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# DEMYSTIFYING CRITICAL REFLECTION

Improving Pedagogy and Practice  
with Legitimation Code Theory

Legitimation Code Theory



# 7

## TEACHING CRITICAL REFLECTION IN EDUCATION DIPLOMA PATHWAYS

### A pedagogic intervention

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#### Introduction

This chapter reports on part of a pedagogic intervention in Education units within a Diploma program at an Australian institution. The aim of the intervention was to address challenges in ensuring international students in pathways to initial teacher education (ITE) develop the discipline-specific knowledge and language practices required for success. The work presented here focuses on the design and delivery of materials targeting the critical reflection practices used to assess students' learning. The primary challenge was to develop an approach to teaching critical reflection that is accessible, teachable and learnable, in order to have a transformative impact on the learners in particular but also on teachers. The intervention used Legitimation Code Theory to explore and shape knowledge practices, motivated by a need to address the relatively opaque nature of critical reflection practices in teacher education. This chapter describes the pedagogic choices I made as a practitioner, making this a meta-reflection on what was relevant and useful in a complex and often challenging situation.

The chapter begins with a brief introduction to some of the challenges in teaching and learning critical reflection in ITE, to the theoretical foundations of the intervention and to Diploma Pathways programs in Australia. The following sections deal with the enactment of the concept of *semantic gravity* and *semantic profiles* from Legitimation Code Theory (Maton 2013, 2014b, 2020) in the intervention. The first discusses how the concepts served as the basis of an analytic framework for revealing the organizing principles of critical reflection and providing a lens for analysis *of* practice. The framework was operationalized to analyze relations between a model text and the task prompt which it addresses, and to predict semantic structures from task prompts. The

second section addresses how knowledge was embedded within the intervention to enable analysis *for* practice. It discusses the principles that underpinned the design of the intervention to make the materials accessible, teachable and learnable. It concludes by using feedback from students, the unit leader and external moderators to demonstrate the efficacy of Legitimation Code Theory in revealing the organizing principles of critical reflection and in guiding principled pedagogic design.

### Critical reflection in initial teacher education

Critical reflection is widely accepted as crucial in the preparation and professional development of novice teachers (e.g. Hatton & Smith 1995; Jay & Johnson 2002). This highly valued form of reflection requires teachers to relate disciplinary theory, approaches and concepts with their own beliefs, values, experiences and practices (Ryan 2011). Throughout the stages of ITE, pre-service teachers (PSTs) are expected to engage in reflection to mediate between existing and new knowledge (Cohen-Sayag & Fischl 2012), to challenge preconceived ideas and beliefs about approaches to teaching and learning (Brandenburg 2021), and ultimately to metamorphosize into a ‘reflective practitioner’, a common characteristic of a successful professional educator (e.g. Schön 1983; Adler 1991; Jay & Johnson 2002; Bahr & Mellor 2016). Within units, PSTs are assessed on the ability to critically reflect on their engagement with conceptual and contextual knowledge, and socialization into disciplinary and professional communities with specialized methods of inquiry, dispositions and ways of knowing/being. However, critical reflection skills are often treated as ‘perceptions’ rather than as ‘practices’ (Szenes et al. 2015). The dominance of a ‘subjectivist doxa’ (Maton 2014a) sees critical reflection being reduced to states of consciousness and mental processes, reducing the significance of *what* is being critically reflected on. Consequently, rather than explicitly training students how to write sound critical reflection assessments, they are often left to intuitively produce texts (Brooke 2019). Not unsurprisingly, few PSTs attain the higher levels of critical reflection expected of a graduate (Cohen-Sayag & Fischl 2012).

For PSTs to be apprenticed into disciplinary practices of critical reflection, they must learn how to engage with knowledge, specialized procedures, skills and ways of thinking (Maton et al. 2016: 75). The organizing principles of these practices can be revealed by using the dimensions of Legitimation Code Theory to analyze different aspects of the basis of practices. The dimension of Semantics has been used to analyze the structures and forms of knowledge (practices) in successful critical reflection (e.g. Szenes et al. 2015; Brooke et al. 2019) and reflective writing (e.g. Ingold & O’Sullivan 2017; Kirk 2017). Within ITE, studies are demonstrating the potential of Semantics to address challenges of reflective and academic writing (e.g. Stevenson et al. 2018; Macnaught 2020; Meidell Sigsgaard & Jacobsen 2021), to investigate PST’s pedagogic reasoning (Langsford 2021), and to respond to demands for

inclusive education (Walton & Rusznyak 2019). This chapter contributes by reporting on an intervention that aimed to make the practice of critical reflection visible, teachable and learnable in an Education Diploma course.

### **Legitimation Code Theory: Semantic gravity**

Legitimation Code Theory is a framework for researching and changing practice (Maton 2014). It includes different sets of concepts called 'dimensions' that explore different facets of practices. This chapter draws on one concept from Semantics: *semantic gravity*, which explores context-dependence (Maton 2013, 2014a, 2014b, 2020). Semantic gravity conceptualizes the context-dependence of practices along a continuum of possible strengths. The empirical forms in which the semantic gravity of practices are expressed is often different in each object of study. In this project, the relative strength of context-dependence is related to the content of critical reflection and what students are expected to include in their reflective writing. Relatively stronger semantic gravity is related to the specific scenarios, experiences and events at particular places and times. These include the students' previous education and their experiences as PSTs in the course and during their professional placements in local schools. Thus, stronger semantic gravity is associated with descriptions of teaching observations, materials and lesson plans because these are more context-dependent. Relatively weaker semantic gravity is related to the educational theories, concepts and models that students are introduced to in their weekly tutorials and course materials across the two units, and which are not so contextually limited. These forms of knowledge were bound within the curricular content and included learning theories, such as Behaviourism, Cognitivism, and Constructivism, and foundational concepts such as curriculum, pedagogy, and assessment.

Semantic gravity can also be dynamized to analyze changes over time in knowledge practices. Semantic gravity can be weakened by, for example, drawing generalizing principles from the specifics of a particular context or strengthened by, for example, exemplifying abstract ideas with specific contexts, practices and experiences. Analysing shifts in the strengthening and weakening of semantic gravity over time can be traced as *semantic profiles* (Maton 2013, 2014a, 2014b, 2020). This analytic is being widely enacted in studies of educational practices (for example Szenes et al. 2015; Clarence 2017; Kirk 2017; Brooke 2019).

The *semantic range* of a semantic profile indicates the difference between the strongest and weakest strengths of semantic gravity (Maton 2014a, 2014b). As there may be limits to how abstract and generalized one's knowledge is expected to reach at different stages of education, learning the appropriate semantic range appropriate to different situations is one aspect of being inducted into a subject area (Maton 2013; Georgiou 2016). Students enrolled in Education Diploma units are at the very early stages of ITE and are only beginning to learn about education as a practice and a discipline, requiring a relatively limited semantic range. As they progress through ITE, the semantic range required for success is likely to increase.

Profiles can take many forms. A semantic gravity *wave* indicates recurrent shifts in the strengths of semantic gravity (Maton 2013, 2020). Waves can themselves take many forms, such as starting and ending at different strengths. Within written assessments in these units, these entry and exit points of a wave are influenced by the order of questions in a task prompt. For example, the first question within a task prompt (see Figure 7.1) may focus on a specific scenario or experience (A), which would indicate a relatively lower entry point, or on a theory or concept (B), which would suggest a relatively higher entry point. The follow-up question(s) may strengthen and/or weaken semantic gravity and the final question indicates a likely exit point. The resulting semantic profile, semantic range and entry and exit points may thus be closely related to the progression of questions in the task prompt.

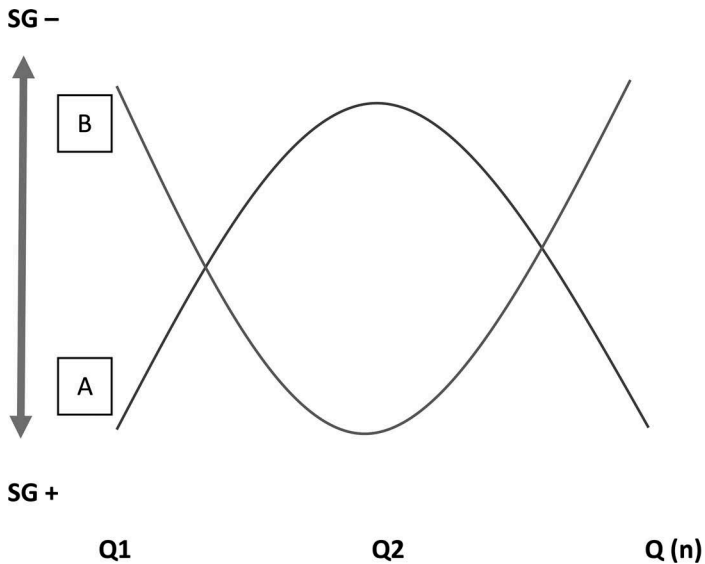


FIGURE 7.1 Changes in semantic profile depending on the nature of questions in a task prompt

Within the intervention, *semantic gravity* and *semantic profiles* were used in two ways. The first was as the basis of a framework for the analysis of critical reflection practices. The second was to inform the embedding of theory *within* pedagogic practices.

### The context of the intervention

Pathway programs are a feature of the Australian higher education system that prepare and orient students to participate in the language and academic cultures of Australian tertiary institutions (Murray & O'Loughlin 2007: 7). Diploma Pathways specialize in offering discipline-specific courses that develop the

requisite foundational knowledge, and English for academic purposes (EAP) skills to meet entry requirements for a specific degree. A feature of these courses is a conditional offer that guarantees a place in the first or second year of a Bachelor degree upon successfully completing the course and meeting any additional admissions criteria, making them popular with international students. Despite strict entry criteria regarding English proficiency, there are no common exit standards for pathway programs (Murray & O'Loughlin 2007: 11). While pathways indicate that students have met the English as language of instruction entry requirements, they do not imply that students have the required communication skills to successfully complete their subsequent university course (Arkoudis 2014: 29). A critical issue for the pathways sector is thus addressing perceptions about the quality and effectiveness of pathways programs in relation to international students' English competency and their transition to tertiary study.

Education pathways play an important role in ensuring students have developed the requisite discipline-specific foundational knowledge and English language skills to meet university entry requirements and set them up for success in their destination ITE degrees. As critical reflection is a highly valued practice within teacher education, understanding what is required is vital for pre-service teachers (PSTs) to demonstrate their learning and growth as they become a professional reflective educator (Stevenson et al. 2018; Macnaught 2020). Throughout the stages of their journey, PSTs will be assessed on their ability to reflect on relations between accumulated curricular knowledge and the professional practice of teaching. Making critical reflection practices explicit and accessible to pathways students is thus essential.

The pedagogic intervention reported on here was based in two successive core units of an Education Diploma pathways program. The primary aim was to create materials and develop pedagogic practices which help students master the specific forms of language used to assess their learning, thus establishing stronger links between the institution's English language outcomes and the units' academic and disciplinary content objectives. This provided a unique opportunity for collaborative work that enabled the author, an English and academic language specialist with extensive EAP experience, to work alongside a content specialist in developing effective forms of learning support for students making a transition into the specific disciplinary context of ITE. The pedagogic materials were designed by the author with input from the content specialist and approval from the Academic Language and Learning Manager. A project plan was jointly negotiated and resulted in the design of materials for sixteen sessions that were embedded within tutorials across both units. The content specialist delivered the materials, which were taught face-to-face during the tutorials. Seven were dedicated to providing clear specific guidance on how to approach, make sense of and respond to the critical reflection assessment tasks across the two units.

Supporting students in understanding what was expected in assessment tasks presented a challenge: although they alluded to notions of ‘reflection’, the nature of these tasks was relatively opaque. Through analysis and consultations with the content specialist, the author identified that assessment tasks were characterized by a need to relate more context-independent meanings, such as conceptual understanding of learning theories or the role of curriculum in teaching, to more context-dependent meanings, such as past educational experiences in classrooms as a student or specific lessons observed as part of their professional experience placements in a local school. Making these organizing principles visible to students became a primary focus of the intervention.

### **Making critical reflection visible in diplomas**

Semantic gravity and semantic profiles can be used as a pedagogic tool for analysis *of* practices to clarify expectations in critical reflection assessments. Analysis of critical reflection tasks reveals that what is valued is movements between different forms of knowledge, or semantic waves, which weave together more context-dependent forms of knowledge, such as practice, with less context-dependent meanings, such as theories and concepts (e.g. Szenes et al. 2015; Brooke 2019; Brooke et al. 2019). Analysis of successful critical reflection assessments suggests that higher grades can be achieved when descriptions and interpretations of personal experience are pushed ‘higher’ by weakening semantic gravity, e.g. through engagement with academic theory (Kirk 2017: 112). The explicit presentation of semantic waves equips students with a theoretical lens through which they can “genuinely transform their understanding of a critical incident or pattern of experience, enabling new understandings and the potential for new or revised future action” (Kirk 2017: 112). Semantic waves have been shown to be a prominent feature of successful academic writing, especially in teacher education where students are expected to integrate theory with practice, reflect on their practice, and use theory to inform practice (e.g. Macnaught 2020; Meidell Sigsgaard & Jacobsen 2021).

In the intervention, semantic waves provided a useful analytical lens to show students not only *what* types of knowledge were expected within the assessment tasks but also *where* and *how* to shift between writing about more abstract theories and concepts and about their more specific experiences. Assessments across the two units were all characterized by a need to relate more context-independent meanings to more context-dependent meanings. To make these organizing principles visible to students, semantic waves were operationalized in two ways; to analyze the relationship between a task prompt and a model text, and to deconstruct task prompts to identify predictive semantic structures.

### Relating task prompts to model texts

Semantic waves were used to scaffold understanding of the relationship between a task prompt and a model text. A prompt was selected, and a model text was written that was judged by the content specialist to successfully address the assessment task criteria. This text was then analyzed to identify changes in the relative strength of semantic gravity and trace a semantic profile. This generated a relatively simple visualization of the text as it progressed across paragraphs. This profile (see Figure 7.2) made explicit the need to include both context-independent and context-dependent meanings, recontextualized as 'theory' and 'specific' respectively. To more clearly visualize the text, boxes drawn at the peaks and troughs of the wave identified the main content points within the stages and paragraphs. The boxes functioned as a heuristic 'translation device' that enabled students to identify relations to the knowledge within the text and the different degrees of context-dependence. This highlighted to students that it was not only one form of knowledge, such as 'theoretical/conceptual' or 'practical/situational', that was valued, but rather how these forms were connected; the text 'waved' as semantic gravity strengthened and weakened to relate and integrate knowledge. The analysis also made explicit that the semantic range was not beyond the students' ability and the degree of accuracy allowed for some 'fuzziness'.

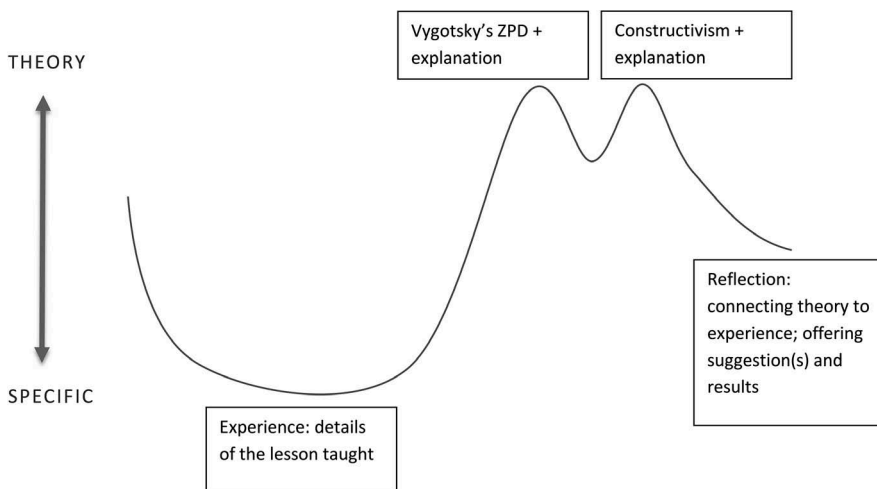


FIGURE 7.2 A semantic wave as a visual heuristic representation of the text

This analysis of the semantic gravity realized by the model text made explicit to students some of the expectations of their reflective writing that may have otherwise remained tacit. The presentation of the semantic wave revealed that what they may have perceived as a relatively simple list of questions in the task prompt (see Table 7.1) concealed the complexity of the task.



**TABLE 7.1** The task prompt

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Effective learning only takes place on the condition that new knowledge has to be linked to learner's prior/existing knowledge in a meaningful way. Describe one lecture/school lesson you were taught:

- What subject was taught?
  - What content was taught?
  - What activities were included?
  - Was the lecture successful? Why/why not?
  - How did you feel about that lecture?
  - What implications does it have for you as a pre-service teacher?
- 

Firstly, a student may misinterpret this task as requiring a list of relatively context-dependent ideas responding to details asked for by each question in the prompt. However, a successful response required not only elements of relatively context-dependent descriptive explanation, such as descriptions of behaviour, instructional acts, and feelings, but also relatively context-independent meanings that may not be immediately evident in the questions. While the questions also asked for critical elements, such as an evaluation of the learning experience and a justification, it was less clear that students should relate their learning experience to educational theory rather than just personal opinion. The visualization made this clear. Second, the presentation of the semantic wave highlighted that a valued response required the selection of context-independent theories that were bound to a specific week's topic; as this question was alluding to constructivist learning theories covered in week two, success in the task required the naming and explanation of theories (e.g. zone of proximal development, constructivism) and/or theorists (e.g. Vygotsky) covered in that week. The point of this analysis was less to provide students with a model they could copy, but rather to illustrate the underlying principles of what was perceived to be more successful critical reflection in this specific task. This enabled the generation of a shared language for understanding, discussing and planning critical reflection tasks, which could then be transferred to other critical reflection assessment tasks.

### ***Predicting semantic structures in task prompts***

As critical reflection assessments become more complex and involve more elements, it may not be feasible to provide model texts. There may be insufficient time for deconstruction or alternatively, model texts may not exist. In these situations, semantic waves can be used to focus on the way specific language features in a task prompt contribute to predictive semantic structures. This provides a heuristic for scaffolding the preparation and planning of responses. Semantic waves can provide students with a lens to analyze questions constituting a task prompt and/or to visualize predictions of possible semantic structures across an entire response.

In the intervention, providing students with visualizations of semantic waves offered opportunities for guided deconstruction of elements within larger task prompts. Elements of task prompts were deconstructed in two main ways (see Figure 7.3).

CONNECTING THEORY TO EXPERIENCE

3. Relate	the learning factor to your personal learning episode...
<b>Task word (what you have to do)</b>	<b>Scope (what you have to cover)</b>

To successfully address this element of the task, you need to identify relevant theories from the course content. Then, you need to clearly explain **why** and **how** this source is relevant. Remember, **good** reflective writing makes clear connections between theoretical concepts and experience.

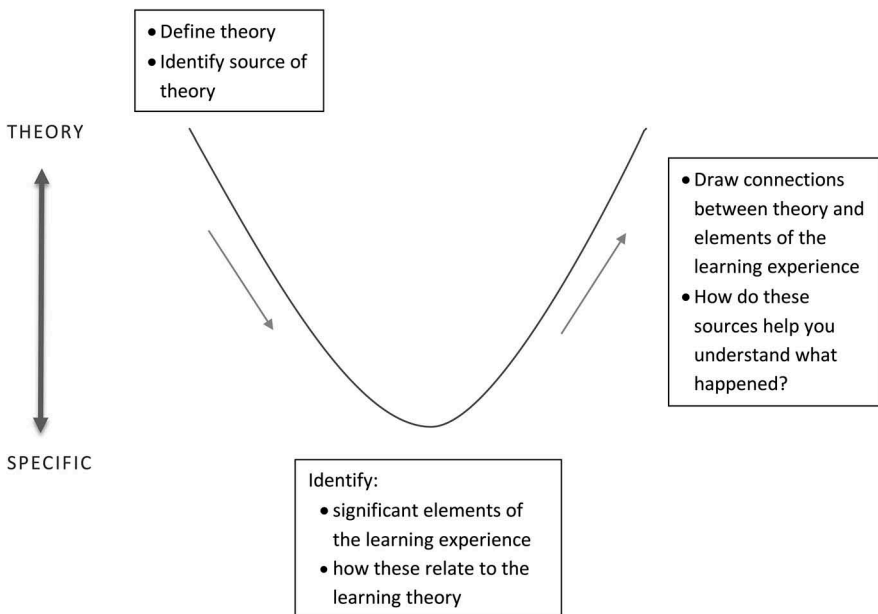


FIGURE 7.3 Deconstructing an element within a task prompt to generate a predictive semantic wave

First, language features within the prompt were identified and an explanation was provided to promote discussion or requests for clarification. Each element or question within a task prompt could be analyzed for a ‘task word’ that identified what had to be done (e.g. describe, discuss, reflect on, assess) and the ‘scope’, which identified what had to be covered. This foregrounded the role of discipline-specific meanings of vocabulary within the context of the question, and

created opportunities to clarify the relative context-dependence of meanings expected. For example, ‘relate the learning factor...’ required reference to relatively context-independent meanings covered in course readings, such as Gardner’s theory of multiple intelligences (Gardner 1983) or Sternberg’s triarchic theory of intelligence (Sternberg 1985). Second, the semantic wave sketched a semantic profile that was likely to be valued, and therefore receive a higher grade. This highlighted the expected semantic range (i.e. relating theory (learning factor) to the specific (personal learning episode)), and movements that weakened and strengthened semantic gravity to make connections between the theory and significant elements of the experience. It also identified the likely entry and exit points, i.e., start with theory and finish by interpreting the experience through a theoretical lens.

Semantic waves were also used to predict and visualize the likely semantic flow across an extended written text addressing a task prompt. Figure 7.4 displays a semantic profile that relates all elements of a task prompt for a 2,400-word essay. This assessment required students to “reflect on, analyze, and explain personal insights of yourself as a learner also using the associated readings you explored in the tutorial/workshop activities during weeks 6–12” and included a number of guiding questions. Question one asked for a relatively context-dependent description of a personal learning experience. Question two required relatively context-independent discussion of theories and concepts related to the topic of ‘learning’. Question three required the establishment of relations between the theory and experience. It should be noted that the

#### FROM PLANNING TO WRITING

Your submission should be written and organised in a logical and coherent way. You should use headings and sub-headings in your reflection essay. Use the following image to help you visualise the ‘flow’ of your essay.

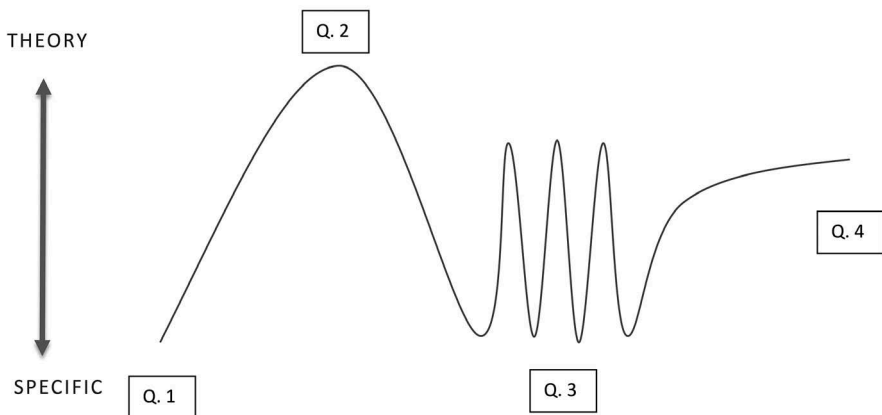


FIGURE 7.4 A predictive semantic profile

recurrent movements in Figure 7.4 elaborated on the relatively simpler semantic structure provided in Figure 7.3, emphasizing the need to repeatedly strengthen and weaken semantic gravity as connections were made between multiple elements of the theory and experience. The final question required students to weaken semantic gravity by using the concepts or theory as a lens through which to re-view and reassess the experience, “transform(ing) their understandings, enabling new understandings and the potential for new or revised future action” (Kirk 2017: 112). Use of the wave thus made visible and explicit what was expected in a response to the task prompt – the relative context-dependence of forms of knowledge, the movements and relations within and between the questions, and the likely entry and exit points.

This section has shown how semantic gravity waves can make visible to students the valued semantic structures of knowledge practices expected in critical reflection tasks. Semantic gravity reveals the relative context-dependence of different meanings, and semantic waves make visible how successful critical reflection is characterized by strengthening and weakening semantic gravity that connects and integrates meanings. This provides an analytical lens that enables identification of the *types* of knowledge that are expected, *where* these are likely located, and *how* they could be related or connected. This empowers both students and content specialists by offering tools with which they can analyze texts and prompts in a way that is applicable and transferable across assessment tasks.

### **Making knowledge practices accessible, teachable, and learnable**

Effectively embedding knowledge of the organizing principles of successful critical reflection within pedagogic materials is not straightforward. To ensure principled knowledge is teachable and learnable to those it is seeking to help, careful pedagogic choices regarding selection and recontextualization of LCT concepts are required. This process of pedagogization is governed by principles that guide decisions about “what gets selected, how it is sequenced, paced and evaluated” (Shay 2013: 4). These notions of selection, sequencing and pacing proved useful in enacting LCT and integrating principled knowledge within the pedagogic materials. To illustrate how this was achieved, I show how these concepts were used to guide the design of the pedagogic intervention. This is not meant to be a definitive methodological guide for enacting LCT in practice but rather what I found to be useful and contextually appropriate.

#### ***Selection***

To ensure development of shared understanding, the selection of contextually appropriate pedagogic metalanguage was essential. Although the concepts of semantic gravity and semantic profiles revealed the organizing principles of critical reflection practices, they were *external* to the pedagogic context of the intervention. Their *internal* role in the pedagogic materials required

transformation into contextually appropriate terminology. Enactment within the intervention thus required tacit praxis, where theory is ‘silent, invisibly integrated into action, and significant but not made manifest’ (Maton et al. 2016: 73).

While LCT informed the pedagogic approach, it was not necessary for the teachers and learners to learn LCT. The concepts had to be ‘translated’ into terms that retained conceptual integrity but could be more easily understood and adopted for practice by students and content specialists. The concept of semantic profiles was relatively easily translated as ‘waves’. This notional visualization of movement appealed to common-sense understanding and was a relatively accessible metaphor. Recontextualizing semantic gravity was more challenging. Firstly, changing a technical term into everyday language is not straightforward (Maton et al. 2016: 79). Secondly, the empirical form of semantic gravity depends on how the concept is enacted for practice (Kirk 2017: 111). Accordingly, several models were considered (see Figure 7.5). Similar to finding the right temperature porridge in ‘Goldilocks and the three bears’, terminology in version 1 was deemed too abstract, version 2 was too simple, but version 3 was ‘just right’. The selection of weaker semantic gravity as ‘theory’ and stronger semantic gravity as ‘specific’ aligned with expectations of the content specialist. It also paralleled previous work by the author (Ingold & O’Sullivan 2017) and with the content of the instructional video used in the intervention (O’Sullivan 2017). The recontextualization of concepts in this way enabled development of transparent and shared understandings of the organizing principles of successful critical reflection.

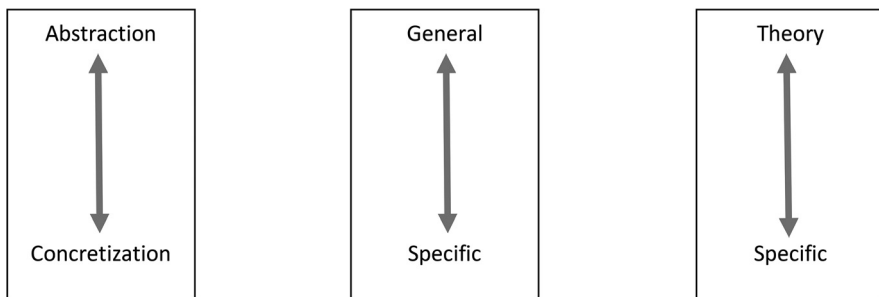


FIGURE 7.5 Recontextualization choices: Versions 1, 2, and 3

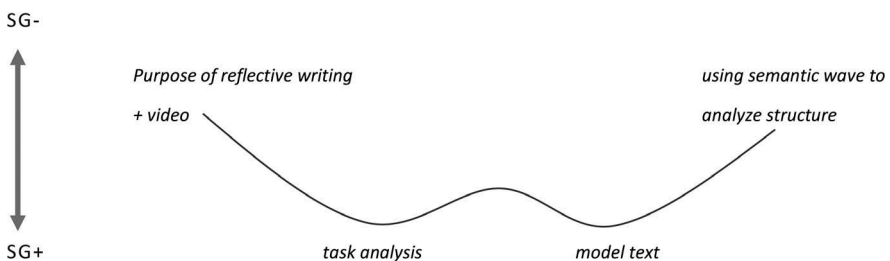
### ***Sequencing***

Sequencing refers to the order in which pedagogic content is organized. The sequencing of activities, materials and sessions over time can enable or constrain cumulative learning and impact students’ ability to “transfer knowledge across contexts and through time” (Maton 2014b: 108). Enabling this transfer was a critical factor in the design of the intervention. While the author intuitively used a

semantic wave to inform pedagogic design, it was necessary to conceptualize how the specific order of activities *within* and *across* teaching sessions within the intervention could be made more explicit.

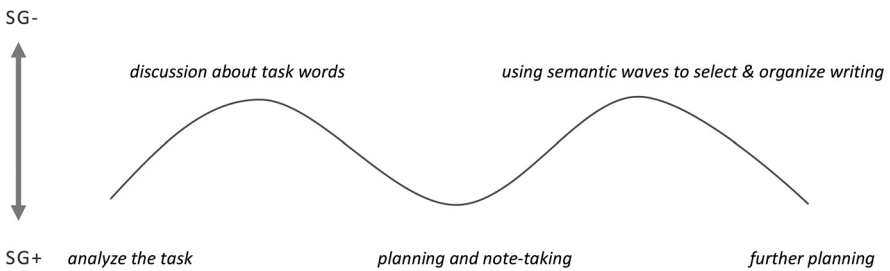
Inspired by the use of semantic gravity waves to inform the design of writing tutorials (Clarence 2017), waves were used as a guiding tool to sequence activities *within* sessions. The thinking behind this was that a session may start with a task that is relatively more or less context-dependent than the following task. The subsequent activity may move up towards a more decontextualized meaning or understanding, such as a theoretical perspective, or down towards a more contextualized meaning, such as an example, scenario, or specific task. Mapping changes in relative strengths of semantic gravity offered a means of identifying a session's starting point and organizing the flow and sequence of activities to increase likelihood of cumulative learning.

Across the intervention, pedagogic design was informed by two semantic profiles shaped by different entry and exit points. The first heuristic (see Figure 7.6) guided design of the first session. As most students had never encountered reflective writing before, this session functioned to introduce reflective writing and the organizing principles of critical reflection. It began with relatively context-independent activities introducing the social purpose of reflective writing. This included the video introducing the organizing principles of reflective writing as waves that connected and integrated theory and specific meaning (<https://vimeo.com/207029935>). The following activity was relatively more context-dependent; the task analysis modelled the deconstruction of the generic and linguistic features within a specific reflective writing task prompt. This created opportunities for the content specialist to slightly weaken semantic gravity by emphasizing that deconstruction is a key stage in preparing for tasks. Semantic gravity was then strengthened again by moving into activities based around a model text. Finally, semantic gravity was weakened by using the semantic wave to guide students in analyzing the structure of the model text. Semantic gravity was further weakened by then relating the use of the wave to other assessments; students were informed that the 'wave' would be a useful, applicable, and transferable analytical tool for their assessments throughout the course and in their future studies in ITE.



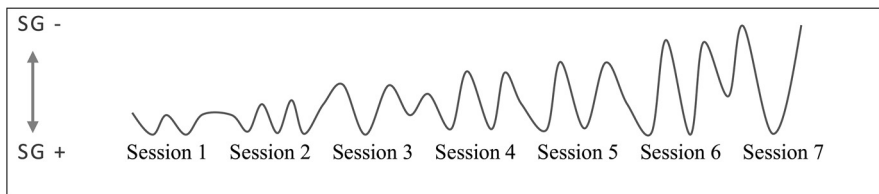
**FIGURE 7.6** A heuristic SG wave guiding the sequence of activities within a session: entry and exit points with relatively weaker SG

Other sessions required a profile with different entry and exit points. A second heuristic (see Figure 7.7) guided design of a lesson that deconstructed the second assessment. The entry point was relatively lower, beginning with an analysis of the specific task prompt for assessment 2. The next activity weakened semantic gravity by providing opportunities to discuss the notion of task words and scope. The following activities continued the iterative strengthening and weakening of semantic gravity as the activities moved between the relatively more context-dependent nature of planning and note-taking for the task and relatively more context-independent discussions related to the use of semantic waves as a means of selecting content and organizing ideas. This type of wave became the typical model for sessions guiding preparation for assessment tasks.



**FIGURE 7.7** A heuristic SG wave guiding the sequence of activities within a session: entry and exit points with relatively stronger SG

Semantic gravity waves were also used heuristically to plan cumulative learning *across* sessions (see Figure 7.8). This offered principled sequencing of sessions seeking to cumulatively build understanding of the complexities of knowledge and linguistic practices associated with successful critical reflection while also consolidating a process approach to academic writing. To a large extent, the sequence of sessions scaffolding each of the four assessments was aligned to the curricular structure.



**FIGURE 7.8** An ideal heuristic SG wave informing pedagogic design across sessions

Across all sessions, materials emphasized process over end-product to maximize early and sustained learning engagement. They also foregrounded key aspects of language and focused on developing communicative and discourse

competence through activities such as close analysis of tasks to determine their specific purpose, clarify key terminology and identify relevant theories. The sessions progressively integrated different forms of knowledge through iterative movements between more context-independent meanings, such as theories and concepts related to educational and linguistic knowledge, and more context dependent meanings, such as assessment task prompts and specific linguistic features.

The significance of the heuristics shown in this section is twofold. First, they provide a *conceptual guide* for principled sequencing of pedagogic phases and stages. This assisted the author in sequencing activities and sessions in ways that integrated and consolidated knowledge within and across teaching sessions. Second, they provide a *design framework* for teaching practices. Semantic profiles with different entry and exit points can offer teachers alternative and more precise means of selecting and sequencing activities, materials and lessons. In these ways, semantic gravity waves can effectively inform pedagogic design, ensuring iterative movements that enable the integration of meanings and encouraging cumulative knowledge-building within and across pedagogic materials.

### ***Pacing***

A key aspect of the intervention was the creation of time and space within the existing curriculum. The importance of dedicating time to the explicit teaching of principled knowledge of reflective practices cannot be underestimated; “in order to foster effective reflection, what is needed is time and opportunity for development” (Hatton & Smith 1995: 37). Prior to the intervention, no time was dedicated to the teaching of critical reflection or to showing students how to effectively integrate different forms of knowledge. It is not that critical reflection was considered insignificant but rather that it was not explicitly taught and remained a tacit aspect of the course. It was thus necessary to slow the pacing of the course to create space, time and opportunities for teachers and learners to analyze, deconstruct, and co-construct model texts and assessments to cumulatively build knowledge of critical reflection practices.

As students had not encountered reflective writing previously, it was necessary to dedicate time to its introduction before deconstructing model texts and assessment prompts. Three of seven sessions were therefore dedicated to the first assessment. The first session introduced reflective writing and its social and disciplinary purposes, followed by deconstruction of an assessment task prompt and a model text. Sessions two and three each focused on one of the two reflective writings that constituted assessment 1. Lasting around 30 to 40 minutes, each of the three sessions was shorter than later sessions but relatively more time was dedicated to this assessment as a whole. Devoting this extra time was motivated by the need to ensure students were prepared for the more challenging critical reflection tasks later in the course.



The sequence of subsequent sessions addressed each assessment in turn, at an appropriate time in the unit structure. Each of these sessions was relatively longer (up to two hours), allowing more time for guided preparation and planning. Within sessions, the content specialist delivering the materials controlled both the length of the session and the timing within and across activities. As the benefits of taking time to teach principled knowledge became apparent, more time was dedicated. That time was allocated to the sessions is testament to relevance, functionality, and practicality of the materials.

### Evaluations of the project

The impact of the intervention was measured through feedback from students, the unit leader and comments from external moderators. The first indicator was perceptions from students on the benefits of the materials, gathered through surveys across the two units. Students reported that analyzing the model text using semantic gravity waves helped them improve their understanding of the organizing principles of successful critical reflection and reflective writing. They appreciated how the tools helped them recognize *what* is expected and valued in critical reflection and *where* and *how* to relate theory to experience within the unit's assessment tasks; for example:

I am more confident saying I know why certain learning practices take place and how to better improve it by grounding on the knowledge I have gotten from the theories (*student 1*).

They also valued semantic profiling as a useful and applicable tool to analyze task prompts for predictive semantic waves and construct their own texts. Once students could distinguish different forms of knowledge, they learnt how to weave their own semantic profile with contextually-appropriate entry and exit points; two examples are:

...(it) provides a rough guide and outline as to what is required in a piece of writing so I can plan out what to write (*student 2*).

...(it) helped me think and reflect and also dropped 'hints' as to how to tackle the writing. As I pen my answers, it actually created opportunity to expand my thoughts and allowed me to link concepts, theories and ideas etc. together (*student 3*).

The unit leader was extremely engaged, positive and generous with her time. She valued the collaborative work and was very complimentary about

the materials: "...the use of semantic waves proves to be effective...students had a clearer idea about key elements and structure of a good reflective writing". She also valued the reflective writing video, which "became a powerful tool to assist students in connecting the theories with their relevant personal learning experiences...". In personal correspondences, she reflected on the affordances of semantic waves in revealing the principles of critical reflection in ITE:

... my past experiences indicated I struggled to teach students how to write reflective essays and had a blurred idea about using semantic model [sic] in my field...Having successfully applied them in xxx and xxx [units 1 and 2], I decided to borrow this semantic wave ... to teach xxx [unit at the Faculty of Education]...(where), [it was] well received and ... assisted my postgraduate students a great deal ...

Finally, comments from external moderators working in the Faculty of Education have consistently commended students' performance in assessment tasks, especially their capacity to critically reflect on relations between theory and practice; for example expressing:

... admiration for these students and what they have achieved. I thought the actual topic was a very challenging one in that students are being asked to think about their teaching in relation to learning while still PSTs. I particularly enjoyed reading their thoughts on what makes for an effective teacher and aligning theoretical perspectives with practical examples ...

... students have demonstrated understanding of key theories and were able to synthesize these against examples from both practice and case studies. Clear that excellent teaching scaffolded these skills.

I'm always incredulous that students for whom English is a second language engage in essay writing focusing on theories of education. I was even more impressed that they were able to incorporate their own experiences and perceptions into the theoretical narrative.

These comments praise not only the students for producing critical reflections that meet disciplinary, linguistic and academic expectations, but also the teaching practices. Overall, perceptions from students, content specialists and moderators suggest that the intervention was a success and that the pedagogic materials actively contributed to the development of students' understanding of and ability to successfully produce written critical reflection assessments.

## Conclusion

Theory can offer means of addressing the complex and often challenging task of designing pedagogic interventions that successfully target specific teaching and learning needs. However, that an intervention or pedagogic approach is theoretically-informed does not ensure its success. Not all theories are equal. Some theories offer conceptual frameworks that are “good to think with and about”, yet their analytical frameworks “offer little...grip on empirical data” (Maton 2014a: A-35). The challenge is to find frameworks that improve pedagogic design by generating greater explanatory power to address substantive problems.

This chapter has reported on part of a pedagogic intervention seeking to address the relatively opaque nature of critical reflection within units of an Education Diploma pathway. The design of the intervention was a complex task that required consideration of several factors, including the development of the language and literacy skills of international students. This chapter has not attempted to cover all aspects of the intervention. Rather, it has focused on the enactment of theoretical concepts from LCT. The intervention did not seek to impose the learning of LCT. It sought to generate explanatory power to make explicit the often-tacit nature of the ‘deep’ and ‘critical’ reflective practices of ITE and so empower the content specialist and students by offering them a practical, applicable and transferable analytical lens for understanding, discussing, and planning critical reflection tasks.

LCT was integral to the intervention and informed strategies employed by the author to embed theoretically-informed practices in contextually appropriate ways. First, the concepts of semantic gravity and semantic profiles were operationalized as the basis of a framework for the analysis *of* critical reflection practices. This relatively simple set of concepts were used to scaffold students in understanding the expectations of assessments and capturing the variant and contextual nature of ‘theory’ and ‘practice’ within ITE. Drawing attention to how different *forms* of knowledge can be related and woven together provided an analytical lens that is useful, applicable and transferable. Second, LCT offered a conceptual framework that informed the embedding of theory *within* and *for* pedagogic practice. To embed these concepts within the materials, the principles of selection, sequencing and pacing proved useful: selection of contextually appropriate recontextualizations of metalanguage; careful sequencing within and across sessions; slowed pacing to create time and space for students to engage with principled knowledge.

Reflections on the intervention highlight three key points. First, LCT offered “an explicit, systematic, principled and hierarchically organized conceptual framework” (Maton 2016: 9), which was ‘good to think with’ and offered transferable and applicable tools for practical engagement in the specific pedagogic problem situation. This enabled the appropriate selection of ideas from one body of knowledge (semantic gravity, semantic profiles) to address a problem situation (the teaching and learning of critical reflection) and then recontextualize that selection to be embedded within another body of knowledge (Education Diploma curriculum), site of practice (units within

Education Diplomas) and field of practice (pathways to ITE). It is hoped that this chapter further strengthens the case for using LCT to re-orientate ideas about teaching and framing EAP (Ding & Bodin-Galvez 2019: 82). Second, the importance of opportunities for close collaboration between EAP and content specialists must be emphasized. Improving pedagogic practices requires specialized linguistic and disciplinary expertise to understand how discipline-specific language and content knowledge is cumulatively built. Consequently, synergy between language and content experts can improve curriculum, pedagogy and assessment practices, better supporting international students, while also ensuring inclusive teaching practices for all students across higher education (Bond 2020: 181). Finally, dedicating time and resources to interventions such as this can ensure students enrolled in pathways programs successfully transition to university. In this case, making the organizing principles of critical reflection practices explicit to PSTs from the beginning stages of ITE empowers them by offering applicable and transferable tools for integrating theory, practice, and evaluation, thus contributing to their disciplinary and professional development.

Ultimately, LCT offered frameworks and tools to reveal the organizing principles of critical reflection and to guide principled pedagogic design. This enabled the development of an approach to teaching critical reflection that is accessible, teachable and learnable. The pedagogic enactment of LCT reported on in this chapter is by no means definitive, but hopes to offer inspiration and guidance to others dedicated to addressing complex challenges in curriculum, pedagogy, and assessment practices within higher education.

## Acknowledgements

The author would like to acknowledge the support of Monash College where this intervention took place. Particular thanks to Nhai Nguyen, the content specialist and unit leader of Diplomas Education, for her assistance, cooperation, and encouragement. Despite changes in the units' curriculum and assessments since the intervention, she continues to use the instructional video and pedagogic materials, albeit with some adaptations. She continues to report on external moderators' positive evaluations of students' capacity to critically reflect on relations between theory and practice.

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