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Revisiting On-Line Discussion as Practice for Reflective Thinking in Three Sequential Classes

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Revisiting On-Line Discussion as Practice for Reflective Thinking in Three Sequential Classes

Abstract

In a previous study, the authors questioned the potential of an on-line environment for increasing productive reflection in three sequential education classes. Of their findings, the issue of consistency stood out as particularly perplexing, namely, why did students exhibit high level reflections sometimes, but not all the time, in an on-line environment? In this follow-up study, the authors question whether in-class reflections coupled with on-line prompts could yield consistently high level pre-service teacher reflections, as measured by individual and class progress over time. This study also examines perceived relationships between the length of a student's reflection and its productivity, as well as a student's depth of focus and productivity. Using the same scoring approach as our previous study, our discussion of the results examines the usefulness of on-line environments for promoting consistently high level pre-service teacher reflection.

Keywords

online courses, online education, reflection, comprehension, education

Disciplines

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Abstract

In a previous study, the authors questioned the potential of an on-line environment for increasing productive reflection in three sequential education classes. Of their findings, the issue of consistency stood out as particularly perplexing, namely, why did students exhibit high level reflections sometimes, but not all the time, in an on-line environment? In this follow-up study, the authors question whether in-class reflections coupled with on-line prompts could yield consistently high level pre-service teacher reflections, as measured by individual and class progress over time. This study also examines perceived relationships between the length of a student's reflection and its productivity, as well as a student's depth of focus and productivity. Using the same scoring approach as our previous study, our discussion of the results examines the usefulness of on-line environments for promoting consistently high level pre-service teacher reflection.

Revisiting On-line Discussion as Practice for Reflective Thinking in
Three Sequential Classes

The development of reflective thinking skills is widely regarded by researchers as critical for professional competence (Cole and Knowles, 2000; Jay, 2003; Larrivee, 2000; Osterman & Kottkamp, 2004; Steffy, Wolfe, Pasch & Enz, 2000; Valli, 1997; York-Barr, Sommers, Ghore & Montie, 2001; Zeichner & Liston, 1996 cited in Cooper and Larrivee, 2006), but there is far less agreement on how best to foster the development of reflective thinking skills. All teaching professionals are challenged to critically analyze their teaching methods, student responses, and student achievement in order to develop professional practices that best meet student needs. The challenge teacher education programs face, however, is to design pedagogy and program structures that will enhance the development of reflective thinking skills. In spite of the fact that reflection is recognized as an essential professional skill, the most effective scaffolding and instructional opportunities that develop preservice teachers' reflective thinking remains elusive. This action research study extends and explores earlier work by the authors (Dittrich, Stebick, Pool, and McCoy, 2007) to determine the usefulness of on-line discussion to foster *productive* reflection (Davis, 2006; Loughren; 2002) in three sequential courses in our teacher education program.

Marten & Spielman (2005) recommend that programs provide a collegial, collaborative environment that provides scaffolding opportunities for reflection. The promise of newer on-line pedagogical formats seem to offer some potential for enhancing reflection skills as all students have the opportunity to integrate concepts and ideas regarding teaching and learning in a participatory, structured process. As on-line learning

packages become more available in college and university environments, it seems worthwhile to examine their utility for scaffolding reflective thinking. Blogs and blogspots (Philleo & Stiler, 2003), wiki technology (West, Wright, & Graham, 2005), eportfolios (Pelliccione, Dixon, & Giddings, 2005), email and on-line discussions (Whipp, 2003; Romano & Schwartz, 2005; Lambe, 2007) show some early promise for developing reflective thinking, but more research is needed to understand how best to apprentice reflective thinking.

In our 2007 study we investigated the content and quality of student on-line reflections in three sequential classes in our teacher education program. Our aim was to provide consistent practice for developing reflective thinking skills regarding academic content, and to target the development of deeper, productive reflection in the process. Our research adapted Davis' (2006) and Loughran's (2002) scheme for classifying productive reflection. In their view, productive reflection as demonstrated in written reflection was coded and scored for patterns demonstrating a complex view of teaching and learning through the integration and linkage of four aspects of teaching 1) learners and learning, 2) subject matter knowledge, 3) assessment, and, 4) instruction. Results of our investigation clearly showed that an on-line discussion environment yielded productive reflection (as measured by the integration score of each post) for *some* students. However, a number of students in the sample demonstrated inconsistent progress in developing productive reflection, leaving us with unanswered questions regarding the usefulness of our pedagogical methods, the structure of the on-line task, and the ability of preservice teachers to demonstrate consistently the skill of productive reflective thinking. As a follow-up to our 2007 inquiry into the use of discussion board

formats in our classroom, we expanded our data collection period into spring 2007 in order to focus on these additional questions below:

- How does the structure and timing of an on-line discussion prompt impact preservice teachers' responses and their ability to generate productive reflection?
- What is the impact of on-line discussion practice for individuals as well as class progress for developing consistent productive reflection skills throughout the program sequence?

In an effort to determine the utility of the on-line discussion board format for encouraging reflective thinking, we evaluated student on-line discussions for evidence of productive reflection. We also tracked the frequency and consistency of individual students in three sequential classes for developing productive reflection responses to determine the efficacy of the on-line discussion for fostering consistent productive reflective thinking skills.

Methods

Participants

Taking place in our classes during the spring semester of an undergraduate teacher education program at a small U.S. liberal arts college, the sample consisted of 62 students, sixty-eight percent of which were female; all but two students in the study were Caucasian and traditional students. The majority of participants, sophomores taking their first or second education classes (n=53), offset the smaller number of juniors and seniors (n=9). The authors requested permission to conduct this action research in Social Foundations of Education (n=38), Educational Psychology (n=16), and Developmental Reading Instruction (n=8).

The program requires all students to successfully complete two of the courses for certification included in this study, Social Foundations of Education (Ed 209) and Educational Psychology (Ed 201). Students from a variety of certificate areas complete the third course, Developmental Reading Instruction (Ed 331). Also, the program requires sixty hours of field experience for admission to the student-teaching semester. Field experiences focus on topics relevant to course material and objectives.

Data Sources

On-line posts

Preservice teachers completed responses to teacher generated prompts, each written on-line, in a course management system called 'Angel'. As a regular part of coursework, we emphasized the importance of student reflection early and often during the semester. The 62 preservice teachers in this study composed 124 journal entries. This study examined three posts by students. We excluded from the sample students that completed only two of the three posts (two in Educational Psychology, and four from Social Foundations).

Focusing on academic topics covered in coursework, we graded student participation on the discussion board, but not the quality of the reflection itself. Instructor-generated prompts encouraged students to create connections between content topics and teaching and learning methodologies, as well as the evidence required to make those connections. Instructors introduced the prompts at the conclusion of class to engage students in making meaning before leaving for the day. Instructors imposed a twenty-four hour window on students to complete their reflection on-line.

Coding and analysis for research questions

Our two research questions examined “whether student posted reflections yielded productive reflection” in an on-line discussion board format and “whether in-class reflections combined with on-line prompts could yield consistently productive, preservice teacher reflections, as measured by individual and class progress over time.” We coded comments about a student’s level of participation within a democratic classroom, for instance, as focusing on learners and learning. A comment referring to the text or article used in class would be coded as subject matter knowledge. If a preservice teacher reflected on the value of authentic assessment, we coded that comment as focusing on assessment. Finally, any comment dealing with the elements of a lesson or the mechanics of teaching we coded as focusing on instruction.

We coded comments into three areas: what preservice teachers included, emphasized, and integrated in their on-line reflections. Davis (2006), working from a scoring system used in previous studies (Davis & Linn, 2000; Davis, 2003), recognized integration as an indicator of productive reflection. Integration identifies how many of the four aspects of teaching preservice teachers combined within the context of their journal entries on their own learning. For example, if a preservice teacher reflected on how an assessment worksheet did not engage students with lesson content, and instead allowed them to complete it without higher level thinking, then that preservice teacher connected ideas about all four aspects of teaching (Davis, 2006).

As in our previous study, we did not limit the pool of student reflections to those on action, but expanded our analysis to include reflections on academic work and its relation to other content areas, field experiences, and actions. Secondly, we focused our

analysis on whether or not student ability to make meaning in class impacted the quality of reflective thinking.

Additionally, we continued to measure the frequency of comments on all aspects of teaching, helping us gain insight into the potential relationship between emphasis and word count, as well as word count and integration. All of these adjustments improved the integration score's ability to predict the productivity of any given reflection, as students had to (1) include at least two aspects of teaching (inclusion score) for an integration score to exist, and then (2) sufficiently develop their reflection (emphasis score) to allow for true integration of the aspects of teaching. A summary of our scoring system is found in Table 1.

Table 1 *Scoring system for inclusion, emphasis, and integration scores*

Score	Range	Notes
Inclusion score	0 (no aspects of teaching included) to 4 (4 aspects of teaching included)	<ul style="list-style-type: none"> All entries could score from 0 to 4, as no inclusion score was awarded based on the data sources
Emphasis score	0 (no aspects of teaching emphasized) to X (X times any aspect of teaching was emphasized)	<ul style="list-style-type: none"> Entries with no clear emphasis were coded 0 Entries did not have a maximum emphasis score, as we measured every instance that an aspect of teaching was mentioned
Integration score	1 (no integration) to 4 (4 aspects of teaching integrated)	<ul style="list-style-type: none"> An entry might be coded as integrating all four aspects of teaching if the preservice teacher integrated any combination of all four aspects, throughout the entirety of the reflection

Results

Our study examined whether an on-line discussion board yielded productive reflection and whether in-class reflections combined with on-line prompts resulted in consistently productive preservice teacher reflections, over time. Using inclusion,

emphasis, and integration as previously described (see Appendix A for sample posts and scoring procedures), our findings showed that *most* students could reflect productively on-line, or at least moderately productively, but that *few* reflected productively all the time. Similarly, on-line discussion combined with in-class reflection did not guarantee consistent increase in productivity over time at either the individual or class level, though it did improve overall class reflection.

Quantitative analysis for the content and productivity of preservice teachers' on-line reflections

We characterized the student postings in each class by describing the concepts students included, emphasized, and integrated relative to teaching. While the inclusion and emphasis scores merely describe reflection, the integration score suggests more productive, analytical reflections. Average inclusion, emphasis, and integration scores by each class are summarized in Table 2.

Table 2 *Average inclusion, emphasis, and integration scores by class for 124 postings, Spring 2007*

Class	N	Mean word count	Mean inclusion	Mean emphasis	Mean integration	Mean class score /post
Ed 209	38	291	2.197	7.026	1.855	11.066
Ed 201	16	248	2.719	8.781	2.429	13.969
Ed 331	8	275	2.875	9.875	2.5	15.25
Grand Total		271				

Inspection of Table 2 reveals that the preservice teachers in this sample wrote more extensive reflective postings that include, emphasize, or integrate analytically between

concepts as they advanced through the program. The highest scores for all categories occurred in the last course in the professional sequence (Ed 331). Preservice teachers in the first course in the sequence (Ed 209) scored noticeably lower on all reported measures than preservice teachers in the second course of the sequence (Ed 201). Higher emphasis scores appear to be consistent with more fully integrated reflections, and word count does not seem to be an indicator of potential integration, and thus potential productivity.

The reflections varied a great deal in length. The mean word count for a reflection across the examined classes was 271. In the 2007 study the authors examined productive and unproductive reflection via the depth and focus students bring to bear when producing their reflections, but the current findings confirm that combining pedagogical approaches shows some promise for improving productive reflection. Word count, however, does appear to be affected by combining in-class reflection with on-line reflection. The addition of in-class reflection to increase productive reflection over time had significant impact on student ability to include, emphasize, integrate, and thereby reflect, productively. Table 3 shows the mean inclusion, emphasis, and integration scores by class from reflections completed solely on-line in the fall of 2006.

Table 3 *Average inclusion, emphasis, and integration scores by class for 88 postings,*

Fall 2006

Class	N	Mean word count	Mean inclusion	Mean emphasis	Mean integration	Mean class score /post
Ed 209	20	260	2.975	8.975	2.8	14.75
Ed 201	20	175	2.675	6.775	2.4	11.85
Ed 331	4	130	2.5	7.75	2.5	12.75
Grand Total		188				

Comparison of the data from Tables 2 and 3 shows that students using on-line postings *only* generally included, emphasized, and integrated less often than students that began their reflections in class and then completed them on-line. With the exception of the program's first sequential course (Ed 209), students included, emphasized, integrated, and had higher overall scores and word counts when in-class and on-line reflection were combined. The resulting increase in productive reflection across sequential courses suggests strategies which provide multiple reflection opportunities and yield more productive reflection. These data also support the interpretation that for some students productive reflection may progress developmentally.

Increase in reflective productivity over time as individuals and as classes

Our second research question focused on whether in-class reflections combined with on-line prompts could yield consistently high level preservice teacher reflections, as measured by individual and class progress over time. To determine student progress over time we used the first reflection completed by students in each class as a baseline score, measuring subsequent reflections for net loss or gain in overall score. Table 4 shows the number of students in each course (N), and the number of students with net gain, net loss, or unchanged total scores for reflections over time (f).

Table 4. *Number and percent of students experiencing net gain/loss/unchanged total scores of reflections over time, Spring 2007*

Class	N	Net gain		Net loss		No change	
		f	%	f	%	f	%
Ed 209	38	11	(29%)	23	(60.5%)	4	(10.5%)
Ed 201	16	11	(69%)	4	(25%)	1	(6%)
Ed 331	8	2	(25%)	6	(75%)	0	(0%)

The data in Table 4 reveal that more students experienced a net loss in productive reflectivity over time, as measured by integration and total score indicators. These results are at odds with the increased average class scores reported in Table 2, with the exception of Social Foundations (Ed 209). Comparing the average net gain and net loss of students in each class makes the overall improvements seen in Table 2 even more perplexing.

Table 5. Average total score net gain and net loss per student over time by class, Spring 2007

Class	N	Average net gain per student f	Average net loss per student f
Ed 209	38	2.53	5
Ed 201	16	6.25	4.6
Ed 331	8	3.5	11.33

The data found in Table 5 reveals the average total score net gains and net losses over time by class, showing that the average net loss per class is far from offset by the 1.65 point net gain by students in Ed 201. With average student scores decreasing across the classes we found it surprising that the overall scores for each class improved in each area, as reported in Table 2, when compared to Fall 2006 data.

Discussion

Our previous study showed that a high percentage of students in all three classes created both unproductive and productive reflections, encouraging us to ask questions about consistency and the pedagogy associated with reflective thinking. Marten & Spielman (2005) called for a collegial collaborative environment that provided scaffolding opportunities for reflective practices. Due to the inconsistent quality of

reflections produced by the students across all three classes, we sought to examine the content and methodologies instructors used to teach preservice teachers about reflection.

Given our previous study's results that productive reflection is possible in an on-line environment, as measured by the integration score of each post, but because we could not determine what factors influenced students at the time they submitted their on-line reflection, we questioned whether the on-line discussion board environment supported or hindered the reflective process. What were the student's surroundings during reflective thinking and posting? Was their concentration impaired by the noise and confusion of a disruptive environment? Were they in a location that encouraged quiet and extended introspection? Additionally, the on-line component granted students the flexibility to avoid reflecting on their experiences at all, as there was no teacher/student accountability in the on-line un-graded discussion forums. Simply put, students may have chosen not to, or forgot to, submit their reflections.

This study examined a possible solution aligned with the suggestions made by Marten and Spielman (2005) by incorporating an opportunity for reflection within the classroom, thus combining an initial reflection with a supplemental on-line posting. While increasing the work load for instructors, this strategy provided immediate feedback on student understanding of relevant content in the form of reflections, and then challenged students to use their understanding by responding to an on-line prompt, a mechanism that encourages integration of the four aspects of teaching while scaffolding students toward a productive reflection.

The inclusion of an in-class prompt before on-line reflection suggests improved student ability to produce productive reflection as measured by inclusion, emphasis,

integration, and word count mean scores. With the exception of Social Foundations (Ed 209), whose scores were aberrant in 2006, the average scores of posts showed improvement in all key measures of productivity in 2007. While the inclusion of an in-class prompt does not enable us to predict the productivity of students, it does allow us the opportunity to help students create context for their reflection in multiple ways over an extended period of time.

Additionally, the increase in average scores from one year to the next suggests that practice, in any format, is essential to developing reflective skills. These data suggest that reflection is developmental in nature, and that like any other expression of knowledge, is contingent upon effort, focus, practice, environment, and a host of other factors. The developmental nature of reflection is impossible to ignore when measuring the productive reflection of individuals and classes over time

Examination of individual and class progression over time caused great concern for us when compared to the overall class increase in scores from year to year, as it showed that students could easily regress in their productive reflection. Additionally, statistical regression offers another threat to the validity of our results. Students that had very high baseline scores could impact a class' net gain or net loss of total points by failing to reflect not only productively, but by scoring closer to the average productive post score. For example one student in Ed 331, JL, scored an amazing 42 on his baseline reflection, but over the course of the study saw a 31 point drop in his reflections by the end of semester. Severe decreases in total score, like JL's, clearly skewed the data for class average net gain and net loss, and for his individual average net gain and net loss.

Still, the inconsistency displayed by students like JL supports our results regarding the developmental nature of reflection. Few students, only 18% of the total, displayed consistently productive reflections throughout the semester, while even fewer, 6% of the total, displayed consistently unproductive reflections. These data show clear peaks and valleys from student to student, when measuring productive reflection, giving credence to student ability to improve their reflective skills through practice.

Recommendations for further study

The data and resulting discussion leaves us with a number of unanswered questions that warrant further study. Chief among these is how to improve the frequency of student responses to on-line prompts. As all three classes did not assess on-line reflections as an independent assignment, it is possible students did not view the task as relevant to their overall assessment of the content, and therefore lacked the compulsion to complete their in-class reflection on-line. Making on-line reflections a separate graded assessment may encourage students to complete their on-line reflections regularly. A concern often expressed by students is that they simply forget to complete the reflection on-line, and so more frequent electronic reminders may result in consistent completion. Using student facilitators to communicate directly with participants could encourage more frequent responses to prompts, as the process would then be driven by peers as opposed to instructors. Completing a similar study, Romano and Schwartz (2005) suggested four alternatives to improve the utility of on-line forums for reflection: (1) require participation more often, (2) include mentor teacher collaboration, (3) have more categories for discussion, (4) include communication with teachers out of state.

The suggestions put forward by the authors, as well as Romano and Schwartz (2005), could improve not only the utility of on-line discussion forums for reflection, but also the ability of on-line forums to improve the quality of student responses. The data recorded in this study heightens the authors' concern about threats to internal validity. Length of time writing and thinking, environmental distractions, interest, and even location can all impact the quality of a student's response. Developing a mechanism to regulate when, how long, and where students reflect on-line, or gather more information about historical influences while they reflect, will be essential to any further study of the ability of on-line discussion forums to increase reflective productivity.

Romano and Schwartz (2005) found on-line discussions least effective at encouraging reflection when compared to videotaping and on-line portfolios. This finding resonates with our findings that question whether students might reflect more productively on-line if engaged in actual dialogue with other students, as opposed to responding to a teacher-generated prompt. Using a combination of the aforementioned strategies, as well as examining whether students are reflecting in actual on-line dialogue or in a straightforward response will hopefully provide insight into the ability of on-line discussion forums to increase the frequency of productive reflection.

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Appendix A *Coding for the four aspects of teaching*

We utilized the following representative examples for the four aspects of teaching (2006) to code student online reflections (adapted from Davis, 2006).

Learners and Learning	Subject Matter Knowledge	Assessment	Instruction
Alternative ideas or students' ideas Prior knowledge & experiences Engagement and motivation Collaboration Individual students Commonalities across students Cognitive & social developmental processes Social context of learning	Nature of subject area content Nature of knowledge Inquiry Subject area content Connections among concepts, facts, & theories, etc.	Methods Timing Goals Learning outcomes Multiple approaches Multiple uses Assessment approaches requiring the use of concepts, facts, theories, & methods of inquiry	Constructing knowledge Elements of lesson planning Links to later & previous activities Management (of students, materials, and/or activities Artifacts and/or worksheets Finding lesson ideas Instructional representations Activities Instructional goals Driving questions Amount of time Teacher confidence Instructional sequence & goal alignment

Productive post samples with coding

To demonstrate the differences between productive and unproductive reflective posts categorized by the computed integration score, we selected productive postings from two representative individuals in ED 209 and Ed 201 for further discussion.

Ed 209 student post scored high integration and high total score:

Although I do not believe the American school system is as much of a failure as Ayers [To Become a Teacher] suggests, I do believe there is room for improvement and that many of his suggestions have the potential to make a profound impact in the classroom. [K] His first suggestion in particular, that classrooms could be lived in the present tense, made me realize how much of my own education has emphasized preparation as the value of education, whether for the next exam, the next educational level, or for standardized tests. [L-A] We were hardly ever encouraged to value education for its own sake and this affected our motivation to learn. [I] I therefore strongly feel that teachers should demonstrate the present and inherent value of what students are being taught. In addition, I believe Ayers' fourth suggestions also important and that all schools should encourage their students to embrace diversity. This can only be done by exploring the concept of race and racism—in the past as well as the present and in the world as well as the local community. [K-I-L]. I believe this is an important step in discouraging racism in the future. This, in my opinion, would be an instance in which Ayers' sixth suggestion could be enacted—where adults could tell children the truth. As for teachers telling students the truth with regard to other issues, I do not always feel it is appropriate for them to do so. [K-I] My question for Ayers would be the motivation behind and purpose of telling an inner-city student, for instance, that academic success is strongly dependent on family income and class background. [I-L] As a teacher, you have the opportunity to motivate, challenge, encourage, inspire, and in general have a positive impact on this student's life. [I-L] In my opinion, telling them the truth as Ayers presents it is enough to discourage any student from valuing or respecting education, and you would therefore lose your authority as a teacher. [I-L] They might completely lose their motivation to attend school if they view the entire educational system set up to make them fail. And how in

the world would this be beneficial to them? In conclusion, although I do not agree with all of Ayers' suggestions, I do feel that many of them have the potential to have a profound impact in the classroom. [K-L].

Table 6 Scoring for Ed 209 student post scored high productive reflection (word count 388)

4 Aspects of teaching	Inclusion	Emphasis	Integration	Total Score
Instruction	1	5	L-A	
Learners & learning	1	5	K-I-A	
Assessment	1	1	I-L	
Subject matter knowledge	1	4	K-L	
Totals	4	15	4	23

This student's post demonstrates that she is thinking deeply about the effects a teacher may have on learners and she questions the ethical responsibility of teachers to remain optimistic about student potential. This student has included assessment in her posting, atypical of most student responses in our sample. The integration score shows good variety for connections among the four aspects of teaching that are well-explained and meaningfully elaborated. Her word count, 120 words more than the average posted word count for her class, demonstrates her commitment to written reflection.

Ed 201 student post scored high integration and high total score:

Through the in-class simulation I felt very conflicted in how I previously thought about how I want to teach my students and what kind of teacher I will be. [K-I] In a perfect world all of my children will come from upper low to middle SES with loving families and participate in enriching extracurricular activities...but this is not reality. I've volunteered and observed inner city classrooms in Philadelphia and I've seen troubled students with my own eyes. [L] After this simulation I have come to the decision that even though a child with all odds against him or her will benefit in some ways, shape, or form from receiving one to all of the developmental assets that I can provide.[K-L] Even though it did not seem to make a huge difference if a student had 5 red cards and only one green card because he/she in the end had 4 red cards, but that's when you know that you have to persevere. [K-L]I understand that improper technique and interventions can do more harm than good, but if properly advised by counselors, I feel that it would help.

It is going to take work, in and outside of the classroom, and I will try to get parents involved in their student's academic life and achievements through assignments [I] that both student and parent have to

collaborate on or possibly planning a night or weekend activity [I-L] where the child and parent come to the classroom or see their child’s artwork, etc. I plan to do my best to bring the information to the student, making it engaging and relatable to them so there’s a smaller probability that the student will look at school as a waste of time. After this simulation, I realized that even after all of my efforts, if I still have a student who does not want to learn or be in school, then that is their choice. I will be there to listen to them, help them, and find others who can help them equally if not more than I can throughout their academic career. [I-L]

Table 7 Scoring for Ed 201 student post scored high productive reflection (word count 346)

4 Aspects of teaching	Inclusion	Emphasis	Integration	Total Score
Instruction	1	4	K-I	
Learners & learning	1	5	K-L	
Assessment	0	0	I-L	
Subject matter knowledge	1	3		
Totals	3	12	3	18

This student clearly sees the complexity of teaching and is beginning to recognize that environmental influences may impact significantly both learners and learning. She recognizes that she will have to work hard instructionally to motivate learners and that she will play a role in student acquisition of developmental assets. Additionally, she notes the key role that parents will play in supporting their student academically and she specifically addresses pedagogical strategies for involving parents in academic curriculum. One hundred and seventy words more than the average word count for her class, this student demonstrates elaborated productive reflection.

Unproductive post sample with coding

To characterize unproductive reflection more concretely, we included one representative post from Ed 201 for further discussion:

Ed 201 student post scored low integration and low total score:

I think I learned a lot from this simulation. I realized how difficult it is to come back and thrive if you start at a disadvantage. [L] So many more things can happen to you than if you had started off

privileged or with the green protective cards. This helped me understand why it is so difficult to get through to at risk students and how important it is to start helping at risk students young.[K-L]

Table 8 Scoring for Ed 201 student post scored low integration unproductive reflection (word count 73)

4 Aspects of teaching	Inclusion	Emphasis	Integration	Total Score
Instruction	0	0	K-L	
Learners & learning	1	2		
Assessment	0	0		
Subject matter knowledge	1	1		
Totals	2	3	1	6

Her word count score well below the average word count for posts in her class (100 words), this student does not elaborate her thinking about teaching and learning and demonstrates little disposition for written reflection. She focused primarily on learners and learning in her post, but she offers no concrete instructional pedagogical strategies for helping at risk students learn content. While her post has potential for moral and ethical considerations, she does not explore them; she merely puts together her ideas about learners and learning.