

# A Framework for Assessing Learning Assistants' Reflective Writing Assignments

Geraldine L. Cochran<sup>1</sup>, David T. Brookes<sup>2</sup>, and Laird H. Kramer<sup>2</sup>

<sup>1</sup>Florida International University, Department of Teaching and Learning, 11200 S. W. 8<sup>th</sup> Street, Miami, FL, 33199

<sup>2</sup>Florida International University, Department of Physics, 11200 S.W. 8<sup>th</sup> Street, Miami, FL 33199

**Abstract.** At Florida International University we have implemented a learning assistant (LA) program based on the Colorado Learning Assistant Model. [1] As a part of this program, students take a course on science and mathematics education theory and practice in which they are required to submit written reflections. Past anecdotal evidence suggests that students in the LAP at Florida International University are using these writing assignments to reflect on their teaching experiences. The purpose of this study was to a) determine if the writing assignments submitted give evidence that our students are engaging in reflection and b) determine if our students are engaging in deep levels of reflection. In this investigation, we relied on a rubric based on Hatton and Smith's (1995) [2] "Criteria for the Recognition of Evidence for Different Types of Reflective Writing." In this paper, we document a) a system for characterizing student reflections and b) how we give them feedback.

**Keywords:** Reflection, learning assistants, writing, assessment, teaching, pre-service teachers.

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## INTRODUCTION

At Florida International University (FIU), we have implemented an LA program based on the Colorado Learning Assistant Model [1]. As a part of our LA program, first semester LAs from all disciplines enroll in a science and mathematics education pedagogy course, the LA seminar. One of the goals of the LA seminar is to provide our LAs with opportunities for reflective practice. This is a part of a broader goal to help prospective teachers at FIU to develop as reflective practitioners. Research suggests that reflective practice is a key element in developing expertise [3,4]. Correspondingly there is a school of thought in teacher development that suggests that teachers need to be active, self-regulated, and reflective learners while on the job [5]. Accordingly, we believe that reflective practice is a critical part of becoming a quality teacher. In the LA seminar, LAs submit weekly reflective assignments designed to help them develop this skill. Prior anecdotal evidence suggests that our LAs are engaging in reflective practice. In this study, we seek systematic evidence that our LAs are engaging in reflective practice. We examined their reflections with a rubric used for characterizing reflection in writing [2]. The purpose of this paper is to document the methods used at FIU to assess our LAs reflective writing assignments, how we provided feedback to our LAs, and examine evidence that our LAs are engaging in reflective practice.

## BACKGROUND

Dewey is the key originator of the concept of reflection; he initiated the conversation on reflection in his work, *How We Think and Act* [6]. In this work, Dewey characterizes different modes of thinking. He asserts that reflection or reflective thinking is a special kind of problem solving that involves framing and reframing problems. Whereas Dewey laid the foundation for reflective thinking, Schön laid the foundation for reflective practice in teaching [7]. Schön [8] highlights the need for professionals to be reflective practitioners. Schön emphasizes the importance of reflecting for future action in the professions and teachers are in a profession that requires that weighty decisions be made quickly.

In teaching, reflective practice involves intentional thinking about and investigation of situations, actions, and consequences as a means for improving the practice of teaching. During reflective practice teachers reflect back on previous action and make decisions that will guide future action in an endeavor to hone their teaching skills, improve instruction, and negotiate competing goals or responsibilities.

## METHODOLOGY

To extend our evidence and assess our LAs reflective practice, we relied on a rubric based on Hatton and Smith's [2] "Criteria for the Recognition of

Evidence for Different Types of Reflective Writing.” The rubric consists of four levels: descriptive writing (no reflection), descriptive reflection, dialogic reflection, and critical reflection. In the following sections, we describe the different levels of reflection, include excerpts from LA writing assignments, and explain the kind of feedback given to the LAs. The writing assignments analyzed in this study, are reflections on teaching experiences submitted by physics, chemistry, and mathematics LAs during the spring 2010 semester. LAs were asked to think about their teaching assignments and write what they were thinking. More direct guidance was given to the students individually as feedback on the reflections.

### Evidence of Reflection

In this study, student reflections were characterized by the highest level of reflection evidenced in their writing. The sections below are presented in order of sophistication starting with descriptive writing, which is not considered reflection, through to the highest level: critical reflection. The rubric being used is a part of a larger framework for characterizing reflection. The rubric for the three levels considered to be reflection fall under the reflection-on-action section of the framework. According to Hatton and Smith [2], the framework is developmental in that beginners may start at the lower level and progress to the higher levels of reflection. In the LA seminar, the rubric was not used to grade LA assignments directly. They were graded on a 3-point scale and that grade was not determined by level of reflection, but by writing quality. The rubric levels were used to aid in providing written feedback to the LAs.

#### *Descriptive Writing*

Writing assignments that only included details about or descriptions of the teaching experience were coded as descriptive writing. We do not consider this to be reflection. The excerpt below from an assignment submitted by a physics LA illustrates the kind of writing that was marked as descriptive writing:

1 *I only had one section for the second week so far, because I have another one on Fridays. The topic of the tutorial was velocity and graphs of velocity vs. times and position vs. times. I found*  
 5 *out that students had some difficulties when they had to draw the graphs. Sometimes they confused the velocity with the speed, but I explained [to] them that the speed is the magnitude and the velocity also indicates the*  
 10 *direction of motion according to the sign. Fortunately, I did not have any problem at the*

*moment of explaining something. I think I did it well.*

This assignment is characterized as descriptive writing because the LA only describes the experience. No explanations are offered. Although the LA is cognizant of student difficulty (lines 4-7) she does not reflect on why they are having difficulty. Although she mentions using explanation (lines 7-10) to assist them, she does not reflect on why she chose this method or whether or not it was successful. LAs writing at this level are usually provided with prompting questions to help them begin reflection. For example: Why do you think students confuse velocity with speed? How do you determine what strategy to use in assisting students with their difficulty? Because this level is not considered reflection—and the assignment is to write a reflection—students who consistently write at this level usually do not receive a grade of 3 on the 3-point grading scale.

#### *Descriptive Reflection*

The second category from the rubric is descriptive reflection. Descriptive reflection is similar to descriptive writing in that it includes the details of events during the teaching experience. However, descriptive reflection takes it a step further by providing reasons and justifications for the events. The following excerpt illustrates a writing assignment marked as descriptive reflection.

1 *In my recent labs, students were finding it difficult to make connection between velocity and position. They would remember it for a second or two then forget about it, probably thinking they won't*  
 5 *need it again. I used what I learned from my reading to my lab. I made connections from what they already knew about slope, and used it in these motion graphs. It was also hard for me to know what the students understood and didn't*  
 10 *understand about the topic. I tried to get an idea of this by asking them questions, and seeing where they struggle. Some of the groups had the correct answer but when it came to explain why they drew it [the graph] one way and not the*  
 15 *other, they were clueless.*

In descriptive reflection students justify or provide reasons for events that occur and for their actions. According to Hatton and Smith [2], they may choose one perspective to explain or rationalize the occurrence or they consider multiple perspectives. In lines 3-6, the physics LA offers reasons for why he believes the students do not remember concepts. Because he considers only one reason and does not take his analysis any further, this is considered

descriptive reflection rather than dialogic reflection. In lines 6 and 7 he states his rationale for the teaching strategy that he chooses. He again justifies his chosen strategy—this time the use of questions—in lines 13 and 14. However, when he realizes that it does not work for all the groups, he does not consider use of any other strategies. Again, because he does not weigh multiple strategies or alternatives and simply states justifications for the methods he chose this reflection is considered to be descriptive reflection and not dialogic reflection. This student would likely receive feedback encouraging him to consider alternatives. For example, he would be asked: Could there be another reason why students are forgetting the relationship between velocity and position? Is there another method you could use to determine student understanding of the topic?

#### *Dialogic Reflection*

The next excerpt is from a reflection marked as dialogic. Dialogic reflection differs from descriptive writing because the author is considering multiple reasons and weighing them against each other. Hatton and Smith [2] describe this as being a kind of conversation with one's self. Furthermore, the reasoning in dialogic reflection is deeper than that in descriptive reflection.

- 1 *... some of the students that I'm tutoring got terrible scores while using proofs that I showed them. ... the way they used them was incorrect. During the tutoring sessions, I don't write down every single detail on the board, but I verbally explain things as I write them, ... The problem with this is that the students only write what I write on the board, and they end up using what I write as their own answer on the test. So, ...*
- 10 *they're leaving out huge chunks of the argument. ... I could remedy ... this by writing everything on the board, but I don't know if this addresses the real problem, which is that the stuff that I'm saying isn't really getting through to them. ... The*
- 15 *goal should be for the students to understand the argument and be able to reproduce the argument, not for the students to be able to copy it correctly ... I think I should start ... [getting] them more involved by having them do the proofs*
- 20 *themselves and then letting them know what they are doing incorrectly.*

In the excerpt above, the Mathematics LA identifies the problem in lines 1-3. He identifies the cause of the teaching problem in lines 6 and 7. He reflects on one method for solving the teaching problem in lines 11-14. He reflects on another method

for solving the teaching problem and chooses this method for his future practice in lines 18-21. This reflection was marked as dialogic because this LA is having a conversation with himself and is weighing multiple alternatives for solving his problem, but not considering the broader teaching structure. Dialogic reflection is one of the higher levels; thus, it is quite difficult for students to reach this level. Students at this level are not encouraged to reach for critical reflection. Rather, they are encouraged to continue engaging in this kind of deep reflection, but also to allow this reflection to impact future action. In addition to commendation, this student would likely receive a comment such as: I look forward to reading about how things turn out when you try this new method.

#### *Critical Reflection*

The last category on the rubric is critical reflection. Critical reflection goes beyond surface considerations of events. According to Hatton and Smith [2] critical reflection “demonstrates an awareness that actions and events are not only located in, and explicable by, references to multiple perspectives, but are located in, and influenced by multiple historical, and socio-political contexts” (p. 49). The following excerpt shows evidence of a student engaging in critical reflection.

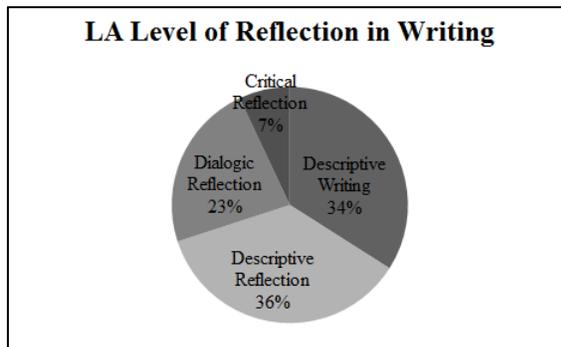
- 10 **On the basis of these sort[s] of experiences, I have been thinking** for the past few weeks that a PhD in a particular subject isn't enough to qualify someone to teach a subject ... **I think its unfortunate and unnecessary that so many students should suffer the consequences of having to learn from a PhD who was never trained to be an educator.** I also think ... that **it's pathetic that our country does not give its highest efforts in an educational system to empower all Americans.** To me, it seems only natural that you'd want one of your most valued assets to be the academics in your country. **It is unfair that different Americans receive a different standard of education**—not by fault of the teachers but because of the higher level administration, who decide the curricula. **As a result of this, I'm starting an FIU Society for Critical Pedagogy along with two other students.** We'll be having weekly readings on education and then meeting once a week to discuss the readings, our thoughts, our ideas, how we can relate what we've learned to the present ...

Although the experience is not included in this excerpt, this Chemistry LA indicates that an

experience with her TA sparked her reflective thinking in line 1. In lines 25-31 that individuals with PhDs should receive preparation in education before teaching college students. In this case, she is generalizing and thinking outside the local context of her classrooms and experiences. In lines 33-35 she begins to reflect on equity in the American education system. Although she mentions many topics and the flow of her reflection is not easy for the reader to follow, she is reflecting on broader issues in education in a way that makes sense to her. In lines 42-45 she describes her actions resulting from her reflective process. This is considered to be critical reflection because she is thinking about the broader issues in education (i.e. qualifications to teach at the collegiate level, education for empowerment, and equity in education). Again, this is a deeper level of reflection. Thus, students at this level are encouraged to continue.

## RESULTS

Using Hatton and Smith's rubric, a total of 111 reflective writing assignments from weeks 3, 6, 9, and 12 of the spring 2010 semester were analyzed. The teaching reflections analyzed were categorized as follows: descriptive writing 38 (34%), descriptive reflection 41 (37%), dialogic reflection 25 (23%), and critical reflection 7 (6%). This information is provided in the figure below. From this data, we conclude that our LAs are indeed engaging in reflection and that it is evident in the majority of their writing assignments.



## DISCUSSION AND IMPLICATIONS

The framework discussed in this paper can be used to determine whether or not LA writing gives evidence of reflection. Moreover, it provides instructors with information on how to help students to progress to higher levels of reflection. In the LA Seminar course instructors can guide course discussions in a ways that will encourage the class to engage in higher levels of reflection. To illustrate, if the majority of the class is writing at the descriptive reflection level, instructors

may use class discussion time to ask students if there are alternative explanations for LA experiences or alternate strategies available for LA use.

In addition to providing evidence of reflection and helping instructors to assess the progress of their LAs, this framework can be used to answer the following research questions: 1) Is there evidence of reflection in the reflective writing assignments submitted by our LAs? 2) Is there a change in the level of reflection evident in our LAs' writing assignments over the course of the semester? 3) Is there a difference in the level of reflection evident in the writing assignments of LAs from different programs? Using this framework to assess written reflections and nonparametric statistical tests, Cochran, Brewe, Kramer, and Brookes [9] investigated whether or not there was a change in LA reflection over the course of the semester. Results suggested that the extensive feedback that the LAs receive during the first few weeks of instruction help them to write at higher levels of reflection.

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