

EDITED BY  
NAMALA TILAKARATNA  
AND ESZTER SZENES



# DEMYSTIFYING CRITICAL REFLECTION

Improving Pedagogy and Practice  
with Legitimation Code Theory

Legitimation Code Theory



# 12

## UNDERSTANDING STUDENTS' REFLECTIVE ENGAGEMENT WITH ACADEMIC TEXTS

*Laetitia Monbec*

### Introduction

Reflective writing encompasses a wide range of tasks which aim to develop and assess students' critical thinking. These tasks have proliferated in a range of disciplines such as social work, nursing, and teacher education where students are asked to reflect on their application of theory into their own practice. Reflection and display of critical thinking is also asked in more traditional academic writing tasks such as reflective summaries and critical responses to assigned core readings where students are asked to engage with the content and the values of the discipline. The abundance of definitions and conceptualization of critical thinking makes it difficult however to understand what these tasks entail (Bruce 2020). This chapter explores undergraduate students' reflective engagement with academic texts and stems from a teaching/learning problem observed in an assignment in a first-year Content and Language Integrated Learning (CLIL) module *Colour: Theory, meaning and practice*. The task, called a 'reflective summary response', aims to develop students' reflective skills about debates in the field and requires them to summarize a core reading and develop a reflective response to one of its themes. However, students' engagement with the core text differed in terms of target (who and what the students reflected on) and in terms of evaluation they assigned to these targets. Some students seemed to understand reflective response as a need to find flaws in the *field of research* (the research activity, the methodology, after Hood 2010) with negatively connotated evaluative terms, rather than as an engagement with the *field of study* (the knowledge domain) in an evidence-based dialogue. This difference highlighted a misunderstanding about what is entailed in this key academic skill as students transit from school to higher education discourses and knowledge practices.

This chapter aims to understand the basis of achievement, i.e. what is valued in this common academic writing task. A key element, therefore, is to make visible the ways students engage with the core reading, through their evaluation of its authors, its knowledge claims and external sources. This will be done using the Legitimation Code Theory (LCT) concepts of *clusters* and *constellations* (Maton 2014: 148–170; Maton & Doran 2021). A second aim is to suggest reasons why students’ approach to the task differ. This is done by relating the findings to the varied discourses surrounding critical thinking in the broader socio-political Singaporean context – the site of the study. The chapter first conceptualizes critical thinking in the Singaporean cultural and socio-political context, focusing on different framings in the educational discourse. It then introduces concepts from LCT. Finally, it reports on the analysis of two assignments at different achievement levels, in order to argue for the need to model context-specific (both disciplinary and broader social contexts) teaching and learning of critical reflection.

## Literature review

The literature on critical thinking spans various fields and disciplines and encompasses diverse related notions such as reflective practice (Schon 1987), reflexivity (Taylor & White 2000), transformational learning (Mezirow & Associates 2000), criticality and emancipatory education (Boud et al. 2006; Schon 1995). Bruce (2020) traces the origins of the concept through the history of western philosophical argumentation, and shows that in many approaches to critical thinking, the evaluation of knowledge validity is an important thread. In western thought, critical thinking is often associated with the tradition of empiricism which views the scientific method, or an emphasis on empirical evidence as legitimate knowledge building. In addition, a more current construal of critical thinking stems from a neoliberal model that emphasizes the ability to evaluate source credibility, and to solve problems - skills which a member of the workforce should possess in order to find solutions to the issues facing our world. Finally, a more emancipatory conception of critical thinking seeks to unearth structural or systemic assumptions which are then either reaffirmed or contested to hinder or encourage societal change (Fook & Gardner 2007). These different emphases then lead to various pedagogical realizations (or recontextualization) in classrooms, as is shown below in relation to Singapore.

In Singapore, critical thinking and reflective skills are a key aim of education and a central tenet of the educational discourse (Lim 2014). In the Singaporean context, critical thinking skills are often framed within a human capital ideology (Koh 2002), where skills such as the ability to analyze and evaluate sources, and the ability to reflect and find solutions in a changing world are seen as crucial. The National Institute of Education (NIE) *Working Paper on Creative and Critical Thinking* (Chiam et al. 2014: 3) links these skills to the “country’s capability and effectiveness to cope with the changes of a transient economy in the light of globalisation”. In this conceptualization, the need to

adapt to change is presented as the fundamental way to address problems (Stiegler 2019) and critical thinking is the fundamental tool to enable this adaptation. Drawing on Dewey's (1910) definition, the Working Paper also defines critical thinking as the ability to hold judgment, "maintain a healthy scepticism and exercise an open mind" (Chiam et al. 2014: 7). Singaporean educational discourse around critical thinking is also characterized by a focus on the scientific method, the quest for knowledge that is value-free and objective, and a focus on rational technicality, what Giroux has called a culture of positivism in the US context (Giroux 2020). This understanding can translate differently in school curriculum. Lim (2016) found that in mainstream schools, critical thinking is recontextualized "as an instrumental skill to get at a 'right' answer – or the 'right' way of getting at the answer" (Lim 2016: 120) in English/humanities disciplines, while in the social science subjects, it is often conflated with evaluating knowledge claim credibility. In elite schools, however, he observed that critical thinking is taught as part of philosophy programmes and is equated with the ability to construct and evaluate arguments and logical analyses especially in relation to scientific methodology and rational enquiry. In lessons, students were encouraged to discuss and critique the scientific approach, while engaging with topics such as freedom of speech. Within these lessons, Lim noted a prioritization on argumentation analysis and on a positivist evaluation of knowledge claims. This stratified discourse around critical thinking then raises the question as to how students approach academic writing tasks that enact it. While research has investigated cultural, and disciplinary influences (see Ennis 1998; Moore 2011; Song 2016; Tan 2017; Tilakaratna et al. 2019), we know little about the ways students' understanding of critical thinking may be influenced by the broader social and schooling contexts and in turn how these different orientations may be realized in students' reflective assignments.

Research approaches into reflective writing are varied. While corpus-based studies have tended to look at single lexico-grammatical items (Hunston & Thompson 2000), Bruce (2020) has recently proposed a broader framework that links the expression of critical thinking in text to its overall staging and various textual elements that "mutually interrelate when employed in the communication of critical thinking" (Bruce 2020: 26). Concepts from Legitimation Code Theory (LCT) have also been deployed to explore knowledge practices linked to reflection in applied disciplines. *Specialization codes*, which explore how knowledge and knowers are articulated in practices, have been useful to reveal ways that cultural background impacts reflective writing (Tilakaratna et al. 2019). *Semantic gravity*, which explores the context-dependence of practices, has been used to reveal complex interactions between more concrete knowledge claims and more abstract and general theoretical concepts in business and social work (Szenes et al. 2015), in anthropology (Kirk 2017), and in nursing both for pedagogic and assessment purposes (Tilakaratna et al. 2020; Brooke 2019; Monbec et al. 2020). Expression of evaluative meanings have been analyzed to reveal how students

align with the values of their discipline (Szenes & Tilakaratna 2020; Tilakaratna & Szenes 2021; Brooke et al. 2019). In this chapter, LCT concepts of *clusters*, *constellations*, and *cosmologies* are used to reveal the ways students may align with the values associated with critical thinking in their broader social context.

## Methodology

### *The context*

The study was conducted in an undergraduate Content and Language Integrated Learning (CLIL) module at the National University of Singapore, titled *Colour: Theory, Meaning and Practice*. The module aims to develop students' academic language, multimodal literacy and critical thinking through the field of Colour Semiotics. Students analyze the socially constructed meanings of colour in various artefacts and various fields (arts, marketing, politics, communication, among others) and adopt a social semiotics/multimodal analytical lens to explore the meanings colour contributes to our world (van Leeuwen 2011; Kress & van Leeuwen 2002, 2020). Assessment takes the form of three assignments: a reflective summary response assignment (the subject of this chapter), a lens paper (see Monbec 2020), and an expository paper. Students come from disciplines ranging from Engineering, Computing, Sciences, Design, Business, or Psychology and are therefore exposed to and encouraged to engage with different ways of seeing the world in this module. In the Colour module, students are expected to develop a 'cultivated gaze' (Maton 2014: 99), a shared set of values and understandings, a common form of expression and intellectual engagement with core texts. This cultivated gaze involves an engagement with the debates and ideas of the field, an understanding of the contribution of colour to the construal of our social world, and an ability to analyze and interpret colour meaning in cultural artefacts.

### *The task and expectations: Developing a cultivated gaze*

The first assignment where students are required to demonstrate critical thinking skills is a 600-word reflective summary response – a critical response to a core academic text – which students must first summarize and then respond to. The text in this study was the empirical research paper:

LoBue, Vanessa & DeLoache, Judy S. 2011. Pretty in pink: The early development of gender-stereotyped colour preferences. *British Journal of Developmental Psychology* 29(3). 656–667.

Students were expected to engage with the debate surrounding gendered colour preference and whether this is a biological or a socially constructed phenomenon. Briefly, the LoBue & DeLoache study disproves the notion that

girls have an innate preference for pink. The paper explains that colour preference for pink occurs in girls at around age two and a half and progresses strongly until they start to reject the colour (at around age seven). The experiment also shows that boys express an increasingly strong dislike for pink from age three, which does not wane during childhood. The authors argue that this late opinion about pink is evidence that there is no biological element to colour preference (as is sometimes argued in the evolutionary biology literature) and suggest that because the age of two to three is that of growing gender awareness in children through socializing and schooling, their findings indicate that strong colour preference or rejection for pink is likely to be motivated by a child's gender identity construction and influenced by gender-stereotypical colour norms in the child's environment.

Students are expected to demonstrate the development of a cultivated gaze, which includes expressing judgement about and making connections between a set of knowledge claims and scholars. This is likely to occur through the evaluation of the original source's claims and the use of external sources to support the student's argumentation. In their engagement with this core academic text, students might reflect on the study's results and how they contribute to the debate, or they might reflect on a range of possible reasons for or consequences of this gender stereotyping. They might also relate to more introspective content and draw parallels with personal experiences with dominant discourses around gender norms. The expectations are demonstrated in class, through discussion of other core academic texts in small tutorial groups. The study, however, was prompted by a consistent challenge this assignment presented to a portion of the cohort, indicating that the pedagogical approach leading to it was not as effective as hoped.

The study aimed to explore the extent to which students are developing this cultivated gaze towards the issue of gender stereotyped colour preference, and more broadly towards the role of colour as a semiotics in our world. The following questions were asked:

1. How do students respond to a core academic reading in the reflective summary response in high and low achievement bands?
2. What does this tell us about students' understanding of what constitutes 'valued' reflection and critical thinking in the colour module?

### **Analytical frameworks**

This study draws on the LCT concepts of *cosmologies*, *constellations* and *clusters* (Maton 2014; Maton & Doran 2021). *Cosmologies* refer to belief systems that underlie and legitimate practices in social fields. They constitute "a vision of the world embodied by activities within the social field" (Maton 2014: 152). These ideas are being enacted in a range of studies (Doran 2020; Jackson 2020; Szenes 2021; Tilakaratna & Szenes 2020). In this study, the focus

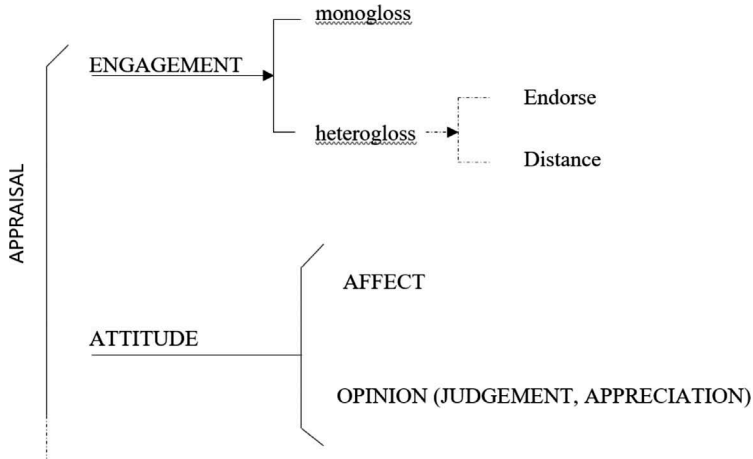
is on *axiological cosmologies* in which practices signal the “aesthetic, ethical, moral or political affiliations” of actors (Maton 2014: 152). Actors align their stances to these broader discourses more or less consciously and to different degree (Maton 2014: 168). *Clusters* and *constellations* refer to smaller and large collections of practices that have been selected from the much larger array of possible practices, related together in particular ways and assigned values. These concepts are useful to reveal the degree to which students develop and adopt the expected cultivated gaze or misalign with the valued way of engaging with a core reading in this module. An axiological analysis is also particularly useful when we aim to “unpack the ideological assumptions embedded in a notion like critical thinking and relate them to a set of social and political discourses” (Lim 2016: 33). This means that such analysis may also enable us to understand what cosmology students are aligning with. In this study, this is done through tracking *clusters* of axiological meanings charged positively or negatively, “the smallest unit of axiological meaning” as shown in Figure 12.1 (Tilakaratna & Szenes 2020: 108). Here, clusters will represent recurrent evaluative patterns of the same target of evaluation which contrast or align with others and build larger *constellations* within the assignment, or across several texts.



**FIGURE 12.1** An example of a negatively or positively charged cluster  
Source: After Tilakaratna & Szenes (2020: 108)

Following Szenes (2021), Tilakaratna & Szenes (2020), Doran (2020) and Jackson (2020) the Systemic Functional Linguistic framework of APPRAISAL (Martin & White 2005) is used to operationalize these LCT concepts (Figure 12.2). APPRAISAL provides the tools to track evaluative meanings in texts, to understand what is valued in the context of a reflective summary and engaging with scholarly sources. The linguistic resources that create these meanings include the two sub-systems of ATTITUDE and ENGAGEMENT.

ATTITUDE reveals how values are built in a text, around emotions (AFFECT in Figure 12.2) and opinions (JUDGEMENT and APPRECIATION in Figure 12.2) and whether this evaluation is negatively (–) or positively (+) charged. An



**FIGURE 12.2** Appraisal resources used in this study  
 Source: Adapted from Martin & White (2005)

ATTITUDE analysis also tracks the targets of the evaluation (the evaluated item) which tells us who/what gets evaluated, and who/what is exempt. Over the course of a text, or several texts, recurring patterns of a target and its negative or positive charge form a stabilized axiological cluster (Tilakaratna & Szenes 2020). In the example below, following Tilakaratna & Szenes (2020), targets are underlined, instances of ‘**evaluation**’ are indicated in bold font and the type of attitudinal resources and charging are indicated in square brackets with a ‘+’ or ‘-’ for positive and negative respectively. See full coding scheme in Table 12.1.

Example: The methods **are not conclusive** [-opinion]  
Their study **is limited** [-opinion]

ENGAGEMENT is related to the concept of heteroglossia, the space given to different perspectives and the inclusion of external sources in a text. This study is focused on accounting for the broad types of alignments that are construed between external sources and the author’s stance in the reflective summary response. To do this, the following selection of concepts from the framework were used: *endorse* (formulations that indicate authorial alignment with the external source, and exclude other views), and *distance* (formulations which indicate an explicit disalignment of the student from the core text). Alignment and disalignment are useful concepts to reveal the axiological meanings students assign to the value positions in the core article, through the external sources they are inviting in the dialogic space. In this way, students not only express judgement through attitudinal resources, but also alignments with



various positions through engagement resources. Note that other resources, such as graduation (strongly) play a role too but are left out of the analysis in this particular study. Following Doran (2020), alignment and disalignment are associated with positive and negative charging respectively.

As shown in the example below and in the coding scheme in Table 12.1, *engagement resources* are italicized, the types of heteroglossic engagement are indicated in square brackets and “the position being advanced” (Martin & White 2005: 113) is underlined.

Example: There is substantial evidence from other sources that strongly reinforces the idea [endorse, +] that gender identification and colour preferences are closely intertwined.

**TABLE 12.1** Coding scheme

ATTITUDE	
Targets (evaluated entities)	<u>underlined</u>
Attitude/evaluating item	<b>Black bold font</b>
Type of attitudinal meaning	Square brackets (e.g. [—opinion])
Charging	‘+’ sign for positive evaluation (e.g. [—opinion]) ‘-’ sign for negative evaluation
ENGAGEMENT	
Positions	<u>underlined</u>
Engagement resource	<i>italics</i>
Type of engagement resource	Square brackets (e.g. [distance])
Charging	‘+’ for alignment ‘-’ for disalignment

The data consisted of 20 reflective summary reflections which were divided into two achievement bands (ten high and ten low) to offer possibility for comparison. All assignments were collected from the author’s students. Institutional research ethics approval was granted and student consent for using their assignment was sought after the end of the module. The texts were numbered, and all details anonymized. This chapter focusses mostly on two assignments: Text 1 exemplifies a low-achieving (LA) and Text 2, a high-achieving (HA) performance. Both texts were written by Engineering students. Examples from the other 18 assignments are also used to confirm the same patterns were found across the data set.

## Findings

The evaluative linguistic resources which the students prioritized and the constellations that were constructed in the low-achieving (LA) scripts and the

high-achieving (HA) scripts are detailed below. A first initial finding was the difference in targets of evaluation, which were classified after Hood (2010) as *field of research* (methodology), and *field of study* (the subject matter). Types of attitudinal and ENGAGEMENT resources also proved to be a key differentiating element between low and high-achieving assignments. Overall, this reveals students' very different understanding of what reflecting on an academic text entails and raises the question as to what cosmology students' texts are aligning with.

### ***Low-achieving assignments: Criticism as reflective response***

Overwhelmingly students in the low-achieving group reflect mostly on the field of research to ascertain the article's validity, or credibility and the accuracy of the methodology employed. This is shown through a focus on targets such as 'experiment', 'methods', 'findings', 'generalisability', a generic lexis that belongs to the field of research, and a quantitative research paradigm. In these texts, these targets are consistently associated with negatively charged opinions. External sources are also related to the field of research rather than the field of study. Text 1 (Table 12.2) is a representative sample of LA scripts.

**TABLE 12.2** Sample low-achieving assignment

---

[1] However, they might not have addressed important factors that **could introduce variability in their experiment** [-opinion].

[2] Firstly, the children involved in the authors' experiment could already develop similar colour preferences due to shared environmental influences attributed from a Caucasian background. [3] *Persaud (2017) argued [distance]* that English speakers in the United States exhibit **bias patterns** [-opinion] in colour memory that differs from individuals from a non-English speaking population.

[4] **The bias** [-opinion] could possibly **skew** [-opinion] the experimental findings as children from other racial and ethnic groups could exhibit different preference patterns between certain colours.

[5] Secondly, while the authors justified their methodology of utilizing identical objects that differed in colour, *Wilcox (2004) raised questions [distance]* about how colour priming works. [6] How can viewing one set of events increase infant's sensitivity to colour information in another, separate event?

Conclusion: [7] As a result, although the authors may have demonstrated that girls prefer pink and boys avoid pink, **the lack of sensitivity in their maladaptive** [-opinion] approach renders their claimless persuasive and convincing [-opinion].

---

Text 1 builds the reflective response around a main claim that the study is not valid because the authors have ignored 'important factors that could introduce variability in their experiment' [1]. This methodological flaw, the student concludes, invalidates the study [7]. This is supported by two

claims regarding a problematic sampling of participants in [3] and a flaw in the experimental procedure (namely the question of priming) in [5].

Table 12.3 shows the negative charging being built around targets which are all related to the field of research: the authors/researchers (cluster 1); their methods (cluster 2); the study (cluster 3). This pattern is confirmed in other LA assignments, which construct their reflective response around similar theses: ‘The research is limited and **cannot be generalized**’, or ‘The methods are not conclusive’.

**TABLE 12.3** Evaluative attitude in low-achieving assignments

Target	Evaluation	Charging
cluster 1 Target: the authors		
<u>LoBue and Deloache</u> <u>The researchers</u> <u>The authors</u> <u>They</u>	<b>to a certain extent</b> have exemplified <b>might not have addressed</b> <b>could have further supported</b> <b>could elaborate more</b> <b>have not addressed</b>	negative
cluster 2 Target: field of research (methods)		
<u>methods</u> <u>experimental factors</u> <u>approach</u> <u>their experiment</u>	<b>not sufficiently conclusive</b> <b>could introduce variability</b> <b>the lack of sensitivity in their</b> <b>maladaptive</b> approach	negative
cluster 3 Target: field of research (results)		
<u>the authors’ findings</u> <u>the research</u>  <u>the findings</u> <u>the results</u>	<b>seem</b> convincing (while) <b>could have been better sub-</b> <b>stantiated</b> with explanations <b>lack</b> credibility <b>are skewed by bias</b> <b>less persuasive and convincing</b> <b>could be more robust</b> <b>could be more precise</b>	negative

Another key pattern in the LA text is the lack of reflection on *the field of study*. The core positions elaborated in the article, on colour preference and gender, are for the most part ignored. This is partly shown in the types and purpose of external sources used in the student assignment. Although students may hint at the issue of colour preference, and how these preferences are constructed, ENGAGEMENT resources tend to solely relate to the methodology of the paper to further disalign the student with the core article’s positions. For example, in Text 1, the two external sources Persaud (2017) and Wilcox (2004) (see below in [3] and [5]) are used to distance from the position supported in the core reading by negatively charging the elements of the

methodology. Persaud is used to question the participant sampling but is not explicitly related to the findings. Wilcox is used to argue that participant priming has not been considered (which is incorrect, the authors explain priming had no incidence on the results).

[3] *Persaud (2017) argued [distance] that English speakers in the United States exhibits bias patterns in colour memory that differs from individuals from a non-English speaking population.*

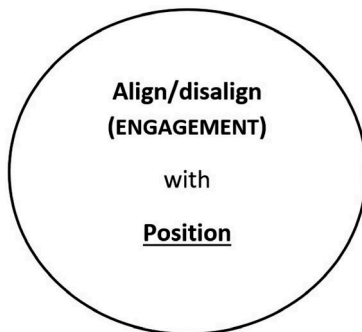
[5] Secondly, while the authors justified their methodology of utilizing identical objects that differed in colour, *Wilcox (2004) raised questions [distance] about how colour priming works.*

In this study, a new type of cluster was identified which involves the resources of ENGAGEMENT. Table 12.4 includes the clusters that employed ENGAGEMENT resources.

**TABLE 12.4** Engagement resources in low-achieving assignments

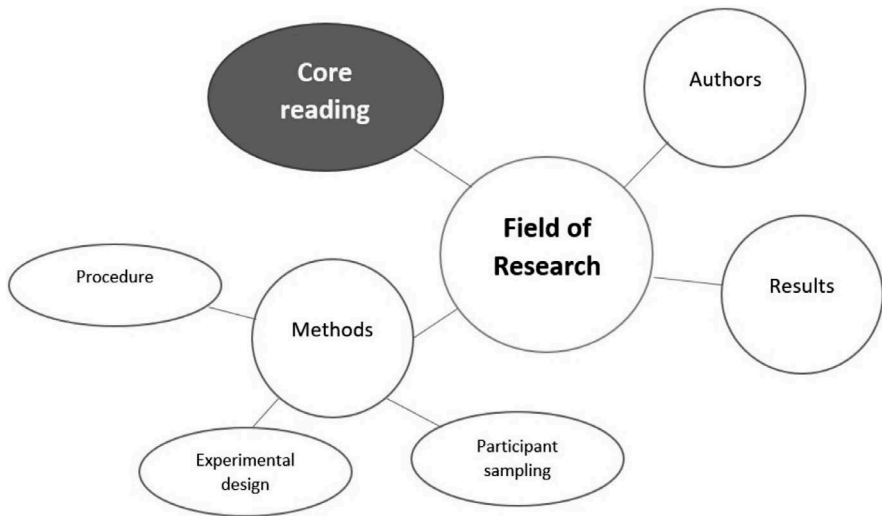
cluster 4 Field of research: position being advanced is related to methodological issues	Engagement resources	Charging
<u>Participant sampling is faulty</u> <u>Colour priming is skewing the results</u>	<i>Persaud argued [distance] from participant sampling approach</i> <i>Wilcox (2004) raised questions [distance] about how colour priming works</i>	disalign (negative charging)

These patterns of axiological meanings that associate ENGAGEMENT resources with value positions formed clusters within students’ assignments and can be visualized as shown in Figure 12.3 below. They were recurrent in the data set.



**FIGURE 12.3** An axiological cluster composed of ENGAGEMENT + position

So far, the attitude and engagement analyses reveal that in LA assignments, students associate negative charging of methodological elements in the original article with an overall dismissal of its contribution to knowledge in the field. The attitudinal clusters and ENGAGEMENT clusters work together to build a negatively charged constellation around the field of research in the core text by LoBue & Deloache through these recurrent negative charging of elements of methodology, and disalignment patterns of engagement. This is visualized in Figure 12.4.



**FIGURE 12.4** A negatively charged constellation of the LoBue and Deloache article  
Source: Visualisation after Szenes (2021)

This visualization shows how LA reflective assignments on this core academic reading were characterized by a lack of reflection about the knowledge claims presented in the original article (field of study). The study methodology was charged negatively through resources of ATTITUDE and of ENGAGEMENT. Once the methodology is invalidated, the need to engage with the issue of gender and colour preference is made redundant. The negatively charged clusters built around the authors and their method allows the student to dismiss and ignore the results, the knowledge claims advanced in the paper. This type of reflective engagement evokes a generic, ‘template’ response which might apply to a range of empirical studies but does not align with the valued cultivated gaze expected of the student. The questions this raises in terms of student’s conceptualization of critical thinking and engagement with academic discussions are discussed further below.

### ***High-achieving assignments: Critical and intellectual engagement as reflective response***

While the LA assignments reflect on the field of research, conversely, the high-achieving (HA) assignments reflect mostly on the *field of study* – namely the article’s findings, the positions and claims made in the discussion, and the study’s contribution to knowledge in the field. This is shown through the students’ focus on positions related to gendered colour preference and gender identity, an emphasis on endorsing engagement patterns oriented towards the field of study, and a minimal use of opinion resources. Text 2 (Table 12.5) is a representative sample of HA assignments.

**TABLE 12.5** Sample high-achieving assignment

---

[8] *There is **substantial evidence** from other sources that strongly reinforces [endorse] the idea that gender identification and colour preferences **are closely intertwined**.*

[9] In a paper cited by the authors, where eight different hues are investigated, the study *further concludes [endorse] that there is no evidence [endorse] of **different colour preference across the two genders during infancy**, which contrasts starkly with older age groups (Franklin, Bevis, Ling, & Hurlbert, 2010). [10] Wong and Hines (2015) *further endorse this idea by demonstrating [endorse] how the stability of gender-related colour preference in children increases during the same time where gender stability is attained.**

[11] In a separate work, *Wong and Hines (2014) also verify [endorse] that **young boys are more influenced by colour preference compared to young girls, which they discover to be consistent** [+opinion] with research which shows [endorse] that **young boys are more susceptible to social pressure from their gender group.***

[12] *The **high consistency of patterns** observed in children’s development of colour preference and gender identification **strongly suggests [endorse] that it **occurs not merely by chance****, but that children utilize colour preference as a means to identify gender.*

---

In Text 2, the student’s reflective summary response is built around an alignment with the core text’s suggestion that the development of gendered colour preference is linked to gender identity (see the student’s main thesis in sentence [8]). This thesis is then supported by external sources that confirm the original authors’ claims (colour preference in infancy is not gendered) and that endorse the hypothesis formulated by the authors in the discussion section (that gendered colour preference emerges when gender identification forms). The second supporting element extends the original article to suggest that boys’ long-lasting distaste for pink may be linked to their experiencing stronger levels of social pressure to conform to social norms [11].

This focus on the study’s contribution to knowledge in the field of colour semiotics is clearly shown in the choice of targets, mostly related to the field of study, the lack of targets in the field of research, and in the low priority given to attitudinal resources (see Table 12.6). To note, the authors are evaluated positively for their heteroglossic engagement with the field (“In a paper cited by the authors”), not in relation to their research capabilities (as was done in LA assignments).

**TABLE 12.6** Evaluative attitude in high-achieving assignments

Targets	Evaluation	Charging
cluster 1: the authors		
<u>The authors</u>	provide <b>reasonable</b> evidence <b>cite</b> other studies	positive
cluster 2: Original study's claim		
<u>the idea that gender identification and colour preferences are closely intertwined</u>	<b>substantial evidence strongly reinforced are closely intertwined to be consistent high consistency of patterns strongly suggest it occurs not merely by chance</b>	positive positive

The focus on the field of study in HA assignments is also shown in the selection of ENGAGEMENT resources. Text 2 starts with a thesis [8] which situates the whole reflective response in a heteroglossic space:

[8] *There is **substantial evidence** from other sources that strongly reinforces [endorse] the idea that gender identification and colour preferences are closely intertwined.*

Table 12.7 lists the ENGAGEMENT resources and the positions they align the student with. The engagement resources are aimed at three positions in the field of study: the findings (cluster 1, the experimental results); position advanced in the discussion (cluster 2); the student's expanded discussion point (cluster 3), where the student proposes a potential explanation (boys are more susceptible to social pressure) for a finding in the core study (boys develop a strong dislike for pink) by citing an external source, thereby orchestrating external sources to enter into the academic discussion.

The shift from ATTITUDE to ENGAGEMENT is what characterizes these HA assignments. Specifically, *endorsing* resources are used to align the reader with the claims of the original paper through a selection of sources which echo, explain or develop them. In sentence [9] for example (see below), the student aligns with the original study's findings by using a source (Franklin et al. 2010) and heteroglossic engagement such as '*further concludes*' and '*there is no evidence*' that endorse the findings.

[9] In a paper cited by the authors, where eight different hues are investigated, the study *further concludes* that *there is no evidence* of different colour preference across the two genders during infancy, which contrasts starkly with older age groups (*Franklin, Bevis, Ling & Hurlbert, 2010*).

**TABLE 12.7** Engagement resources in high-achieving assignments

<i>Position being advanced</i>	<i>Engagement resources</i>	<i>Charging</i>
<b>cluster 3:</b> field of study (experimental results; position being advanced in the results section: there is no gendered colour preference in infancy; gendered colour preference begins at 2- to 3-year-old).		
<u>No gendered colour preference in infancy</u>	The study <i>further concludes</i> that there is <i>no evidence [endorse]</i> Wong and Hynes (2015) <i>further endorse this idea by demonstrating [endorse]</i>	align (positive charging)
<b>cluster 4:</b> field of study (position being advanced in the discussion: gendered colour preference is likely due to gender awareness developing at 2- to 3-year-old).		
<u>gender identification and colour preferences are closely intertwined</u>	<i>There is substantial evidence from other sources [endorse]</i> Wong and Hynes <i>further endorse this idea by demonstrating [endorse]</i> <i>The high consistency of patterns... strongly suggests</i> that it occurs not merely by chance <i>[endorse]</i>	align (positive charging)
<b>cluster 5:</b> Field of study (position being advanced by the student as development of discussion point: the results support external studies about boys' increased susceptibility to social pressure).		
<u>Boys being more susceptible to social pressure</u>	Wong and Hynes (2014) <i>also verify</i> ...which <i>they discover</i> to be <i>consistent with research which shows...[endorse]</i>	align (positive charging)

These clusters can be visualized as a positively charged constellation built around the field of study in the LoBue & Deloache article (Figure 12.5).

The bulk of the axiological constellation is built then around the study's position in the colour preference debate. For this assignment, this is done through charging positively the authors and various positions advanced in the study and external sources and contributing to the conversation by expanding on the original core text discussion points by connecting it to related literature (for example, that young boys' strong dislike for pink may confirm other studies' findings that they are more susceptible to social pressure). In doing so, the student demonstrates a deep engagement and reflection about the field of study. To note is that this valued engagement and reflection might also be displayed through a distancing that targets the study's positions.

In this section, the analysis showed how high-achieving students build axiological constellations which align with the expectations in the module regarding critical reflection. The next section summarizes what this analysis reveals about the basis of achievement in this task. It also suggests that



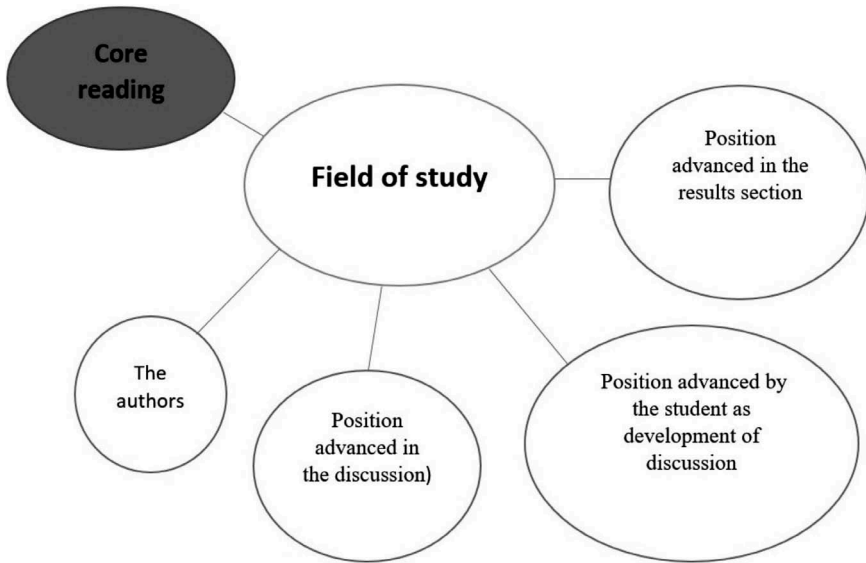


FIGURE 12.5 A positively charged constellation of the LoBue and Deloache article

students constructing less valued constellations are aligning with cosmologies that reflect their broader disciplinary and social backgrounds, but which prevents them from developing the expected cultivated gaze.

## Discussion and implications

In this study the following questions were asked:

1. How do students respond to a core academic reading in the reflective summary response in high- and low-achievement bands?
2. What does this tell us about students' understanding of what constitutes 'valued' reflection and critical thinking in the colour module?

The analysis of attitudinal and engagement resources in LA and HA assignments reveals different axiological orientations and in turn provides a clearer description of the basis of achievement for the reflective summary response task. The expected cultivated gaze is also made more visible. In order to demonstrate the valued gaze in this task, students are required to reflect on and enter into a conversation with the field of study, i.e. the role of the visual world and social interactions in construing gender norms, through a range of heteroglossic resources that relate to positions on the debate in and outside of the original article. Advancing their own positions is also how students demonstrate critical thinking, by drawing connections between the original article, their own ideas, and the related literature.

Conversely, students, who focus on the field of research, deploying strongly negatively charged opinions about the researchers, the methods, and the validity of the findings, are less successful in the task. The consistency of these patterns in LA assignments indicates that this conception of the task as criticism of the field of research rather than as a critical conversation with the field of study might be a common ‘default’ approach which students adopt as they encounter diverse critical thinking requirements in this specific module and more generally in higher education.

The next part of the discussion aims to explore why students approach the reflective summary response assignment so differently and why some may struggle to develop the gaze which is valued in the module. The students’ home discipline may play a part as they socialize students in different epistemic and ontological traditions and different discourses. However, in this study, the two students who wrote the LA and HA script sampled above are both Engineering students, and home discipline does not seem to be a factor in the rest of the data either. If, as Bourdieu wrote “the whole social structure is present in each interaction” (Bourdieu 1991: 67) and as Maton mirrors in “all practices reflect a cosmology” (Maton 2014: 169), then the difference in axiological meanings built in the students’ assignments may reflect broader cosmologies, social and cultural understandings of critical thinking. Lim’s study of critical thinking recontextualization in schooling in the city-state, cited at the beginning of the chapter, revealed a contested discourse and different understandings of critical thinking according to schooling experience. It might therefore be useful to consider the results above in relation to the Singapore schooling context and its discourse around critical thinking.

Axiological clusters and constellations underpin languages of legitimation which people deploy to express their stance, align with specific worldviews and persuade their readers. The way students deploy these meanings inform us on what they perceive to be a legitimate form of critical reflection. In particular, the constellations built in the LA assignments reveal two main characteristics of students’ construal of critical thinking: first, critical thinking is equated to assessing knowledge validity, and second, knowledge validity is equated to ‘methodological correctness’. The values expressed in these assignments echoed a positivist view of knowledge-building which is informed by the scientific method and a quantitative research paradigm. This may reflect the students’ exposure in their schooling with axiological cosmologies related to broader conceptualization of knowledge building, reflection and critical thinking described in Lim’s work. According to Lim (2014) the recontextualization of critical thinking in schooling curriculum includes a neoliberal, instrumental view aimed at problem solving, and an argumentation view which values analysis of claims and arguments within a positivist framework. In this discourse, the type of knowledge that emphasizes efficiency, logic, problem solving, and

healthy scepticism emerges as more legitimate than a more hermeneutic understanding which aims at revealing underlying power structures within a historical and social context (Feagin & Vera 2020). Students who wrote LA reflective assignments may align with the former worldview unquestioningly and regardless of the disciplinary context. Clearly, this link between ontological conceptions of critical thinking, the social and educational contexts, and individual student assignments needs further exploration, as many factors are at play in the complex ways students mediate these broader discourses in their individual texts. However, and following Bourdieu's advice not to miss the social reality because "it lies in structures transcending the interaction which they inform" (Bourdieu 1991: 68), the chapter suggests that these links, while needing to be determined in future research, should not be ignored. A first implication derives from this: it is important to address students' (and educators') conceptualization of critical thinking, conceptualizations which may be shaped not only by disciplinary background but also by various recontextualizations of official discourse about critical thinking in students' schooling experience. In particular, it is important to make visible the nature of critical thinking valued in a given module. In the teaching/learning problem which motivated this study, it became clear that the reasons students struggled to provide the valued gaze on the core text did not stem from a simple misunderstanding of the task.

By identifying an axiological engagement cluster, which involves a position and aligning/disaligning resources, this study complements previous research (Doran 2020; Jackson 2020; Szenes 2021; Szenes & Tilakaratna 2021; Tilakaratna & Szenes 2020), showing that axiological clusters can be realized through different linguistic resources. These are both theoretical concepts and analytical tools which can help us make visible the broadest social structures and ideologies in educational practices and discourse, and in the way they are realized in our students' texts. In this way, this chapter is exploring a methodological and theoretical amplitude which allows us to keep in sight both the social structure and its expression in our object of study. This has an important pedagogical implication as it points to the need to prepare students for reflective writing and critical engagement with expertise. This is especially true in an interdisciplinary module such as the module on Colour semiotics. A discussion of the types of language resources which enable a student to construct these sophisticated meanings should also be part of the pedagogical intervention. The theoretical concepts used in this study, such as axiological clusters and constellations, enable us to make these orientations and these alignments or misalignments with the values of the module more visible, and as a teaching tool, they can serve as a basis for discussion with students as to what is entailed in critically responding to literature in the field.

## References

- Brooke, Mark. 2019. Using semantic gravity profiling to develop critical reflection. *Reflective Practice* 20(6). 808–821.
- Brooke, Mark, Laetitia Monbec & Namala Tilakaratna. 2019. The analytical lens: Developing undergraduate students' critical dispositions in undergraduate EAP writing courses. *Teaching in Higher Education* 24(3). 428–443.
- Bruce, Ian. 2020. *Expressing critical thinking through disciplinary texts: Insights from five genre studies*. London: Bloomsbury Publishing.
- Boud, David, Peter Cressey & Peter Docherty. 2006. *Productive reflection at work*. London & New York: Routledge.
- Bourdieu, Pierre. 1991. *Language and symbolic power*. Oxford, Blackwell.
- Chiam, Ching Ling, Helen Hong, Flora Ning Hoi Kwan Ning & Tay Wan Ying. 2014. Creative and critical thinking in Singapore schools, NIE Working Papers Series No.2.
- Dewey, John. 1910. *How we think*. New York: D.C. Heath & Co. Publishers.
- Doran, Yaegan, J. 2020. Seeing values: Axiology and implicit evaluation in Australia's 'invasion'. In James R. Martin, Karl Maton & Yaegan J. Doran (eds.), *Accessing academic discourse: Systemic Functional Linguistics and Legitimation Code Theory*, 151–176. London: Routledge.
- Ennis, Robert. H. 1998. Is critical thinking culturally biased? *Teaching Philosophy* 21(1). 15–33.
- Feagin, Joe R. & Vera Hernan. 2020. *Liberation sociology*. New York: Routledge.
- Fook, Jan & Fiona Gardner. 2007. *Practising critical reflection: A resource handbook*. New York: Open University Press.
- Giroux, Henry A. 2020. *On critical pedagogy*. London: Bloomsbury Publishing.
- Hood, Susan. 2010. *Appraising research: Evaluation in academic writing*. New York: Cambridge University Press.
- Hunston, Susan & Geoffrey Thompson. 2000. *Evaluation in text: Authorial stance and the construction of discourse*. Oxford: Oxford University Press.
- Jackson, Glenn. 2020. Axiological constellations in literary response writing: Critical SFL praxis in an ELA classroom. *Language and Education* 35(5): 446–462.
- Kirk, Steve. 2017. Waves of reflection: Seeing knowledges in academic writing. In Jenny Kemp (ed.), *EAP in a rapidly changing landscape: Issues, challenges and solutions. Proceedings of 2015 BALEAP Conference*. Reading: Garnet Publishing.
- Koh, Aaron. 2002. Towards a critical pedagogy: Creating 'thinking schools' in Singapore. *Journal of Curriculum Studies* 34(3). 255–264.
- Kress, Gunther & Theo Van Leeuwen. 2002. Colour as a semiotic mode: Notes for a grammar of colour. *Visual Communication* 1(3). 343–368.
- Kress, Gunther & Theo Van Leeuwen. 2020. *Reading images: The grammar of visual design*, 3rd edn. London: Routledge.
- Lim, Lionel. 2014. Critical thinking and the anti-liberal state: The politics of pedagogic recontextualization in Singapore. *Discourse: Studies in the Cultural Politics of Education* 35(5). 692–704.
- Lim, Lionel. 2016. *Knowledge, control and critical thinking in Singapore: State ideology and the politics of pedagogic recontextualization*. New York: Routledge.
- Martin, James R. & Peter R.R. White. 2005. *The language of evaluation: Appraisal in English*. New York: Palgrave Macmillan.
- Maton, Karl. 2014. *Knowledge and knowers: Towards a realist sociology of education*. London: Routledge.

- Maton, Karl & Yaegan J. Doran. 2021. Constellating science: How relations among ideas help build knowledge. In Karl Maton, James R. Martin and Yaegan J. Doran (eds.), *Teaching science: Knowledge, language, pedagogy*, London: Routledge, 49–75.
- Mezirow, Jack & Associates. 2000. *Learning as transformation: Critical perspectives on a theory in progress*. San Francisco, CA: Jossey-Bass.
- Moore, Tim. 2011. Critical thinking and disciplinary thinking: A continuing debate. *Higher Education Research & Development* 30(3). 261–274.
- Monbec, Laetitia. 2020. Scaffolding content in an online content and language integrated learning (CLIL) Module. *International Journal of TESOL Studies* 2(2). 157–173.
- Monbec, Laetitia, Namala Tilakaratna, Mark Brooke, Lydia Lau, Chan Yah Shih & Vivien Wu. 2020. Designing a rubric for reflection in nursing: A Legitimation Code Theory and Systemic Functional Linguistics-informed framework. *Assessment & Evaluation in Higher Education*. 46(8), 1157–1172.
- Schon, Donald A. 1987. *Educating the critically reflective practitioner: Toward a new design for teaching and learning in the professions*. San Francisco, CA: Jossey-Bass.
- Schon, Donald A. 1995. Reflective inquiry in social work practice. In Peg McCartt Hess & Edward J. Mullen (eds.), *Practitioner-researcher partnerships: Building knowledge from, in and for practice*, 31–55. Washington, DC: National Association of Social Workers Press.
- Song, Xianlin. 2016. Critical thinking and pedagogical implications for higher education. *East Asia* 33(1). 25–40.
- Stiegler, Barbara. 2019. *Il faut s'adapter. Sur un nouvel impératif politique*. Paris: Gallimard.
- Szenes, Eszter. 2021. Neo-Nazi environmentalism: The linguistic construction of ecofascism in a Nordic Resistance Movement manifesto. *Journal for Deradicalization* 27. 146–192.
- Szenes, Eszter & Namala Tilakaratna. 2021. Deconstructing critical reflection in social work and business: Negotiating emotions and opinions in reflective writing. *Journal of English for Academic Purposes* 49. 100931.
- Tan, Charlene. 2017. Teaching critical thinking: Cultural challenges and strategies in Singapore. *British Educational Research Journal* 43(5). 988–1002.
- Taylor, Carolyn A. & Susan White. 2000. *Practising reflexivity in health and welfare: Making knowledge*. Buckingham/Philadelphia: Open University Press.
- Tilakaratna, Namala, Mark Brooke & Laetitia Monbec. 2019. Reflective writing across the disciplines: Challenging Western critical thinking models in the Asian context. *Asian Journal of the Scholarship of Teaching and Learning* 9(2). 119–141.
- Tilakaratna, Namala, Mark Brooke, Laetitia Monbec, Lydia Lau, Vivien Wu & Yah Shih Chan. 2020. Insights into an interdisciplinary project on critical reflection in nursing: Using Systemic Functional Linguistic and Legitimation Code Theory to enhance SoTL research and practice. In Plews, Rachel C. & Michelle L. Amos (eds.), *Evidence-based faculty development through the scholarship of teaching and learning (SoTL)*, 303–327. Hershey, Pennsylvania: IGI Global.
- Tilakaratna, Namala & Eszter Szenes. 2020. (Un)critical reflection: Uncovering disciplinary values in social work and business reflective writing assignments. In Christine Winberg, Sioux McKenna & Kirstin Wilmot (eds.), *Building knowledge in higher education: Enhancing teaching and learning with Legitimation Code Theory*, 105–125. London: Routledge.
- Van Leeuwen, Theo. 2011. *The Language of colour: An introduction*. Abingdon: Routledge.