)
	2	12	146	211 (175)
2008	1	19	230	340 (267)
	2	16	196	267 (219)
2009	1	30	363	371 (310)
	2	21	172	317 (262)
2010	1	10	114	327 (278)
2011	1	16	190	386 (318)
2012	2	22	264	595 (515)
2013	2	17	202	577 (483)

* These figures represent the total number of students enrolled in the unit at week 1. The figures in parentheses are the number of students who completed the unit.

From the attendance figures shown in Table 3, the total number of attendances per workshop increased appreciably, with an initial average of five students per week in 2006 to 30 and 22 in

2009 and 2012 respectively, an overall fourfold increase. Similarly, the total number of student attendances sustained an approximate 20% growth from an average of 62 in the initial semester to 363 in 2009, when attendance figures peaked. Although the USP experienced apparent fluctuations in student attendances, the trend line in Figure 4 indicates an overall increase in participation levels over the eight-year period across the UC sector in a first-year unit.
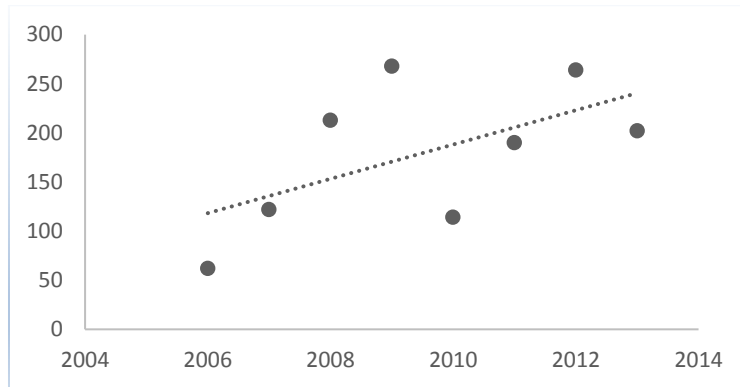

Figure 4. USP attendance trend line

The increase in attendance figures can be attributed to a number of factors. As staff and students have acknowledged the multiple benefits of the USP over a number of years, momentum has grown for this model of embedding across the BGL faculty. Given the benefit of time for its development, the program has increased in popularity since the inception of the first USP in 2006. One reason for the popularity of the program may be that the Unit-Specific Model appears to engage and retain students by enhancing language and academic literacy development while simultaneously developing mastery in the unit (e.g. Briguglio 2012; Tinto & Pusser 2006). Although the question was not tested in this study, future studies may consider investigating whether the resultant increase in participation levels in this first-year unit could be linked to improved retention over the course of a student's degree.

Nonetheless, a large number of students who would potentially benefit from participation in the USP did not attend. To address this problem, the Unit Support Program was modified in Organisational Behaviour (OB), a second-year follow-on unit from ITM. In particular, the provision of extrinsic rewards was used to motivate at-risk students to attend the USP workshops by permitting students to earn 20% of the total assessment for the unit through regular attendance at USP. As a result, the OB program retained a very stable student population, with a range of eight to 16, compared to the parallel ITM program, which experienced wider fluctuations in student attendance, which ranged from five to 33 in the same semester. It seems that the incorporation of extrinsic rewards created a constant student population that is conducive to a productive learning environment and better cumulative learning for students. Notwithstanding, continued research is needed into methods to maximise attendance for students with insufficient language and academic literacy to succeed.

Pass-fail rates
An examination of ITM pass-fail rates was fundamental in establishing the value of USP. As a result, comparisons of pass-fail rates of USP attending cohorts with the unit as a whole were made to assess the effect on student learning and student success. In samples of pass-fail rates taken in 2009, 2011 and 2012, the pass rate for the USP cohort was comparably higher than the unit as a

whole, at 92% compared to 60% percent in 2009; 88% compared to 61% in 2011; and 91% compared to 77% in 2012. In agreement with previous research, results from this longitudinal study also showed that the USP attendees continued to perform better than the non-USP cohort (Maldoni, Kennelly & Davies 2009; Kennelly, Maldoni & Davies 2010).

What is even more revealing are the pass-fail rates over an eight-year period from 2006-2013 (Table 4). The total average pass rate for the USP cohort was found to be above 90%, compared with 66% in the non-attending cohort – an increase of likelihood of passing the unit by 24 percentage points. Put another way, non-participating students were almost four times more likely to fail the unit, at 33.7%, compared to 9.4% of participants. Consistent with the literature, embedding academic literacy into the discipline can have an explicit effect on student outcomes and student success (Baik & Greig 2009; Mort & Drury 2012; Evans & Cable 2011).

Table 4. Average ITM pass-fail rates (2006-2013)

ITM	Pass (%)	Fail (%)
USP	90.6	9.4
Non-USP	66.3	33.7

Average final results – improvement in performance

Aside from attendance figures and pass-fail rates, comparisons of average final results were also made of the USP attending and irregularly attending cohorts over the eight-year period in ITM. Table 5 shows the variance in results between the attending ITM USP and irregularly attending groups from 2006 to 2013. As indicated, in 2006, 2008 and 2010, the average marks of the regularly attending cohorts were 57.3%, 69% and 65.3%, compared with 45.5%, 50.5% and 55.73% for the irregularly attending cohorts. Notably, the total average mark for the unit as a whole over the 11 semesters was 56.27%, markedly lower than that of the USP regulars at 64.3%. Overall, students who attended ITM USP workshops regularly scored an average of just under 8% higher than students who attended irregularly.

Table 5. Average final results for USP cohort (regular and irregular attendees)

Semester	Regular USP Final mark	Irregular USP Final mark
2, 2006	57.3	45.5
1, 2007	58.5	48.4
2, 2007	60	54.5
1, 2008	69*	50.5
2, 2008	61	51
1, 2009	63.3	65.5
2, 2009	69.20	67.4
1, 2010	65.33	55.73
1, 2011	68.3	64.5
2, 2012	64.2	55.5
2, 2013	68.33	61.02

In 1/2008, 10 USP students received distinction marks in the unit, thereby inflating the overall mark for the USP cohort.

A discernible trend in the analysis of final results is that students who attend USP frequently consistently perform better than students who attend infrequently. Figure 5 highlights the trend of consistent improved performance amongst the USP cohort over the eight-year period, except for one semester (1/2009) where there was minimal difference in the performance of both cohorts. The variance in results, in particular the comparably higher results for USP regular

attendees, demonstrates that regular attendance in the program greatly benefits students in both preparation and performance for assignments and exams.
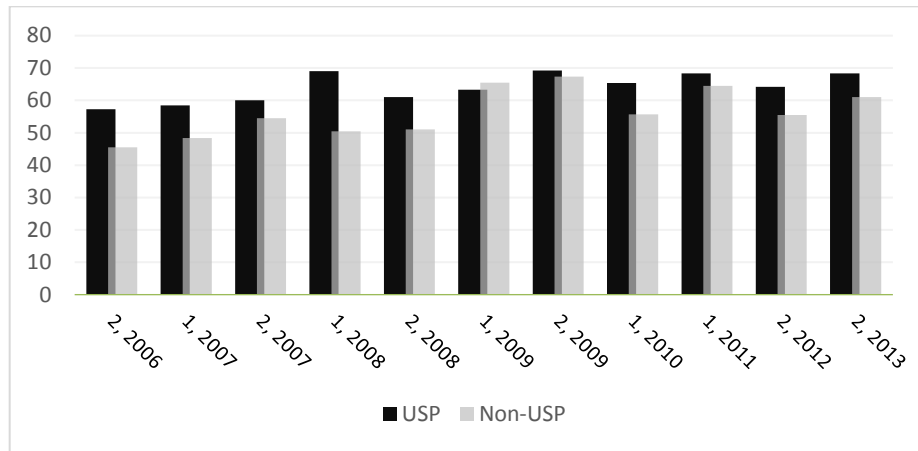

Figure 5. ITM average final results

In sum, the program has now been run for 11 semesters for ITM and two other units. It has been successful in improving student learning, with participation increasing more than fourfold since the first USP in 2006, and demonstrating improved retention, significant increases in pass rates, and above-average marks by the USP cohort compared to the ITM unit as a whole. In line with the literature that documents the benefits of embedded approaches in terms of improved retention and higher marks amongst participating students (Bordonaro 2008; Hammill 2007; Huerta & McMillan 2004), the results of this study have important implications for the development of academic literacies, particularly in first-year core units, which can be instrumental in laying the foundation for improving student learning outcomes.

Student perceptions

In this study, student evaluations were conducted at the middle and end of each semester for both regularly and irregularly attending USP cohorts. The USP teaching teams attempted where possible to take account of suggestions in designing their approach to the workshops. Due to the vast quantity of qualitative data available, only a sample of evaluations from students across the eight-year period is provided.

When asked to comment on the benefits of the USP program, generally speaking, students remarked that the program had helped them to understand management theories and concepts, participate more confidently in tutorials and comprehend the requirements of assessment tasks more clearly. One student commented that the program had provided "confidence to speak up in class, confidence to answer questions" and that "whatever I don't understand I can ask individually [in the USP]". Moreover, some students commented that the USP was the "best aspect of the ITM unit" as a whole, as they felt this is where the most learning had taken place. Some additional comments included:

> *English is my second language and it's my first semester at uni.*
> *It helped me to break down questions and analys[e] case study for exam.*
> *It show me how to study and…what is important.*
> *To improve my grade…and my understanding of management.*

Many students also commented on the "student-friendly" and "informal" structure of the sessions, which aimed to revise weekly management theories and apply these to relevant assessment tasks. The participatory nature of the workshops was a fundamental pedagogical approach used to engage students in their learning. Most students became skilled at participating in a collaborative manner, with one student stating that "they provide in-class exercises and group work that involves you and actively to participate and learn quite a lot".

While all students overwhelmingly endorsed the continuation and expansion of the USP, some suggestions for improvements included the need for clearer links to be made between weekly tutorials and the USP; additional assistance with assignments; the expansion of the program to all students regardless of English and educational background; extending the length of each USP workshop; and the offering of alternative class times due to timetable clashes and work commitments. In particular, time appeared to be a significant challenge. Many students commented that timetable clashes and work commitments reduced their opportunities to attend. In addition, the time allocation (i.e. one hour per week) continued to be insufficient, with students and staff requesting an additional 30 to 60 minutes per session. The literature continues to highlight the issue of time constraints as a complex and ongoing concern (Beaty, Collins, Buckingham 2014), as time spent on content and assessments in a one-hour session means that some sessions do not adequately consider literacy development. Students need more time in embedded programs like USP to consider, critically reflect and write. Although much discussion ensues in pair and group work, there is often little time for students to articulate these ideas in writing. It is the aim of future USP sessions to create a better synergy between the coverage of theoretical content and academic literacy in each USP session.

Staff reflections

Feedback was also sought from unit and academic-literacy staff members over the eight-year period to reflect on the usefulness of the program. Most staff noticed considerable improvements in the ability of USP students to understand and evaluate management theories and key concepts. One of the greatest benefits of the USP was that it provided a supportive learning environment that appeared to build confidence and motivation through a commitment to learn from regular participation in the program. One academic lecturer remarked:

> *It is this support for students that…is probably sorely lacking in some other institutions. Staffing…must be quite expensive, but it demonstrates a commitment by the university to assist international students with their tertiary studies.*

To be academically successful, this study agrees that international students, and for that matter domestic students, require a range of academic literacies, which are most effectively acquired if they are integrated and embedded within specific disciplinary contexts (Barthel 2008). In addition, for international students in particular, improvements in English-language proficiency are likely to occur when language is integrated with discipline-specific content and assessment tasks (Brooman-Jones et al. 2011). While further research on embedding is needed, this study concurs that discipline-specific literacies are most effectively taught when aligned with course content (Barthel 2015).

In contrast, one staff member offered a different perspective, noting the difficulties of sustaining embedded approaches such as the USP. While she agreed that the USP was "brilliant", and that she could appreciate the benefits for students, she did not believe that most students in first year agreed with her. On the contrary, this staff member noted:

> *Many of these students come from situations where they were regarded as the more intelligent students, and adapting to being the strugglers who need additional classes is hard for them to accept. There will always be some students who appreciate the long-term benefits…but to see beyond their current difficulties is the biggest hurdle.*

Regardless of these comments, all staff appreciated the element of staff collaboration. As the implementation of the USP relies heavily on successful collaboration, most staff agreed that the skills of both language and discipline staff allowed for greater, more robust reflection on student learning and teaching (Kennelly, Maldoni & Davies 2010). In addition, staff collaboration allowed for informal professional development in that the language and learning experts provided the content experts with raised awareness of what issues students have, why they have them and how to address them (Maldoni & Lear in press). This up-skilling meant that the content-matter experts became more experienced and able to diagnose and assess both language and content within the discipline. As Benesch (1992, p.8) comments, "Rather than remain isolated from the academic mainstream…[academic literacy staff] can bring a critical and informed perspective to [university] teaching practices by collaborating as equal partners with other faculty members."

Conclusions and recommendations

This project spanned a decade, involving more than 2,500 students across more than 15 semesters in nine units within four disciplines in both the UC College and UC. The longitudinal study demonstrates that integrated content-based courses that are team-taught by both content and literacy specialists provide a highly effective model for improving student learning in the discipline, developing academic literacy and improving English-language proficiency. In particular, from 2003 to 2013, an analysis of quantitative results in terms of progression rates, final grades, participation levels and qualitative data relating to student and staff perceptions demonstrate a positive relationship between embedding academic literacy into the disciplines and student learning.

Notwithstanding the benefits of the embedded approach in this study and the increase in embedded projects across a broad range of discipline areas in the literature, academic-literacy support being provided across the university sector still remains predominantly outside the disciplines. In general, the development of embedded approaches appears to be limited, and lacks a systematic approach. As Barthel (2008) and Wingate (2007) caution, embedding language and literacy development within the disciplines can be highly effective in developing student learning, though costly and complex. This may be due to the resource-intensive nature of these programs (Fenton-Smith & Humphreys 2015) and the likelihood that they might not be as sustainable (Kokkinn & Stupans 2011) in the long term.

Despite the resource-intensive nature of the embedding approach, the benefits of this model should not be disregarded. In fact, results from this study show that integrated models are in reality a cost-effective use of resources, since they target more students and, on the whole,, achieve superior student performance and greater retention. In the long term, embedded programs of this nature would represent a significant reconceptualisation of how discipline content and academic literacy are delivered and an investment in the university's commitment to student learning and outcomes.

At the time of writing this paper, the USP continues in one unit, ITM, as it has for the last eight years. Although several submissions have been made to obtain institutional commitment to embedding academic literacy, the program still continues to be funded on an ad hoc basis. Despite its success in meeting the stated objectives and the noteworthy support from academics involved in the project, as well as favourable student testimonials, there is reluctance on the part of senior management to adopt the embedded model into the first-year degree program. This mirrors existing barriers to developing effective post-entry educational practices that enhance and support student learning within universities (Dunworth et al. 2014). With a view to overcoming these challenges, variations to the Unit-Specific Model could be considered to make it more financially viable and sustainable in the future. One possibility might be a blended-learning approach, which could include self-paced online learning models that direct identified students, in the first instance, to discourse-specific resources. This would allow opportunities for all students to engage in the online activities relevant to their needs; a number of follow-up USP type workshops involving team teaching could then ensue.

In spite of the lack of a systematic approach, the authors are committed to a faculty-wide approach in the first instance, with a view to an institution-wide approach for embedded academic-literacy programs in the future. In their investigation into institutional approaches to the development of English-language capabilities in Australian higher education, Dunworth et al. (2014) identify key factors that were crucial in the development of an institution-wide approach. Consistent with their findings, the authors recommend effective leadership in the promotion, development and implementation of the program; consultation with both disciplinary and language experts; and adequate resourcing for the sustainability of the program through an embedded, integrated and team-taught approach like the Unit-Specific Model. With this in mind, funding from a federal government grant was made available to expand the USP into two additional units in the BGL Faculty, including a second- and third-year unit. The results of this study will be reported in a subsequent paper exploring the *extent* to which embedding academic literacy into the disciplines improves student learning.

The Unit-Specific Model represents a model of best practice, which most effectively links content with literacy. Embedded academic-literacy programs make a significant difference to the learning outcomes of students. The data presented suggests that participating students have a significant advantage when taught in an "across discipline team-taught" (Kennelly, Maldoni & Davies 2010, p. 71) framework. We must continue to develop integrated and sustainable approaches to ensure the learning outcomes of graduates (Arkoudis 2014), both domestic and international. In part, this requires time for pedagogic shifts in teaching and learning that reposition content and academic literacy as relevant to all students; integrate them within disciplinary learning, teaching and assessment; and incorporate them into institutional quality-assurance processes.

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