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## One step at a time: Aligning theory and practice in a tertiary embedding initiative

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## One step at a time: Aligning theory and practice in a tertiary embedding initiative

### Abstract

The widespread, theoretically-informed practice of curricula embedded academic language and learning development is generally acknowledged as the most productive method of improving tertiary student outcomes. University-wide comprehensive support, however, for the collaborative processes of interdisciplinary research, design, resource and staff development required to achieve this, is not common. Yet many practitioners continue to engage in embedding initiatives in response to faculty requests, despite institutional constraints on time and funding. This paper documents one such initiative, a common yet under-reported type, conducted one small step at a time over a number of years in a first-year core unit in the architecture faculty of a large metropolitan university in Australia. The paper aims to respond Wingate's (2018) call for more thorough documentation of pedagogic principles applied in embedding practice to allow for replicability. This granular examination of the first implementation and later refinements of the initiative shows how aligning practice with proven theoretical models, in this case, Systemic Functional Linguistic (SFL) and the SFL-based pedagogic model, the Teaching/ Learning Cycle (TLC), proved fruitful in constrained circumstances.

### Practitioner Notes

1. A key implication of this paper is that collaboration between disciplinary staff in traditionally-demarcated fields of tertiary study (e.g. Architecture) and interdisciplinary experts in academic learning and language (ALL) is crucial in supporting better student outcomes, regardless of how slow, difficult, constrained or underfunded such collaborations may be or may become.
2. A related implication is without such sharing of expertise, the development of students' communication capabilities in the discipline - upon which most student assessment is dependent - is not guided by theoretical and practical understandings in the fields of language and learning.
3. This paper offers a granular examination of how language descriptions offered by Systemic Functional Theory and a related pedagogical model, the Teaching/Learning Cycle can guide the design of assessment tasks and marking criteria, both to better align them with course objectives, and to use them as tools to develop students' communication capabilities in the discipline.
4. One recommendation arising from this work is that where interdisciplinary expertise in language and learning is not accessible to faculty staff in university centres, faculties themselves should fund the sharing of expertise across all disciplines fundamental to student success. Three are focussed on here - Architecture, Linguistics and Education. Though only briefly noted here, the fourth increasingly important discipline is Information Technology.

### Keywords

curriculum embedding, academic language and learning, faculty collaboration, Systemic Functional Linguistics, Teaching-Learning Cycle

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## Introduction

This paper is a granular look at the implementation of an initiative to embed writing support into a first-year core unit of study in the architecture and design faculty of a large Australian metropolitan university. Embedding scholarly understandings about language and learning into the design and content of faculty curricula and resources has been demonstrated as more effective than add-on generic classes or even add-on courses as reviewed below. However, such embedding, which requires collaboration between faculty staff and Academic Language and Learning (ALL) staff is far from universal across faculty units in most universities. More recently, in the rapid, forced transition to all online learning in 2020 due to Covid-19, ongoing embedding work ended as online delivery was fast-tracked. However, the embedding of understandings about language and learning within disciplinary resources as described here, would seem to be even more urgently needed in a fully online context with no face-face teacher mediation of knowledge and learning. The first steps in the embedding process reported here between an Architecture lecturer and ALL lecturer were in 2016, with further steps taken each year until 2020. The faculty has reported that their ability to successfully move to fully online teaching overnight in March 2020, while maintaining student satisfaction and engagement, was due in large part to having the resources developed in this embedding process.

This paper reports on an intervention in a core unit of study (referred to as unit) in response to a faculty request to the university's central academic language and learning centre. This was one of the few such centres remaining in Australian universities staffed by research-focussed academics. Following a trend across Australia, in May 2021 this centre was 'disestablished' and all eight staff made redundant. As well as offering student-facing services, it had provided, on request from faculties, design and delivery of discipline-specific workshops and participated in collaborations with faculty staff to embed communication development support into unit curricula, learning resources and teaching. The unit discussed here on the history and theories of architecture, is a strongly humanities-oriented unit which places greater emphasis on written assessment than other units. Faculty concern regarding students' writing capabilities had been growing along with the increasing proportion of students entering from non-traditional pathways and overseas, within an overall student cohort drawn from three different degree courses.

The inadequacy of add-on generic language and study skills support for tertiary students has been highlighted by work in functional linguistics, the sociology of knowledge, and academic literacies which demonstrates the interdependency of disciplinary language and knowledge (Coffin & Donohue, 2014; Freebody, Maton & Martin, 2008; Lea & Street, 1998; Percy, 2014). Case studies from around the world, many from Australia which was an early adopter of this approach, attest to the value of embedding such support in disciplinary units for better student outcomes (e.g. Dreyfus, Humphrey, Mahboob, & Martin, 2016; Lillis, Harrington, Lea & Mitchell, 2015; Purser, Skillen, Deane, Donohue & Peake, 2008). These embedding studies have been conducted in a range of disciplines, though architecture is under-represented amongst them. A study into publications on learning and teaching by architecture academics (de la Harpe & Peterson, 2008) finds, in an analysis of 118 papers on architecture education, few theories of learning made explicit, and no focus on assessment. The study suggests that what may be most needed in architecture is an embedding approach, rather than add-on courses (Swales, Barks, Ostermann & Simpson, 2001). The majority of embedding studies across disciplines reporting success is, however, mostly well-funded initiatives with sufficient lead time for research and development. This paper on a first-year architecture unit adds to this work by reporting on a type of intervention that is under-reported, yet common - small-scale, underfunded and understaffed.

The face-face component of the unit comprised four half-hour sessions in Weeks 1, 2, 6 and 7 of a 13-week semester, delivered midway through their two-hour weekly lecture where

attendance is not compulsory. Each session was supported by resources developed collaboratively by the faculty lecturer/coordinator and the ALL lecturer (myself). The overarching pedagogic aim of the first implementation was to help students successfully meet course objectives as reflected in their two written assignment tasks. The resources developed were revised curriculum resources (assignment instructions and relevant marking criteria); and new communication development resources (for deconstructing and applying marking criteria to assessing/ diagnosing student writing in assignment answers). A long-term aim was to remove the need for the ALL lecturer’s face-face delivery by embedding, over several implementations, communication development resources in the curriculum and teaching of the unit.

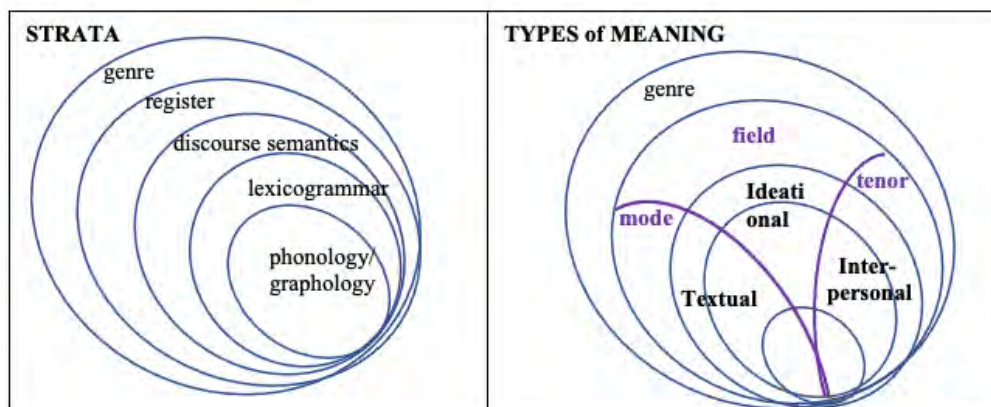
Finally, this paper also aims to respond to the call by Wingate (2018) for more thorough documentation of pedagogic principles applied in embedding practice to allow for more replicable practice. It does so by showing how aligning practice with proven theoretical models can be fruitful even in constrained circumstance such as those experienced here. The constraints, challenges and successes are thus presented and discussed through the lens of two related theoretical models. Systemic Functional Linguistic (SFL) descriptions of language in context and the SFL-based pedagogic model, the Teaching/Learning Cycle (TLC) are both outlined below. These have been proven in a range of educational contexts, including tertiary embedding, as reviewed below.

### Literature review and theoretical framework

Systemic Functional Linguistic descriptions and understandings, particularly as applied to disciplinary language and literacy, informed all decisions in the design phase of this intervention, both in identifying aims and in revising and creating resources. Critical tools include SFL’s complementary perspectives on language in context (Halliday, 1978). One is that language is stratified, each higher stratum realised by the one below (Figure 1). The two ‘context’ levels of genre and register are realised by three levels of ‘language’: discourse semantics (meanings above the sentence, across text); lexicogrammar (meanings at the sentence and word level); and phonology or graphology (expression level). The other SFL perspective on language in context is that language is metafunctional with three types of meaning or ‘macro-functions’ simultaneously at work in each utterance at each level. These realise the three aspects of the situational context, field, tenor and mode, and are: Ideational meaning (representing experience), Interpersonal (interacting) and Textual (enabling/ packaging the former two into text). Each metafunction is, in turn, realised by distinct systems of choices in discourse (Martin, 1992 and Martin & Rose, 2007) and in grammar (Halliday, 1994).

**Figure 1.**

SFL model of language: stratified and metafunctional



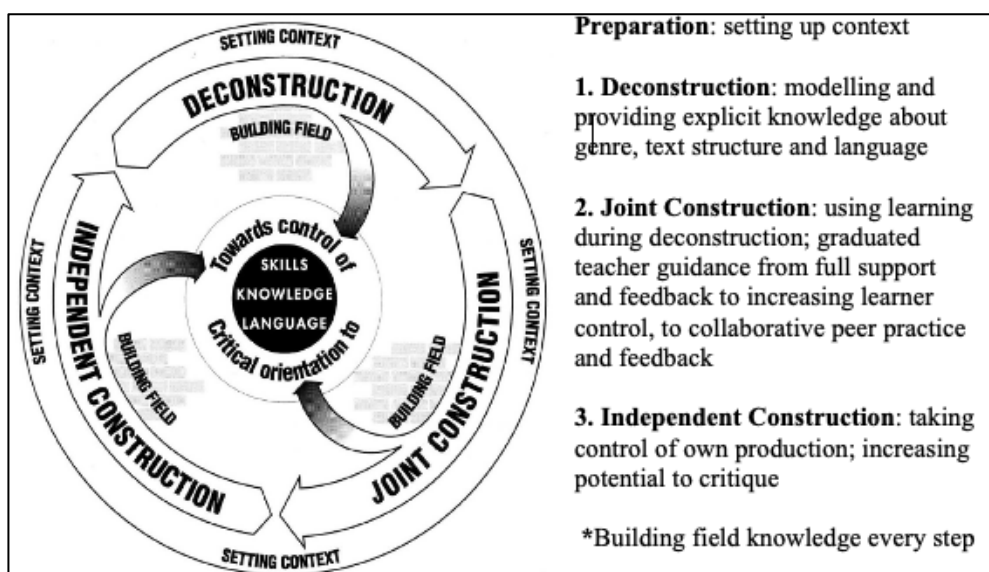
These complementary views on language in the SFL model provide the analytical tools to identify, select and consider in pedagogic terms, different systems at work and interwoven at each level, for each metafunction in any text. Such systematic unpacking can reveal the interconnected inner workings of even the most complex technical or challenging disciplinary content and communication. This can therefore help shape the design and content of resources and learning activities so that it makes visible the many different strands or types of meaning interwoven in any utterance or text. In this way, any text type or text can be better processed or produced by students and taught or assessed by teachers.

SFL descriptions have informed much global education literacy and multiliteracies practice, including many large and small-scale embedding projects in Australian schools and higher education (Mort & Drury, 2012; Purser, Dreyfus & Jones, 2020). SFL has also been shown to complement the two most documented approaches to embedding work. In the UK, it is most closely associated with English for Academic Purposes (EAP) with its theoretical basis on text analysis (e.g., McWilliam & Allan, 2014), but also Academic Literacies (AL) with its ethnomethodological basis and focus on social context and practice (e.g., Lillis 2006). For examinations of the relationship between approaches, see Coffin and Donohue (2012) and Wingate and Tribble (2012). Despite theoretical debates in the field, most practitioners apply functional and discourse analytical perspectives realised in various 'genre' models, most commonly the Swales model (1990), and almost all make use of SFL lexico-grammatical tools in practice. This includes undergraduate literacy work in the United States, in the Writing Across the Curriculum approach, and in the United Kingdom in the Disciplines programs (Russel, Lea, Parker, Street & Donohue, 2009) and much of the Academic Literacies embedding practice.

The SFL-based pedagogic model, the Teaching/Learning Cycle (TLC), is applied in the design and interrogation of this embedding intervention. This reflects Vygotsky's work (1978) showing that all learning is socially mediated, crucially through exchanges between expert and apprentice. This work, later labelled a 'scaffolding' approach, is closely complementary to SFL understandings of language development. SFL-based elaborations of this approach into a cyclical pedagogic model have guided understanding of communication development in many contexts including universities (e.g., Dreyfus, Macnaught & Humphrey, 2008).

**Figure 2.**

*The Teaching/Learning Cycle (adapted from Martin and Rose, 2007)*



The TLC visualises and systematises learning as a series of steps (repeated for every new 'chunk' of knowledge), the first step providing learners with the desired knowledge (Deconstruction). This is followed by a graduated move from fully to minimally supporting learners' performance/ production (Joint Construction), progressively giving them more control towards full autonomy (Individual Construction). All stages of the cycle are situated and determined by the social context, field knowledge needed by learners is built up in each stage, and meanings associated with aspects of context are realised by related language choices.

The pedagogic model and linguistic theory outlined above offers a coherent package for the applied linguistics-education context. It has proven successful in well-documented practice across Australia, in schools (Derewianka & Jones, 2012) and in universities (Drury, 2018; Humphrey & Economou, 2015; Jones, 2004; Purser, Dreyfus & Jones, 2019). The TLC emphasises the role of the expert in the learning experience in setting up the social context, providing knowledge and modelling performance before moving to joint construction, when they support learners to perform beyond a level they could manage on their own. Identifying learners' 'zone of proximal development' (Vygotsky, 1978), based on a diagnosis of learners' present linguistic range, is one decision made by the expert in joint construction. Others are deciding how much and what type of scaffolding is required as students' abilities develop over time. Where the TLC has been applied to the undergraduate tertiary context, as in the three-year Slate project (Dreyfus et al, 2016), it has shown how such scaffolding can be achieved through written feedback. Another related elaboration of the TLC is Devrim's (2014) description of different types of scaffolding based on explicitness and provision of rationale which captures well the gradual handing over of control to students. This work informed a key consideration in this intervention, which was not only to help students meet writing requirements by following the TLC, but also to embed the TLC focus on graduated scaffolding in all resources produced. This would also serve to apprentice tutors in the different scaffolding moves to follow in their written feedback.

## **Method**

### ***Application of theory and documented practice***

Designing the intervention around course objectives, as reflected in students' written assignment tasks, has proven a most efficient approach in most documented embedding practice. The linguistic and pedagogical theories presented above were thus applied, first to make as explicit and transparent as possible the communication requirements for students' assignments, as provided in instructions and marking criteria. Then the theoretical models were applied to provide guidance and practice for students to understand how these requirements are achieved in sample student answers. To do this, instructions and criteria were more carefully aligned with course objectives, and tasks were designed to engage students closely with the revised criteria. Merely providing instructions and marking criteria has been shown to be insufficient for improvement of student performance (Carless, 2006; Rust, Price & O'Donovan, 2003). SFL's metafunctional and stratified descriptions of written academic language were therefore applied to deconstruct, critique and revise assignment instructions and marking criteria. One consideration was whether the criteria and language requirements for each grade were sufficiently comprehensive and transparent, in line with SFL descriptions. At the same time, the TLC was applied to assess how pedagogically sound the instructions and criteria were. Were they sufficiently scaffolded for first-year students new to the field? This double-pronged theoretical framework was also applied to designing all activities developed to guide students to recognise, understand and then apply the criteria in assessing writing.

Some non-alignment with our TLC pedagogic model was accepted from the outset due to limited research and intervention time. We thus focussed on support for student's writing, not on reading of disciplinary texts. There was no exploration of disciplinary knowledge as built up through reading requirements and later assessed in writing, even though it is a critical element

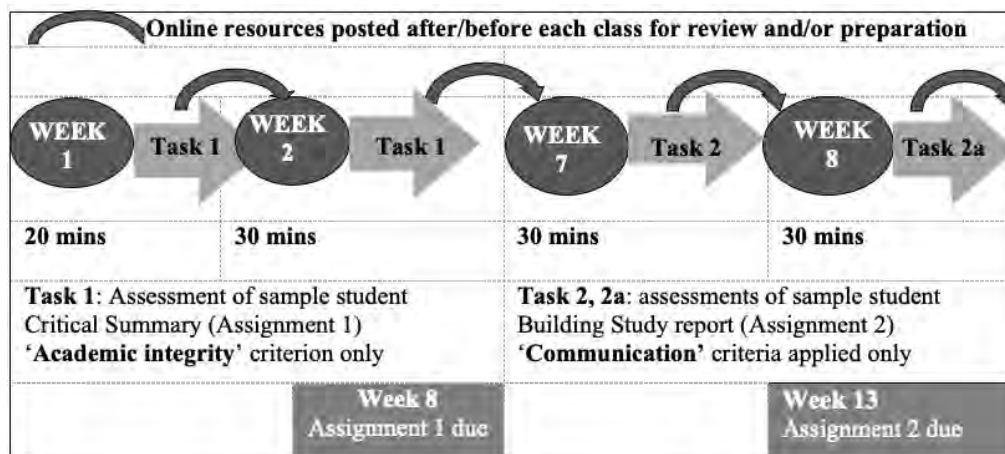
in initial TLC steps (via reading model texts as explored in Martin and Rose, 2005). It was accepted that the omission would be addressed in a following iteration. Another area of non-alignment in respect to findings from practice as well as theory was the lack of funding for official inclusion of all teaching staff in the collaboration (Brigulio & Watson, 2014; Drury, 2018; Dunworth et al, 2014). There was only one official collaborator from faculty throughout, and no paid professional development for teaching staff in the use of revised and new resources. This was a concern as written feedback to students on their initial assignment is the only space for a critical TLC step, Joint Construction, to be carried out with individual students. It was partly addressed by embedding scaffolding moves in all resources used in the intervention.

**The intervention programme**

The four half-hour mid-lecture face-face ALL sessions, were each supported by pre- and post-session pdf resources posted online for preparation and follow up (Figure 3). In future iterations, the face-face sessions could be withdrawn as more communication development resources were embedded in curriculum and teaching. The disciplinary content focus for this first implementation in Weeks 1 and 2 was the first assignment, a 300+ word ‘Critical Summary’ of two readings. In Weeks 7 and 8, the focus was the final 1000-word ‘Building Study’ report on a significant building. Our pedagogical content focus was on two communication-related criteria in the marking rubrics for each assignment: ‘Academic Integrity’ to be applied to assignment 1, and ‘Communication’ applied to assignment 2. The three central student Tasks 1, 2 and 2a were peer assessments of past student answers to each assignment, with only one marking criterion applied to each.

**Figure 3.**

*Intervention Programme*



**Resource development**

Curriculum resources related to written assessment for the unit, i.e. assignment questions and instructions and communication-related marking criteria and grade descriptors, were revised first. In alignment with theory, these were identified as disciplinary-pedagogical texts, whose purposes are not limited to assessment but include students’ writing development. The curriculum resources were analysed using SFL to identify how well they support students in meeting course objectives and revised to support students better. The linguistic aim of revision was to ensure all writing requirements were explicit and accessible to commencing students, a need pointed out in much of the literature (Carless 2003; Rust et al, 2003). The pedagogical aim

was to present requirements in a stepped-out way (using the TLC) to help guide student writing, tutor marking and student use of tutor feedback. The assignment instructions and marking criteria, in particular, would thus be considered essential student readings and a TLC used in the planned face-face activities and associated learning resources. This would ensure scaffolding, first of students' reading and processing of the criteria and descriptors, then of their application in executing peer assessment tasks. These resources would potentially be sustainable if course content and assessment remained similar.

The revision began with making the instructions for Assignment 1 as transparent as possible to help better scaffold student answers. Linguistic complexity was reduced by breaking down and elaborating the original instruction. Thus, "Write a concise review of readings that combines a summary and a critical comment" was elaborated to explicitly identify and distinguish the types of writing required in 'summary' and 'critical comment'. Summary was described as brief, factual reporting (via paraphrasing or summarising) of author ideas and arguments. Two types of writing involved in summary but implicit in instructions were identified as 'report' and 'analysis' writing, the latter now explicitly described as organising, reorganising and relating author ideas. Critical comment was described as persuasive writing, with evaluations by the students requiring supporting (summarised) evidence from readings. This unpacking of requirements, along with clearer formatting and wording, scaffolds the student answer to make it easier to plan and write. Significantly, it can also scaffold tutor assessment to make it easier to provide formative feedback (i.e. delayed joint construction). Finally, the timing and status of Assignment 1 was changed to allow for equitable and formative feedback as all students could now submit on the same date, midway through the course. This allows sufficient time for such feedback to be provided, processed and later applied to their final assignment.

The most critical curriculum resource revised was the criteria targeting language and writing capability in the unit marking rubric. The first criterion, originally 'Referencing', was renamed 'Academic Integrity' as it now includes 'appropriate incorporation of external source material' alongside the original 'appropriate referencing'. This aligns more closely with linguistic description and best practice which recognise that successful incorporation of source material via paraphrasing or summarizing demands mastery of complex writing skills, which successful referencing does not. SFL guided the identification of relevant language features in the new criterion and in each grade descriptor. This also enabled more consistent distinction between the five grades based on the absence or presence of a feature, and where present, the degree to which it is expressed. (See original and revised criterion in Figure 4).

Language used across descriptors was also revised for consistency and clarity. For example, different terms referring to the same competency (e.g. 'faultlessly' and 'lapses in accuracy') were replaced by, 'accurate/ inaccurate', accompanied by always, often, sometimes or never. Also provided in class and in materials were elaborations of key terms, such as the opaque 'appropriate' as in 'Appropriate referencing'. This was unpacked into a number of explicit requirements including 'consistent adherence to the recommended style guide' and 'present where source material incorporated'.



Figure 4.

*Original and revised criterion for academic integrity*

<b>ORIGINAL criterion: REFERENCING</b>				
<b>High Distinction</b>	<b>Distinction</b>	<b>Credit</b>	<b>Pass</b>	<b>Fail</b>
Appropriate referencing style, consistently and faultlessly applied	Appropriate referencing style consistently applied with very few lapses in accuracy or relevance	Appropriate referencing style with occasional lapses in accuracy or relevance	Referencing present but inconsistent in application and occasional inaccuracy	Lack of consistent or appropriate referencing with many inaccuracies
<b>REVISED criterion: ACADEMIC INTEGRITY</b>				
<b>Appropriate citation and referencing</b>				
Appropriate referencing and citation <b>always</b> consistent in style, accurate and relevant	Appropriate referencing and citation <b>mostly</b> consistent in style, mostly accurate and relevant	Appropriate referencing and citation but sometimes inconsistent in style, inaccurate or irrelevant	Appropriate referencing and citation present but <b>often</b> inconsistent in style, inaccurate and irrelevant	Appropriate referencing and citation <b>not present or never</b> consistent in style, accurate and relevant
<b>Appropriate integration of source material</b>				
Appropriate integration of source <b>always</b> present, accurate and clear	Appropriate integration of source <b>mostly</b> present, accurate and clear	Appropriate integration of source <b>sometimes not</b> present, inaccurate or unclear	Appropriate integration of source <b>very often not</b> present, inaccurate or unclear	Appropriate integration of source <b>not</b> present, accurate or clear

The second communication-related criterion kept the original name, Clarity and Coherence though significant changes were made in the features it refers to (Figure 5). The new criterion no longer includes word choice and grammar and now focusses only on text-level features. Text-level meanings, made beyond the sentence level across paragraphs, sections and whole text are typically less transparent, yet more demanding for students. These were identified as two kinds: Structure and Cohesion. The first, Structure, includes contextual meanings and one type of discourse meaning, bringing together for practical purposes all features dealing with organisation of ideas.

This fudges theory somewhat as SFL's contextual meanings refer only to socially determined generic functional stages of a text, such as introduction, body, conclusion, and substages such as topic orientation and position statement for an essay introduction. The discourse meanings included in Structure were SFL's Ideational meanings that organise information across chunks of text via taxonomizing and logically relating ideas. The second kind of text level meanings, Cohesion, includes other aspects of Ideational meaning as well as SFL's Textual meanings. These are referred to as four 'strategies', using common teaching labels for each but accompanied as follows by SFL terms in brackets: 1. Information order (Theme): Word strings (Lexical Cohesion); Identity chains (Reference); and Logical connectors (Conjunction). Left out of this criterion were Interpersonal discourse meanings related to evaluation (Appraisal). Though these were addressed in practice, they would need to be included in this criterion in future.

Figure 5.

Original and revised Clarity and Coherence criterion

<b>ORIGINAL Criterion: Clarity and Coherence – ideas organised and presented in a logical manner</b>				
<b>High Distinction</b>	<b>Distinction</b>	<b>Credit</b>	<b>Pass</b>	<b>Fail</b>
Clear, concise, scrupulously accurate, polished and sometimes innovative or original language used to express complex; abstract ideas and information	Clear, concise language used to express complex and abstract ideas and information. Occasional lapses in accuracy of expression; conveyance of complex ideas and information	Correct expression with clarity of meaning. Language sometimes lacking sophistication to express complex ideas and information	Correct but occasionally stilted or awkward expression although meaning is generally retained	Stilted, awkward and/or oversimplified expression resulting in overall lack of clarity of meaning
<b>REVISED Criterion: Clarity and coherence –beyond the level of the sentence, across whole text</b>				
<b>a. Structure: staging of text &amp; organisation of ideas via analysis, logical relations</b>				
<b>Appropriate</b> stages for required text type present; structure <b>clear</b> at all levels (text, section, paragraph); <b>all ideas</b> organised analytically and logically throughout	<b>Appropriate</b> stages for required text type present; <b>mostly clear</b> at all levels; <b>most ideas</b> organised analytically and logically	<b>Mostly appropriate</b> stages for required text type but structure <b>not always clear</b> at all levels; <b>some ideas</b> organised analytically and logically	<b>Sometimes inappropriate or missing</b> text stages; structure <b>often unclear</b> , most often at paragraph level; <b>only a few ideas</b> organised analytically and logically	<b>Missing</b> text stages or <b>inappropriate</b> where present; structure is <b>not clear</b> at most levels; <b>ideas not</b> organised analytically or logically
<b>b. Cohesion: created across sentences, across text via different kinds of meaning links made</b>				
Sophisticated use of <b>a full range</b> of cohesion strategies – <b>very clear</b> flow across text	Competent use of <b>a range</b> of cohesion strategies – <b>clear</b> flow across most of text	Use of <b>a number</b> of cohesion strategies throughout - <b>sometimes clear</b> flow achieved	<b>Few</b> cohesion strategies used sometimes – <b>rarely clear</b> flow achieved	<b>Very few or no</b> cohesion strategies used - <b>little or no</b> flow achieved

Features in the original criterion which focused on the sentence or word level were now placed in Grammar and Style, a revised version of an original criterion called ‘Literacy Skills’ (Figure 6 with original criterion abbreviated). The revised criterion makes clear that only features at the ‘sentence level and below’ are assessed here. It includes what had been explicitly referred to in the original criterion as ‘grammar’ and ‘sentence construction’ (one and the same in SFL), but also with word choice or style. Style had been implied in references to ‘language’ assessed as ‘innovative’ or ‘original’, and to ‘expression’ as ‘stilted’, ‘awkward’ or ‘oversimplified’. The new criterion distinguishes ‘appropriate’ word choice (style) from ‘accurate’ word group and sentence construction (grammar). Spelling, also in the original Literacy Skills criterion, was now included in the Presentation criterion which was not dealt with in the intervention. The revised criteria then provided a framework for assessing student writing and an instructional text to be used in activities with students.

The literature shows that asking students to work closely with exemplary marking criteria in activities as developed here (and elaborated below) can lead to a significant drop in student requests for re-marking (Harvey, Szenes, Kim & Stevenson, 2015; Lillis & Turner, 2001). In this present intervention, the revised criteria were seen as key reading texts to be first deconstructed for students. Then their use or application was to be modelled and practised in a distanced joint construction in class. This TLC-based stepping out developed students writing

by preparing, modelling and supporting students to apply criteria to edit their drafts, understand grades, and interpret and apply teacher feedback.

**Figure 6.**

*Original and revised Grammar and Style criterion.*

<b>ORIGINAL Criterion: Literacy Skills – grammar, spelling, sentence construction, punctuation</b>				
<b>REVISED Criterion: Style and Grammar - meanings at the sentence level and below</b>				
* <b>Style</b> – appropriate accurate vocabulary (technical, formal, objective, abstract, evaluative)				
* <b>Grammar</b> – accurate sentence structure and word forms; clear sentence meaning				
<b>High Distinction</b>	<b>Distinction</b>	<b>Credit</b>	<b>Pass</b>	<b>Fail</b>
Sophisticated academic style always appropriate vocabulary and accurate grammar; can concisely express complex, abstract, technical ideas, information and insightful critique	Appropriate and accurate but less sophisticated vocabulary and grammar; can express complex, abstract, technical ideas, information; and critique; but sometimes unclear, not always concise	Mostly appropriate and accurate but not sophisticated vocabulary and grammar; can express complex, abstract, technical ideas, information but less successful in critique and not always concise or clear	Often inappropriate but usually accurate vocabulary and grammar; can express some complex, abstract, technical ideas or information; less often critique; often unclear, not concise	Inappropriate and often inaccurate vocabulary and grammar; can express some technical ideas and information but not often complex or abstract ideas; critique rare or absent; mostly unclear, not precise

Communication development resources were designed and produced to help students develop their writing capabilities via the tasks done in class in groups and prepared for online before class by individuals. To ensure scaffolding across the three tasks, each was designed to engage students closely with only one revised criterion, in assessing a past student answer to one assignment. For Task 1, ‘Grade the sample student answer for Assignment 1, only the one criterion of Academic Integrity was applied. Before class, the task and assignment instructions are posted online along with a set of support resources for the student to attempt or prepare for the task. These are: a sample student answer; the revised marking criterion with explanatory elaborations; and a list of annotated links to learning resources related to that criterion.

In class, after the task is set up by the lecturers and carried out by students in groups, each group reports their grade and its justification to the class. Then the faculty lecturer and I give our grades. My PowerPoint marking of the student answer follows, in which key examples of strengths and weakness are identified in a deconstruction of how our grade was arrived at. Thus, it models how the criteria and grade descriptors can be read and used to systematically assess writing, feature by feature.

Figure 7 shows two PowerPoint slides in a series showing the same student summary, each one used to gradually reveal assessment of a different feature. My accompanying spoken commentary also suggests improvements for each, comprising a modelled joint construction on these key aspects of student writing. These improvements are then shown as fully realised in a model student answer (based on three high achieving past answers) which is also deconstructed in class. After class, the students receive a pdf of the model answer and the student answer, both comprehensively annotated by both lecturers.



Figure 7.

Adapted PowerPoint slides marking student summary for Academic Integrity

SLIDE 1: IN-TEXT CITATIONS	SLIDE 2: INTEGRATION OF SOURCES
<p><b>Inaccurate, incomplete</b></p> <p>Marco Frascari's "The Tell the Tale Detail" discusses the role of details as generators in architectural buildings. Detail suggests meaning of what the construction conveys by joining materials, elements, components, and building parts in a functional and aesthetic manner.</p> <p><b>Inaccurate, incomplete</b></p> <p>According to Alberti in "The Tell the Tale Detail", beauty is composed of detail and the attached meaning that suggests this to be a result of concinnity, which is divided into three parts; Numbers, because in order to build, it is necessary to have number correlation. Secondly, finishing that is the final dimensions of the building, lastly collocation the function and placement of details.</p> <p>Architects, builders, and users to give an empirical experience used geometry technique as a conceptual framework. The technique allows perception of ideas or signs of architectural details. Moreover, the architectural space suggests visual images of details developed by walking and touching through buildings. Details of Carlo Scapa's architecture show perfection as it shows the real nature of architectural drawings that suggests representation of the construction</p> <p><b>Citation missing SOURCE?</b></p>	<p><b>Summary sentences appropriate, clear</b></p> <p>Marco Frascari's "The Tell the Tale Detail" discusses the role of details as generators in architectural buildings. Detail suggests meaning of what the construction conveys by joining materials, elements, components, and building parts in a functional and aesthetic manner.</p> <p>According to Alberti in "The Tell the Tale Detail", beauty is composed of detail and the attached meaning that suggests this to be a result of concinnity, which is divided into three parts; Numbers, because in order to build, it is necessary to have number correlation. Secondly, finishing that is the final dimensions of the building, lastly collocation that is the function and placement of the details</p> <p>Architects, builders, and users to give an empirical experience used geometry technique as a conceptual framework. The technique allows perception of ideas or signs of architectural details. Moreover, the architectural space suggests visual images of details developed by walking and touching through buildings. Details of Carlo Scapa's architecture show perfection as it shows the real nature of architectural drawings that suggests representation of the construction.</p> <p>Paraphrases? unclear, inaccurate grammar</p>

Figure 8 shows the beginning of an annotated student answer. The annotations expand on the illustrative examples selected for the live marking and feedback in class. By focussing on key aspects of academic writing in relation to key features noted in descriptors, all PDF resources and lecture recordings are potentially sustainable even if assignment types change.

Figure 8.

Excerpt from fully annotated student summary

Student's Critical Summary used in Task 1 Peer assessment Annotated for Academic Integrity		
Faculty lecturer comments	Student summary	ALL lecturer comments
<p>References don't conform to Chicago Manual of Style (as directed in Unit of Study guide). For examples of how to cite with Chicago: <a href="http://www.chicagomanualofstyle.org/tools/citationguide.html">http://www.chicagomanualofstyle.org/tools/citationguide.html</a></p> <p>Good to provide a summary of the text topic and purpose. However, it helps to first make clear the mode of writing. Is it a historical survey (of a period or building type?); a theoretical contribution to a current debate? a manifesto?</p>	<p><b>Readings Reviewed</b> 1. Heino Engels, "Ch.4: Structural Framework" in <i>Measure and Construction of the Japanese House</i> (Rutland: Tuttle Publishing, 1985) 71-96. 2. Marco Frascari. "The Tell-the-Tale Detail." In Kate Nesbitt, ed. <i>Theorising a New Agenda for Architecture</i> 1965-1995 (New York: Princeton Architectural Press, 1996) 500-514.</p> <p><b>Comments on Material Read</b> Mario Frascari's "The Tell the Tale Detail" discusses the role of detail as generators in architectural buildings. Detail suggests meaning of what the construction conveys by joining materials, elements, components, and building parts in a functional and aesthetic manner.</p>	<p>Put references at the end of your text not beginning.</p> <p>References not appropriate style, not correct. See notes below on reference 2: - words are in wrong order - second part of title is missing (<i>An Anthology of Architectural Theory</i>)</p> <p>- In-text citation missing (Chicago requires footnote no.) - Missing hyphens in title - Does F 'discuss' (pros/ cons) or does he 'argue', 'propose' - Is 'generators' F's term? If so, use quotes - Is this a paraphrase of F's view of detail? If so, must cite.</p>

### Evaluation instruments

Student evaluations on the final day of lectures were voluntary and anonymous via a dedicated Socratic online survey with both a quantitative and qualitative component. Students were first asked to rate the two main aspects of the intervention (face-face sessions and online resources) either as Very useful, Useful, Not very useful, or Not at all useful. Then they had to rate specific aspects of content: Elaboration of the rubric, Assessment tasks using the rubric, and Annotated texts. In response to a statement on each aspect that 'it helped' them, students could choose: Strongly agree, Agree, Neutral, Disagree or Strongly disagree. Finally, they were asked to write comments in response to two questions:

1. What was the most valuable part of the course?
2. What aspects of the course could be improved?

Student evaluations requested by the faculty for the Unit of Study overall allowed students to voluntarily provide written comments about any aspect of their Unit of Study, including the intervention.

Staff evaluations were conducted via an email questionnaire which asked staff to rate, as Very useful, Useful, Not very useful, Not at all useful, the four following aspects of the intervention: Face-face sessions, Links to online learning resources, Graded and annotated texts, Elaborated assessment criteria and Student tasks. They could also write a comment on any aspect they wished.

## Results

### ***Effectiveness of the products of the intervention***

One important outcome of the intervention is that the resources produced for this intervention (Examples in Figures 4-8) remain with the faculty and are still used in the unit today. The revised marking criteria (Figures 4-6) remain in the current unit outline, and all pdfs associated with the assessment tasks, PowerPoint slides (Examples in Figures 7 and 8) and lecture recordings of the face-face sessions are available to current students and staff. These resources and their evaluation by participants (discussed below), also provided a basis for further resource development in following iterations.

### ***Effectiveness of the intervention***

Over a quarter of the unit's student cohort (85 out of ~320) filled in the online survey conducted in the last lecture, the number reflecting a typical drop-off in lecture attendance late in the semester. This proportion was considered acceptable for a preliminary study such as this. All staff responded to the email evaluation questionnaire sent to the two lecturers and the six tutors. Overall, both student and staff responses were very positive, and the aspects rated most highly by both groups were the face-face sessions and the annotated texts. In student responses in particular, the face-face aspect was found useful by the majority (64 of the 85), with most (52/64) selecting 'Very useful'. In comparison, 55 students found the online component useful, with nine of these choosing 'Very useful'. In response to questions on aspects of content, most students (59) found pdfs of annotated student texts the most useful, then assessment tasks using the rubric (54), and finally, the elaboration of the rubric (52).

Of the 71 written answers to the question 'What were the most valuable parts of the course?', the highest praise was for the real-time live marking of, and feedback on student texts using revised criteria in each face-face session (see examples in Figure 7). This deconstruction of sample texts via live marking (and written in annotated texts) was commented on positively and often at length by 55 students. Many referred to '*re-watching*' that part of the recorded session several times. A typical comment was: '*... good to be taken through other students' work and have pointed out plainly and simply what was and was not effective.*' Further confirmation of the value of the intervention were the 21 suggestions provided in answer to the final question, 'What aspects need improvement?'. The following sum these up: '*We need more of everything*' and '*Can it be continual process throughout semester please?*'. In the overall faculty evaluation, all unsolicited comments made by students were positive. Some students asked for more assessment task discussion and writing skills assistance, others said they '*enjoyed*' or '*appreciated*' the sessions on academic writing.

In staff evaluations, all four aspects of the course asked about (Annotated texts, Student tasks and marking criteria; Links to learning resources; and Face-face sessions) were found 'Very useful' or 'Useful'. Written responses on which aspect they found most valuable were evenly divided between comments on using marking criteria, such as 'developing my understanding of the rubric and expectation of different grade levels' and on academic writing, such as 'alerting us to issues around structuring, clarity and style'. Staff who attended all four face-face sessions elaborated more on the deconstruction of criteria and their application in the process of marking. Many noted that the explicit distinction of and focus on features at text level helped them assess more systematically. In responses to 'What needs improvement?', like the students, some suggested '*integrating this work more into the unit of study*' and '*having more regular time ... for discussion of writing skills*'.

## Discussion

This section will interrogate all aspects of the intervention in terms of alignment with theory and evaluations. Firstly, the positive evaluation of the live marking of student work using revised criteria, and its fuller documentation in annotated texts is strong evidence that these

aspects met student needs for explicit demonstration of how criteria are used to assess writing, and what makes for successful writing in architecture. It reinforces the many case studies noting the urgent need to make writing practices more visible and supported within curriculum (e.g. Goldsmith & Willey, 2016; Rust et al, 2003). This literature shows that such practices remain largely invisible due to inadequate marking criteria and marker comments, and/or insufficient explication of grades in respect to criteria. All three issues were addressed here by using SFL and the TLC to inform production of exemplary criteria and related, scaffolded assessment tasks. The positive reception of this aspect must also be seen as due to its integration within a TLC. These were not stand-alone activities and resources. In each case they were led up to and followed up by a series of activities, adhering to key scaffolding principles of the TLC.

Annotated student texts such as those in this intervention are always well-received and easily embedded into disciplinary support resources (Lillis & Turner, 2001; Wingate, 2018). In this case they also documented and expanded on the face-face feedback in class. Thus, the positive evaluation of the annotated texts must also be attributed to their integration into a more comprehensive scaffolded learning process. The earlier face-face feedback focussed on illustrative examples of key writing issues in this genre, providing initial scaffolding for the more detailed feedback in the fully annotated answers. Without this stepped-out process annotations can be difficult to process. Thus, although providing such annotated texts online on their own may seem an affordable, more sustainable option, it may not lead to the successful learning attested to by evaluations here where they were an integral part of a TLC.

Another factor in the positive response to the face-face sessions may have been that they were delivered in the compulsory lecture slot and co-led by the ALL and faculty lecturer-coordinator, with the second lecturer and most tutors attending. The positive effect of disciplinary and ALL staff co-facilitating activities has been discussed in the literature. Wingate (2018) argues that such a concrete demonstration of the integrated nature and equal status of disciplinary and linguistic expertise can lead students to seeing communication development as integral to building up and deploying disciplinary knowledge. In this case, it may also have led students to access the university learning centre for the first time, as their increased student enrolments from this faculty suggested.

The unofficial involvement of most staff who attended the four face-face sessions overcame an initial limitation noted in this intervention - lack of funds to pay for tutor collaboration or professional development time. A comprehensive survey of initiatives across universities in Australia (Dunworth et al, 2014), includes collaboration and/or involvement of faculty staff in as one of the factors essential for success in embedding practice. Tutor attendance of face-face sessions led in this case to a fruitful email correspondence with some tutors, particularly on marking issues. It also led to positive comments on the face-face sessions and perhaps also contributed to their overall positive response. This indicates that that the sessions targeted at students provided valuable professional development for staff, supporting reports in the literature of the benefits for teachers from embedding aimed at students (e.g. Wingate, Andon & Cogo, 2011).

In more specific comments, the benefits of our application of one criterion at a time were noted by tutors who attended all face-face sessions. One explained that this made clear to her the distinction and relationship between discourse/text level, sentence level and word level choices in student writing. Successful use of SFL stratified descriptions in revisions of marking criteria has been noted in other embedding practice (Dreyfus et al, 2016; Chen, Purser & Percy, 2016). Further evidence was provided in conversation with tutors who now realised that text level issues often get much less of their attention than grammar in student writing. Correct grammar often leads to more favourable marking, with inadequacies at a discourse level ignored, whereas problematic grammar takes their attention away from effective discourse choices.

The difficulty of using detailed marking criteria in general, including those used here was also raised by tutors. All practitioners know that in the limited time available it is difficult to mark

and give feedback systematically using detailed communication-related and content criteria. I would argue here that communication criteria and descriptors need to be more than a checklist to facilitate the kind of fast and reliable marking achieved with content criteria. They should explicitly and systematically present knowledge that markers need to assess communication competence - knowledge typically not afforded by their disciplinary expertise. More detail here is justified as such criteria can provide a critical professional development aid. Once recognised, understood, and seen applied on sample texts, the categories in the criteria can give discipline staff a robust framework for assessing communication in what can eventually become a quick, and hopefully intuitive process.

Though the official collaboration in this intervention was limited to one faculty and one ALL lecturer and conducted mostly via email with only two face-face meetings, it was successful in a number of ways. We revised or produced very positively evaluated and sustainable communication development resources as discussed above. Another achievement was sharing enough cross-disciplinary understandings in this first year of minimal research and development time to lay the foundation for future collaboration over four years. Only by participating in often sensitive and complex exchanges between collaborators over time can a bank of cross-disciplinary understandings be built up (Pourshafie & Brady, 2013; Drury, 2018). A clear indicator of the success of the collaboration were the repeated invitations by the faculty for collaboration in further embedding work in this unit.

### ***Limitations and Future Directions***

One limitation of the popular face-face ALL sessions is their unsustainability. However, a close interrogation of this part of the intervention reveals key elements that could be maintained in a more sustainable and scalable way. One is to provide more annotated student text samples with feedback on each criterion for a range of grades. Such annotated texts, as requested in evaluations, are recommended by the practice literature (e.g., Goldsmith & Willey, 2016). However, these entail expensive collaborative, labour-intensive work, and to be as successful as in our intervention also need to be scaffolded within a TLC. One way to provide such scaffolding is in video learning modules using the original PowerPoint slides with voice to simulate face-face sessions. Such video modules have been successfully produced by ALL staff (Garcia (2019). Again, if time, funding and technological expertise is available to produce such videos, they could either be embedded by staff in tutorials, or used by students on their own, together with already produced related resources and additional notes.

Another limitation of the intervention was the lack of paid collaboration time with faculty teaching staff, which was partly compensated for by the unofficial correspondence between the ALL lecturer and tutors. Many embedding initiatives attribute failure to the fact that embedding is imposed on staff without their involvement or investment in the design (Dunsworth et al, 2014). Although correspondence with tutors may have led to positive evaluations in this case, not all staff corresponded, and tutors did not have direct access to collaborators' discussions and decisions. In future, inclusion of all staff in collaborators' emails discussing the embedding process could provide indirect pedagogic support as well as create solidarity with official collaborators. It can also yield useful needs analysis information of the kind received from tutors too late to guide development in this intervention. Even more importantly in our case, the inclusion of the second lecturer in such emails might have prevented their resistance to a further embedding step in the next implementation.

The cross-disciplinary understandings built up between the two collaborators in the first intervention were critical in that they led to further embedding steps in each of the following three years. The first was to introduce reading development work in the second year to provide essential initial scaffolding for writing work, as recommended in the TLC. Another more challenging step was not taken until the third implementation. This was the agreement to incorporate the development of reading then writing as activities within a scaffolded programme in tutorials over the semester. This would allow tutors to do different kinds of scaffolding work



with students face-face. It would be the first time that teaching time was devoted to preparation for written assessments this unit. However, without full staff agreement or professional development provision, only reading development work was embedded in tutorials and only by staff who had agreed. On the positive side, funding was provided by the faculty the following year for the production of an online interactive resource based on the pdf reading resources produced. Sadly, our mantra of 'one step at a time' came to an end with Covid-19 restrictions in March 2020 calling a halt to the collaboration and related funding.

## **Conclusion**

This report and discussion of an embedding initiative has shown how, even in challenging circumstances, practical decision-making and later assessment and refinement of an intervention can be informed by proven theory. One benefit shown is the ability to identify areas of misalignment with theory and best practice imposed by circumstances. This allowed for compensations to be made in the current intervention, and realignments planned for the next. A further benefit was being able to closely and systematically interrogate successful aspects of the intervention, such as the face-face component, in order to identify elements that could be maintained more sustainably. Thus, with limited time and funding, our theoretical road map was able to facilitate a controlled, graduated process of embedding over a number of implementations. It led to a set of pedagogically sound communication resources for ongoing use in this disciplinary unit, which proved essential in delivering high quality support in circumstances imposed by the pandemic. The step-by-step approach to embedding over several years was a testament to the interdisciplinary understandings built up, albeit slowly, from the sharing of disciplinary, linguistic and pedagogic expertise. It is hoped that in the rush towards increasing reliance on online learning by many tertiary institutions, the complex, integrated nature of disciplinary knowledge and its communication is not ignored, and that online learning resources are designed and funded accordingly.

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