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ABSTRACT

This study examined the efficacy of a student teaching internship component of a teacher education program in fostering the development of reflective practitioners by investigating the experiences of preservice teachers in the program. The study noted the extent to which the various requirements of the student teachers' internships (e.g., journal writing, weekly goal setting, observing other teachers, lesson and unit planning, conducting action research projects, and conferencing with field specialist teachers) contributed to their reflecting on practice. Two preservice elementary teachers were studied during their semester-long student teaching internship. Data collection involved audiotaped interviews with participants and conferences with their field specialist; reflective journal entries and weekly goal statements; lesson and unit plans; data from action research projects; and final research reports. Results indicate that requirements for field experiences must be tailored to meet preservice teachers' individual learning needs and approaches. For example, action research projects were useful in terms of preservice teachers' professional development, though one participant did not consider the experience valuable. Participants also differed in how they benefitted from journal writing and observing other teachers. (Contains 25 references.) (SM)

Fostering the Process of Becoming a Deliberate Practitioner:

An Investigation of Preservice Teachers During Student Teaching

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A focus of the design of many teacher education programs is to develop reflective practitioners (Christensen, 1996). Moreover, a movement is underway to include more field based experiences in teacher education programs; however, little research exists that demonstrates that field experiences promote reflection in practice (McIntyre, Byrd, & Foxx, 1996). The purpose of this study was to examine the efficacy of a student teaching internship component of a teacher education program in fostering the development of reflective practitioners by investigating the experiences of preservice teachers in this program. I studied the extent to which the various requirements of the student teachers' internships (e.g., journal writing, weekly goal-setting, observing other teachers, lesson and unit planning, conducting an action research project, and conferencing with their field specialist teacher) contributed to (or detracted from) their reflecting on practice, and I examined the forms and nature of this reflection.

Theoretical Framework

This study was conducted from a perspective that combines ideas of interactionism and constructivism in viewing the process of becoming a teacher. According to the perspective of interactionism, people construct and sustain meanings through interactions and patterns of conduct (Alasuutari, 1995; Blumer, 1969). This position is in accordance with the constructivist perspective of learning in that individuals develop understandings based on their experiences and knowledge as it is socially constructed (Cobb & Bauersfeld, 1995). This framework supported

this study in that the preservice teachers construct meanings based on their participation in, and observation of, interactions and patterns of conduct with students and colleagues.

A primary catalyst for the preservice teachers' construction of meanings is reflection. Although reflection is a practice that has gained considerable attention in the past two decades (McIntyre, Byrd, & Foxx, 1996; Russel & Munby, 1991; Valli, 1992; Zeichner, 1993), Dewey began this discussion more than half a century ago. As a reaction against the view of teachers as technicians, reflective practice has emerged as a means to educational reform and the professional development of teachers. While a wide range of interpretations exist for what is considered to be reflective practice, for an overall image of reflective practitioners, I refer to the ideas of Colton and Sparks-Langer (1993) who stated that reflective decision makers are "thoughtful persons intrinsically motivated to analyze a situation, set goals, plan and monitor actions, evaluate results, and reflect on their own professional thinking" (p. 45).

A key aspect of the reflective process, is that teachers *act* on their reflections. Dewey (1933) argued:

> Reflection involves not simply a sequence of ideas, but a consequence – a consecutive ordering in such a way that each determines the next as its proper outcome, while each outcome in turn leans back on, or refers to, its predecessors... Each phase is a step from something to something – technically speaking, it is a *term* of thought. Each term leaves a deposit that is utilized in the next term. There are in any reflective thought definite units that are linked together so that there is a sustained movement to a common end. (pp. 4 – 5)

Thus, *acting on* reflections distinguishes reflection from just *thinking back* and may be an important aspect in the development of teachers.

Schon (1983, 1987) developed these ideas further and separated reflection into two forms, *reflection-in-action* and *reflection-on-action.* Schon would describe much of what has been discussed thus far as reflection-on-action. Schon described reflection-on-action as teachers' utilizing an "existing repertoire of examples, images, understandings, and actions," referred to as a frame, to resolve a characteristic problematic occurrence (Schon, 1987, p. 66). Moreover, Russell and Munby (1991) explained that reflection-on-action "refers to the ordered, deliberate, and systematic application of logic to a problem in order to resolve it; the process is very much within our control" (p. 165). However, reflection-on-action does not take into account the uncharacteristic event occurring during classroom practice that requires resolution at that moment. Reflection-in-action refers to more immediate thinking in the process of teaching that causes a teacher to ask him/herself, "What is this?" and at the same time, "How have I been thinking about this?" (Schon, 1987, p. 28). In sum, reflection-on-action is a more deliberate process of looking back at events and actions, analyzing them, and making decisions; whereas, reflection-in-action is a more immediate consideration and resolution of an identified problem in the act of teaching and learning. Both types of reflection and the triggering (problematic) events for each type were considered in this study.

Inherent to all discussions of reflection is a problematic event that triggers reflection. Figure 1 represents a synthesis of the various views and definitions of reflection considered for this study as a cycle in teaching practice. In this cycle, the problematic event serves to initiate the process of reflection. Following reflection-in- or reflection-on-action, the teacher develops a

resolution or plan for action. Next, the plan is implemented in practice as an action and the resolution is tested. At this point the process either ends for this event or results and a subsequent problematic event (an unresolved issue), and the reflective cycle continues.

[Insert figure 1 about here.]

A natural consequence of focusing on the process of reflection in teaching has been the inclusion of fostering reflective practice in teacher education programs. This focus is consistent with the emergence of teacher education programs that are based on a constructivist perspective for teaching and learning (McIntyre, Byrd, & Foxx, 1996). Indeed, many teacher education programs are designed to develop reflective practitioners (Christensen, 1996). Given the focus of this study on preservice teachers during their field-based experience, I shall briefly discuss research that addresses reflection during preservice teachers' field experiences.

In McIntyre, Byrd, and Foxx's (1996) review of the literature on field experiences, they cautioned educators about recent movements toward increased field experiences for preservice teachers in their teacher preparation programs. They noted that a dearth of empirical evidence exists indicating that these programs, indeed, are preparing more reflective (and arguably, more effective) teachers. That is, placing preservice teachers in situations in which they are likely to encounter problematic situations does not necessarily mean that these situations result in reflective practice.

Moreover, Putnam and Borko (2000) aptly discussed the challenge of fostering reform-based professional development of preservice teachers in field experiences. While we want to

place preservice teachers in schools to experience the activities of teaching as part of their learning, K-12 placement classrooms may not embody the kind of teaching and learning advocated in university classrooms and/or these kinds of classrooms may not be available. Moreover, the pull of traditional school culture is strong, and these traditions make it difficult for student teachers to implement different approaches and views (Putnam & Borko, 2000).

In more specific research on reflective practices of preservice teachers, Mewborn (1999) studied the reflective practices of preservice teachers during their field experience as part of their mathematics methods course. She found that to facilitate reflection in preservice teachers, they needed: (1) dedicated time for reflection on practice, time that was not often available during traditional field experiences; (2) a non-evaluative atmosphere and relationship with cooperating teachers and university faculty to encourage preservice teachers to generate hypotheses (resolutions) to problematic events without fear of judgement; and (3) fewer responsibilities and "busy work" and more time to attend to teaching and learning (with a focus on learning how to effectively observe classroom events).

In another study, Valli (2000) examined a specific approach for promoting reflective practice in preservice teachers: preservice teachers designing and conducting action research. While Valli's focus was to use action research as a catalyst for school improvement (and seemingly not related to this study), two of her findings contributed to my thinking in this study. First, all of the ten preservice teachers in Valli's study who conducted research using a classroom as the unit of analysis (as opposed to the school as the unit of analysis), participated in self-

analysis or reflection on their teaching practices. Indeed, even students who directly stated that they were analyzing students were developing implications for their own practice. Moreover, eight of the ten preservice teachers were found to have learned about their own teaching from this experience. Thus, classroom-based action research promoted reflection-on-action for these preservice teachers. Second, when the preservice teachers were asked to list good activities for professional development, action research was noticeably absent from their list. Instead, they considered good professional development to include "formal conferences, lectures and workshops" (p. 725). In sum, an incongruity existed between Valli's findings and preservice teachers' perceptions in that despite the above evidence for action research promoting reflection for these preservice teachers (seemingly, a part of professional development), they did not identify action research as a worthwhile component of a professional development program. My study aimed to continue efforts to investigate the process of preservice teachers becoming reflective practitioners by examining their reflections and experiences during student teaching.

Methods

I studied two preservice elementary teachers, pseudonymous Gerri and Denise, during their semester-long student teaching internship. Because I was interested in describing and interpreting the experiences of preservice teachers during their final semester of preparing to become teachers, I selected a qualitative case study as the most promising mode of inquiry (LeCompte, Millroy, & Preissle, 1992; Stake, 1995). The cases were bounded by the semester-long student teaching experience and focused on incidents of reflecting-in and reflecting-on

practice as a unit of analysis. The specific research questions were: (1) What forms of reflection do the preservice teachers demonstrate in their practice during their internship (student teaching)? (2) How do the university-required components of the participants' internship (e.g., journal writing, weekly goal-setting, observing other teachers, lesson and unit planning, conducting an action research project, and conferencing with their field specialist teacher) serve to affect their becoming reflective practitioners?

Data Collection and Data Analysis

Participants and Context

Teaching Program. Gerri and Denise were enrolled in a Master in Teaching (MIT) program. This two-year masters degree program served preservice teachers who already held a baccalaureate degree in a field other than education and desired to become teachers. Two primary objectives of this program were:

1. To educate teachers to become effective practitioners who are informed scholars with the leadership and problem solving skills to help schools and communities meet the needs of the 21st century and to enlighten thought and practice by bringing the inquiry method of a research university to bear on the entire educational process.

2. To empower teachers as reflective practitioners by helping them develop the multiple and critical decision making skills essential for today's classrooms. (University program description document)

This research-based approach to developing reflective practitioners was evident in the design of the student teaching internship. Requirements of the internship included: twelve weeks in a K – 8 school placement, solo teaching for at least 4 weeks; writing in a reflective journal at least once

each week; completing a goals sheet (see Appendix A) at least once each week; writing lesson plans for all lessons taught; developing a unit plan; completing at least four focused observations of a teacher's teaching and writing a report on each observation; and completing a classroom-based action research project on their own teaching. Gerri and Denise completed their student teaching internship during the Spring 2000 semester.

In regard to the action research project, the preservice teachers designed their studies during the previous semester as part of a course titled "Classroom Focused Research." Using two texts as a framework for study (Hubbard & Power, 1993; McNiff & Whitehead, 1996), the preservice teachers studied methods of designing and conducting action research, and planned original classroom-based research projects as part of this course. The action research project focused on investigating a specific teaching strategy or approach. Each preservice teacher worked with a faculty committee consisting of a chair (with expertise in the selected area for research) and two additional faculty members from the Department of Teaching and Learning. The preservice teachers wrote literature reviews in their areas of study as part of a full study proposal. These proposal were submitted to the preservice teachers' chairs for feedback and review three times during the semester before submitting a final version at the end of the semester. They implemented their studies during student teaching. In the month following their student teaching internship, Gerri and Denise analyzed their data and wrote and presented oral and written reports of their studies to the full faculty committee.

Gerri. Gerri held a Bachelor's degree in engineering. She entered the MIT program to begin a career in teaching after staying home with children for several years. While she had significant volunteer experience in her children's schools, Gerri did not have any formal teaching experience prior to entering the MIT program. Gerri was bright and was regarded by University faculty as having a strong content background, especially in mathematics and science. Indeed, her field specialist, Mrs. Baker commented early in the semester that Gerri's content preparation was serving her well in teaching when she stated, "You [Gerri] have a real firm content knowledge. That part has to be in place...because if you don't understand it yourself, then it is hard to [teach children]" (Mrs. Baker, Conference, February 25).

Gerri's underlying philosophy toward teaching seemed to be focused on ensuring that each student is learning and is forming a conceptual understanding of the subject areas. In an interview prior to beginning student teaching, Gerri made it clear that her foremost interest was in student learning. Moreover, she was distressed that current educational environments present barriers to focusing on students' understanding of concepts. In referring to her field experience prior to the student teaching semester, Gerri stated,

> I have seen that there is a real expectation...to get a lot of information to the kids, and yet, there's some real time constraints. In the practicum that I just completed, I saw the kids pushing forward in the curriculum without the kids really having a good basis of what we were trying to teach... And the kids don't really have the concepts. (Interview, December 30).

Further evidence for Gerri's philosophy will be presented in greater detail as her reflections are examined later in this manuscript.

Gerri completed her internship in a third grade classroom. While her field specialist was well respected in the school and the community, Mrs. Baker was not perceived as a reform-based teacher. Mrs. Baker had a predominately teacher-centered style and primarily focused on skill development and mastery. This more traditional style was observed both by Gerri and by me. Gerri described Mrs. Baker's teaching as,

> I would say, based on my observations, [Mrs. Baker has] a pretty traditional classroom. They [the students] are encouraged not to visit with their neighbors, to stay on task. [For example, in language arts], they have to show the paragraphs to [Mrs. Baker], and if she hasn't seen them in a certain amount of time, she calls them over, "John, I haven't seen you yet. I'd like to see how far you are going." ... So they're kept right to task, I would say. (Gerri, Interview, December 30)

Mrs. Baker tended to be a reactive mentor, offering suggestions to solve existing problems or dilemmas, but not consulting with Gerri prior to teaching a lesson.

In regard to Gerri's classroom-based action research project, Gerri investigated methods of teaching and learning division with manipulatives. Gerri identified a problem of students not forming conceptual understandings of division. Her plan for facilitating this learning involved using various physical manipulatives to teach division to third graders. She investigated the efficacy of her teaching practices in using manipulative to develop her students' conceptual understanding of division.

Denise. Denise was a recent graduate and held a Bachelor's degree in French. She entered the MIT program two years out of her undergraduate program, and during those two years had worked as an educational assistant at an elementary school. During this time she was exposed to hands-on, student-centered approaches to teaching. Denise explained that as an

educational assistant she had recognized the value and benefits to student learning in using these approaches. However, she felt that she lacked the theoretical foundations and framework needed to effectively plan and manage student-centered instruction because she did not have an academic background in education prior to entering the MIT program. In sum, prior to entering the MIT program, she had been exposed to and sought to use more student-centered, hands-on, active learning approaches to instruction, and during the program she gained a theoretical framework to clarify how and why these approaches are valid and effective. Denise explained:

> [During my time working as an educational assistant] I said this a lot, "I know that I want to teach, I just need to learn how." So I had the practice in some ways, but I needed the theory... Since I have been in the classroom [again, during the MIT program], I've really been able to see [the theory] at work and connect it to my practice. Whereas before [when working as an educational assistant], I didn't know what to look for. I couldn't connect it to my practice. And if I had seen a lesson, I wouldn't know how that lesson was laid out. I wouldn't know [what thinking was behind the planning]. (Interview, April 24)

Like Gerri, Denise's fundamental philosophy for teaching in learning was to focus on students' understanding and learning, not covering a textbook or external curricular guidelines. This focus was evident from the beginning of the semester. Her planning and self-analysis consistently relied on students' conceptual learning as a referent.

Denise was placed in a fourth and fifth grade combination class that was team-taught. Both team members, Mrs. Knight and Mrs. Earl, served as mentors to Denise, although only Mrs. Knight was her official field specialist. Mrs. Knight and Mrs. Earl used predominately student-centered and reform-based approaches. They focused on concept development; active, hands-on learning; and they frequently used cooperative learning strategies. Mrs. Knight was a

teacher leader in the region. During the semester under study, Mrs. Knight lead a mathematics workshop for inservice teachers in the school district and organized two family math nights for the school. Mrs. Knight tended to be both a proactive and reactive mentor. As indicated in Denise's journal and in my observations, Mrs. Knight discussed possible options and considerations with Denise prior to Denise's teaching lessons and reviewed events and decisions after lessons on a daily basis. Mrs. Earl also discussed teaching strategies and helped Denise to reflect on lessons, although these conversations were less regular than the interactions between Mrs. Knight and Denise.

Denise's action research project was developed around her identified problem of students' attitudes and anxiety toward math. Denise theorized that by using approaches from multiple intelligences in teaching math, her students would learn to utilize their individual strengths and feel more successful in learning math. Her plan was to implement a multiple intelligences approach (Gardner, 1993) in mathematics instruction to facilitate her students' learning.

Gerri's and Denise's philosophies about teaching and learning were quite similar, focusing on student-centered and conceptually based learning; however, their backgrounds and student teaching contexts were quite different. These different contexts for field experiences for Gerri and Denise provided further opportunities to investigate how contextual factors influence reflection.

Researcher. I served as a participant observer in that I researched the preservice teachers' practice while acting as their university supervisor. Additionally, as their Master's Committee Chair, I advised Gerri and Denise on their action research projects. They submitted drafts of their literature review and study design to me (as their Chair) for feedback throughout the semester prior to student teaching. During student teaching, I advised Gerri and Denise about their data collection and analysis. In their first year of the MIT program, Gerri and Denise were in my mathematics methods for elementary and middle school teachers course. Thus, I had an established relationship with Gerri and Denise prior to the study.

Heeding the advice of Mewborn (1999) regarding creating a non-evaluative environment to promote reflection, prior to the study, I discussed with Gerri and Denise my role as a researcher and as their supervisor. I explained the purpose of my study. I also explained that as their supervisor, I perceived my primary role was to be a resource to them and to provide support during their internship. As is the case with most preservice teachers in this program, Gerri and Denise were confident they would pass student teaching (only pass or fail grades were assigned). Therefore they were concerned more about their professional growth than official evaluations, and Gerri and Denise stated that they also viewed me first as a resource. Indeed, neither Gerri nor Denise were ever at risk of failing student teaching. Throughout the semester, I never observed any indication that Gerri or Denise withheld comments or reflections on their teaching due to my role as supervisor. However, ultimately, as the university supervisor I was responsible

for evaluating their internship, and thus it would be naïve to think that I had established an entirely non-evaluative relationship with these preservice teachers.

Data Sources

The primary data sources were: audio-taped interviews with the participants and conferences with their field specialist; observations of classroom teaching; reflective journal entries and weekly goal statements; lesson and unit plans; and participants' data collected as part of their action research projects and their final research reports. Nine observations and semi-structured interviews were conducted with each participant throughout the semester, occurring approximately every week to two weeks. I recorded field notes for the observations, and each observation lasted about one hour. Each interview lasted about 30 minutes and was transcribed. The participants wrote at least one journal entry each week, and wrote lesson plans daily throughout the semester. At the middle and end of the semester, the preservice teacher, the field specialist teacher, and I (as their supervisor) held conferences, and the conferences were audio-recorded and transcribed.

Data Analysis

I analyzed the data by analytic induction: I searched for patterns of similarities and differences for when reflection occurred, what stimulated or impeded reflection, and the types of reflection (Bogdan and Biklen, 1992; LeCompte, Millroy, & Preissle, 1992). For the initial coding of data, I used the required components of the internship (e.g., journal writing, lesson planning, the action research project, etc.) as categories to code events of reflection.

Additionally, I used codes of reflection-in-action and reflection-on-action to track the types of reflection. Next, for more precise coding, I used qualitative data analysis software with a combination of open coding (Strauss & Corbin, 1990) and indexing of text (Miles & Huberman, 1994).

During this process, the patterns for forms of reflection and corresponding triggering events emerged. Through the data analysis process, I found a need to distinguish further types of reflection-in-action and reflection-on-action into subcategories, and a new category emerged: deliberate practice. This category resulted from the incidents where the preservice teachers were deliberating about teaching and learning approaches prior to instruction.

Findings

Forms of Reflection

While studying the preservice teachers' reflections, I found a need to expand Schon's (1983, 1987) forms of reflection. Consequently, I created a framework that more specifically delineated the thinking processes involved in teaching for these preservice teachers. This framework separates reflection-in- and reflection-on-action each into two subcategories (immediate reflection-in-action, delayed reflection-in-action, short-term reflection-on-action, and long-term reflection-on-action), and describes a fifth form of thinking that I refer to as deliberate planning. In incidents of deliberate planning, the problematic event that initiates reflection had not occurred; rather they were *anticipating* possible challenges, problems, and issues in teaching and learning based on their theoretical and experiential knowledge base. All five forms of

thinking compose a framework for *the deliberate practitioner*. I shall describe and provide representative examples for each form of thinking in the framework for deliberate practitioner as I encountered them in studying Gerri's and Denise's practice.

Immediate Reflection-In-Action (IRIA). This form of reflection-in-action represents the thinking preservice teachers exhibited when they made immediate decisions and reframed while completely in the act of teaching. It was most often inspired by observed interactions between students or by teacher-student interactions. This type of reflection was quite difficult for the novice teachers in this study, and this difficulty is discussed further in the next section.

Denise described her reframing process in the act of teaching a lesson on the Japanese internment camps. The class was several days into this unit as part of their history curriculum, and Denise's plan had been for the students to immediately begin writing letters from the perspective of a Japanese-American child being held at an internment camp. They were to write to a non-Japanese-American friend about their experiences. After describing the task and setting the students to work, Denise noticed that many of the students were struggling with the assignment. Breaking from her lesson plan, she recollected the class, and began a group brainstorming discussion of key issues to consider in writing the letters. Denise described this decision in a post-observation interview as:

> I just had them stop [writing their letters]. And I was very frustrated that we had to do this because we have a lot of stuff to do, and so I did that [led a discussion to help them start their thinking about the letters]. It went really well for awhile after [the discussion]. ...They were really on-task, and they got into it [the task]. (Interview, February 29).

By recognizing a problem and reflecting on possible solutions in the act of teaching, Denise was able to develop and act on a new plan for instruction. However, this reframing in the act of teaching was neither easy nor comfortable for Denise to execute.

Delayed Reflection-in-Action (DRIA). This form of reflection-in action represented the thinking the preservice teachers exhibited when a slight pause or break occurred in the act of teaching (e.g., students completing individual work and not demanding immediate attention from the teacher; a brief recess; etc.). Similar to IRIA, DRIA resulted in an examination and a decision for action for the lesson in progress or the immediate plans for the day. Gerri described this form when she explained her thinking during a math lesson on multiplication:

> I felt like I didn't make a really strong connection. We started with the patterns, and they caught right on. They were counting, skip counting. But then, I didn't make the connection very strongly that, you also could, besides skip counting, you could also do the multiplication facts. I felt like I kind of missed that. And when they came back [to my desk] and I was working one-on-one [with students], I realized that I felt like I could have made that [connection] stronger. Because I think that they were still tending to skip count. (Interview, January 21).

After realizing the problem, Gerri stopped the students during their individual seatwork and began a whole class discussion at the board to build the connection she recognized was missing.

Both Gerri and Denise stated that they wanted to teach lessons as they had planned them, and did not have the confidence or flexibility to change these plans in the middle of the lesson. Correspondingly, they found IRIA to be difficult, and it rarely occurred. DRIA as a specific form of reflection-in-action recognized the preservice teachers' need for a brief break in activity to provide the opportunity for reflection during instruction. Yet, because a problem is identified and

adjustments are being made to the lesson (or day) in progress, this form is a type of reflection-in-action. Gerri discussion of her reflective practice illustrated how it was easier for her to find opportunities for DRIA than it was for IRIA:

> You almost need a quiet time [to reflect].... A big time for me was a half an hour before lunch, we'd have prep time. That was a big time to think about, "How did the morning go, and what am I going to do in the afternoon? And is there something in the morning that's going to affect what I was planning to do in the afternoon? Are they really wild today, and I was planning to do something really quiet, and that's not going to work out very well." Then, maybe I had to make a quick shift there. It's hard to do on the fly because that crunch of time all of the time. You don't get much of a chance to say, "Did that work okay?" (Interview, April 26).

In sum, IRIA and DRIA both correspond to Schon's (1987) description of reflection-in-action, but they differ in the level of instructional activity and demands occurring during reflection.

Short-Term Reflection-on-Action (SROA). This form of thinking preservice teachers exhibited when they thought back over a short period of time after a lesson or day was over (e.g., reflecting on a lesson as they drive home; the week's instruction over the weekend; etc.). SROA is different from DRIA in that the preservice teachers were not under pressure to reflect, resolve, and implement the action to address a problem immediately during the problematic lesson or day. That is, while a problem may have been identified during the act of teaching, reframing and acting on the reframing did not occur during the act of teaching. This reflection was often about the success of a lesson in contributing to learning goals to guide planning for the next day's lesson or for the next unit.

Gerri described an incident of SROA when she discussed a lesson in which her students were working developing meaning for division. They were sharing beans equally among paper cups and some students were confused by the discussion following the task. Gerri reflected,

> We talked about which number would represent a quotient. And one thing that I probably could have done differently is, when we were talking about totals and cups, I could have used product and factor. That might have helped too in [making the connection between multiplication and] division. It's kind of confusing. (Interview, February 25)

In lessons following this reflection, Gerri acted on her reflections and began to use the terminology indicated above in class discussions to facilitate the students learning and building connections between multiplication and division.

Denise's SROA was often motivated by discussions with Mrs. Knight. She reviewed an instance of this reflection in describing a lesson on fractions.

> We've been working with fractions lately, using fraction pie pieces. Today I began working the problems from the first worksheet on the overhead. The sheet dealt with adding and subtracting fractions with common denominators. When I did a couple of problems with the fraction pieces, I got a lot of "we understand, move on" feedback – or that's how I interpreted it, anyway! So I decided to move on to the next worksheet, which dealt with adding fractions with different denominators... Now, after reflecting and discussing it with [Mrs. Knight], I realize that I read the situation wrong and moved too fast. She told me that fractions are a very difficult concept to grasp, and that I couldn't expect them to have mastered it in one lesson.... I think maybe I'll teach the lesson again... and start over with baby steps and lots of repetition.... We'll see if I can redeem myself! (Journal entry, January 12)

Indeed, Denise acted on this plan and for the next lesson and went back to the earlier fraction concepts.

Long-Term Reflection-on-Action (LROA). This type of thinking preservice teachers exhibited when they systematically analyzed and examined their practice over an extended period of time for the purposes of understanding and improving practice more globally. They looked for emerging patterns and developed personal theories about teaching and learning. Most often, in considering the "Cycle of Reflection in the Practice of Teaching" presented in Figure 1, for LROA this cycle may took place over several months. For Gerri and Denise, this type of reflection was attained primarily through the action research project although some incidents of this form were evident in journals and interviews.

LROA was an inherent part of the process of developing and conducting an action research project. In designing their studies, Gerri and Denise each had to identify a problem to investigate in their own teaching. After conducting a literature review (contributing to the process of reflection), they designed their studies (the resolution). Both Gerri's and Denise's action research projects involved a teaching intervention aimed at addressing a perceived problem in teaching and learning. As described earlier, Gerri implemented a plan that used manipulatives to facilitate her students' conceptual development of the division operation. Denise implemented a plan that used a multiple intelligences approach (Gardner, 1993) to teaching math as a means of improving students' attitudes toward math. During the semester of this study, they conducted their action research studies (the action).

In the below excerpt from Gerri's research report, she described her findings and personal theories that she developed from her action research project,

> To assist all of my students, I integrated manipulative-based learning activities into the majority of my lesson plans. I found that physical modeling was crucial for those students who were struggling to understand the operation of division. Using concrete materials allowed all students to solve problems successfully. ... For those students beyond the concrete stage, physical modeling was still critical. ... During some activities, I would insist that all of my students model their problems using manipulatives. This modeling provided an opportunity for students to communicate their understanding for both the teacher and their classmates. I found that it was often easier for students to explain their solutions correctly with a model or a picture than it was to explain using mathematical symbols. (Research report, May 10)

In the report, Gerri went on to provide specific evidence and examples of these findings.

As an example of how Denise systematically analyzed her students' thinking and learning as part of her action research, Denise described some of findings in her research report:

> [In interviews with the students] all of the students mentioned how using their intelligences served as a "back-up" when doing difficult problems. When explaining how using skills associated with her intelligences makes her feel more confident, Karla said, "It's just easier and you're not so frustrated." Mike explained that, "It helps my mind understand the problem better when I'm drawing a picture because it... helps to make it clearer and makes it easier to understand." (Research report, May 10).

Deliberate Planning (DP). The preservice teachers exhibited this form of thinking as they purposefully used existing knowledge and theories about teaching and learning to design plans for student learning. This type of planning contrasts with following prescribed textbooks or using worksheets without deliberating about their efficacy or purpose. While reflections on past experiences may be part of an existing knowledge base or have contributed to a personal theory on teaching and learning, this form is different from reflection. Reflective thinking is initiated by

a problematic event. Conversely, deliberate planning was initiated by the need to provide a successful learning experience for students, often to avoid an anticipated problematic event.

As mentioned earlier, Gerri and Denise were completing an MIT program in which the University courses and experiences were framed around current research and theories about teaching and learning. This training aimed to prepare teachers to anticipate and to understand children's thinking and learning processes. Through this training, I observed a type of thinking that was *proactive* in addition to the *reactive* thinking we see in reflection. More specifically, instances of DP tended to be motivated by either: (1) a theory and research base gained from the University education courses; or (2) the process of implementing and/or collecting data for the action research projects. I shall provide examples of DP for each of these categories.

Gerri and Denise usually developed their lesson and unit plans based on their understanding of how students learn, rather than simply following their field specialists or their texts' plans. For example, Gerri demonstrated in the below interview how, even when she followed the mathematics textbook, she critically analyzed whether the lesson would meet her instruction goals and was based on current research and theories about how students' learning. She explained,

> That's what I like about the multiplication unit in this text. It's not just, "Okay, now we are going to memorize the twos [multiplication facts]." [Instead] it's, "Okay, let's talk about a strategy for twos. What do two's look like?... And they'll say, "Three times eight, well, what's the three's strategy? Doubles and then add one more." (Interview, January 21).

Deliberate planning also was evident in unit planning. Gerri described her approach to planning a science unit in geology,

> I took their science kits, and I read through the unit that they [the school district] had devised. And then I thought, "What do I want my kids to come out of this unit with, what knowledge?" I didn't want them to memorize rock names, and that kind of stuff. And so I looked at the [State reform-based learning standards] for science. One of them is categorize materials based on properties and shape and sizes and colors and that type of thing. And I said, "Okay, I guess that's what I'll set for my goal for the geology unit."...I worked through all of my lesson plans with those goals in mind, and I did pick and choose out of the [district's] unit. And I said, "Oh, yeah, that's going to do very well. I don't really see the point of this." (Interview, April 26).

Denise also exhibited this type of thinking in planning her lessons. In a lesson aimed at developing number sense for decimal numbers, Denise planned an activity where students were to represent decimal numbers on various types of grids. She anticipated that this lesson would be difficult for her students, and decided that she would use a whole-group, teacher-led approach to guide her students through this first introduction to these ideas. However, she also recognized a need for students to experience these ideas on their own; so she planned a follow-up lesson where the students would have more hands-on, concrete experiences with decimals. She described this deliberate planning as follows:

> That's what I am afraid for today, because they have to come to show one tenth on all of these [different grids (e.g., a grid each for tenths, hundredths, and thousandths)]. ... And I think that instead of letting them do this on their own, that I will go through these together and do them all together [as a class discussion], because I don't know that they'll [be able to approach it on their own]. And I feel like that is a really big leap at this point... But tomorrow, I know I'm going back and doing something concrete. (Interview, March 14).

In addition to their knowledge base serving as a foundation for DP, implementing the action research project caused Gerri and Denise to carefully plan their lessons that were part of their research on their own teaching methods. As part of her action research project, Gerri carefully planned how she would utilize concrete manipulatives to facilitate her students' learning of division concepts. This strategy was selected based on the literature Gerri had read in designing her action research project that indicated that students' form better understandings of division when manipulatives are used appropriately. Gerri was informed about effective strategies for using manipulatives and possible challenges, and her journal entries, interviews, and written lesson plans reflected her application of this knowledge in her instructional planning. For example, in discussing her approach to teaching the concept of division by zero with the use of manipulative (cups and counters), Gerri stated,

> You can't just *tell* them, "Never divide by zero." [With the counters and cups the students used to model the problems] they started to see that [it doesn't make sense to divide by zero]. When they tried to go back to the manipulatives, and they tried to multiply it out, they said, "that's not right." (Interview, February 24)

Additionally, Gerri described her process for designing the unit on division as part of her action research project. She explained,

> To implement my research project, I had to develop specific lesson plans based on three criteria. First, the lessons were based on my students' existing knowledge about division. My evaluation of student understanding about the operation of division provided the starting point for the development of lesson plans. Second, the lesson plans were designed to utilize manipulative materials and manipulative-based learning activities to facilitate student learning. ...Finally, the lesson plans I designed had to facilitate student learning. (Research report, May 10)

Denise also used deliberate planning in implementing her action research project. In deciding how she would implement her plan for using multiple intelligences approaches to learn math, Denise frequently returned to the research base that she had synthesized in designing her study. One instance of this was related in the following interview excerpt:

> I went over the research, and I realized that the main body of research that I took my ideas [for my instructional strategies] from, the researcher was working with upper level kids....[And I am wondering whether] the kids [in my class] are too young to think about themselves [and their intelligences in the way that the older kids in the research did]. And [when the research involved elementary kids], the way that they implemented multiple intelligences was through [learning] centers. And with this class, it wouldn't work to do centers [because of logistical issues in a combination-grade, team-taught class].... [Mrs. Knight] had talked to me before about doing menus, and I think that's really going to help [me to use this multiple intelligences approach]. Menus are a folder, and there is a menu of activities they can do and the menus would be based on each of the intelligences... and it is a way to have them explore their intelligences, ...and that way they are responsible for their learning. (Interview, February 29).

Denise also described how she used DP in implementing her action research project in her written report of her research. She stated,

> Throughout my teaching, I used multiple intelligences as "multiple points of entry" for my lessons (Campbell, 1997). In designing lessons around intelligences, I was able to systematically present the information in several different ways, so that I could reach as many students as possible. For example, when introducing addition of fractions, I demonstrated the concept by using fraction circle pieces (bodily-kinesthetic), drawing pictures (visual-spatial), writing the algorithm (logical-mathematical), and discussing it (verbal-linguistic and interpersonal). I allowed students to work with partners if they chose, or to work independently. Although some students understood the concepts faster than others, I was able to observe all students actively engaged in the learning process. (Research report, May 10).

Denise's lesson plans reflected this approach in that on all of her lesson plans for math she included a section in which she identified the intelligences that were being applied in the lesson and how they were being used.

Thus, the action research project served as an impetus to deliberately planning and implementing an instructional approach. Gerri and Denise used existing research and theory as a referent in constructing their own plans for facilitating students' learning.

The Role of the Required Components of the Internship in Developing the Deliberate Practitioner

Analysis of each required component of the student teaching internship (e.g., journal writing, weekly goal-setting, observing other teachers, lesson and unit planning, conducting an action research project, and conferencing with their field specialist teacher) indicated that each participant did indeed demonstrate reflective thinking on a regular and on-going basis. However, each participant relied on different components to stimulate reflection. I shall briefly describe the participants' perceptions and my observations for the various components, and then discuss in greater detail the component that emerged as most important in stimulating reflection: the action research project.

Gerri benefited most from journal writing and observing other teachers. Gerri regularly reflected on actions through these activities. Not only did Gerri write more formal reflections as journal entries each week, she kept a running log of her observations and reflections about student learning. She wrote in this log almost every day, and often more than one entry per day.

The entries in this log were synthesized into her weekly journal writing. However, Gerri did not find goal-setting through the goals sheets (see Appendix A) to be beneficial. At my request, she completed goal sheets for the first three weeks. After this trial period, we agreed that this approach was not helpful to her development, and her time was better spent writing in her journal. Indeed, she was setting personal goals and identifying foci for her instruction in her journal writing. Gerri explained her preference for journal writing and compared her views to Denise's as follows:

> [Denise] really liked it because it gave her a real guideline. But for me,.... I found myself, it [writing the goal sheets] wasn't that really deep reflection, thought process. I do better with the [more open-ended] journal entry. ...So maybe the deal is you've got to put all of these things out there, and you've got to let people try things on their own. (Interview, April 26)

Gerri's observation reports indicated that she did learn from observing other teachers, especially in the area of management strategies. However, it was unclear whether they stimulated reflection. Gerri commented on approaches such as methods of collecting students' work and strategies for creating smooth transitions between activities (observation report from January 3), but it was not clear that these observations resulted in problem-identification for reflection or anticipating problems for deliberate planning. While it is possible that they contributed to her knowledge base for deliberate planning, evidence for using these observations as a referent in planning did not exist. Nevertheless, because Gerri saw them as contributing to her professional development and because a potential existed for contributing to her knowledge base, I encouraged her to take advantage of her internship as an opportunity to observe others' practices.

Conversely, as indicated by Gerri, Denise had different preferences. Denise found journal writing and observations to be tedious, and she experienced diminishing benefits as her development progressed. Denise fulfilled the requirements of the internship and wrote a journal entry most weeks (she did not write during weeks six, seven, or eleven). However, she said that this writing did not contribute much to helping her to reflect on her practice. Instead, she was merely recording, for the internship requirements, reflections that she had prior to journal writing. Denise had observed many teachers as part of her work as an educational assistant, and felt that her time was better spent in other activities. Denise was inspired to reflect-on-action most by conversing with her field specialists and by setting specific goals each week on which to focus her thinking and planning. She found the goals sheets to be helpful and completed them every week of her internship. My observation was that Denise was reflecting well through the use of the goal sheets, so as her supervisor, I did not require her to write in her journal each week. While I did not perceive the goal sheets as being very different from keeping a journal before the semester began, Denise expressed a strong preference for the format in helping her focus on areas to develop. She stated,

> I actually like doing the goals because it is something concrete that I'm keeping track of, and it is a concrete way of doing that every week... It is kind of in the back of my mind at the end of the week and I realize, "Oh yeah, I did use that [plan for implementing my goal]." The journaling, like I said, when I need to do it, I do it. (Interview, February 8)

Later in the semester, Denise reiterated her feelings and stated,

> I actually thought the goal statements were more helpful than the general journal writing because it helped me to, the goals were really specific, and I thought that

> was good for me to actually have to lay down a specific goal every week. And then that gave me something to think about that week. (Interview, April 24)

Both participants recognized the value in writing lesson plans and unit plans to be prepared for instruction; however, these actions served more to stimulate deliberate planning than they did reflection, as was discussed in the section on DP. Despite some differences between the participants' experiences completing the requirements of the internship, the action research project emerged as a key component to stimulate long-term reflection-on-action and deliberate planning for both Gerri and Denise. Thus, I shall focus on this required component of the internship from this point.

Prior to the start of the semester, I investigated whether the participants understood the University's purpose in creating the action research assignment. As stated earlier, the University was focused on developing reflective practitioners that apply research and theories in their teaching. My line of inquiry was based on my concern that without understanding the role and purpose of the assignment, the participants would not be likely to gain from the project. Both participants had written a full proposal for their research projects, and these proposals provided evidence that they understood what it meant to do action research. However, I wanted to know if they also understood the overall goals for their development from a programmatic perspective. When asked what her perception of the purpose and role of this assignment was, Gerri stated,

> [The action research project] is almost a part of that reflective part. You are doing something and then you are asking yourself, "Does this really work?" And you are not relying on intuition to say, "Well it felt like it kind of worked." You're actually looking for evidence to say, "Does this work?" and so I think that's important. Because I think we do rely a lot on that, "Well, it felt, the kids were

> kind of engaged. It was quiet, and nobody was bouncing off the walls. Oh, it must have worked." So [with action research] you are going a step further than just a visual kind of thing, an emotional kind of thing, you are looking for evidence. (Interview, December 30).

Denise also recognized the purpose of the project and saw it as valuable, and she also express concern over the demands of conducting research during student teaching. She stated,

> I know that it's beneficial because it's really going to force us to plan what we are doing. And to look at a specific area of interest to us. And to work on developing it,...but it is daunting, definitely. It's hard to know how data collection will fit in with normal teaching. (Interview, January 7)

Thus, Gerri and Denise both indicated that they understood the purpose and nature of the action research project. Indeed, Denise's concerns reflected an understanding of the complexity of action research.

Gerri found that conducting the action research project helped improve her teaching practices. Because her project necessitated her use of manipulatives in teaching, she was compelled to teach outside of her field specialist's normal practices. In doing so, Gerri found that, "During manipulative-based learning activities, I assumed the role of facilitator rather than transmitter of information. This role was crucial if I expected students to 'construct' their own understanding of division." (Action Research Report, May 10). Gerri concluded that by being obliged to complete the action research project, Gerri broke out of her practice of merely following her field specialist's methods. This effort at LROA and DP resulted in professional growth for Gerri. Gerri explained,

> [Another MIT student] and I were talking on the phone the other day, and she said, "Wouldn't it be easier if we didn't have to do these research projects." And I

> said, "Yeah, you know I had thought about that too. It would have been a lot easier." But then I realized that it pushed me out of that comfort zone, at least in terms of my math instruction. And then I asked her, "Do you think you would have done what you did in social studies [the other student's research area] if you hadn't done the research project? And she said, "No! I doubt it." So if nothing else, it at least pushes us out, at least in one content area, out of our comfort zone...I could see that it was helpful in terms of pushing me to try something different that maybe I wouldn't try...Because we have a tendency to fall back on what we know. And if we are in a classroom where the teacher teaches [in a fairly direct, traditional manner, as I am], then it is real easy to just sort of fall into that. Well, no matter how the teacher teaches, it's real easy to go into the classroom and just keep doing whatever the teacher's doing so life doesn't get too complex ....Because it is easy to use the textbooks, and it is easy to use the things that are already well established, and maybe they are not the best things. (Interview, April 26).

Geri went on to say that by conducting her action research project, she was compelled to focus on individual students' learning and patterns of learning throughout the unit. She stated,

> You are looking at your research questions, and I mean the bottom line is you want your students to learn successfully... You want them to be successful, and to develop a real understanding of whatever the content area is. And the research project keeps you in touch with that. You are asking yourself, you're not waiting to get that final test score to see, "Well, did they make it or not?" And you are trying to think of a whole variety of ways to teach the content area. Which is important because you have all of these kids that learn different ways. And so if you just stick to the same pattern, you are going to miss some, you are going to lose some kids... But in the end you do come up and say, "There's some value there." (Interview, April 26).

Denise wavered more in her thinking about the value and the role of the action research project. In the same breath, she listed advantages of the project and stated that it was not worthwhile. She stated,

> I think honestly that they [the University] could throw that thing out. I think that as far as the purpose of making us prepared teachers and better teachers, I don't feel like that helped specifically for that. It was interesting. It helped us grow

> globally just by having us go through the process of research. Having to look at our kids in that way, and having to think about the research process. ... I guess, well, the actual data collection didn't help me to become a better teacher, I don't think. But what helped that was specific to my project was learning about kids specific intelligences, and their attitudes in math. I felt those two things were valuable.... Learning the statistics [data collected on students' attitudes as part of her project], those elements about my kids was helpful. (Interview, April 24).

In a journal entry, Denise again revealed her struggles with the project. She indicated that she saw benefits for student learning in enacting the implementation designed as part of her research, but she was also frustrated with the reality that things do not always go as planned in teacher research.

> [I'll have the kids make their own menus, and have two activities for each intelligence area to choose from. [Mrs. Knight] has TONS of resources for me to choose from (thank goodness!), so it shouldn't be too much extra work. I'll tell the students they must do one activity in each intelligence area.... I'll tell the students to tell me about using their intelligence for that activity, and whether they enjoyed it or not... Students will be in control of their learning in the intelligence areas, and I'm hoping that this will empower them to learn more about using their intelligence in other ways! We'll see of course. This project is frustrating! I doubt it will turn out the way I want it to. That's okay, because I can still write up my results, but I wanted it to work, because it's such a good idea!! (Journal, March 4)

I observed that the action research did help Denise to develop professionally in that it engendered reflective and deliberate thinking on a regular basis throughout her internship, as evidenced in earlier sections. I attributed the wavering nature of her response above to the complexity and challenges of conducting action research. Action research caused Denise to think deeply and analyze her practice systematically, and this process was both challenging and uncomfortable at times. At this point, she was struggling with whether the effort was worth the

growth and learning that she experienced. From my perspective, it was; from her perspective, she was unsure.

For both participants, the action research project challenged them to experiment with teaching and learning strategies that they otherwise would not have tried and to delve into outside teaching resources, beyond what their field specialists usually use. Additionally, they had to focus on assessing individual student's learning (and not just evaluating students) as part of their data collection for their research. I perceived that this project stimulated the most substantive and sophisticated reflection on practice in the form of LROA that occurred during the study as evidenced by the findings in the LROA section. Moreover, as discussed earlier, I found that the action research project required Gerri and Denise to deliberately plan their instruction using the theory and research they uncovered in preparation for their studies. In this regard, the participants were compelled to work outside of the model and practices established by their field specialists and implement ideas developed in concert with university faculty and in university courses.

Implications and Educational Importance of the Study

In a review of the literature on field experiences, McIntyre, et al. (1996) found that although educators and researchers have called for increased emphasis on field experiences as part of recent reform movements, field experiences "do not always lead to analysis, reflection and growth on the part of the novice teacher" (p. 171). Moreover, although field specialists have a strong influence on their student teachers, their guidance is not always supportive of reform-

based goals. More research is called for to determine the efficacy of teacher education programs designed to prepare more thoughtful, reflective teachers (McIntyre, et al., 1996). This study begins to address this need by examining one such program and discussing possible strategies to implement and to avoid in fostering the development of reflective practitioners.

Implications for the Deliberate Practitioner Framework

The framework presented for deliberate practitioners serves to extend Schon's (1983, 1987) ideas about reflective practice to guide teacher educators and preservice teachers as they design and participate in teacher education programs. The primary extension of Schon's work is in recognizing that teachers do not only react to problematic events, they anticipate problematic events and plan accordingly. Educational research over the past two decades have focused on how students' think and learn. This focus has resulted in an increase knowledge based and awareness on thinking ahead about what students bring to the classroom. For example, in elementary mathematics education we have benefited from the work of projects that aim to develop teachers' understanding about students' learning such as Cognitively Guided Instruction (e.g., Carpenter, Fennema, Franke, Levi, & Empson, 1999) and SummerMath (e.g., Schifter & Fosnot, 1993). As we prepare preservice teachers to teach from a student-centered approach and facilitate their development of understanding students' thinking and learning processes, teachers now are working from a knowledge base that empowers them to anticipate possible problems and challenges in teaching and learning, and not merely react to them once they have occurred.

This framework has implications both for preservice teachers and for teacher educators. First, by being aware of this framework and the complexity of thinking involved in teaching as a problem-solving and a problem-anticipating endeavor, preservice teachers can be more aware of their thinking and strive to move away from the technician model of teaching that they might have experienced as students. More specifically, by thinking about teaching as a deliberate practice, they might better focus on anticipating problem areas in their lesson planning, and not simply delivering a curriculum as it is presented from an external source. In sum, preservice teachers may be more predisposed to enter the field feeling empowered as decision makers, rather than feeling obliged to follow external guidelines without critical analysis. Second, teacher educators can help preservice teachers become aware of the complexities of thinking and problem solving in the practice of teaching. Teacher educators should focus on more than developing reflective practitioners who react to problematic situations, but to develop deliberate practitioners who use theory, research, and experience to anticipate problematic situations. Supervisors, in particular, can provide assistance in helping student teachers find the time and opportunities to reflect, recognizing that different opportunities and resources are needed for the different forms of reflection and deliberate planning.

Implications for Internship Requirements

Findings indicate that, consistent with reform-based approaches for children's learning, requirements for field experiences need to be tailored to meet preservice teachers' individual learning needs and approaches. The individualized nature of the components that best trigger

reflective practice in the preservice teachers in this study suggested that in designing student teaching internships, teacher educators should consider adopting a more student-centered approach (i.e., focusing on preservice teachers' individual needs). Rather than requiring numerous tasks and assignments of each preservice teacher with the hope that one will work or that each will contribute, supervisors should work with each preservice teacher to determine the best strategies for his or her individual growth, accounting for individual learning and thinking approaches and the context of the field placement (e.g., field specialist support, teaching and learning conditions, etc.), I allowed these participants to decide to discontinue work on a component that they no longer felt was beneficial to their development. I believe this supported their efforts to reflect on their practice and deliberately plan for learning in ways that were most beneficial for them.

In this study, contrary to Mewborn's (1999) recommendations about not serving as an evaluator in promoting reflective practice, my role as a supervisor (and evaluator of their internship) actually empowered me to adjust their requirements to promote opportunities for reflection. This need for reducing busy work addresses Mewborn's third recommendation for providing more opportunties for reflection. Thus, paradoxically, to meet one of Mewborn's recommendations (reducing busy work), I needed to be in an evaluative position and thus not attend fully to her first recommendation of a non-evaluative environment. However, as I mentioned early, I worked to establish a relationship with the student teachers that emphasized my role as a resource and support and de-emphasized my task of evaluating them. These findings

imply that as supervisors, we need to assess our students needs at the beginning and throughout their internships and suggest modifications in field placement requirements to meet their needs, with a focus first on supporting student teachers. Indeed, consistent with Mewborn's (1999) findings, too many required tasks added to the demands of teaching indeed can detract from the reflective process by not allowing the necessary time for reflection and growth.

Additionally, consistent with the findings of Valli (2000), I found that projects such as action research should be considered as a means of encouraging preservice teachers to: experiment with innovative teaching and learning strategies, consistent with those explored in their university courses; focus on students' understandings and learning process; go beyond teaching approaches modeled by their field specialist; and stimulate long-term reflection on action and deliberate planning. Moreover, for Gerri's case (placed in a more traditional classroom), the action research project seemed to help mitigate the issues identified by Putnam and Borko (2000) associated with placing preservice teachers in field experiences in which the field specialist does not model the approaches and kind of teaching and learning advocated in the University. The action research project required that Gerri attempt to implement teaching and learning strategies consistent with approaches studied at the University, despite the pull toward traditional practices that was present in her placement.

It was interesting to note that, similar to Valli's (2000) results, my findings indicated that while I recognized the benefits of the action research project for the preservice teachers in terms of their professional development, one of my participants did not see this experience as valuable

(or at least was questioning the value). These differing perceptions might be worth further study. For example, future research might investigate whether preservice teachers later recognized this experience as being valuable even though they do not see the benefits while conducting the research.

This study has served to begin to extend Schon's ideas about reflective practice and build this framework for a deliberate practitioner. Further research is needed to examine the applicability and usefulness of this emerging framework for teachers and preservice teachers. In particular, investigations are needed with more experienced teachers that potentially have a stronger knowledge base in place. Additionally, I am interested in whether experienced teachers find IRIA easier and exhibit this form of thinking more frequently than the preservice teachers did in this study.

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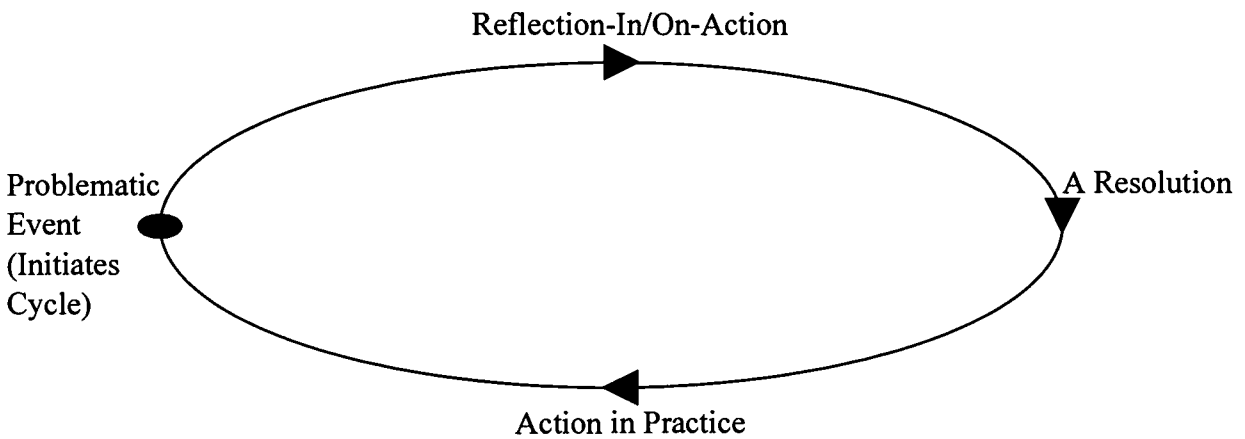
Figure 1: A Cycle of Reflection in the Practice of Teaching



Appendix A

INTERNSHIP REFLECTION – GOALS AND STRENTHS

DATE: WEEK #:

GOAL OF THE WEEK: Be as specific as you can and set objetives to help you reach the goal.

REFLECT ON GOAL FROM LAST WEEK. SELECT ONE INCIDENT AS AN EXAMPLE. What happened? Why did it happen? What is the general meaning in terms of teaching: What is the specific meaning for you and for your own teaching?

REFLECT ON ONE OF YOUR STRENGHTS AS A TEACHER.

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