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## **Exploring Reflective Behaviors With Preservice Teachers**

by

**Ann L. Loranger**

Dewey (1933) first argued that we do not actually learn from experience as much as we learn from reflecting on experience. As part of the mission of the teacher education program at the University of New Hampshire, our goal is that graduates will be thoughtful and reflective practitioners who learn from experience. To aid in the achievement of this goal, the UNH program provides a framework for inquiry and reflection during year-long teaching internships which focus on six areas: (1) building productive relationships with students, (2) creating and contributing to a learning community, (3) planning for student learning, (4) facilitating student learning, (5) assessing student learning, and (6) reflecting on teaching and learning. This framework is used to set goals, promote reflective writing, help students with self-analysis, and facilitate careful examination of alternative positions and courses of action.

The following paper reports on the growth and development of two UNH elementary student interns enrolled in a year-long internship as they grapple with what it means to be a thoughtful and reflective practitioner. The purpose of the study was twofold: (a) to explore ways for thinking about reflection and its development with preservice teachers, and (b) to develop a framework for providing feedback during the internship. Clear operational definitions or descriptions of components of reflection are needed for teaching. This study attempts to identify such definitions or descriptions. For this purpose, reflection (the process of critically examining one's teaching) is expanded to include behaviors identified with reflection.

### **Framework for Inquiry**

"The reflective practitioner is always becoming" (Roth, 1989, p. 35). Although fostering reflective practice in preservice teachers has gained increased attention in the last ten years (Cliff, Houston, & Pugach, 1990; Valli, 1992), a challenge to teacher educators is how to assist student interns to be cognizant of their own thinking abilities and the scope and depth of their own reflectivity. Research suggests that teacher candidates are often underprepared to foster cognitive skills in their students and sometimes fail to reflect on their own planning of lessons, their interactions with the children, the evaluation of their own teaching, and the evaluation of student learning. Bullough and Gitlin (1995) offer this view, "To be reflective means that careful attention is given to individual experience and how meaning is made and justified, and to the constraining and enabling influence of contexts and how they shape human relations" (p. 16).

The present study attended to many of the practices offered in the literature for cultivating a reflective environment: establishing educative communities (Bullough & Gitlin, 1995) where interns can develop a sense of collegiality and trust among themselves, their cooperating teachers, and the school community; reflective journal writing (Garman, 1987; Zeichner & Liston, 1987); videotaping lessons for self and peer evaluation (Wildman, Niles, Magliaro, & McLaughlin, 1990); and seminar activities that encourage simulations and discussion (Korthagen, 1992). Overlapping such data sources from introspective to interactive contexts for reflection allows "prospective teachers to progress through cognitive-development stages that enable them to view teaching from a more interpretive and critical perspective" (Freiberg & Waxman, 1990, p. 135). Since more reflective patterns of thinking are fostered in socially interactive settings, reflection should not be

an isolated act. Our weekly seminar time provided the opportunity for extended discourse among the interns and supervisor. As one of the interns aptly expressed it,

I think that reflection is always in our subconscious, but now it's more at the conscious level from *talking* about it. You have all this going on in your mind but being able to *talk* about it brings you to the next level.

## **Methodology**

### **Context for Study**

UNH has established collaborative partnerships with certain schools designated as "cluster" schools where five to seven students are placed in one building for a year-long internship and are supervised by a university faculty member. I was the university supervisor at a cluster school which is the setting for my study. This school received an Excellence in Education Award as an outstanding elementary school in New Hampshire during the 1994 school year. There are 640 students in kindergarten through second grade. Student interns may choose to work with two cooperating teachers in two different classrooms during the year as the students reported here did.

Intern seminars are held weekly for two hours after school and alternate among intern classrooms. Cooperating teachers meet bimonthly as a group to discuss intern issues. The interns also meet as a group on alternate weeks. As the university supervisor, I spent an entire day each week in the building from 8:30-3:30 during school hours and from 3:30-5:30 for seminar. The interns follow the University calendar and spend 16 weeks in their internship during first semester and 16 weeks during second semester. The research study was conducted over two semesters.

### **Participants**

There were six students at this cluster site where I am the university supervisor. Only two cases are reported in this paper for comparison of growth and development during the internship—Thomas and Brenda. Each represents a different profile with regard to background and life experiences.

### **Procedure**

As the university supervisor, I contacted all the interns before school started to explain the purpose of my research study. They all agreed to participate. I also indicated that, for the purpose of my data collection, I would be conducting personal interviews with each of them, assigning selected readings for discussion in seminars, writing observations of their teaching, and keeping copies of their reflective journals, all of which I would use to examine for evidence of their growth and development as "reflective practitioners." The timeline was two semesters, sixteen weeks (September-December) during the first semester and sixteen weeks (January-May) during the second semester.

### **Data Collection and Analysis**

Data collected and analyzed included: personal interviews before and after the internship, reflective journals kept during the internship, my observations and field notes, and oral and



written feedback during three-way conferences with the cooperating teachers. All data is used with permission. (The names are pseudonyms.)

Using analytic induction (Goetz & LeCompte, 1981), I examined the data to identify behaviors favorable to reflection. For example, if it were evident in the data that an intern was open to change, was willing to try new approaches to learning, was willing to change direction in the middle of a lesson when things were not going well, was willing to consider new evidence, and invited evaluation of his/her teaching from peers and other teachers, I identified the intern as a "risk-taker" and indicated it as a behavior present. Descriptors were written for these behaviors (see Table 1, page 20) that allowed comparison of data from individual interns over the course of two semesters. Additionally, identifying these behaviors provided the means to give feedback to the interns either orally during conferencing or in writing as a response to journal writing.

What follows is a description of each intern over the course of his/her elementary internship reported as cases. Reflective behavior is highlighted by underlining.

### The Cases and the Internship

#### Thomas

Thomas is a bright, serious, twenty-four-year-old married man who comes from a strong religious background and indicated in an interview that a teacher should be "dedicated to helping children become virtuous members of their community and morally responsible individuals." Thomas entered his internship confident that if he did all the "right things," he would be successful. He was ever cognizant of the fact that, as a young father with one baby under one year old and another baby on the way, he needed to get a job at the end of his internship in order to support his family. Thomas believed that he had "what it takes" to be a good teacher. In response to the question, what do you feel you have to contribute to teaching, he indicated that he was an "organized, clear-thinking person, thoughtful, related well to children, had a sense of humor, and a positive attitude towards life." The semester began in September on a positive note with Carol as his cooperating teacher. Even though he exhibited a strong conception of himself as a teacher, he seemed *open to learning* (risk-taker) as revealed in an early journal entry: "I have much uncertainty about the best methods for learning about my students. As an intern I will make every effort to consult the knowledgeable people around me and remember I am not alone. Thomas also saw the value in reflection and *accepted responsibility for the lesson* after implementing a science experiment towards the end of September: "I found that reflection in a variety of areas was invaluable to my lesson and is much more valuable than focusing on a lesson plan typed in a particular format. My reflections included topics like engaging all students of both sexes, providing active elements in the lesson, organization, and many others. The result was that I was very prepared when I went before the class because I had given thought to what I was doing. The experience has certainly made the importance of reflection, before and after giving a lesson, even more clear to me." It was during these first few weeks that Thomas also demonstrated the *ability to be self-critical* (accepts responsibility for failure of lesson) when a lesson did not go as planned. He reflects on why his lesson didn't go well: "Thankfully, I recognize that there are certain changes that I can make in my preparation for preparing and implementing a lesson which will help me avoid similar problems in the future." Another example of his reflective behavior is evident in this October journal entry where he attempts to make connections (links theory and practice):

Table 1

List of Reflective Behaviors with Descriptors

<u>Behaviors</u>	<u>Descriptors</u>
Risk-taker.	Open to change; willingness to try new approaches to learning; willing to change direction in the middle of a lesson; willing to consider new evidence; invites evaluation of teaching.
Flexible/thinks on feet.	Knows when to change direction during a lesson; seizes "teachable moments."
Willingness to confront changing conceptions of self as teacher.	Willing to explore conceptions of self as a teacher, not so secure in self-conception as to not want to learn and grow as a teacher; willing to confront conceptions of self squarely and openly.
Considers context when making decisions.	Carefully examines context when making decisions; understands that contexts either enable or limit educational activity.
Accepts multiple perspectives.	Views an issue simultaneously from the perspective of several people (teacher, student, researcher, parent).
Accepts responsibility for success/failure of lesson.	Recognizes decisions he/she makes; looks to himself/herself for explanations when something goes awry; accepts responsibility for choices.
Ability to recognize dilemmas and make rational choices.	Ability to use practical, pedagogical, and ethical criteria when making choices; ability to assess consequence of choices.
Links theory and practice/makes connections.	Knows how to use research and integrate it into instruction; comes to value theory as a means for expanding his/her understanding of teaching.



I believe that one of the next steps for me to take in the process of developing my teaching skills is to make connections between lessons. I still feel a little bit like a hired assassin. I'm going in, knocking off one lesson, and getting out. I want to focus more on connections and leading the students along a well marked path rather than just dropping them off in the middle of the woods and letting (Carol) bring them home. I must know where they have been, where they are going, and what learning tools they are bringing with them. I will gain this information through further interaction with the students, by asking (Carol) thoughtful and appropriate questions, and through further time and reflection.

Concerns started to arise at the middle of October, about midway into the first semester of his internship, which began to affect his ability to *accept responsibility* for his actions and his ability to be *self-critical*. Thomas seemed to have some problems relating to children. His cooperating teacher indicated to Thomas that he was not "warm" enough with children, that his body language and expressions made some of the children uneasy. Comments had also been made outside the classroom by other teachers and staff who did not find Thomas approachable, a factor that interfered with his contributing to the learning community. Thomas' response was, "I am left with the message that I need to make some serious changes in my interaction with the children or (Carol) will not have a positive recommendation for me as a second grade teacher." I was concerned with Thomas' response. I knew that his ultimate goal was to get a job, as with most student interns, but I felt that he needed to focus on the present without getting distracted. His response to this concern:

I believe that she (Carol) has valid points and that my interaction is not as smooth as I would like it to be. I believe that this is primarily due to the fact that I am focusing on so many other technical things that I am sometimes distracted or preoccupied. (Later) I have already begun to make changes in my demeanor in the classroom in an attempt to seem even more accessible and warm to the children. I believe that I can do this naturally and probably reach the point that (Carol) is looking for.

Thomas did have a serious demeanor which could appear formidable to second graders. His motive for changing was of concern—again the recommendation was lurking in the background, "what Carol is looking for." He had a difficult time being openly and honestly *self-critical* at this point, unlike the behaviors he had demonstrated at the beginning of the semester. Thomas held fast to any criticism from his cooperating teacher. In a November journal entry, he continues to comment,

I have come to the conclusion that I have not been opening up completely to the children in my classroom. This is due to a few factors. First, I have been intimidated by the reputation of the parents (in this community). As a result I have been hesitant to let my sense of humor show through for fear of being unprofessional. I guess I was also intimidated by the reputation of the school knowing that the school has high expectations for its teachers.

Again, Thomas is concerned with appearances and image and *blames others (does not accept responsibility for failure)* for his shortcomings. The content of his reflective journals seemed to take on a new direction. "Last week I designed a new road map lesson and implemented it on Thursday. The lesson went very well in that I was able to meet my objectives, and Carol seemed impressed." By the end of the semester (the beginning of December), Thomas acknowledged in a final reflection that he had some early problems with building productive relationships with students, but that he was making some changes in that area: (a) he was more conscious of his

demeanor and facial expressions, and (b) was revealing much more of his personality to the children and thus it feels more comfortable and natural. In a final three-way conference with Carol, Carol felt that Thomas should continue working on developing positive relationships with the children. Among his goals for second semester, Thomas included "to work at 'demonstrating' his love, enthusiasm, and dedication to teaching."

Thomas began his second semester in the middle of January in another second grade classroom with a teacher (Laurel) who team-taught with his first cooperating teacher. He seemed to carry some baggage from first semester; his personality became an issue. While he appeared to be more effective in developing positive relationships with the children, the staff continued to find him not approachable and difficult to deal with, especially support staff who worked in his classroom. Again Thomas was *unwilling to confront conceptions of himself* squarely and openly. He was overly concerned with making a good impression. Laurel also indicated that in the area of planning lessons, Thomas still needed to plan ahead and return student work in a timely manner, areas needing improvement from first semester. At our mid-semester three-way conference in March, Laurel also began to question Thomas' decision to work as an intern in a second grade classroom, wondering if it would be more appropriate for him to work with older students.

Laurel and I had seen some evidence of Thomas' *willingness to try new approaches to learning* (risk-taker), but Thomas was obsessed with making good impressions which impeded his growth and development as a teacher.

An incident occurred in April that gave credence to his cooperating teacher's concerns about Thomas' *ability to recognize dilemmas and make rational choices* which affected the remaining weeks of Thomas' internship. While at cafeteria duty, he mishandled a behavior issue with a young student. This was brought to the attention of the principal and the assistant principal who seriously considered his removal from the internship. After much discussion with the administration, the university supervisor, and cooperating teacher, he was allowed to complete his internship, but this incident impacted his remaining weeks at this school.

Other issues began to surface. While he had always seemed to be an integral part of the intern cluster, he began "dropping out" and became less involved with the group. He confessed to me that he didn't feel he was where he should be in his internship as compared to the other interns who seemed totally integrated into their classrooms and doing so much more than he was. He was *unable to accept responsibility for any failure*, blaming his cooperating teacher whom he felt had hindered his growth by not giving him more ownership in her classroom. His cooperating teacher, on the other hand, blamed him for not taking the initiative to take some ownership. Also, by this time he realized that he would not be getting the favorable evaluations that he so wanted. In his genuine efforts to succeed, he had thwarted his own progress. He remained in the internship performing his duties perfunctorily, all the time questioning his decision to become a teacher and considering the prospect of his getting a job.

## **Brenda**

Brenda is a young, enthusiastic, and optimistic twenty-two-year-old woman who has come to teaching because she loves children. She ended her first journal entry stating, "It's going to be a great year!" When asked what she had to contribute to teaching, she indicated her personality and positive attitude. In spite of her enthusiasm, Brenda had a slow start in her first grade placement. It took her a while to acclimate to the classroom and to the expectations of her



cooperating teacher. While her cooperating teacher encouraged her to take some initiative, she was hesitant and seemed to lack confidence, affecting her ability to *take risks*. She just couldn't seem to get her direction. Brenda also had a hard time coming up with resources for her lesson-planning. She didn't seem to know where to go for ideas and information. She lacked the ability to make connections between theory and *practice*. Her journals in early September were lacking in depth and reported routine activities in the classroom. By the end of September, however, the content of her reflections started to change as evidenced in the following journal entries,

One area I truly want to focus on is goal setting. When I plan a lesson I need to have a better feel for what I want the kids to learn. I think that if I can keep that in mind, and the expectations of problems arising, the lessons will go smoothly, and our classroom does a lot of work in centers. Lately things haven't been working very smoothly when we do this so I'm wondering where the problem lies. Is it too much to expect children to be this independent this early in the year? Are the directions clear enough? Can we see if they are truly benefiting from this time?

She emphasizes student learning and tries to *make some connections*, "I've been putting some thought into it and remembering what I have learned in my (education) courses."

Finally, by the middle of the October, Brenda seems to be taking initiative and gaining self-confidence. She begins to *take risks*. She reflects in her journal, "Things have been going great lately," and "I feel like a lot of things are falling into place. I am definitely comfortable in the class and working with the students. Although I have a little difficulty getting my ideas going, I feel that I am getting a better understanding of how to make those ideas work."

Setting goals in October at our mid-semester, three-way conference, such as continuing to build a resource of ideas, achieving independence in lesson planning and decision making, becoming less self-critical and more self-confident, and developing a comfort level for teaching, lay the foundation for the remaining of the semester. As Brenda became more confident, her lessons with the children were more effective. She could sense herself changing and was *willing to explore the changes (willingness to confront changing conceptions of self as teacher)* as expressed in this journal entry:

When looking back at the first half of the semester I can see that I have already grown a lot. It's difficult to pinpoint or explain the ways in which I have changed, but I can feel it. I know that my relationship with the children, the way I speak with them and how comfortable I am with them, has improved.

As she became more comfortable, Brenda was better able to step back and reflect on her growth as a teacher *exploring new teaching methods* (risk-taker), employing new learning strategies, and gauging the development of the children. "I've been looking for and noticing that a lot of experiences in the classroom have to do with the developmental age of the children. Our challenge is to teach ideas and concepts on a level that is appropriate to them."

In a journal entry at the beginning of December towards the end of first semester, Brenda comments on reflection, "I think that it's easy to slip away from reflecting and to get into routines of planning teaching but forgetting to reflect. I know that many times I don't have the confidence in 'my own voice' until I have to. Reflecting energizes my confidence." Even though she sees the value in reflecting, she also indicates that reflection is sometimes difficult, "I feel that I have spent



so much time looking at my lesson, my questioning, before and after my lessons. This is important, but sometimes I want to do it, just do it! I just want to get up there and enjoy myself, to love teaching.”

At the beginning of the semester, Brenda was wed to her lesson plan and didn't feel comfortable deviating from it. In the words of her cooperating teacher (Ginny), “Brenda will need to learn how to *think on her feet* (flexible). Sometimes we have to abandon lessons that are not working and sometimes we have to grab the *teachable moment* (flexible) even when we did not plan on it.” By the end of the semester, Brenda's growth in this area is revealed in a journal entry, “I have found that sometimes you need to just stop right where you are and go in a completely different direction. Depending on the situation it may be appropriate to just tell the kids that this isn't working, let's try something else.”

Overall, Brenda had a good first semester and realized much growth. She noted in a final reflection:

I have grown so much this semester! I have learned by watching, listening, and trying. Not everything has gone perfectly; I didn't expect it to. One thing that I have learned overall is to trust myself. I do have good ideas and answers in my head; I just need to work at letting them out. It's hard to feel responsible when I have never had to be in that type of position before. When I am forgetting about it being “just right” and I am simply enjoying myself and enjoying the kids, we all learn more.

Among Brenda's strengths first semester were her relationship with the children, her integration into the classroom and school community, her planning and implementing of lessons, and her *willingness to confront her changing conceptions of herself as a teacher*. Among her goals for second semester were gaining a sense of the whole class during lessons, learning to “think on her feet,” learning to be more of a risk-taker, learning how to anticipate and handle potential problems during lessons, and continuing to grow and develop in all five focus areas.

Brenda entered her second placement in January with verve and enthusiasm and a renewed sense of confidence. It was truly amazing to see the “new” Brenda. She had already established a relationship with her new cooperating teacher (Jane) because Ginny and Jane team-taught their social studies and science lessons which Brenda was able to experience. When I went in to observe Brenda, she was fully engaging the children. She had developed her “teacher voice” and was comfortably in control of the classroom. Her confidence was obvious as I watched the children's reaction and participation in the lesson.

I observed Brenda's reflective behavior when she began to redirect her energies from herself to the needs of the children, which allowed her to concentrate more on the content of her lessons. For example, “This semester I really want to focus on reading groups. As I have developed a better sense of where the students are, it is easier to facilitate learning. I am better able to *think on my feet* and challenge their thinking. As the children share comments and questions, I have used questioning strategies to help prompt their thinking.” Brenda assesses her growth in a final reflection:

Overall this has been one of the most exciting and transitional years of my life. I feel that I have changed in so many ways. For a long time I was just overwhelmed and needed to soak

in everything that was going on. It was almost instantaneous as everything began pulling together for me! I now have confidence that I can be a fantastic teacher.

### **Discussion**

As I analyze Thomas' internship, I see several issues that impeded his growth and development. One salient finding was that Thomas was not a risk-taker even though the context for this study actually supported risk-taking. I saw this when observing him in the classroom. He was overly concerned with doing the right thing. He wasn't able to go with his instincts. This also interfered with his being flexible. He was not able to step away from himself, to see the whole picture, to actually "get it." I saw glimpses of his willingness to confront changing conceptions of himself as a teacher, especially in his earlier journal reflections, but he never fully developed this in his classroom practice. He also fell short in developing collegial relationships within the building, such as the teacher's room or when on recess or cafeteria duty with the other teachers. Thomas also had a hard time accepting multiple perspectives because he tended to be very dogmatic in his views, validating Schon's (1987) notion of practitioners using past experiences as lenses to frame new situations. He could consider multiple perspectives, but he had a hard time accepting them. Thomas did accept the responsibility for the success of a lesson, but at times had difficulty accepting the responsibility for failure of a lesson, looking to blame others. Thomas had the most difficulty in the area of placing emphasis on student learning rather than self. He put so much emphasis on himself, yet he was unable to be openly and honestly self-critical. He was conscious of the choices he made, but did not exercise good judgment or consider the context. As a result, he fell short in developing reflective behaviors throughout his internship.

One of Brenda's biggest successes was that she never resisted the urge to change. She always accepted constructive criticism with grace. She never looked to blame anyone else for the failure of a lesson, but turned it into a learning experience. Of all the interns that I worked with this year, Brenda has realized the most growth as she developed her reflective behaviors. Although she resisted at times, her weekly reflections forced her to take a long hard look at herself and the teacher she wanted to become. She became able to self-question and resolve both some internal and external dilemmas. By the end of her internship, she was finally able to make the right connections between theory and practice. Brenda exhibited continuous growth in reflective behaviors throughout her internship.

Bullough, with Stokes (1994), in a study exploring the analysis of personal teaching metaphors as a means of facilitating the professional development of beginning teachers, identified four categories of response within which students could be placed: (a) Never Got It; (b) Got It, but Didn't Like It; (c) Went Along, but Didn't Work Up A Sweat; and (d) Got It, and Used It. Applying these categories to the present study, by the end of first semester, Thomas was "getting it, but not liking it," and Brenda was working towards "getting it." By the end of second semester, Thomas had not yet "got it," and Brenda had definitely "got it, and used it."

### **Conclusion**

What have I learned from this study? By making "reflection" the theme of this year's internship, the interns became more cognizant of this process. We read articles on reflection, we discussed reflection during seminars, wrote reflective papers, and examined evidence of reflective behaviors in teaching. Findings from the data indicate that (a) providing a framework for reflection throughout the year played a role in enabling the interns to evaluate both their intuitive



beliefs about teaching and the effectiveness of their instruction approaches to learning; (b) providing a framework for reflection was used to set goals, promote reflective writing, help with self-analysis, provide focus, and facilitate careful examination of alternative positions and courses of action; and (c) a predisposition to openness and change was a factor in the development of reflective behaviors. I felt it was important to discuss with the interns their perception of how they felt they met the challenge of exploring reflection. In a final interview with each intern, I asked the following questions: What is *reflection* to you? Do you see the process of reflection as enhancing your teaching? What was the most significant part of reflection for you? Through reflection, did you discover any critical issues for yourself? All the interns saw the importance of reflection and indicated that reflection enhanced their teaching. For Thomas the most significant part of reflection was setting goals and reflecting on whether he achieved them. For Brenda it was the opportunity to question why she did what she did. In preparation for the interview, I had also asked the students to reread the contents of their reflective journals in order to assess their development as a teacher. In response to the question, "Has your view of yourself as a teacher changed during the course of the year?" Thomas replied, "Going into it I didn't understand how much was required in terms of my relationship with the children ... In terms of how my personal habits, my demeanor, once again I didn't understand how big a role that would play in terms of my teaching." Indeed, as the data revealed, Thomas' problems centered on this issue. He did, however, believe he had worked these issues out and planned to pursue a teaching position. Brenda indicated that her confidence is what prompted her to change and now she is ready for her own classroom. It is interesting to note that when each intern was asked where he/she would place himself/herself on the scale from "Never Got It" to "Got It, and Used It," only Thomas was awry with this study's evaluation of his placement on the scale. Thomas rated himself as one who definitely "Got It, and Used It." I also asked the interns to rate themselves in the area of reflective behaviors. Again, Thomas perceived himself as very reflective, and Brenda was most accurate in her self evaluation.

Preparing graduates who will be thoughtful and reflective practitioners who learn from experience is an interesting challenge for teacher education programs. Garman (1987) suggests that when students enter a practicum, they are presented, explicitly or implicitly, with certain fundamental tasks. They must learn to recognize competent practice. They must build an image of it, an appreciation of where they stand in relation to it, and a map of the path by which they can get from where they are to where they want to be. Providing a framework for inquiry and reflection aids in these tasks.

There is also the issue of whether some prospective teachers are simply more committed to teaching and have what Serow (1992) terms "a sense of calling" to the teaching profession, as in the case of Brenda. An interesting follow-up study would be to continue to observe these students as they assume teaching positions and to examine the reflective behaviors they exhibit as "real" teachers. Does reflective behavior translate into effective teaching? A similar list of reflective behaviors as used in this study may also be helpful for teacher educators struggling with how to give appropriate feedback during student teaching.

As teacher educators, it will be important for us to help future teachers make connections between reflective teaching and reflective learning so that they can appropriately prepare their students for the critical challenges of the twenty-first century.

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