Models: Analysis of Text-Based Reflection

The following are models from the academic literature on ways to analyze text-based reflection:


Central to the study is a model of community inquiry involving three elements thought essential to an educational transaction:
- Cognitive presence
- Social presence, and
- Teaching presence

Within the research, authors look for indicators of these components which consist of the occurrence of certain key words or phrases, or synonyms thereof. These indicators are grouped into categories to indicate more clearly the phase or aspect of each element that is being demonstrated by each group of indicators.

Cognitive Presence

‘Cognitive Presence’ is most basic to success in higher education, is here taken to mean “the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication” (p. 89) Indicators for this element are based on a variation on the critical thinking model originally proposed by Garrison (1991):

Examples of Indicators (by category):
- Triggering Event or Communication (feeling of unease resulting from an experience)
  - Recognizing the problem
  - A sense of puzzlement
- Exploration (search for information, knowledge and alternatives)
  - Information exchange
  - Discussion of ambiguities
- Integration (integrating information into a coherent idea, looking for insights and gaining some understanding)
- Connecting ideas
- Create solutions
- Resolution
  - Vicariously apply new ideas
  - Critically assess solutions

Social Presence
Defined as “the ability of participants in the community of Inquiry to project their personal characteristics into the community, thereby presenting themselves to the other participants as ‘real people.’” (p. 89) The primary importance relates to supporting learning undertaken through cognitive presence, but there is a more direct relation to learning when there are affective goals for the educational process.

Examples of Indicators (by category):
- Emotional Expression (description of emotions, ability and confidence to express feelings related to the educational experience, expression of humour and self-disclosure)
  - Emoticons
  - Autobiographical narratives
- Open Communication (risk-free expression, reciprocal and respectful exchanges, mutual awareness and recognition of each other’s contributions)
  - Risk-free expression
  - acknowledging others
  - being encouraging
- Group Cohesion (building participation and empathy, building cohesion and sense of belonging).
  - Encouraging collaboration
  - Helping
  - supporting

Teaching Presence
Generally consists of two functions which may be performed by any participant (ie. not just designated ‘teachers): 1) design of educational experience, and 2) facilitation.

Examples of Indicators (by category):
- Instructional Management (defining and initiating discussion topics, setting curriculum, designing methods and assessment, establishing time parameters, planning issues – setting of explicit and implicit guidelines)
  - Structuring content
  - Setting discussing topics
  - Establishing discussion groups
- Building Understanding (identifying areas of agreement and disagreement, seeking to reach consensus and understanding, drawing in less active participants, acknowledging individual contributions, reinforcement of appropriate contributions)
  - Sharing personal meaning / values,
  - Expressing agreement
  - Seeking consensus
- Direct Instruction (presenting content, questions, and proactively guiding and summarizing the discussing, providing constructive explanatory feedback and means of assessment)
  - Focusing and pacing discussion
  - Answering questions

Danielle Blond & Kate Murray
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Diagnosing misconceptions

Summarizing learning outcomes or issues


Reflection Model (Ash & Clayton, 2004) (see Figure 1)

- Service-Learning is designed to promote academic enhancement, personal growth, and civic engagement. Through guided reflection students examine their experiences critically.
- Structuring reflection mechanisms to include three phases results in rigorous reflection that maximizes learning and helps to refine reflection skills. First 2 stages are done in small group discussions; the last stage is a written activity, called ‘Articulation of Learning’ (AL).
  1. Description of an experience (do this for: academic, personal and civic).
  2. Analysis in accordance with relevant categories of learning
  3. Articulation of learning outcomes, using the following questions:
     ➢ What did I learn?
     ➢ How, specifically, did I learn it?
     ➢ Why does this learning matter?
     ➢ In what ways will I use this learning to improve myself, the quality of my learning, or the quality of future experiences or services?

- Trained undergraduate reflection leaders guide students through these general phases of reflection in small, out of class, reflection sessions.
- Ash and Clayton want students to be able to articulate why the issues are so complex, what factors contribute or detract from the situation they are experiencing, and the roles they themselves play as agents of change.
- Students are provided with critical thinking ‘levels of mastery’ and example AL passages that exemplify each level.
- Raw first draft student AL passages are returned with feedback from the reflection leader; AL passages are then re-worked and re-submitted to the instructor; with the feedback from the instructor a ‘final’ AL is submitted.
- Instructors integrate this process into the assignment structure of their courses, such that the set of Als produced serve as an alternative to an exam or essay or other assignment that would gauge learning outcomes.

Analysis / Evaluation

Looking into the relationship between reflection mechanisms and student learning, Ash & Clayton (2005) have developed an integrated approach to reflection and the assessment of

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1 Academic: students examine their experience in light of specific course concepts, exploring similarities/differences in theory and practice.
Personal: students consider their feelings, assumptions, strengths, weaknesses, and sense of identity.
Civic: students explore decisions made and actions taken in light of consequences for the common good, consider alternative approaches and interpretations, identify elements of power and privilege and analyze options for short term vs. long term.
student learning that supports students in achieving and demonstrating academic and cognitive outcomes as well as outcomes with respect to personal growth and civic engagement (2004). They underwent a year-long investigation of the effectiveness of this model.

They used the ALs (articulated learnings) students had written from each of the three categories of learning objectives: academic, civic and personal. They assessed both the raw ALs (first draft) and the final ALs to answer questions such as: how much improvement can students make over the course of the semester in articulating their learning in each of the categories? Are they likely to make progress in writing in one category as compared to another, and what might the reasons be for such differences?

Trained student and faculty scorers rated each AL based on the highest level of learning objective achieved, from a “1” indicating thinking at the level of “identify and describe” only, to a “4” indicating “thinking encompassing all levels. They also rated the degree of critical thinking demonstrated (1-4) (See handout for example of Level 4 Critical Thinking). Scorers then came together at a series of group meetings to discuss and resolve discrepancies between their ranking. The outcome is scores that are generated for quantitative analysis.

This rubric can be used to evaluate both the learning ‘process’ (ie. change in learning based on experiences and/or leader feedback), as well as a summative evaluation (ie. an AL can be evaluated according to the highest level of learning objectives it achieves).

Instructors can use the information provided by the learning objective and critical thinking assessment strategies in a variety of ways:

- it provides feedback on their teaching by identifying those concepts that appear harder for students to grasp
- can be useful to quantify the reflective/service-learning component of the students’ final grade (so credit be given for the learning not for the experience itself)
- can help to demonstrate the knowledge, skills and competencies of students
- it allows for assessment that is customized to the particular learning objectives


- The author analyzed epiphanies; categorized and coded on the following themes:
  - Emotional reaction,
  - personalization,
  - connection to course content,
  - transformational thinking,
  - increased understanding

- Seeks to measure whether reflection takes place and the level of any reflection.
- Attempts to develop and test coding systems for written reflective journals based on two well-known models of reflective thinking.
- Found that allocating students to three categories of non-reflector, reflector and critical reflector was straightforward and reliable; while identifying textual elements within journals and allocating them to the finer levels of reflection within a more complex model was more problematic and much less reliable.

Boud et al (1985)
- Reflective process occurs when individual returns to the experience, essentially 're-evaluating' it; this involves four elements:
  1) association – relating new data to that which is already known
  2) integration – seeking relationships among the data
  3) validation – determining the authenticity of the ideas and feelings that have resulted
  4) appropriation – making knowledge one’s own.

The synthesis, validation and appropriation of knowledge can also be outcomes of reflection.

Mezirow (1991)
- Not every act of becoming aware of thoughts or feelings is reflective. ‘non-reflective’ action includes habitual action, and thoughtful action (“a selective review of prior learning rather than an appraisal or reappraisal of it” (Mezirow, 1991))
- Reflection involves assessment of the assumptions implicit in beliefs, confirmation, addition or transformation of ways of interpreting experience. Transformation occurs through ‘premise reflection’ – challenging the validity of presuppositions in prior learning.

Two levels of coding:
1) **Level One**: According to Boud et al’s model of reflection:

<table>
<thead>
<tr>
<th>Elements of Reflective Process</th>
<th>Criteria</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Attending to feelings</td>
<td>• Utilizing positive feelings</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Removing obstructing feelings</td>
<td></td>
</tr>
<tr>
<td>2. Association</td>
<td>• Linking of prior knowledge, feelings or attitudes with new knowledge, feelings or attitudes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Discovering prior knowledge, feelings or attitudes that are no longer consistent with new knowledge, feelings or attitudes</td>
<td></td>
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<tr>
<td></td>
<td>• Re-assessing prior knowledge, feelings or attitudes and modify to accommodate new knowledge, feelings or attitudes</td>
<td></td>
</tr>
<tr>
<td>3. Integration</td>
<td>• Seeking the nature of relationships of prior knowledge, feelings or attitudes with new knowledge, feelings or attitudes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Relating the old and the new</td>
<td></td>
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<td></td>
<td>• Making way for the new</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Emerging</td>
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</tbody>
</table>
Arriving at insights

4. Validation
   - Testing for internal consistency between new appreciations and prior knowledge or beliefs

5. Appropriation
   - Making knowledge one’s own
   - New knowledge, feelings or attitude entering into own sense of identity
   - New knowledge, feelings or attitudes becoming a significant force in own life

6. Outcome of reflection
   - Transformation in perspectives
   - Change in behavior
   - Readiness for application
   - Commitment to action

This method faced difficulties regarding which paragraph to code, and which paragraph correspondent to which element of reflection.

Distinction between first three levels (attending to feelings, association, integration) from other three levels (validation, appropriation, outcome of reflection) was possible.

2) Level two: Based on the work of Mezirow et al. (1990), each student allocated to one of three categories: non-reflector, reflector, critical reflector. *note unit of coding here is student, not the text
   - Criteria discerned from Boud et al’s model:
     i. ‘non-reflectors’ showed no evidence of any of the elements of reflective thinking (eg. only described, made assumptions, little awareness of context, few personal references)
     ii. Reflectors showed evidence of attending to feelings, association and/or integration but did not demonstrate any critical changes of perspective (could identify relationships between feelings and knowledge, modify what was known, arrive at insights, but didn’t demonstrate effort to validate assumptions, making knowledge one’s own) ** about 75% in this category
     iii. Critical reflectors had features of a reflector, but also showed evidence they had changed their perspective (returned to experience, examine experience and self critically, wide, multi-dimensional perspective, drew in resources to pursue alternative views or possibilities, were courageous in trying out different methods and were amenable to change, did not take things for granted)

   - Suggest one level of reflection is antecedent to the next, however not necessarily, which may cause difficulty for coders
   - Student experience / number of years working doesn’t correlate with reflective ability

- In this model, reflective essays by pharmaceutical students were assessed: parts of the text carrying meaning regarding reflection were categorized by quotes into a specific level of reflection (see scheme described below)
- A modified categorizing scheme was developed based on the 6 original Mezirow’s levels of reflection
- The entire essay was read in order to decide upon a final category that responds to the overall achieved level of reflection in the essay. This overall categorization was given a score ranging from 1-6 and was guided by the highest level achieved.
- The scheme was shown to have good interrater reliability, feasibility and responsiveness.

Appendix 1. The categorization scheme used for analysis of reflective essays:

In the scheme, the categories build upon each other as the students reach higher levels. The level of reflective thinking increases from the bottom to the top. Levels 1 to 3 are non-reflective, while levels 4 to 6 are reflective.

<table>
<thead>
<tr>
<th>6. Premise reflection</th>
<th>Reflective</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Process reflection</td>
<td></td>
</tr>
<tr>
<td>4. Content reflection</td>
<td></td>
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<tr>
<td>3. Introspection</td>
<td>Non-reflective</td>
</tr>
<tr>
<td>2. Thoughtful action</td>
<td></td>
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<tr>
<td>1. Habitual action</td>
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Non-reflection

1. **Habitual action.** Habitual action is an unconscious act that takes place without thought and can be performed at the same time as another act. A description of an act performed without thought or having to focus could be, for example, writing using a keyboard (for a skilled typist). A description of the course of events can be categorized as habitual action. For example: “At first, I received the prescription, then I registered it and, finally, I handed over the drug to the customer, while I gave him/her information.”

2. **Thoughtful action.** Thoughtful action draws upon existing knowledge. The starting point lies in previously existing knowledge, and choices between different alternatives regarding how to perform the task are made either unconsciously or not at all. Why a certain choice is made is not questioned and no interpretation is made. No thought is given to the consequences of the act except according to the previously learned action. An example of this is a description of communication with a customer that corresponds totally to existing theoretical knowledge without evaluation of different options. “If a customer comes into the store angry, it is important not to get angry yourself.”

3. **Introspection.** Introspection refers to thoughts about oneself, one’s own thoughts or feelings about performing a task. There is no comparison between the actual task and/or one’s previous experiences, nor are there any thoughts as to why these feelings occur or what they might lead to. An example of this is a description of how it feels to learn something, or how the student feels in a counseling situation. “An angry customer came into the pharmacy, and that felt terrible.”
Reflection
The definition of reflection as it is used below, is that a situation is identified in relation to an actual experience. This problem must somehow be analyzed in order for the task to be executable. Previous knowledge is used in the specific situation and is questioned and criticized when necessary.

4. **Content reflection.** Content reflection pertains to what one perceives, thinks, or feels, or how one acts when doing a task. There should be a questioning or an interpretation of behavior in order to be categorized as reflection, otherwise it is most often categorized as “2. Thoughtful action”. Content reflection, on the other hand, is based on a person’s previous knowledge or a previous experience and the person consciously thinks of what he/she does in order to solve the actual problem. They do not, however, reflect upon why the action taken works or how their own behavior developed. What effect the thought, feeling, or act may have should be discussed. For example, “When I meet an angry customer, I smile to get a positive reaction in return. It’s usually easier that way”.

5. **Process reflection.** Process reflection refers to how one performs the functions of perceiving, thinking, feeling, or acting, and to an assessment of how effective the performance is. There should be a proposal for, or an interpretation of, behavior for a categorization as process reflection. For example, a person smiles to solve the problem, but also thinks further on how he or she thinks it might work out. They also consider how a kind reception from another person can reduce their own irritation. Reflection of process can also contain reflection of how they feel and act themselves when they meet the angry customer, and how this is considered as a problem, as well as how they handle their own feelings. One’s thoughts and beliefs about how the thought, feeling, or act has an effect should be discussed in addition to how others apprehend the act. For example, “When an angry customer enters the pharmacy, I often feel that I easily become irritated myself. I know that this won’t improve the situation, so I try to answer with a smile to calm the customer. Most often the customer is not annoyed with me, rather it is the waiting time or something completely different. To answer with a smile is often nicer and I don’t gain anything from getting annoyed myself.”

6. **Premise reflection** (Theoretical reflection). Premise reflection relates to why one apprehends, thinks, feels, or acts the way one does and the consequences of that existing knowledge sets the framework for how one acts in different situations. This should include an analysis of the whole situation/problem; “what” and “how” should be put into context. Consequences should be considered so that they can be included in a deeper understanding or reinterpretation of the problem. Alternative methods should also be considered, often leading to questioning of prejudice based on a theoretical reasoning. This could lead to a reinterpretation of the situation so that the starting point is different the next time the same kind of problem occurs, and thus the action becomes different. This can be very hard to identify in written essays; the behavior must be controlled the next time it happens. For example, “When an angry customer enters the pharmacy, I often feel that I easily become irritated myself. I know that the situation won’t be improved by this, so I try to answer with a smile to calm the customer. Most often it’s not me he or she is annoyed with, rather it is the waiting time or something completely different. To answer with a smile is often nicer and I don’t gain anything from getting annoyed myself. I have tried different alternatives and when I get annoyed it’s better to get help from someone else. This takes time, though. However, I have to make sure not to take this personally and let it affect other things that I do and so on. . .”.

Danielle Blond & Kate Murray
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