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Scaffolding Critical Reflection in Online Discussions: Helping Prospective Teachers Think Deeply About Field Experiences in Urban Schools

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A teacher educator uses the methodology of a design experiment to compare patterns and levels of reflection in two semesters of her students' e-mail discussions about field experiences in urban schools. Analysis of discussion transcripts during the earlier semester revealed that higher levels of reflection were rare. With a number of changes in both the design and level of support for the discussions, students during the second semester were more inclined to write at higher levels of reflection. Important scaffolds for higher levels of reflection seemed to be tailored and general questioning from the instructor and peers, critical readings on problematic issues and inequities in urban schools, and certain online discussion threads where students were jointly analyzing sociopolitical and moral aspects of critical incidents in the field. In light of this study, suggestions are offered for future use of electronic exchanges in teacher education courses and programs.

> How come my reality is so different from their reality? Every Friday I try to make them see that if they work hard they too can go to college and get good jobs but many of them don't care. Many of them can't even come to school twice out of the five day week.

I was disheartened to read this e-mail message from one of my students toward the end of a semester-long online discussion about field experiences in an urban middle school. Along with many teacher educators, I continually struggle with what my students learn and do not learn when they visit schools where most students come from backgrounds different from their own. Because of their taken-for-granted assumptions about teaching, learning, race, and ethnic differences, such experiences often reinforce rather than change stereotypes (Deering & Stanutz, 1995; Wiggins & Follo, 1999). Prospective teachers need considerable guidance and support to think critically about their experiences in schools and, especially, about the cultural biases they bring to those experiences.

Conceptual Frameworks And Rationale For Research

For the past several years, I have been studying how to scaffold high levels of reflection in electronic discussions about field experiences. My research is grounded in literature on critical reflection in teacher education (Brookfield, 1995; Hatton & Smith, 1995; Loughran, 2002; Valli, 1992; Yost, Sentner, & Forlenza-Bailey, 2000), sociocultural learning theory (Putnam & Borko, 2000; Rogoff, 1990; Salomon & Perkins, 1998; Vygotsky, 1978), and computer-supported learning communities (Koschmann, 1996; Scardamalia & Bereiter, 1996).

Literature on critical reflection in teacher education suggests that such reflection enables prospective teachers to develop the habit of continually learning from their experiences by (a) standing back from their own taken-for-granted assumptions and biases and problematizing situations in practice, (b) framing problems of practice in light of multiple perspectives, (c) critiquing and reframing problems within broader sociopolitical and moral perspectives, and (d) taking action that is informed by such reframing. For example, the student teacher cited in the previous e-mail, in light of discussions with students, colleagues, and readings about culturally relevant

curriculum, might reframe her view of students who do not care to one of students for whom the curriculum is irrelevant or culturally unresponsive. In light of such reframing, the student teacher might take greater care to understand the lives of her students and develop the high expectations that promote high student achievement (Ladson-Billings, 1994; Nieto, 1999). Such reframing can lead a student teacher to use "his or her knowledge about students' lives to design instruction that builds on what they already know while stretching them beyond the familiar" (Villegas & Lucas, 2002, p. 21).

Sociocultural theories of learning maintain that knowledge is socially constructed and inextricably connected to the contexts and cultures in which it is used (J. S. Brown, Collins, & Duguid, 1989; Putnam & Borko, 2000; Rogoff, 1990; Salomon & Perkins, 1998). Learning is an active process, a kind of cognitive apprenticeship (Collins, Brown, & Newman, 1989) whereby learners become enculturated into a particular community through dialogue and collective problem solving with others who have greater expertise in that community. A sociocultural view of learning suggests that prospective teachers can best learn how to critically reflect on practice in social contexts where they have the opportunity to discuss practical problems with other teachers of greater and lesser expertise. Such interaction can not only help them solve immediate problems but also scaffold them from limited to more complex understanding and knowledge about teaching.

In recent years, sociocultural theories of learning have been the basis for a variety of computer-supported collaborative learning projects in teacher education to help prospective teachers collectively reflect more deeply about their field experiences. Although some projects focus largely on student teaching (Schlagal, Trathen, & Blanton, 1996; Thomas, Clift, & Sugimoto, 1996), others focus on earlier field experiences (Angeli, Supplee, Bonk, & Malikowski, 1998; Wizer & Beck, 1996) and still others explore the use of telecommunication across several courses and field experiences (Brett, Woodruff, & Nason, 1999; Levin & Waugh, 1998). These experiments in preservice teacher education parallel a variety of electronic and online forums and learning communities for practicing teachers. The Maryland Electronic Learning Community (Rose, Allen, & Fulton, 1999), Tapped In (Schlager & Schank, 1997), Teachers.Net (Kovaric &

Bott, 2000), and the net seminars sponsored by the Concord Consortium (Tinker & Haavind, 1996) offer practicing teachers online opportunities for professional dialogue about teaching and learning.

Literature on these electronic exchanges is limited, however, with very little study on how to design them so they scaffold deepand critical reflection. A recent review of research on telecommunication use in teacher education suggests that studies tend to be atheoretical and lack methodological rigor (Blanton, Moorman, & Trathen, 1998). There are, of course, exceptions, and these studies confirm the need for powerful scaffolds for reflection in an electronic environment. Angeli et al. (1998) used sociocultural learning theory to study electronic conferences about student-generated cases from early field experiences and found that without explicit supports for critical thinking, students offered each other emotional support rather than challenged each other's thinking about their cases. Similarly, Wade, Allison, and Stevens (2000) used critical discourse analysis to analyze computer-mediated discussions about difficult teaching experiences generated by preservice teachers enrolled in an issues-based teacher education course and found that students tended to focus on practical and personal advice rather than consider broader political and ethical issues. In contrast, Schlagal et al. (1996) found that more structured discussions on e-mail elicited critical dialogue about complex issues among student teachers. Similarly, Harrington and her colleagues (Harrington & Hathaway, 1994, 1995; Harrington & Quinn-Leering, 1996; Harrington, Quinn-Leering, & Hodson, 1996), using theories in adult cognitive development, discovered that a structured computer conferencing activity helped students in early course work and field experiences to critically analyze policy issues and moral dilemmas in schools. Harrington and her colleagues (Harrington & Hathaway, 1994, 1995; Harrington & Quinn-Leering, 1996; Harrington, Quinn-Leering, & Hodson, 1996), however, acknowledged that not all students were able to reach a high level of reflection in the computer conferencing activity and called for further studies to determine how scaffolds in such discussions might be tailored for students with varying developmental needs and, in particular, how the flow of the discussion might act as a scaffold for critical reflection.

Context and Data Sources

I teach at a private university where the majority of teacher education students are young, White, and female and do much of their fieldwork in a large urban school district. Most have limited experience in school contexts different from those in which they were raised and educated. For several years, I have asked my students in a general methods course to discuss with each other on e-mail puzzling or problematic issues or situations they encounter in their 20 hours of field experiences in an urban middle school.

My ongoing research on these discussions is aligned with recent research in teacher education that involves teacher educators studying their own practices (Zeichner, 1999). I use the methodology of a design experiment (A. Brown, 1992; Collins, 1992). That is, while continuously trying to structure the electronic discussions in my class so they encourage serious, collective inquiry about sociopolitical and moral issues in urban schools, I try to study what seems to move my students to higher levels of reflection and inquiry in this environment. As a result of my findings each semester, I make changes in the discussion assignment and again study what happens.

This study took place during two semesters (spring and fall of 1997) with two different classes of juniors and seniors. In the first class of 23 students, all but 3 were 22 years old or younger and all but 3 had limited experience in multicultural contexts. In the second class of 17 students, all but 4 were 22 years old or younger and only 5 students had prior experience in multicultural contexts. My study posed these questions: (a) What patterns and levels of reflection about field experiences are evident in the e-mail discussions? And (b) What seems to scaffold higher levels of reflection in these discussions?

Primary data sources included transcripts of all student e-mail postings to the electronic discussions (148 in the spring and 108 in the fall), written student surveys, and a reflective portfolio assignment completed by students at the end of each semester.

Data Analysis

E-mail messages

To address the question about patterns and levels of reflection in the discussions, a research assistant and I first read the e-mail transcripts for prominent themes and discussion threads. We

considered major threads any portion of the discussions that focused on a specific topic and consisted of at least five postings written by at least four students. To analyze levels of reflection in the student e-mail messages, we then read the transcripts a second time and used Hatton and Smith's (1995) categories of reflective writing to code all student e-mail messages. They distinguished unreflective descriptive writing, where students simply report events and interpret them in light of personal worries and previous experience from descriptive reflection, where students make some effort to analyze reasons for events or actions either from their own point of view or that of others. For example, we considered this student's view of a half-empty algebra class as unreflective: "Half the class was not there due to suspensions. I guess this really struck me as something that would be difficult to deal with especially as an algebra teacher." On the other hand, we considered this student's efforts to analyze reasons for student confusion about a math assignment as descriptive reflection:

> The second half of the class was spent on a math worksheet . . . the students were totally confused about the assignment. I don't like the use of worksheets to teach mathematics because they do not promote problem solving [and] communication skills which are vital to mathematics.

Dialogic reflection is more complex as students step back from events, weighing various perspectives in an effort to analyze the reasons behind situations. For example, we rated as dialogic the posting of a student who ponders his many choices in class management. He describes how one teacher he has observed (who is admired by students) runs a highly structured classroom where "the students do not get up or talk without permission." He has also observed another teacher who is well liked by students and who runs a classroom "where the students can sit on top of their desks and move around as they please." The student wonders,

> Are they both equally good? Is it based on the teacher's personal needs or preferences as an educator or on the students' needs and preferences as a learner? Will some students benefit from one environment while others suffer? Or do you find a "happy" compromise?

Only through dialogic reflection, Hatton and Smith (1995) argued, can reflection move into a critical mode where ethical criteria, based on social, political, and cultural considerations, are used to question the status quo. For example, after visiting a new computer lab in the school where he was placed, one student questions its fairness:

> [This school] is not representative of all middle schools in [the city]. Now, I happen to find this unfair. Why is more money spent on some students and less on others? What is the message that is being sent? Some students are more important or more highly valued than others? Don't all students deserve the immaculate facility and the new curriculum?

The research assistant and I first coded the e-mail messages separately and then negotiated coding to 100% agreement. We then organized each semester's e-mail data into tables: one according to levels of reflection in each of the major discussion threads, one according to levels of reflection in each week of the e-mail discussion regardless of topic, and a third according to individual student contributions and levels of reflection. We looked at these tables for patterns of individual participation as well as patterns of individual and collective reflection over the course of each semester.

To address the question of what scaffolds higher levels of reflection, we read the transcripts a fourth time to look at all points in these discussion threads where students moved to dialogic or critical levels of reflection. In this analysis, we tried to determine what in particular prompted these higher levels of thinking and to what extent these levels were sustained at various points of the discussions during both semesters.

Student surveys and portfolio papers

A survey administered at the end of each semester asked students for written reactions to the electronic discussions, whether they found them beneficial, and what suggestions they had for future discussions. All responses to these survey questions were listed and then clustered and tallied according to theme. The portfolio assignment at the end of each semester required students to prepare a portfolio that included artifacts illustrating what they had learned in the course and a short paper discussing their rationale for choosing

those artifacts. The research assistant and I read the portfolio papers several times for any mention of the e-mail discussions. These passages were then isolated and read for prominent themes, which were then listed and tallied. Survey and portfolio data were used to corroborate findings from the analysis of the e-mail transcripts.

Spring Semester Patterns of Reflection

A total of 23 students submitted 148 postings to the electronic discussions for an average of 6.4 per student. Major discussion topics included low teacher expectations, use of candy to motivate student learning, school suspension and expulsion policies, socioeconomic and cultural gaps between teachers and students, the uneven quality of substitute teachers, and the fairness of social promotion. Table 1 displays the levels of reflection in the e-mail messages on these topics, and Table 2 shows the levels of reflection achieved in all 148 postings during the 10-week discussion regardless of topic.

Table 2 demonstrates that during the spring semester, almost half of the postings (44%) were unreflective and approximately 87% of the postings were either unreflective or at the lowest level of reflection. Only on four occasions do any students critically reflect about an event or problem within broader historical and sociopolitical contexts (Hatton & Smith, 1995).

A Closer Look at the Spring Semester's Discussion Flow

Early postings are filled with stories that could be loosely organized around themes of low expectations and unimaginative teaching. In a social studies classroom, a teacher is reviewing for a test the students were having by telling students the correct answers not by probing them with more questions. In a health class, the teacher reads notes on gang resistance from a transparency and tells students exactly what to write down. In another classroom, students play a computer game called Super Munchers at the beginning level because, they say, "they aren't 'genius' or even 'advanced.'" Other students describe classrooms where teachers use candy to reward students with the right answers. However, instead of asking why these predominantly African American children are not being challenged by their White teachers, why they are being bribed to do their schoolwork, or whether the work they are being asked to do is worth

doing, most students simply attach their own general feelings or opinions to the stories that they tell. The student who told the story about the students hesitating to challenge themselves on the computer game concluded, "We as future teachers need to be the ones to help these children realize they can do it." In response to the story about the computer game, another student comments, "I think it is a shame that these kids do not have the opportunities for the growth that they need."

Table 2 indicates that in the 5th and 6th weeks, the postings shift from simple storytelling to more reflective contributions. The students' move to a higher level of reflection seems to emerge in a thread of discussion that begins with a series of dramatic stories that do not represent daily life in classrooms: A student asks for help in reading but gets into a gang fight and is expelled, a girl bites part of a boy's thumb off after he bites her in the breast, and another boy is called a wimp by a classmate when he cries after being roughed up in the bathroom. Then, one prospective teacher questions whether she can effectively teach children with socioeconomic backgrounds so different from her own:

> Many of the students I have encountered have experienced more hardships than I ever have or will in my lifetime. I mean, I once encountered a third grade student who had been shot the year before in a drive-by. How, as a person who grew up in an affluent suburb with no gang presence, am I supposed to deal with such situations?

This e-mail message led to a 2-week discussion during which students tried to jointly construct an understanding of how culture and race influence teaching. Nowhere in this thread of discussion, however, did the students challenge each other's assumptions or question their own. Instead, they drew largely from personal experience to support previously held positions. For example, several students argued that race does not necessarily make individuals competent to teach everyone of the same race. One student reasoned, "I don't see how my 'Whiteness' would aid me in teaching poor White students in a Kentucky mining town." Another pointed to an example of a White teacher who has great relationships with his predominantly African American students, whereas an African American teacher "just

screams at the students." At this point in the discussion, several students echoed one student's declaration that race does not matter. Drawing from her own experience as a White student, she argued

> When I think back to my best teachers, I don't think of them as good because they were White and able to relate to me better. Rather, I think of them as good because they displayed true interest in their students.

Another student agreed and affirmed, "I believe that I can teach any child who wants to learn."

The student surveys and portfolio papers confirm that for most students during the first semester, the e-mail discussions were not a place where they were being challenged to think in new ways about their experiences. They were largely an opportunity for sharing stories and feelings. In response to the questions "Describe your reaction to the e-mail writing in this class" and "Do you think the electronic discussions in this class were beneficial?" 14 of the 17 students who returned surveys cited as a major benefit the opportunity for emotional support. Only three mentioned as a benefit the opportunity for reflection and analysis of field experiences. Similarly, in the 23 final papers students wrote in the class on significant learning experiences during the semester, only three made any reference to the e-mail discussions.

Additional Supports for Critical Reflection

The next semester, I added several supports I thought would encourage higher levels of reflection in the online discussions: more critical class readings and discussion prompts, periodic summaries of class discussions organized around critical questions, clearer criteria for assessing student postings to the discussions, and more individual communication with students about their contributions.

Critical Class Readings and Discussion Prompts

Via e-mails and handouts, I encouraged students to use specific class readings to problematize and interpret situations and issues emerging from their field experiences. For example, early in the e-mail discussion when a student described "the worst possible class in

history" and speculated that the students' behavior stemmed from poor upbringing, I brought copies of the story into the class for discussion and asked students to use articles by Noddings (1992) on ethical caring and by Haberman (1991) on the pedagogy of poverty as a basis for considering why the students might be misbehaving in this classroom. I posed these questions: How can we consider the students' behavior in the best possible light rather than as "the worst possible class?" Could the misbehavior be understood as the students' way of responding to an uninteresting curriculum? Could there be a cultural mismatch between students and teacher? Such questions stimulated lively class discussions, which I then encouraged students to continue on e-mail.

Periodic Summaries of E-Mail Discussions

To integrate the e-mail discussions more carefully into our class meetings, I periodically prepared summaries of them to trigger new ones. These handouts included selected excerpts from the electronic discussions organized around critical questions such as "What does it mean to care about students?" "What can teachers do to counteract gender bias in the classroom?" "How do funding inequities mirror curricular differences and access to knowledge across schools and school districts?" "How are students labeled in schools, and who is helped and hurt by this labeling?" "How fair is the school's suspension policy?" "How caring are the school's reward systems?" and "What is the fairest way to assess student learning?"

Criteria for Assessing Discussions

Instead of simply checking for regular student participation on e-mail, I developed criteria for evaluating the e-mail postings and using this checklist along with a 4-point rating scale, I regularly offered feedback to students on the quality of their postings.

- Entry includes at least a screen full of writing.
- Entry analyzes a situation or problem from multiple perspectives.
- Entry considers political and/or ethical issues embedded in the situation or problem.
- Entry poses critical questions in response to other students' e-mail messages.

Individual Communication with Students

I tried to support and monitor more carefully the collective dialogue and exchange that was occurring in the discussions. I e-mailed or phoned two students who were struggling with critical issues but not getting much response from peers. I sent private e-mail messages to one student who was assuming a leadership role in the discussions to encourage her to continue to do so. I contacted a few students by phone, e-mail, and in class who were not participating to find out why and to offer assistance. As mentioned earlier, I also sent e-mail messages to all students offering comments and suggestions on the quality of their e-mail postings.

Fall Semester Patterns of Reflection

A total of 17 students submitted 108 postings for an average of 6.2 per student. Major discussion threads included the meaning of care, how to combat cultural and gender biases, stories of chaotic classrooms, balancing structure and student freedom in the classroom, fairness of school disciplinary and suspension policies, funding inequities in urban schools, socioeconomic and cultural gaps between teachers and students, and fair assessment practices. Table 3 displays the levels of reflection achieved in these discussion threads, and Table 4 shows the levels of reflection achieved in all 108 postings during the second semester discussions regardless of topic.

Table 4 shows that in contrast to the previous semester when half of the students began the semester writing at a nonreflective level, the majority of these students were writing almost from the beginning at a level Hatton and Smith (1995) called descriptive reflection; they were trying to analyze reasons why events were happening. Furthermore, Table 4 shows that 87 (81%) of the 108 postings were part of a major discussion thread in contrast with the previous semester when only 60 (40%) of the 148 postings were part of any major discussion thread. Table 4 also suggests that whereas critical reflection was less common than dialogic reflection, it was evident in 12 out of the 108 student messages. This number represents 11% of the messages written by students in this class, a significant difference from the previous semester when only 4 (1%) of the 148 student messages had any evidence of critical reflection. Furthermore, almost 50% of the students (8 out of 17) in this class wrote at least one message at the critical level, whereas in the

previous semester, only 4 (17%) of the 23 students wrote at the critical level.

A Closer Look at the Fall Semester's Discussion Flow

During the first week of this electronic discussion, several students attempted to jointly construct an understanding of what it means to care for students in response to one student's question in her first posting: "How do we as teachers care for our students but at the same time not get burned out as we try to reach all of them?" Another student responded with the case of a teacher she had observed who called his class "a bunch of retards." She speculated, "Could he be sick of trying to help all of the students and be burnt out?" On the other hand, she is puzzled because "the students really seem to like him." Another student suggested that perhaps this teacher might be frustrated because this year, he had been assigned to teach in a new subject area, although she acknowledged that the new assignment should not be an excuse:

> Caring for students demands that teachers have some way of monitoring their teaching and their attitudes. Whether it be by listening to some constructive criticism from colleagues and friends or [doing] some self-reflection, teachers have an obligation to themselves, students, and the community to be the best they can be.

Still another student, who had some prior experience in middle schools, suggested if the students seem to like this teacher, "[his manner of speaking] may be a form of caring even if you or I don't get it at first."

A student's dramatic story about "the worst possible class in history" led to less reflective story swapping about chaotic classrooms during the second week; however, when students then collectively considered the fairness of classroom and school discipline and suspension policies during the next several weeks, the level of reflection increased, as can be seen in Table 3. At this point in the discussion during the 4th and 5th weeks, some students began to look more deeply at underlying sociopolitical and ethical issues. One student who described a classroom where students were all over the place noted that the teacher was newly hired and not certified. She

questioned, "Why are there so many uncertified teachers in this inner city school? Would we see that in the suburbs?" Another student noted that almost half of the students in a classroom she observed had some kind of exceptional education label. She wondered, "Why are so many students in this school thought to have some sort of disability?" And another, struck by low motivation levels in her field classroom, asked, "Why do some teachers let the students in this school get away without learning?" Such dialogue and collective reflection sets the stage for an extended discussion at the end of the semester on the significance of socioeconomic and cultural gaps between teachers and students in this urban middle school. One student noted how frequently some teachers suspend students and asked,

> Why are we shooing kids out when the whole idea of a school is to keep them there? An in-school suspension isn't the key either...the solution has got to be in the way the teachers treat the kids. Yes, the children need to come to school with a certain amount of respect for their teachers, but the teachers also need to come with an attitude better than "what bad thing is going to happen today." We need to see the best in kids [see Noddings, 1992, on care] and then expect the best out of them and accept nothing less.

In response, another student wrote about the striking disparities in expectations, curriculum, and discipline policies between the private all-girl Catholic high school she attended and schools that serve poor children and "are struggling to get basic equipment and textbooks...I wonder what we as teachers can do to change any of this." Another student also asked, "What can teachers do to help these children achieve the very best?" In response, Sharon, an African American student, citing Delpit (1995) as well as her own experience, wrote the following:

> Experience not only in teaching, but also experience in the environment of your students (if different from your own) is very important. I want to emphasize this point because I had too many teachers who lived in "another world," and they wondered why they were not getting through to the students.

In the final e-mail survey, completed by 16 of the 17 students, 10 mentioned that the major benefit of the e-mail discussions was to

"extend class discussions on important issues," "analyze experiences and issues from many different perspectives," and "reflect on experiences." This contrasts with only 3 of 18 who completed surveys the previous semester making any mention of reflection as a benefit. Similarly, in the final portfolios where students were asked to select and write about artifacts that represent what they learned in the course and write a paper discussing the rationale for their choices, 14 students in the fall semester included either copies of some of the e-mail messages or summaries of the e-mail messages I had periodically handed out to them in contrast with only 3 who had done so the previous semester. From a sociocultural learning perspective (Putnam & Borko, 2000; Salomon & Perkins, 1998), many fall semester students also offered testimony in their portfolio papers on how the e-mail discussions gave them an opportunity for dialogue and joint building of new knowledge and understanding. One student summed upthe collective effort of the class in this way: "These journal entries are...an extraordinary example of the growth of an entire class of learners discovering, sharing and drawing conclusions about themselves and the profession." Half of the students volunteered information about how the discussions challenged them to think in new ways. One wrote, "Although I did not always agree with my classmates' opinions or observations,... these [discussions] served as a springboard for several personal mental debates I had that changed the way I thought about some things." Another reflected

> Many times after reading the messages that my classmates wrote, I was challenged to be reflective and express my true beliefs about various issues...I realized that the majority of my classmates had different frames of reference from which they worked but this is what helped me grow.

Several mentioned specifically how the electronic dialogue with their peers both challenged and supported them to adjust their thinking about specific issues. One student explained how he drew from the debates on e-mail about assessment to revise his thinking on assessment: "I have come to believe that allowing students to redo assignments best promotes the high standards I associate with learning." Two students wrote about how e-mail discussions about multicultural issues made them examine their need to not only better understand the cultures of others but also to confront their own

cultures. A White student included in her portfolio the e-mail message from an African American student who had urged students to get out of their "comfort zones."

> Sharon said it best when she responded on e-mail that we all seek out our comfort zones. We must strive to get out of our nine dots. After all, there is danger in the comfort zone. I included Sharon's letter in my portfolio because as an African American woman, she has helped me to see my own prejudices.

Scaffolds for Higher Levels of Reflection

A look at all postings coded at higher levels of reflection during both semesters suggests the following four important supports: (a) tailored questioning, (b) general questioning, (c) use of critical readings, and (d) threads of online discussions at higher levels of reflection.

Tailored Questioning

Transcripts revealed that during both semesters, specific questions raised in class or on e-mail triggered many of the higher level e-mail discussions and debates on problematic issues and inequities in urban schools. During the spring semester, as we discussed Delpit's (1995) *Other People's Children*, I raised the question, "Can White teachers effectively teach African American students?" This question led to a 4week debate on the issue during which a third of the e-mail postings were at higher levels of reflection (see Table 1). In the fall, the same question generated a discussion on socioeconomic and cultural gaps between teachers and students during which two thirds of the postings were at higher levels of reflection (see Table 3). In the spring semester, as students told stories of student suspensions, someone asked a question about the fairness of suspension policies, a question that generated higher levels of reflection and debate in almost half of the postings (see Table 1). During the fall semester, a student's question on the fairness of outcome-based assessment led to a 3-week discussion of the issue in which almost half of the postings were at a higher level of reflection (see Table 3).

General Questioning

In addition to the more specific questions previously mentioned, transcripts from both semesters revealed that students' general questions on critical issues and critical incidents also generated higher level postings from other students. During the spring semester, one student's general question about whether discussion of homosexuality was appropriate in middle school led to several student responses at higher levels of reflection. Also in the spring, general questions about student expulsions and about a room trashing that one student observed while an ineffective substitute teacher was in charge led to higher level joint probing in the e-mail discussions on the reasons behind those incidents. In the fall, when I explicitly listed the expectation in the evaluation checklist that students raise critical questions and counterarguments, both general and more tailored questions in the student postings became more prominent. Examples of more general questions that led to higher levels of reflection included "What would you do in your class to counter gender bias?" "How do I handle disrespect from students?" "How would you handle a class where more than half the students are thought to have some sort of a disability?"

Use of Critical Readings

Class readings by writers such as Anyon (1980), Noddings (1992), Haberman (1991), and Delpit (1995), who offered ways to think critically about equitable schooling for all children, prompted two of the four critical postings during the spring semester and 4 of the 12 during the fall semester. Whereas the increase in critical postings is not major, it may be that my more explicit guidance in how to use the readings as ways to analyze what was happening in the field helped more students in the fall to do so.

Discussion Threads at Higher Levels of Reflection

During both semesters, the postings rated at the highest (critical) level emerged within the flow of a major discussion thread and most often in response to one or more previous postings. For example, in the spring, as seen in Table 1, three of the four critical postings occurred during a discussion of the fairness of suspension policies (Weeks 4-7). In the fall, as seen in Table 3, discussions and debates on the reasons why uncertified teachers were teaching in

urban schools (Weeks 4-5), on how to deal with socioeconomic and cultural gaps between teachers and students (Weeks 6-10), and over the fairness of outcome-based assessment practices (Weeks 6-8) kept the level of reflective discourse high.

Discussion and Implications for Teacher Education

This study confirms previous studies of online communities in K-12 education (Fabos & Young, 1999; Sherry, Travalin, & Billig, 2000) and in teacher education (Thomas et al., 1996; Schlagal et al., 1996; Wade et al., 2000), which maintain that online discussions need to be carefully structured to support high levels of reflection. This study suggests that particularly helpful scaffolds in online discussions about field experiences are tailored and general questions from teacher educator and peers about sociopolitical and moral issues raised by field experiences and use of critical readings to analyze experiences. Such supports can encourage a higher level of discussion that can, in turn, act as an additional and important scaffold for higher levels of reflection.

This study and my experience with online discussions about field experiences suggest additional ideas on how to make electronic exchanges more powerful scaffolds for critical reflection. First, the goal and expectation of critical reflection in the discussions need to be made explicit and students need to understand why such reflection is necessary. Second, students need to understand how to aim at higher levels of discussion in their postings. It may be helpful to offer students a particular framework for critical reflection. For example, I now introduce my students to electronic discussions with a more explicit discussion of the Hatton and Smith (1995) framework for reflection along with samples of student e-mail postings at each level. In addition, in their face-to-face class, students need to see modeling of critical reflection about hard issues such as multicultural education and the inequities in schools caused by race, class, and White privilege. They need to become accustomed to getting out of their comfort zones to talk and debate these issues, and they need to be guided in their use of class readings to ask critical questions.

Third, more clearly defined roles for students that require higher levels of cognitive activity in the discussions may push more students to more active involvement and higher levels of reflection. For

example, recently, I have been assigning my students to a variety of roles in our weekly discussions, including discussion leader, devil's advocate, and summarizer.

Fourth, there are technological tools more sophisticated than e-mail that may better scaffold higher levels of problem solving and joint knowledge building. On e-mail, students are not required to respond specifically to the postings of others. Although the evaluation criteria I developed for the discussions seemed to structure the discussions more (students were required and evaluated on their ability to link to what others were saying, question each other, raise ounterarguments, and use class readings to ground their arguments), certain technological tools would make it impossible for students to do otherwise. For example, Knowledge Forum (formerly known as Computer-Supported Intentional Learning Environment), developed by Scardamalia and Bereiter (1996), is designed to be a medium for collective knowledge building. In this environment, students enter postings into a communal database; the only way to communicate directly with anyone is by commenting on that person's note.

Finally, I would suggest ensuring an expert-novice continuum among the discussion participants. A major problem during the spring semester may well have been that all but one of the students were so similar in age, background knowledge, and experience in multicultural settings. Consequently, they were in effect often sharing their ignorance on e-mail. In contrast, current views of learning suggest an apprenticeship model in which novices have the opportunity to talk to others with a wider range of expertise and experience (Collins et al., 1989; Putnam & Borko, 2000). Experienced teachers in the discussion may help students get beyond the exchange of their own lack of experience and knowledge to explore in greater depth why their realities might be so different from those of their students.

Biography

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Table 1: Levels of Reflection in Major Discussion Threads Spring 1997

	Nonreflective	Descriptive	Dialogic	Critical	Totals
Low expectations (Week 1)	1	4		5	
Candy as motivator (Week 2)	1	5		6	
Fairness of suspension or expulsion policies (Weeks 4-5, 7)	2	4	2	3	11
Cultural gap between teachers and students (Weeks 6-7, 9-10)	3	9	6	1	19
Low quality of substitute teachers in urban school (Weeks 7-8)	1	6	2		9
Social promotion policy (Weeks 8-10)	5	1			6

Table 2: Levels of Reflection in All E-Mail Postings Spring 1997

	Nonreflective	Descriptive	Dialogic	Critical	Totals
Week 1	7	9			16
Week 2	7	6			13
Week 3	14	6			20
Week 4	9	1	1		11
Week 5	4	8		3	15
Week 6	2	2	6		10
Week 7	4	10	2		16
Week 8	1	7			8
Week 9	6	5	5		16
Week 10	10	9	3	1	23
	64	63	17	4	148
	(44%)	(43%)	(11%)	(1%)	

Table 3: Levels of Reflection in Major Discussion Threads Fall 1997

	Nonreflective	Descriptive	Dialogic	Critical	Totals
What does it mean to care? (Weeks 1-2)	2	5	2	1	10
Cultural and gender bias in classrooms (Weeks 1-2)	5			2	7
Chaotic classroom stories (Weeks 2-3)	5	5			10
Freedom versus structure in classroom management (Weeks 3-5)	1	6	3	2	12
Fairness of school discipline and suspension policies (Weeks 3-5)	2	5	3		12
Funding and staffing inequities in urban schools (Weeks 1, 4-5)		1		5	6
Socioeconomic and cultural gaps between teachers and students (Weeks 6-10)		4	4	4	12
Fair assessment practices (Weeks 6-8)		10	8		18

Table 4: Levels of Reflection in All E-mail Postings Fall 1997

	Nonreflective	Descriptive	Dialogic	Critical	Totals
Week 1	2	6	3	2	13
Week 2	1	6		1	8
Week 3	3	5	1		9
Week 4	5	10	4	3	22
Week 5		3	1	1	5
Week 6	1	4	4	1	10
Week 7	1	4	6	1	12
Week 8		5	1	1	7
Week 9	1	4	3	1	9
Week 10	2	3	7	1	13
	16	50	30	12	108
	(15%)	(46%)	(28%)	(11%)	