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## **Problem Solving and Critical Inquiry in the Written and Oral Reflections of Middle School Preservice Teachers' Classroom Experiences**

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### **Introduction**

Preparing teachers for critical and reflective teaching in public school education is necessary in a political and cultural climate that reinforces that teachers must prepare students to pass state tests based on state-mandated learning goals. Teacher reflection, as both practice and theory, has been suggested as a way to empower teachers to think critically (Schon, 1990). Research has focused on the “processes of teacher reflection and the relationships between these thinking processes and teacher development” (Zeichner, 1995, p. 16). There is issue, however, in the ambiguity of what constitutes reflective thinking and how it can be assessed as being beneficial or even effectively incorporated (Ash & Clayton, 2004). Yet, if effectively implemented, in teacher preparation reflection may help preservice teachers understand and apply their own epistemologies, increasing or enhancing higher empathetic and critical reasoning (Langone, 2008). Also, if preservice teachers are able to gather valuable insight about their practices from reflection, their future

students will benefit, especially if these teachers model such reflective and metacognitive skills to them.

Research exploring reflection as a method for preparing student teachers is limited in terms of the effectiveness and role reflection plays in student development. Variance in the length of time or scope of reflective practice that exists in preservice programs poses questions in terms of what truly determines reflective thinking and what is the best form to elucidate the kind of cognition desired (Ash & Clayton, 2004). For many educators, the use of meaningful reflective practice is indiscriminate with little to no effective assessment of its effectiveness (Isikoglu, 2007). A deeper understanding of these issues, as well as those discussed later in this article, may help researchers and teacher educators ascertain the limitations and benefits of reflective practices (Campbell-Evans & Maloney, 1998). The goal was to determine the effectiveness of reflective exercises for preservice teachers within an apprenticeship component of a middle grades education program.

## **Rationale**

The purpose of this action research study was to investigate undergraduate preservice student-teachers' interpretations of written reflections and how these written reflections impacted their thoughts about teaching practices. A second question was to investigate how preservice teachers talked about their processes of reflection beyond the assigned written reflections. The oral reflections emerged from class discussions concerning student perceptions, both before and after the students' field experiences. We then compared written reflections with reflections communicated through oral classroom discussions.

Research questions:

1. How do the preservice teachers interpret purposes of written reflections?
2. How do the preservice teachers' written reflections illustrate their understanding of theory and practice?
3. How do the preservice teachers' communicate their understanding of theory and practice through classroom discussions of previous reflections and experiences?

The educational purpose of written reflections for preservice teachers was to create a bridge between theory and practice (Bannink & van Dam, 2007). In the field of teacher preparation, preservice teachers' perceptions of how they used these reflections, or will use these reflections for future teaching, have not been researched in detail. How students practically apply oral and written reflections to their plans for improving teaching methods can help researchers and teacher educators determine the kinds of reflections that are most useful for preservice teachers (Zeichner, 1995).

## **Theoretical Framework**

Reflections about teaching practices and theories can be an effective means for preservice teachers to evaluate their instructional results with students. Reflection can also be a valuable, cognitive process that enhances deeper understanding of multiple nuances of situation, contexts, and meaning (Ash & Clayton, 2004; Shoffner, 2008; Zeichner, 1995). Dewey's (1916) early conception of critical reflection provided the groundwork for later research on teacher reflection. Critics argue that reflection as a cornerstone of thinking is incomplete unless the thought is successfully turned into action, representing a higher level of cognition referred

to as reflective action. As Denos and Case (2006) explain, "Critical thinking involves thinking through problematic situations about what to believe or how to act where the thinker makes reasoned judgments that embody the qualities of a competent thinker" (p. 73). Schon's (1990) thinking-in-action processes are both critical and systematic. It is difficult to accomplish both during one college semester, as in the case of preservice, apprenticeship teachers who experience classroom teaching for one month during the semester.

Critically reflective thinking about educational theory and practices may not occur in much of the reflective practice exercises that are used in teacher education programs (Yost, Senter, & Flornenza-Bailey, 2000), although it was the goal for our preservice teachers. We were also concerned that individual reflective activities did not achieve the desired outcomes because reflections were evaluated by university supervisors rather than the faculty teaching the course (Johnston, 2001; Isikoglu, 2007). The process of reflection is described as occurring in three stages of cognitive development: technical or basic rationality, practical action, and critical reflection (Isikoglu, 2007). However, research supports the idea that preservice teachers demonstrate only the first two, technical and practical action, neither of which reflects higher-level, cognitive thinking (Isikoglu, 2007). Critical, higher-level thinking in reflective activities can be encouraged by including specific guidelines, clearly defined expectations or direct and explicit questions that can help students in focusing their reflections toward critical thinking (Johnston, 2001). The problem is that students may write what they believe is expected rather than genuine reactions and processing (Phillips & Carr, 2007).

Critical praxis is the process of critiquing both individual practices and school as social constructions (Yost et al., 2000). Dialogue allows education students the opportunity to examine theoretical frameworks, analyze their usefulness, and apply them to their own practices. Critical questioning of one's own beliefs is necessary, and when this component of reflection is absent, students' ideas and beliefs may remain biased, ineffective, or steeped in stereotypes or flawed perceptions (Ash & Clayton, 2004). We set out to determine the usefulness of written reflections and post-apprenticeship class discussions for preservice middle school teachers.

Class discussions, not often labeled as reflection, is personal reflection influenced by an audience with a moderator or teacher. A critically reflection audience can diminish students simply telling what they think

without immediate feedback or criticism (Schon,1990). The audience helps avoid self-reflective isolation. Self-reflective isolation was problematized by Schon (1990), who wrote, “When inquiry into learning remains private, it is also likely to remain tacit. Free of the need to make our ideas explicit to someone else, we are less likely to make them explicit to ourselves” (p. 300). Preservice teachers who reflect solely through written forms may not have many of their assumptions, ideas and/or beliefs challenged. The causal role of the audience and the immediate feedback may be the influential factor in limiting or removing self-reflective isolation.

**Methods**

***Methods and Data Collection***

A collaborative action framework was used to analyze the ways preservice teachers responded to reflection activities and assignments. According to Johnson (2005), “Action research can be defined as the process of studying a real school or classroom situation to understand and improve the quality of actions or instruction” (p. 21). We were interested in examining the usefulness of the written reflection assignments to enhance teacher preparation for preservice teachers. As Stringer (2008) recommended, the process began with a narrow focus on written reflections. We expanded our definition of reflection to include the reflective dialogue that occurred during post-apprenticeship class discussion (Ash & Clayton, 2004; Yost et al., 2000).

Classroom discussions and the placement of the apprenticeship program within the university’s teacher education program informed our interest in teacher reflection and data choices. Preservice teachers were invited to comment during data collection, and we discussed findings with them. The interpretive ethnographic traditions were used to best answer the research questions (Lareau & Schulz, 1996; Van Manen, 1994). The general purpose was to interpret the preservice teachers’ and faculty perceptions as teacher educators of the purposes and usefulness of both written and oral reflections during and after the apprenticeship program. To enhance validity, data was collected from three potential sources: student notebooks, pre- and post-apprenticeship questions, and observation of the classroom discussion. Research questions and the data sources are included in Table 1. Data sources are described following the table.

***Participants and Program Design***

The 28 participants were undergraduate students in a middle grades preparation program during fall 2008. The education program, located at a regional university in the southeastern United States, involved an apprenticeship block semester directly before the student teaching semester. During the apprenticeship semester, middle grades undergraduate students are immersed into a public school, middle grades classroom (grades 6–8) for four weeks or 20 consecutive days. The apprenticeship block is a mandatory component of the

Table 1  
*Research Questions and Their Data Sources*

Research Questions	Data Sources
1. How did the students interpret purposes of written reflections?	Pre- and post-class responses to written questions, apprenticeship written reflections, class discussion notes
2. How did students’ written reflections illustrate students’ understanding of theory and practice?	Pre- and post-class responses to written questions, apprenticeship written reflections
3. How did the students communicate their understanding of theory and practice through classroom discussions of previous reflections and experiences?	Class discussion notes

middle grades education program. During this time, the undergraduate, preservice teachers do not attend educational classes in order to integrate into a public school classroom under the tutelage of an experienced mentor teacher. University collaboration and assistance is provided by faculty members within the middle and secondary department, who must visit and critique the student three times during their apprenticeship period.

The program allows preservice teachers to experience the practical realities of the classroom environment while still experiencing support from the continual presence of the mentor teacher. The programmatic design is for preservice teachers to experience the theoretical and research-driven applications at work in a practical, real-world setting. Preservice teachers were able to integrate theory into practice while in a safe setting before beginning their final student teaching semester. Students graduating from the middle school program have been successful in their school systems and many have been rewarded teacher of the year as well as other, equally significant honors.

Halfway through the semester the preservice teachers are released from block classes to begin their apprenticeship in local schools for their required 20 days. They are placed with known, proficient mentor teachers who help preservice teachers incorporate theory into practice. The immersion is gradual, with preservice teachers observing before teaching a lesson or assignment. For successful completion of this component, the preservice teachers need to adequately teach two classes, one with the mentor's lesson plans and the other with their own lesson designs. Both lessons are rated by the university supervisor and mentor teacher. Preservice teachers are also required to build a comprehensive notebook compiled of lessons, activities, and daily reflections. After completing the four-week internship, preservice teachers return to the university setting for the final few weeks of their semester, which is referred to in the next section as post-apprenticeship.

### ***Class Discussion Notes***

During the post-apprenticeship discussion in the block class, one of the authors led the class discussion while the other author took notes and audiotaped the responses. Both authors occasionally asked follow-up questions. The three initial questions asked during the discussion were:

- How did you change your thinking and teaching practices (if at all) throughout your process of reflecting before and after your apprenticeship teaching experiences?

- What did you learn from your reflections?
- What were the benefits and problems of the written reflections as assigned for apprenticeship?

The class spent two-thirds of the discussion (approximately two hours) discussing the above questions using their classroom apprenticeship experiences as examples.

### ***Pre- and Post-apprenticeship Written Reflections***

Preservice teachers' written responses to the following questions were collected both before and after their one-month apprenticeship experiences:

- What constitutes good teaching?
- What, in your mind, is a good classroom management plan? How do you plan on managing students?
- What is the biggest or most critical problem you see in yourself as a teacher (weakness)?

Preservice teachers were asked to write answers to the three questions individually. After the apprenticeship experience, preservice teachers were asked the same questions without reference to their original responses. Once they were finished (the second time), initial answers were handed back for comparison. The preservice teachers were then asked about any possible changes in their responses during class discussions.

### ***Written Apprenticeship Reflections***

Each preservice teacher was required to write a one-page reflection for each day of their apprenticeship experience in their notebook, which was collected and graded by the supervising professor at the end of the semester. The requirements were given to the preservice teachers as a handout before the apprenticeship (Appendix). They were also required to rate each day on a scale from one to ten, in terms of their satisfaction with the profession of teaching.

## **Data Analysis**

### ***Coding of Data***

Compilation of the data went through several steps as the authors analyzed the written responses, transcripts, and oral reflections. During the first round of coding, the authors used In-vivo codes, defined by Corbin and Strauss (2008) as "concepts using the actual words of research participants" (p. 65). We investigated the ways preservice teachers interpreted their teaching through their written reflections and in-class dialogue, developing concepts such as classroom management or re-teaching. Three sets of data (described above)

were analyzed using constant comparison analysis (Corbin & Strauss, 2008). The expressed goal was to look at how preservice teachers viewed the written and oral reflections (Lather, 1991).

Next, the constant comparison method was used as data was analyzed across students' written reflections and tape transcriptions from the oral class discussions about the students' written responses and about their apprenticeship experiences. The authors next discussed the In-vivo codes, using theoretical comparisons (Corbin & Strauss, 2008) to produce conceptual themes. The authors also went through a process of "member checking" by sharing their analysis of the data and checking themes with each other and the preservice teachers during class. From an analysis of the codes, the authors wrote final theme statements to reflect class discussions and the preservice teachers' written and oral reflections about their apprenticeship experiences.

## Results

### *Students' Purposes for Written Reflections*

To answer the first research question, "How do the preservice teachers interpret purposes of written reflections?", the tape transcriptions, written apprenticeship reflections, and written responses to questions were analyzed for dominant themes. Two themes emerged as central to the oral discussions about purposes of reflections: (1) to whom it may concern and (2) problem solving. The theme *to whom it may concern* developed from data in which preservice teachers stated in class that they were confused about *who* would be reading their reflections and *why* they were writing the written reflections for their apprenticeship. This theme also became evident through the written apprenticeship reflections in the students' notebooks. All of the students' reflections seemed to be directed generally to "professor-educators," without a specific audience in mind. While some of the students briefly answered the assigned apprenticeship questions (see Appendix), others wrote the reflections as a method of *problem solving*, which emerged as the second theme in response to the first research question. These themes are explicated in the next section.

***To whom it may concern.*** Confusion about audience and purpose was consistent throughout the class as the preservice teachers discussed the usefulness of the written reflections in the apprenticeship notebook. The following class conversation illustrates the preservice teachers' confusion about the audience and purpose of the written reflections.

*(All student names are pseudonyms)*

John: When I ignored the questions, I wrote better reflections—I could see my thinking. . . . I didn't know who I was writing to. I wanted to write these for myself.

Laura: The questions didn't really allow us to reflect on our teaching methods.

Dr. Lennon: So, what do you think you should have been able to write about? What would have made these reflections better?

Karen: I felt that I was being limited by the questions. It should have been a tool of learning for us—that's what it's supposed to be anyway—it should have been a place where we could look back, then write, 'looking back at this, I could have done . . .' instead of just answering someone else's questions.

Cheryl: If I could have just reflected on how my day went, . . .

John: I focused on the positive—I wasn't sure who would be reading them . . . and grading them.

This conversation suggests that these preservice teachers valued the process of reflecting on their apprenticeship experience, but they recognized that this was an "assignment" that would be graded as part of their required notebook after they completed their apprenticeship experiences and their block semester. The majority of the class agreed that there were too many teachers or supervisors involved in the evaluation process; we all concurred with this statement. Some of the apprenticeship supervisors were not teaching the block classes, so there were additional professors involved in the grading process, which caused confusion for both students and professors who were new to the college of education.

From an examination of the written apprenticeship reflections, the authors agreed that the preservice teachers' written reflections lacked a clear voice that would demonstrate teaching identity or illustrate their processes of developing teaching identities (Alsup, 2006). The tone was often detached, with use of passive voice, such as, "If a teacher would explain the rules, the students would know what to do." However, when the preservice teachers focused on the second part of Question Three "The most important thing I learned today was . . ." The preservice teachers responded with a more purposeful sense of their teaching. For

example, Joseph wrote, “The most important thing I learned today was that I need to continue to work on my classroom management skills and on being more flexible when it comes to class discussion. I felt like today some of classes would have really had an engaging discussion, but I was more worried about time.” Guiding questions for written reflections may or may not be necessary, but this particular question seemed to resonate with these preservice teachers. Teacher educators will need to think carefully about how to guide education students to reflect in ways that benefit them as future teachers. Simply requiring reflections without department agreement about purpose appeared to be problematic for the students and may limit the effectiveness of written self-reflections. The preservice teachers’ overwhelming confusion about reflective goals caused us as teacher-educators to think further about the purposes for written reflections.

Although the preservice teachers were told that their supervisors would read and grade their notebooks and reflections, they knew that their block class professors would also be grading them for their entire semester of work in the classes. The purpose of the reflection section of the notebook was not apparent, so the preservice teachers’ confusion was warranted. Schon (1990) suggested that apprentices need to reflect toward a specific audience. Both preservice teachers and classroom teachers experience agency when they reflect on their teaching (Philips & Carr, 2007), and, perhaps, preservice teachers need to have more control over the direction reflective processes take, especially when they have begun to teach in practicum or student teaching situations.

**Problem solving.** Beyond the issue of reflective audience, some preservice teachers took initiative and used written reflections as a method of problem-solving during their apprenticeship experiences. In other words, they wrote about problems they were having with classroom management or teaching methods, then, in some cases, interpreted the causes for these issues. Every preservice teacher reflected on at least one teaching problem he or she experienced. For example, Tim, Laura, Robert, and Yvonne wrote about the problem of what to do with students who finish taking tests before other students in a class. Laura and Robert described activities and puzzles they used as solutions for students who completed tests early. Those apprentices who reflected about problems independently and then incorporated solutions in their teaching seemed to benefit from the writing process and were able to arrive at their own resolutions. Others asked their mentor teachers for solutions or clarification.

Trevor explained in a class discussion that his problem-solving strategies needed to be immediate, and the writing process did not help him to think about his teaching:

I reflected while I was teaching—I would talk to my mentor teacher about what I felt I needed to work on as soon as the students left, then I would work on the problems the next period. Going back at the end of the day felt unnatural.

Recognizing that apprentices may need the advice of their mentor teachers immediately after teaching a lesson, frequent reflections discussed or written during the school day may work better for some apprentices and student teachers than for others (Schon, 1990).

### ***Students’ Understanding of Theory and Practice***

When examining responses to question two about preservice teachers’ connections between theory and practice, we had looked for evidence concerning how preservice teachers reflected on their conceptions of theory. We also looked for how theory was disconnected or connected to the practices they observed or the methods they used while teaching. Perhaps due to the scripted questions or for other possible unknown reasons, preservice teachers did not directly write about connections between theory and practice. As illustrated in Britzman (1991), student teachers and beginning teachers tend to be caught up in the culture of the school in which they practice. Beginning teachers may lose perspective or continuity when reflecting upon the usefulness of theories and practices learned in the university program. Likewise apprentices who focused on practices, often ignored the thinking or purpose behind the mentor teachers’ methods, or the apprentices did not develop learning goals for their own class activities. The theme *survival manual* emerged from written reflections, because preservice teachers depended on their mentor teachers to assist with classroom management strategies. When the preservice teachers began teaching a few classes alone, problems with management and other issues led them to think about alternatives, especially if they did not agree with their mentor teachers’ practices or philosophies.

***Survival manual.*** Most of the preservice teachers explored or conceptualized their thinking about teaching methods and classroom management as a means of survival in the classroom. Evident in some of the reflections were the preservice teachers’ views of their teaching personality. For example, they reflected on how much or how little control over the classroom environment they were comfortable

having. Questions about the comfort level of their students working in groups became apparent, and questions emerged about whether or not the apprentices wanted their students to raise their hands when they had a question or response during class.

Preservice teachers also reflected on methods they could use for making connections to students' personal lives as a means to further reinforce learning and involvement. For example, Laura wrote about a rap she sang to help students remember the scientific classification levels in a seventh grade science class. "I heard kids singing it through the halls." Laura talked about the rap during class discussion also, explaining that the rap worked well to help students remember content. Marilyn, Amanda, and Heather described how they used questioning techniques that they had learned in methods classes to keep the students involved when they were presenting information or teaching content directly. While they did not mention the reading and memory theories that inform practices of teaching pre-reading and activating prior knowledge skills to students, these apprentices seemed to be aware that these were theory-driven practices that would help their students remember the content. Although the apprentices generally did not make explicit connections between theory and practice, the authors read evidence in their reflections that they had applied effective teaching practices to improve their students' content knowledge. Keeping in mind that many of these preservice teachers were spending their first moments in charge of a classroom of students, the focus on practice over theory in their written reflections is not surprising.

***Student outcome emphasis.*** A close reading of the preservice teachers' responses to the before-and-after questions led us to the theme of *student outcome emphasis*. The emphasis on how well the students performed on tests was evident in the reflections written during the apprenticeship. Also, the shift in focus from teacher performance to student performance was even more evident in the before-and-after questions that served as the foundation for class discussions. Of the 27 apprentices who responded in writing to the before-and-after questions, 19 emphasized the importance of making sure students understand the content. All 19 preservice teachers mentioned students' content knowledge only in the "after" responses to the question, "What makes a good teacher?" These responses were stated in a variety of ways, such as "making sure all students understand the content" and "engage[ing] students with a variety of teaching strategies." In the pre-responses to this same question, the apprentices emphasized the idea of the importance of the *teacher* knowing the content; however,

the focus on ensuring that students retained content or learned was evident only in the post-apprenticeship response to this same question. In the pre-responses, four preservice teachers mentioned that a good teacher "encourages creativity" or "makes sure students enjoy learning," but the language changed to a focus on learning content in their post-apprenticeship responses.

The authors suspect the focus on making sure that all students "learn the content" is a result of the No Child Left Behind (NCLB) Act and the subsequent examinations implemented by state boards or offices. Once immersed in a test-taking culture, the apprentices focused on test-preparation mandated by the school administration and adopted their mentor teachers' responsibilities for ensuring student success on the state exams. Once the apprentices left the field and returned to their classrooms, critiques about schools, teaching practices and theories occurred in the post-apprenticeship class discussions, which are addressed in the following section.

The third research question, "How did the preservice teachers communicate their understanding of theory and practice through classroom discussions of previous reflections and experiences?" allowed us to explore the apprentices' understanding of their own reflection processes, along with critiques of school cultures, teaching practices, and classroom management techniques. Perhaps because of the dialectic nature of classroom discussions, the apprentices were able to verbalize the thinking behind their practices, which was interpreted as indirect connections to theory thus the theme *critical inquiry* emerged from the transcripts of the in-class discussions.

***Critical inquiry.*** In class discussions, the apprentices described their awareness of potential problems with the school cultures that over-prioritized testing. For example, Karen was dismayed at her mentor teacher's re-teaching strategies:

Karen: My mentor teacher would teach the same thing in the same way. She lowered her expectations for the students who were performing well, which bothered me. I would have figured out a different way to teach the students who weren't getting it, then move on.

Joseph: My mentor teacher was doing the same worksheets with types of sentences. I had my students write their own sentences, which worked better and was less boring.

Amanda: I taught my students how to work in groups because some of them learned math better this way because they could help each other. My mentor teacher didn't use groups.

In this conversation, the apprentices demonstrated their knowledge of teaching strategies, applying these strategies because they theorized that students have different learning styles. Joseph initiated more writing practice to replace the grammar drill worksheets, recognizing the need for students to learn grammar and sentence skills in context instead of as the practice of isolated skills.

The apprentices also critiqued the classroom management and discipline rules established by many of their schools and/or mentor teachers. When the rules in place did not work for them, apprentices needed to develop problem-solving strategies. Janet explained, "My school's discipline system didn't work because students who misbehaved ended up in a detention room with their friends who also got in trouble. I started using some assertive discipline with rewards." Other students mentioned a variety of disciplinary systems and routines that their schools sanctioned. Rhonda and Trevor, who were apprentices in the same school, explained that they gave each other advice and talked to each other's students about their behaviors in class. "The boys listened to Rhonda," Trevor explained, "and I talked to a couple of girls one time who were acting out in Rhonda's class." The apprentices seemed to benefit from these discussions of classroom management, learning a variety of techniques that worked as they listened to each others experiences.

In the end, the apprentices learned from both the written reflections and class discussions. As the preservice teachers discussed and learned from each other in class, they gained an awareness of teaching strategies and solutions that they would not have been able to derive on their own. The oral conversations about teaching also initiated cultural criticism about the emphasis on testing in the schools. The apprentices' mentor teachers' methods of working with and against the state assessments also elicited discussion and critique during class discussions. This was not evidenced in the written reflections.

### **Limitations and Implications**

This study has a number of limitations. First, data were collected on a small number of participants at one university. Although participants were from preservice teachers during one semester and in one cohort, they

are representative of other students in middle grades education programs. Second, data was not collected from students during their student teaching semester. These limitations can develop into future work by expanding data collection to include more cohorts.

In spite of the limitations, the processes of oral and written reflections for preservice teachers in middle grades education may need to be explored further. The lack of immediate feedback on preservice teachers' written reflections in the apprenticeship notebook may have contributed to the preservice teachers' confusion concerning the purposes for the written reflections. For apprentices, reflections in the form of oral class discussions initiated criticism of school policies, teaching strategies, and classroom management. Although the written reflections were beneficial, reflections may have been more effective if the purposes and audiences of written reflections were clarified by the supervising professors, and the preservice teachers were able to receive feedback on written reflections from peers and supervising professors during the period of apprenticeship.

The form or kind of reflections should be connected to the overall goals of a specific teacher education program and to the field experiences each program requires (Yost et al., 2000). It is up to the teacher-educators to communicate these goals to the students. Department goals were ambiguous and individual teacher-educators interpreted the requirements according to their own understanding of the apprenticeship reflection assignments. Consistent with other researchers in the field, we found that preservice teachers would have benefited from continuous guidance regarding the nature and purpose of the written reflections (Isikoglu, 2007; Johnston, 2001). Before supervisors and teacher educators can direct preservice teachers to reflect in meaningful ways, a general definition of effective reflection should be communicated. Students also need to be provided with examples of reflections that move beyond technical and practical thinking about their teaching (Isikoglu, 2007).

Further research is also needed on the context and applications of both verbal and written forms of reflection, including that of potential limitations. Which of these two forms of reflection (dialogue or written) works best and under what specific conditions? What type or level of reflection is desired as an outcome? Although written forms of reflection have been emphasized in current educational research, oral discussions of reflections should also be investigated in terms of their possible benefit for preservice teachers. Research producing quantifiable

data on the effectiveness of oral versus written reflection is also recommended.

Although previous researchers have determined that preservice teachers are unable to verbalize connections between theory and practice (Ash & Clayton, 2004), we found that preservice teachers were able to discuss theory in dialogue with others. Their reasons were not always stated in terms of specific theoretical frameworks, but they were able to verbally defend reasons for their teaching decisions using language of constructive teaching, such as scaffolding and prior knowledge.

The positive results of classroom discussions on preservice teachers' verbal reflections suggest that some preservice teachers better process experiences through dialogue or thinking aloud. Yost and associates' (2000) review of reflection research suggested that most seminars do not include substantial class time for discussing changes in thinking and teaching methods.

Beyond class time for discussion on reflection, the implementation of preservice teacher meetings throughout the month-long apprenticeship may encourage further reflection-in-action (Schon, 1990), especially if preservice teachers know they will discuss teaching practices daily or weekly with their peers and supervisors. Further, if preservice teachers know their reflections will be shared with peers, perhaps they will also draw on each other's knowledge and experience to reflect at higher or critical cognitive levels.

Considering previous research, the results of our study and recent classroom experiences, we recommend the following for incorporating reflection into preservice education seminars:

- Establish clear goals for written reflection assignments and communicate these goals to preservice teachers before they enter the field.
- Provide opportunities for professor and peer feedback during the apprenticeship period; for example, a debriefing session once a week for a few hours to allow preservice teachers to share reflections and dialogue about their experiences.
- Develop reflective dialogue guidelines for mentor teachers to use in their work with preservice teachers.

- Design questions that engage preservice teachers in reflecting about the relationship between theory and practice.

Regardless of the discrepancies between results of oral and written reflection evident in the study, it appeared that individual reflection, in general, incorporated without specific guidelines or direction, was not viewed by preservice teachers as particularly beneficial. Both Dewey (1916) and Schon (1990) affirmed the need for purposeful, reflection for teachers. To ascertain critical thinking, reflective practices must be incorporated with care and foresight, and preservice teachers must be encouraged to contemplate the connections between theory and practice.

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## **Appendix**

### **Daily Reflective Journal**

**This entry will be included daily in your notebook.**

When writing and reflecting about your performance and experiences, answer the following questions in each entry. This will help you interpret your feelings and be more constructive in coming up with solutions or new ideas. This will also be where you address your rating on the reflective graph and your satisfaction with a teaching career on a daily basis.

1. What is the most positive thing that happened in your school day? Why do you feel so strongly about it?
2. What is the most negative thing that happened in your school day? Why do you feel so strongly about it?
3. What lesson have you learned from today's experiences or what is the most important thing to remember about today?
4. Have you helped someone today? How?
5. How did you rate your satisfaction with a teaching career today? Why?