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Designing a rubric for reflection in nursing: a Legitimation Code Theory and systemic functional linguistics-informed framework

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ABSTRACT

This paper reports on an interdisciplinary pedagogical research project involving academic literacy experts and lecturers at a School of Nursing. Specifically, the paper focusses on the development of a data-driven analytical rubric to teach and assess critical reflections in year-one nursing. The purpose of the project was to support the teaching and evaluating of critical reflections of nursing students after their initial clinical placement. Rather than focusing on inter-rater reliability or on pedagogical uses of rubrics, this paper is concerned with the ways the criteria that constitute these rubrics were devised. The data involved 200 student assignments, the existing marking criteria and two focus groups with the nursing lecturers. We analysed the data using aspects of a linguistic theory, systemic functional linguistics, and elements of a sociological framework, Legitimation Code Theory, to understand what constitutes 'deep reflection' in clinical nursing practice. Our findings led to a revised analytical rubric which makes visible what is highly valued in nursing reflection tasks. We conclude with a data-driven analytical rubric design framework which involves the analysis of student assignments at various levels of achievement to reveal academic literacy and knowledge practices requirements of reflection tasks.

KEYWORDS

Nursing reflection tasks; analytical rubrics; data driven design; systemic functional linguistics; Legitimation Code Theory

Introduction

The use of rubrics in writing programmes has become a common practice in higher education (Crusan 2015; Dawson 2017). Potential benefits of using rubrics for both students and teachers include fairness and consistency when several raters evaluate large cohorts of students (Ragupathi and Lee 2020), increased transparency of requirements, expectations and purpose of the task (Ferris and Hedgcock 2014; Jonsson 2014) and possible lower anxiety related to the assignment (Reddy and Andrade 2010). The use of rubrics may also lead to better performance (Jonsson 2014), especially when used as instructional tools, with activities such as peer assessment and self assessment (Andrade and Du 2005). Despite these benefits, it has also been argued that rubrics may narrow the scope of the learning outcomes and come to dominate the learning experience (Torrance 2007), and may not guarantee transparency as criteria can remain opaque and valued knowledge implicit (Tierney and Simon 2004; Matshedisho 2020). Fang and

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Wang (2011) explain why rubric criteria are often vague, arguing that a common criteria and descriptors, such as '*Organisation: the text is effectively organized*', say nothing about what this entails for the student, or what linguistic resources or type of knowledge claims demonstrate this effective organisation.

While research into rubric development is well developed on issues of inter-rater reliability and how this can inform retrospective criteria design (Rogers et al. 2019), the actual initial development of rubric criteria, especially within specific disciplinary contexts, is less explored (Crusan 2015; Dawson 2017). In line with McNamara, Hill, and May's (2002) call for appropriate theory to be used in the development of rubrics, we propose that data-driven development of rubrics should include analysis of student assignments at various levels of achievement to reveal academic literacy and knowledge practice requirements. We show in this paper that this type of knowledge can be revealed with the combination of a robust language theory, systemic functional linguistics (SFL), and a sociological perspective on knowledge, Legitimation Code Theory (LCT) deployed on authentic student assignments and in close collaboration with the disciplinary expert. Drawing from an interdisciplinary research project between a nursing school and academic literacy experts, we describe the development of a data-driven analytical rubric to teach and assess critical reflections in year-one nursing in a large south-east Asian university (Tilakaratna et al. 2020; Brooke 2019). We argue that these two theoretical frameworks offer an essential insight into what is valued in nursing critical reflections.

Developing theoretically informed specific rubrics criteria

Jonsson and Svingby's (2007) framework categorized rubrics as analytical or holistic, and as generic or task specific. In analytical rubrics, a limited number of criteria are pre-set to be evaluated separately by the teacher to combine into a final mark (Sadler 2009). Analytical rubrics are common in higher education and have been widely advocated (Stevens and Levi 2004; Suskie 2004; Ragupathi and Lee 2020) but often point to diverse practices (Dawson 2017), and as Sadler (2009) warns have not always been applied uncritically. Specifically, Sadler wonders whether analytical rubrics constrain the 'scope of appraisal' (47) and argues that rubric criteria need to reflect quality standards expected not only in the assignment but also in the wider profession. This resonates strongly with this paper's context, nursing education, where critical reflection assignments aim to socialize nursing students into the profession's practices and values. Sadler points to the analytical rubric design challenge, citing for example, that criteria designed by subject experts involve a process of verbalizing experiential or tacit knowledge which can be difficult to do. In nursing, subject lecturers' deep but tacit knowledge may be difficult to translate into criteria, especially when related to tasks such as nursing reflection assignments which encompass the mind, the hand and the heart of nursing practice (Shulman 2011).

The literature provides examples as to how these challenges may be addressed. Key issues concern the elements that inform the design, such as student assignments and the stage in the rubrics design process at which they are used, input from the disciplinary expert, and the type of theoretical frameworks used to analyse this data. Timmerman et al. (2011) describe how a rubric was informed by an iterative dialogue between subject experts and lecturers, and by a review of the literature and the department's curriculum goals. However, this validity process did not involve an analysis of student assignments, which were used at the later inter-rater reliability exercise stage. Banerjee et al. (2015) advocate a three-pronged approach which involves expert intuition, a corpus approach on student assignments, and a thematic analysis of raters' discussions. Chan, Inoue and Taylor (2015) drew on theory, empirical analysis of student assignments and interviews of experts and raters to develop a reading-into-writing rubric. However, the analytical tool for the linguistic features was limited to vocabulary frequency and range, and most of

the rubric content came from consultation with the raters and subject experts (English for academic purpose lecturers) rather than through a detailed student text analysis.

Involving the subject expert is essential, but as Sadler (2009) points out, the subject experts' s understanding of valued elements in a given assignment may be intuitive and so robust theoretical tools are needed to reveal these in texts. Arancibia Aguilera (2014) describes an interdisciplinary project where academic literacy experts assisted professors from the astronomy department with the development of rubrics for year-one laboratory reports. This interdisciplinary team adopted a genre approach, as we did, and conducted a genre and register analysis of over 200 scripts, which they supplemented with semi-structured interviews with the knowledge experts to understand the overall purpose, and how each of the stages contributed to the achievement of the text purpose. This theoretical lens allowed them to move beyond sentence level descriptions to overall text purpose and structure.

Assessing critical reflection in nursing

The ability to critically reflect is a key learning outcome in higher education and is a highly valued skill in a range of disciplines (King and Kitchener 2004; Szenes, Tilakaratna and Maton 2015). In applied fields such as nursing, reflection tasks in clinical placement have become increasingly common to develop students' reflective thinking and to enhance and improve professional practice (Schön 1987; Epp 2008; Szenes, Tilakaratna and Maton 2015; Mann 2016; Lucas et al. 2017; Brooke 2019; Tilakaratna and Szenes 2020). Reflection processes such as understanding values and beliefs and how these underlie actions, exploring assumptions, judgements, decisions and alternatives, and reconsidering views (Boud, Keogh, and Walker 1985; Mantzoukas and Jasper 2004) are considered key in the socializing of nursing students into their future profession. The capactity for deep reflection enhances decision-making and the ability for students to be entrusted in performing the nursing activities (Lau et al. 2020). In curriculum, reflection tasks are often used during clinical placement for nursing students to demonstrate how they coped with authentic and complex situations, and how they applied theoretical concepts to improve or transform their practice (Bagnato, Dimonte, and Garrino 2013; Reljić, Pajnkihar, and Fekonja 2019), making this thinking and learning visible to the lecturers.

While reflection is seen as key in socializing students in a profession such as nursing, assessing these tasks has raised ethical issues (Sumsion and Fleet 1996). The difficulty in identifying what accounts for reflection is noted (Tilakaratna and Szenes 2020). The introspective nature of the task, the required connection to the emotional realm and the lack of explicit teaching of what counts as critical reflection renders the assessment of such tasks very challenging (Stewart and Richardson 2000). Students who do not have the 'cultivated gaze' to express alignment with the values of their discipline are at a disadvantage (Tilakaratna and Szenes 2020). Reflection rubrics often use cognitive reflection models such as Mezirow's (1991) stages of reflection, Boud, Keogh, and Walker's (1985) or Gibbs' (1988) reflective cycle. Gibbs' reflective cycle is common in nursing and comprises the critical incident, the feelings that were triggered, the evaluation and analysis of the experience and the potential future alternative actions. These rubrics rarely examine how students engage with the expected range of emotions and evaluative meanings or the knowledge practices that constitute valued disciplinary practice in field placements and how this is reflected in students' assignments.

It is also challenging to tease out reflection from writing skills, and a good writer may appear reflective while a weaker writer may not be able to express genuine reflection (O'Connell and Dyment 2011). Ghaye (2007) argues that assessing reflection may even have detrimental impact on its quality as it may pressure students to conform to what they perceive is expected of them and therefore prevent them from genuinely reflecting or critically engaging with issues they note, leading them to 'perform' reflection rather than reflect, or to censor themselves to avoid

Table 1. Pre-existing marking criteria for reflection.

Marking criteria for reflection (40 marks) Procedure/activity performed: _____
Criteria
1. Description of the encounter, experience or any problem that arise during the clinical visitation
2. Feelings and Reflection: Identify your assumptions, values, beliefs, emotions, motives based on your experience
3. Evaluation of the performance and experience. Analysis of the deeper meanings from different perspective (including feedback from tutor/peer). Research using academic references or literatures (minimum 5). Synthesise and integrate the information to complement a broader discussion.
4. Conclude and integrate how the experience informs nursing practice. Plan of action for future encounters. • Focuses on knowledge issues • Links and comparisons between one's performance and standard procedure • Shows relevancy and sophisticated understanding
5. Knower's perspective • Displays independent learning • Self- awareness with different perspectives • Use varied appropriate examples
6. Analysis of knowledge issues • Shows insight and depth of topic • Main points well-justified • Arguments and counter-arguments are justified
7. Organisation of ideas • Well-structured with key ideas explained • Factual accuracy • Follows APA (6th ed.) referencing guidelines (five references)

revealing their vulnerability (Boud and Walker 1998). To the authors of this paper, these are additional reasons to design theoretically informed reflection rubrics criteria so as to reveal as much as possible the implicit values held in these practices and texts.

The context of the study

The context is an interdisciplinary collaboration between academic literacy experts and lecturers at the National University of Singapore. We aimed to enhance the teaching and assessment of critical reflection skills through the embedding of online teaching materials and the design of a rubric in order to address the concerns of the nursing lecturers, echoed in the literature (O'Connell & Dyment 2011) about the lack of 'depth' in critical reflection assignments and the tendency for students to be descriptive rather than analytical and critical (Wu, Enskär, et al. 2016; Wu, Wang, et al. 2016; Wu et al. 2017). The team had developed an authentic assessment rubric to be used in the clinical laboratories for the nursing students, which they found to be effective in teaching as well as for evaluation (Wu, Heng, and Wang 2015). However, students felt that they were lacking guidance on how to write insightful reflections (Wu, Wang, et al. 2016). Furthermore, clinical preceptors expressed that they needed more support in clinical teaching and guidance (Wu, Enskär, et al. 2016). In addition, clinical nurse leaders and nursing academics observed that the preceptors lacked pedagogical knowledge and recommended clinical pedagogy courses for the preceptors (Wu et al. 2017).

The centre applies the Gibb's (1988) reflective cycle in its teaching and assessment materials to support students' reflection on their first-year practicum (Wu, Heng, and Wang 2015). The Gibbs's model is a widespread teaching tool for reflection partly because it is quite simple to apply and provides a metacognitive scaffolding for students as they approach the complex task of reflection. The marking criteria previously used by nursing lecturers prior to the project is shown in Table 1, and comprises evaluative criteria as well as scoring information. The marking

criteria follows the Gibb's cycle stages 'What happened?', 'How did I feel? 'What is my evaluation of the experience?' and 'What sense can I make of the situation?', 'What else could I have done?' and 'What will I do differently in the future?' . Other criteria concern issues of knower and knowledge, including the requirement to use five external sources, as well as text cohesion, factual accuracy and formatting issues related to in-text citation.

The criteria in this case was based on the teacher's knowledge of the expectations of the task (Sadler 2009). However, the lecturers wanted to explore ways to improve their evaluation practices and the support for the nursing students as they engage with this task. The rationale for the project was not therefore to increase reliability of scoring across the several lecturers (Crusan 2010), but rather it was pedagogical: the nursing lecturer team wanted to clarify and increase the visibility of what constitutes effective deep reflection in nursing.

Methodology

Procedure

We designed a qualitative study involving empirical data, a large set of reflection assignments, and tracked what nursing students did in these texts which was highly valued by the lecturers. In order to ensure that we captured what constituted high quality reflection we analysed the features of the high scoring students as scored using the marking criteria outlined by the nursing lecturers prior to the intervention. In doing so, we were able to account for patterns across a number of high scoring reflections and to make visible the valued and reflective thought process that students demonstrate in relation to clinical placements in their assignments. In order to ensure that our uncovering of these features reflected what was considered valued in nursing from the perspective of disciplinary experts, we conducted focus groups with the nursing lecturers, and shared our findings with them.

Data

Having obtained research ethics clearance, the nursing lecturers collected and anonymized 200 critical reflection assignments from first-year student-nurses on a four-year bachelor of nursing degree programme. These assignments had been graded by the lecturers and were organized into three achievement bands by academic literacy experts: high, mid and low.

We also conducted two focus groups (lasting about 1 hour each) with eight nursing lecturers who taught and assessed critical reflection as part of nursing clinical practice. The sessions consisted of guided questions regarding the skill of reflection and the assignment. Lecturers were then guided to comment on and evaluate three student assignments. This enabled us to surface the elements which were valued in the assignments, and to probe further to make expectations explicit and clarify our findings in the student assignments analysis. This was recorded and transcribed for further analysis.

Analytical frameworks

Three main frameworks – genre and appraisal from systemic functional linguistics, and semantics from the sociological framework Legitimation Code Theory – were used to analyse the linguistics patterns and knowledge claims which realize highly valued critical reflection in nursing. The complementary use od SFL and LCT has shown great potential to reveal the 'rules of the game' in knowledge and discursive practices in diverse educational settings. In our study, these frameworks proved particularly useful as they enabled us to track precise types of evaluation, their targets and triggers, as well as the types of knowledge claims, and how theoretical knowledge is

Table 2. Generic stages of a nursing critical reflection.

Stages	Purpose	Key linguistic features
Introduction	General orientation of the placement. The student may explain the importance of reflection in nursing. Orientation to the text (focus on the entity/procedure being reflected upon).	Factual description (place/time/length)
Orientation	Description of the specific setting: the ward, the patient, the precise procedure.	Narrative/past simple and past continuous Circumstantial information
Critical Incident	Event that triggers the reflection is described.	Narrative/Past simple; evaluative language
Excavation	Unpacking/analysis of the event; Making the thinking process visible. Link to relevant literature to explain/ hypothesize/rationalise	Shift to 'defining', thinking; evaluative language Present simple Citations of sources
Transformation	Statement of alteration in the student's understanding. The student may explain how the experience will inform future nursing practice.	Modality (should or will) to indicate recommended future action
(Coda)	Emphasizing the role/importance of critical reflection in nursing practice	General statement: present simple, definition of the role of a nurse.

used in relation to the student's concrete experience. These elements have been shown to be prominent in first year nursing students' clinical placement reflection tasks (Reljić, Pajnkihar, and Fekonja 2019).

Results: implicit values in critical reflection in nursing

Genre analysis

To access the assignment from a broad perspective, we first deployed a genre analysis. From an SFL perspective, texts are social events which occur in specific contexts in which writers use language purposefully to achieve a communicative goal. A text can then be described in terms of its purpose and stages as well as typical language features that are expected at whole text, paragraph and sentence levels (Martin and Rose 2008). Such an approach focusses on what successful writers do to achieve the goal rather than on errors to avoid. Following the extensive SFL literature on school genres and the more recent genre analysis of critical reflections in Szenes et al. (2015), we retained the terms Introduction ^ Orientation ^ Critical Incident ^ Excavation ^ Transformation ^ (Coda). Per convention, the sign ^ means 'is followed by', and parenthesis indicate the stage is not compulsory. Details of each stage are provided in Table 2.

We noticed that even in high scoring student reflections, transformation was often very short, indicating that year-one students are not yet confident to project themselves in their future professional practice, an observation confirmed by the nursing lecturers during the focus groups. Coda was also not always present, even in the highly scored assignments.

Appraisal analysis

The second SFL framework employed was that of appraisal. The appraisal framework allows us to account for how evaluative meanings are deployed across the student texts and to understand what aspects of evaluative meaning are most valued in the context of clinical practice and retrospective reflection on the events that occurred.

The appraisal framework developed by Martin and White (2005) consists of three interacting domains of which one constitutes attitude or evaluative meaning. Attitude can be broadly categorized as meanings related to positive or negative emotions (affect) or opinions (judgement, appreciation).

Emotions are accounted for by the framework of affect and include feelings of happiness/unhappiness, security/insecurity and satisfaction/dissatisfaction. The marking criteria developed

by nursing lecturers shown in Table 1 deals with emotions in (2) 'feelings and reflection'. Students are asked to identify assumptions, values, beliefs, emotions and motives based on their experience. Nurses noted that students need to engage with their emotions in reflection because it is 'difficult [for students] to objectively reflect on what has happened if it has affected them emotionally … [t]here should be a good balance between the mind and heart part so students can adequately reflect and move from there to the next step'. The next step typically is an engagement with nursing theory and professional practice which forms the benchmark for appropriate and valued nursing behaviour.

Students in high-scoring texts engaged with emotions predominantly in the critical incident stage where they used negative emotion resources to share feelings of insecurity (e.g. *I felt anxious*) about their lack of clinical skills and regarding negative emotions triggered by the patient's medical condition. This means that students are expected to share the emotional triggers of a specific incident in clinical practice only when recounting that experience.

The second type of evaluative meanings, or opinions, are categorized according to whether they target things (appreciation) or people (judgement) in the appraisal framework. In the nursing marking criteria they are reflected in (3) 'evaluation of the performance and experience'. Here students are expected to move from dealing with the 'heart' or emotions in relation to their personal clinical experiences to engaging with the 'mind' or the knowledge, practices and procedure that constitute valued nursing practice. In the critical reflection assignments, the most significant type of opinion that emerged across the stages of excavation and transformation were types of judgement or assessments of people's behavior. As students engage with clinical practice and theory in their assignments, they focused on assessing their positive and negative behaviors drawing predominantly on the category of 'capacity'. For instance, students link a positive clinical experience to positive self-judgement in relation to their capacity as student nurses (e.g. *I had managed to adhere closely to some parts of the guidelines*). Alternatively, students expressed negative self judgement focusing on a lack of capacity or their inexperience as student nurses (e.g. *I was unable to assess Mdm X's back*; *I felt that the negative experiences arose from my lack of knowledge*).

Semantic gravity analysis

The third framework employed for analyzing student assignments was semantic gravity from LCT. Semantic gravity explores knowledge as semantic codes. It is defined by Maton (2013, 65) as: 'The degree to which meaning relates to its context, whether that is social or symbolic. Semantic gravity may be relatively stronger (+) or weaker (–) along a continuum of strengths. The stronger the semantic gravity (SG+), the more closely meaning is related to its context; the weaker the gravity (SG−), the less dependent meaning is on its context'.

All meanings are more or less context dependent. Semantic gravity can be used to conceptualize this notion on a continuum, moving from stronger to weaker dependence. When charting semantic gravity over time or over a text, the analyst can produce semantic waves or flatlines. This shifting between SG − and SG + and back to SG − creates semantic gravity waves as in profile B in Figure 1. Flatlines can also be recorded as profiles with very limited range (A1 and A2) when meaning remains consistently abstract or contextualized.

Heuristic semantic gravity profiles were constructed for the 200 reflections, and different profiles emerged distinguishing high and low scoring critical reflections (Brooke 2019). The low scoring reflections were primarily descriptive or consistently context-dependent. In contrast, high scoring reflections demonstrated a sound application of both context independent and dependent knowledge structures.

In the high scoring critical reflection paper (Figure 2), the student-nurse discusses a range of theoretical and practical considerations. At the weakest semantic gravity level (SG−), there are

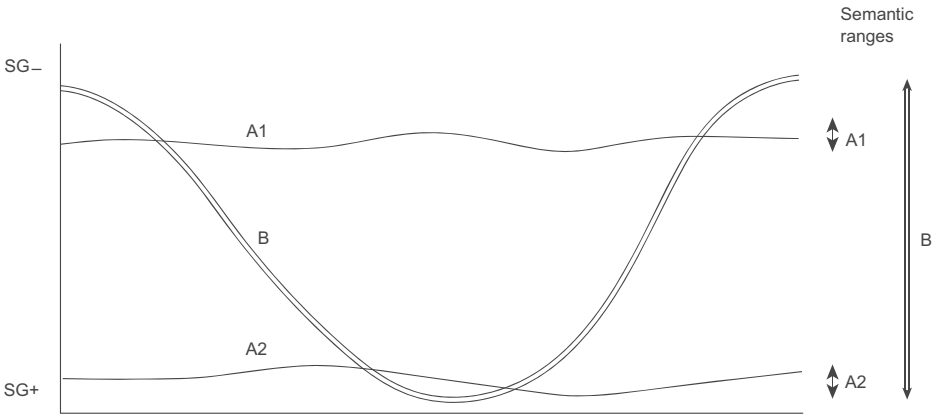

Figure 1. Illustrative profiles and semantic ranges (adapted from Maton 2013, 13).

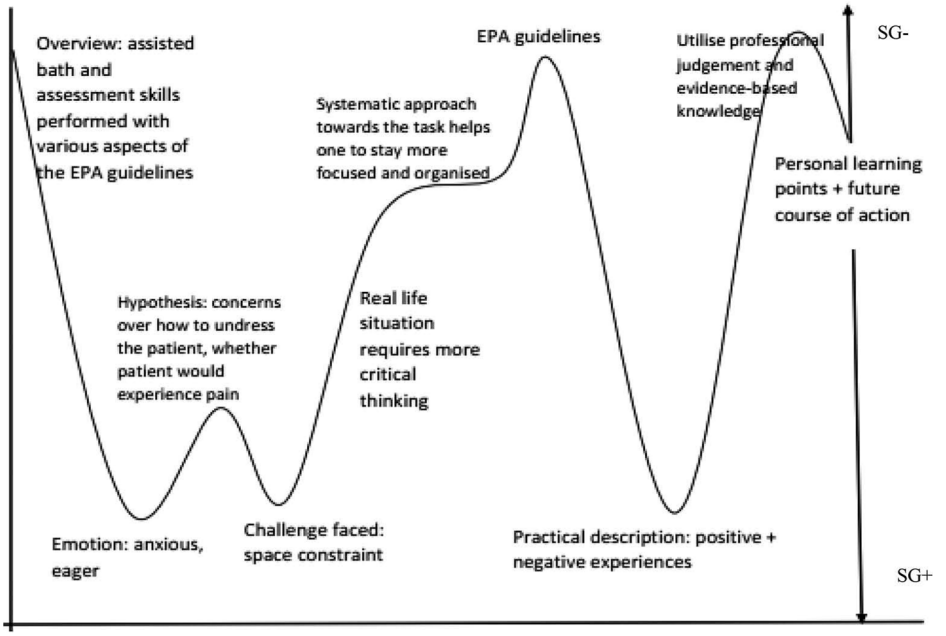

Figure 2. Illustrative semantic gravity profile of a high scoring critical reflection.

references to abstract generalisable guidelines known as entrustable professional activities. The guidelines are used by the student as a theoretical lens to analyse the challenges of bathing a patient (SG+). Additionally, the student theorises her own practice by signalling the importance to use critical thinking skills and ethical reasoning in situations of this ilk, based on the Code for Nurses and Midwives. Thus, more abstract, generalisable learning has been drawn from to create the high scoring paper.

In contrast, the most noted common feature of low scoring critical reflection papers was their predominant narrative structure (SG+), with little theorising or use of academic sources as evidence to generalise about these critical events. These papers did not integrate the concrete experiences within the knowledge-based professional community effectively.

Design of the new rubric: from criteria to rubric

The textual evidence presented and the discussion with the nursing lecturers informed the design of a new list of criteria in a collaborative and iterative process (Table 3). In this first stage of the design, the team was not focused on the assessment element of the project, but rather on revealing the underlying codes of reflective practice and writing. The next stage involved the development of descriptors at three standards of achievement (Table 4).

Developing the criteria

We decided to follow the genre stages as an organizing principle in order to make visible the purpose of the assignment and to highlight how this communicative purpose is achieved through the different stages listed in the second column. The criteria column then shows the different types of meanings required to achieve the purpose of the stage, and relies on the specific linguistics resources, the types of evaluations and knowledge claims revealed in the appraisal and the semantic gravity analyses.

For 'critical incident', the criteria states that the student:

> *Describes the event that triggers the reflection* (precise description of the event, the procedure, the experience which presented a problem, a disrupted assumption, a question that arose during the clinical visitation).
>
> Evaluates negatively, or positively, a range of elements: own capacity/ability, confidence/insecurity, assumed or actual difficulty or ease of clinical procedure, role, and instruction of Clinical Instructor etc …

Table 3. Data-driven marking criteria.

Reflection task procedure/activity performed: _____
Criteria. The student:
Explains the setting (provides details of the placement)
• Makes a general statement about the experience of reflecting in practice. May evaluate the experience of field placement and of reflective practice.
Describes the precise setting and the encounter (the patient, the patient's information, the task to perform).
• May express feelings about or evaluation of the encounter.
Describes the event that triggers the reflection (precise description of the event, the procedure, the experience which presented a problem, a disrupted assumption, a question that arose during the clinical visitation).
• Evaluates negatively, or positively, a range of elements: own capacity/ability, confidence/insecurity, assumed or actual difficulty or ease of clinical procedure, role, and instruction of Clinical Instructor etc.
Unpacks the critical incident then analyses the deeper and broader meanings related to nursing theory and practice.
• Relates to a broader discussion in relation to theory of nursing practices and principles. For example, may link and compare one's performance with standard procedure.

• Shows insight and depth of topic by weaving several layers of knowledge claims:
  ◦ concrete and contextualised details of the event
  ◦ discussion of personal beliefs/hypothesis; advice from tutors
  ◦ reference to specific and related academic literature, concepts from the nursing modules (at least five academic sources; follows APA 6th Ed.)

• Expresses positive or negative judgements about own capacity, behaviour, outcome for the patient, learning outcomes, patients' behaviour/emotions, peer/tutor's support, or feedback. Also evaluates both specific events and participants and more general nursing knowledge and practices.
• Expresses positive or negative affect/feelings in relation to own capacity, behaviour, outcome for the patient, learning outcomes, patients' behaviour/emotions, peer/tutor's support, or feedback.
Concludes on the experience and how it informs nursing practice and mentions a plan of action for future encounters or impact on future practice.
• Uses a modal (may, can, should, would) to express transformative behaviours in the future.
• May refer to a shift in their thinking and evaluate this change in a positive way.
Relates back to general practice and benefit of critical reflection. May use appreciation to evaluate the experience of the clinical placement
• Focusses on abstract knowledge learned about nursing practice. For example, may explain how critical reflection experience informs nursing practice.

The underlined segment shows the purpose of this stage. The type of information required 'A precise description of the event' shows the type of very contextualized knowledge claims that are needed to fulfill the purpose of this stage (referring to the semantic gravity analysis). Finally, precise indications of the range of evaluations and targets or triggers of the evaluation are suggested (referring to the appraisal analysis). The requirements and concrete information to meet these requirements are thus explicitly stated in the criteria.

As part of the close collaboration and the iterative process of the design, after discussion with the nursing experts, we added the Gibbs' cycle column on the left to create a bridge between the existing approach to the new criteria. We felt this was a sensible idea as the criteria is to be used by lecturers and continuity is likely to help its adoption.

Developing the rubric

This stage consisted in developing this marking criteria into a rubric with three achievement bands with descriptors based on the data set of low, mid and high scoring student assignments. Descriptors of performance were developed for 'initial' (student who has not reached the basic level of expectations), functional (meets the expectations) and competent (goes beyond the expectations). In doing this, we asked questions like: what are the low scoring papers displaying that is not displayed in the mid or high papers? For each criterion what are the discriminating factors? What kinds of elements should be made visible to students so they can self-evaluate?

A theoretical and data-driven rubric design framework

This paper aimed to describe the development of a data-driven rubric for a critical reflection task in nursing. The process involved a data driven approach comprising both students' assignments and lecturers/subject experts' input and the use of theoretical frameworks which can reveal precisely what the expected performance entails in terms of language with SFL and content with LCT in a specific disciplinary context. We show that complementary linguistics and sociology frameworks of SFL and LCT are particularly well suited to do this as they revealed the highly valued elements in the form they take in the text, knowledge which was intuitive for the nursing lecturers, and thus difficult to teach. A data and theory driven rubric development framework is shown in Figure 3.

The collaborative effort on the design, and the use of the complementary theoretical frameworks meant that both teams, the subject experts and the literacy experts, learned from the other. For example, the academic literacy team noticed that 'fear' was not used in the assignments, and that transformation was not particularly important in the success of a year-one reflection. The nursing lecturers explained that year-one nursing students are not placed in a situation of responsibility, so fear does not appear and that they were too new to their studies to project themselves into a professional practice yet. This led to discussions around adjusting weighting of the different stages according to the year of study. There were countless of such mutually enriching conversations, which to us represented interdisciplinarity at its most impactful and enjoyable.

In relation to the concern that analytical rubrics may confine our understanding of the task and students' knowledge construction to the narrow list of criteria, ignoring others (Stewart and Richardson 2000), we suggest that a social constructivist approach which fears making explicit criteria visible for these reasons may lead to a failed opportunity to reveal the rules of the game. A critical reflection remains a deeply personal task, where students engage with their personal lived experience in their placement. Revealing abstract elements as is done in this rubric is not a template, it is a road map for students to use creatively as they become confident critical

Table 4. Theoretically and data-driven analytical rubric for reflection in nursing.

Gibbs cycle	Stages of the text	Criteria. The student:	Descriptors		
			Competent	Functional	Initial
Description and feelings	Introduction	Explains the setting (provides details of the placement).	Provides brief information on the setting, and details of the placement. Makes a general statement about the experience of reflecting in practice. May evaluate the experience of field placement and of reflective practice.	The introduction may be vague or lack conciseness.	Stage may be missing, too long or irrelevant.
	Orientation	Describes the precise setting and the encounter.	Precise and concise description of the patient, the patient's information, the context for the next stage: the CI. May express feelings about or evaluation of the encounter.	The orientation may be vague or lack conciseness. There may be insufficient information about the patient or the procedure to be performed.	Stage may be missing. The information may be irrelevant to the critical incident.
	Critical Incident	Describes the event that triggers the reflection.	The student provides a precise description of the event, the procedure, the experience which presented a problem, a disrupted assumption, a question that arose. Evaluates negatively, or positively, a range of elements: own capacity/ ability, confidence/insecurity, assumed or actual difficulty or ease of clinical procedure, role, and instruction of Clinical Instructor.	This stage may be too short. There may be insufficient description and detail (due for example to the use of two or more CI). The student may predominantly reflect on other's behaviours. May predominantly focus on positives. Lacks focus on own specific action or involvement and focuses on general patient-related issues rather than the precise case.	Stage may be missing. There may not be a precise procedure mentioned, nor precise event that triggers the reflection.
Evaluation and description	Excavation	Unpacks the critical incident then analyses the deeper and broader meanings related to nursing theory and practice.	Relates to a broader discussion in relation to theory of nursing practices and principles. For example, may link and compare one's performance with standard procedures. Shows insight and depth of understanding by weaving several layers of knowledge claims: • concrete and contextualised details of the event • discussion of personal beliefs/ hypothesis; advice from tutors	This stage may be too short or divided into several incidents so that none are excavated in depth. Lacks focus on own specific action or involvement and focuses on general patient-related issues rather than the precise case. The CI is not explored in relation to the literature or literature may be used but remain general, and not specifically relevant to the CI. There may be some positive or negative judgements regarding one's own capacity, but these may then not be linked,	Stage may be missing or this stage may simply be an extension and repetition of the critical incident stage with a brief mention of emotions or feelings (confused, worried, satisfied) but no further attempt to make one's thinking about the event explicit and visible to the reader. The student may focus their evaluation entirely on others' behaviour (student nurses, or nurse instructors). There may be no engagement with the literature, or if any, this may be too broad

(*continued*)

Table 4. Continued.

Gibbs cycle	Stages of the text	Criteria. The student:	Descriptors		
			Competent	Functional	Initial
			• reference to specific and related academic literature, concepts from the nursing modules. Expresses positive or negative judgements about own capacity, behaviour, outcome for the patient, learning outcomes, patients' behaviour/emotions, peer/tutor's support, or feedback. Also evaluates both specific events and participants and more general nursing knowledge and practices.	explained, justified through precise reference to standard procedures or the literature. There may be a tendency to evaluate others rather than own behaviour.	and irrelevant to the precise critical incident.
Conclusion and action plan	Transformation	Concludes on the experience and how it informs nursing practice and mentions a plan of action for future encounters or impact on future practice.	This stage may still be short in this strong performance band, but the student synthesises lessons learnt in relation to their professional practice. • *refers to a precise shift in their thinking and evaluates this change* • *uses modals to express transformative behaviours*	This stage may be very short. May allude to a potential change in future practice, with no precision or clear relation to the critical incident and excavation. May refer to others' actions and potential for transformation rather than one's own	Stage may be missing or irrelevant to the critical incident.
	Coda	Relates back to general practice and benefit of Critical Reflection. May use appreciation to evaluate the experience of the clinical placement	*Makes a statement about CT informing nursing practice*. The coda allows the student to leave the precise and concrete incident to reflect briefly on the benefit of reflection itself on the student's learning.	Stage may be missing or may just be alluded to.	Stage may be missing.

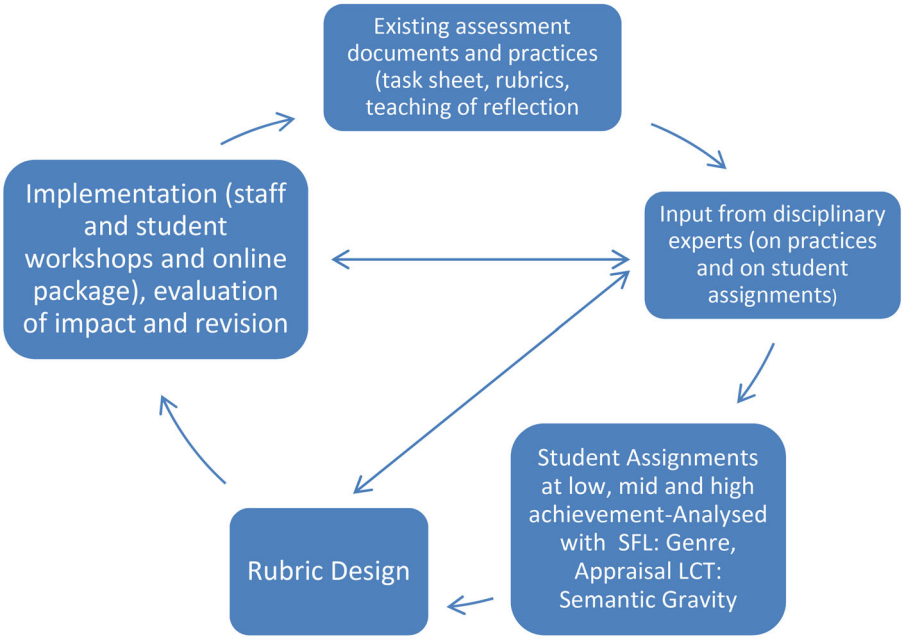

Figure 3. Data and theory driven rubric development framework.

thinkers. We argue that rather than restrict, these precise criteria scaffold the skills entailed in critically reflecting.

Assessing reflection raises ethical questions about such a task. Are we evaluating reflection, or writing? Are we placing students in uncomfortable and vulnerable positions? Are we providing sufficient clarity as to what the process entails? We suggest that these issues can be alleviated through the approach we have described. The SFL and LCT analysis reveals what successful writers do, rather than focusing on poor language skills. Using the stages makes the process of reflection more transparent, and noting the types of evaluative language may help clarify the expectations for the students. We believe it is also key to account for knowledge practices in these texts as reflection is a method that connects knowledge and experiences. Reflection is described as often triggered by a perceived gap between theory and what was learned in the classroom, and the realities students face in their placement (Tashiro et al. 2013). This is why LCT is a useful lens to look at this as it is realised in texts. With semantic gravity, these different knowledge realms (theoretical and practical) and how they interact in successful student assignments can be surfaced. In this respect our study joins the growing assessment literature that engages LCT concepts (Van Heerden, Clarence and Bharuthram 2017; Van Heerden 2020; Walton 2020). There are, however, issues which are raised about the ethicality of reflection assessment which are not addressed by our approach. Whether assessment of the task may lead to an impoverished reflection process where students perform rather than reflect remains an issue for educators to consider and to address in their practices. We hope that the approach to rubrics design described here points to the possibility for students to engage genuinely with the task once the rules of the game are clearer to them.

This project is concerned with impact on student learning and writing. We designed our 'rubric intervention' to encompass the pedagogical use of the rubric (Dawson 2017). Using rubrics along with specific activities that increase the transparency of the requirements and the criteria (Jonsson 2014) was key to the success of its implementation. We provided a workshop for the lecturers at the school of nursing on the content of the rubric and how to support students to use it. We produced an online self-training pack for students, which guides them to

analyse sample assignments for the main stages, the types of evaluation and the types of knowledge claims that together indicate deep reflection. Finally, we also provided a workshop for the year-one cohort before they set out on their clinical placement. The last stage of the study will measure the impact of the new rubric on these students' reflection assignments and, through further interdisciplinary, will lead to revisions and adjustments.

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