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ABSTRACT

This study examined the effect of an experimental educational psychology course on preservice teachers' ideas about teaching. The experimental course immersed students in writing as a response to reading, writing to reflect on previous beliefs, and a teaching model to help students question their experiences and beliefs founded in previous school experience. The study investigated whether 20 preservice teachers would change their conceptions and attitudes about the importance of reading and writing across curriculum subject matter when immersed in a preservice 16-week course where writing to make sense and reflect, and talking, were central to their learning experiences. A pretest on attitudes and conceptions about the importance of reading, writing, and talking as a learning tool revealed no significant differences between subjects and controls. Writing samples prepared during the course indicated that, in a theoretical framework of teacher development, most students were at the first and second stages, "Naive Empiricism" and "Everyday Behaviorism." Students were generally positive about the importance of the writing and peer interaction, but these components did not show up in students' descriptions of a "good class." Experimental students reported that their ideas about how writing can transform thinking were more positive as a result of the immersion program. (Contains 30 references.) (JDD)

The Importance of Reading, Writing and Talking in Preservice Teachers' Thinking Changes

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The Importance of Reading, Writing and Talking
in Preservice Teachers' Thinking Changes

In this paper I present the preliminary data from a study examining the effect of an experimental educational psychology course on preservice teachers' ideas about teaching. The experimental course immersed students in writing as a response to reading, writing to reflect on previous beliefs, and a teaching model to help students question their experiences and beliefs founded in previous school experience. The purpose of the study is to investigate whether preservice teachers change their conceptions and attitudes about the importance of reading and writing across curriculum subject matter when immersed in a preservice sixteen week course where writing to make sense and reflect, and talking, are central to their learning experiences. Much research in the past several years has pointed to the importance of response-based learning in reading, and the importance of writing for helping students to learn. Would immersion in reflective writing, reading and talking to make sense help preservice teachers make a commitment to the inclusion of these language aspects in their own classrooms?

Preservice Teacher Beliefs

Teaching practice is influenced by what teachers believe about teaching and learning. Preservice students' learning is influenced by the same beliefs. As a result of preservice students' 12 years studying teaching and learning as K-12 students, they come to schools of education with powerful beliefs and conceptions about teaching. The salient models and experiences from preservice teachers' schooling experiences have more influence over their teaching methods than does preservice instruction. These beliefs need to be addressed in course-related activities to help preservice teachers overcome their experiences and build new knowledge structures associated with effective teaching (Feiman-Nemser & Buchman, 1983; Holt-

Reynolds, 1992b; Kleinsasser, Paradis & Stewart, 1991, 1992; Lortie, 1975). Over the past three years the National Center for Research on Teacher Education (NCRTE) has followed teacher candidates and practicing teachers through their education and inservice programs. They found that many teacher education programs are still inadequately impacting teachers' ideas from early experience (Kennedy, 1991). Often preservice teachers see subject matter as a body of facts to be passed on to their students. Beginning preservice teachers often see teaching as providing their students with knowledge and then testing their students for recall. Many preservice students' strategies for helping their struggling students understand a concept were to review or reteach in much the same way. The NCRTE study also found that preservice teachers believe in treating all students equally and yet, they should accommodate individual differences--a contradiction that produces an paradox in action. NCRTE found that preservice students tend to focus on the social and personal issues of teaching to diverse groups of students rather than how content might be taught in different ways to address student diversity. In fact, teachers of preservice teachers have little concrete evidence that any techniques for educating future teachers will ensure translation of classroom learning to teaching practice. Exposing preservice teachers to direct experience with effective teaching models as part of their course work and learning might be a powerful technique for influencing the beliefs of future teachers.

Teachers' Evolving Pedagogy

Ammon, Hutcheson and Black (1985) proposed that teachers' pedagogical understanding evolves in lawful stages from more empiricist and behaviorist conceptions to developmental constructivist conceptions. Each level retains some conceptions from the previous level, but the teacher moves to new levels through solving pedagogical problems. Their complete model addresses teacher thinking in four domains: (1) determinants of child behavior, (2) nature of child development,

(3) learning, and (4) teaching. During the first three levels of thinking about learning and teaching, teachers believe that their role is to provide information and skills prescribed by the curricula and help students develop correct understandings at their level of development. At later levels teachers begin to believe that their role is to help students develop conceptual understandings. They proposed that preservice teachers pass through five levels of conceptual understanding with regard to teaching and learning:

(1) Naive Empiricism: The learner believes that the goal of instruction is for students to attain information through teacher's telling and showing to receptive students.

(2) Everyday Behaviorism: The learner believes that the goal of instruction is to teach skills for attaining facts and procedures; practice is important, as is feedback and reinforcement.

(3) Global Constructivism: The learner believes that the goal of instruction is to help students correct their understandings of concepts, manipulate relevant reality within developmental stage.

(4) Differentiated Constructivism: The learner believes that the goal of instruction is to help students develop conceptual understandings better than before, guiding students within their present level of development.

(5) Integrated Constructivism: The learner believes that the goal of instruction is to help students develop better ways of thinking that can lead to better understandings; reflection on thinking is an important part of learning.

Schneider and Ammon (1992) are currently studying how teachers progress through the stages and have found evidence in two students' journals that they shifted from level 2 to 3 and 3 to 4 over the course of two years. They theorized that the students' pedagogical thinking developed as a result of the conflicts that arose

when their thinking about teaching was inadequate to solve a situational learning problem.

Direct Experience

It seemed likely that having preservice teachers exposed to a teacher educator who modeled response-based reading and writing curricula might influence preservice teachers' practice. Participating with a K-12 classroom teacher who models response-based approaches with reading, writing and talking has been shown to influence teacher beliefs and practice (Wham, 1992). Perhaps immersion in a response-based course during their preservice training would also encourage preservice students to see the benefits of such an approach for their teaching practice. Direct experience is often seen as an effective way to help undergraduate preservice students become more sensitive to minority cultures and low-income children (Lee, 1989; Liston & Zeichner, 1990; Shor, 1986). Haberman and Post (1992) found that students' direct experiences can often help students change their conceptions, but also may support negative preconceptions. Some direct experiences provide intensity of experience, but require interventions by teacher educators in dialogue--conferences, discussions and debriefings---about what the students believe they observed.

The role of teachers in teacher education is to help students enlarge their conceptions of effective teaching methods. Some suggest activities such as biographical writings to help students reflect on their thoughts and experiences, to make connections and explore their ideas about teaching, or share their reasons for thinking as they do. Schneider and Ammon (1992) proposed that students change their conceptions about teaching and learning through conflicts that arise then their ways of thinking are inadequate in a new situation. Their opinion is that the role of teacher educators is to use insights from students reflective writing to engage them in more thoughtful activities and discussions about teaching practice. Holt-Reynolds

(1992a) suggested that teacher education faculty need to help education students overcome their earlier experiences by providing new and various experiences with effective teaching methods. She suggested that faculty participate in the dialogues of preservice students to influence their arguments and shape their reflective discourses.

In this study, the experimental group was provided with a teaching model that supplied dialogic, reflective writing to the teacher and peers about school experiences and connections tc new ideas about teaching. This teaching approach was a new model of teaching for most students. The model provided an opportunity for immersion in a reading-writing-response method to help students develop better understanding of thoughtful teaching practice.

Encouraging Conceptual Change

Learning new concepts so they can be used and understood seems difficult for many students (Anderson & Roth, 1988; Anderson & Smith, 1983; Carey, 1986; Glaser, 1982; Posner, Strike, Hewson & Gertzog, 1982). Preservice teachers begin study of new teaching concepts with conceptions from previous school experiences. In order to make sense of the new information, they have to accommodate their thinking and either abandon old schema or revise their schema in order to make use of new or conflicting information (Piaget, 1950). As the research shows, education students have difficulty making such conceptual shifts in thinking and often do not change their existing knowledge to accept and use new information about effective teaching methods.

Several researchers have documented effective instruction in science and found that there are common teacher behaviors and curriculum contents that seem to encourage learners' conceptual change (Anderson & Smith, 1987, 1983; Anderson & Roth, 1988; Linn & Songer, 1988; Minstrell, 1984; Posner, Strike, Hewson & Gertzog, 1982). Teachers and curriculum successful in helping students change to more scientific thinking use strategies such as helping students to see the differences

between their prior real-world ideas and new ideas. They help students connect their new knowledge to old by helping students see consistencies and inconsistencies of their explanations and scientific explanations of the same phenomenon. Conceptual change teaching and curriculum provide students with activities that will graphically show thinking inconsistencies and help students begin to use their new knowledge to predict, explain and describe. Because it seems that students need to see the inconsistencies in their real-world thinking and begin to see the usefulness of the new ideas, conceptual change teaching strategies and curriculum designs help students make conceptual changes.

Educators in preservice education have suggested that the same instructional methods would help education students change their conceptions about teaching. Preservice teachers need to question their prior experiences and question their beliefs (Kennedy, 1991). Significant change requires confrontation with discrepant models that also seem plausible. The models must be vivid, concrete and believable. Then the preservice teacher needs help focusing attention on the differences between the model and their beliefs.

In this study, experimental students were provided with opportunities to reflect on and question their prior experiences and beliefs in their dialogue journal writings with the teacher and peers. This model of reading-writing response provided preservice teachers with a vivid, concrete and believable method for helping students construct new understandings.

The Influence of Reading and Writing Activities on Conceptual Change

Currently in schooling, reading and writing activities have unrealized potential to enable thinking and learning (Tierney, Soter, O'Flahavan & McGinley, 1989). Secondary students read textbooks for the most part to memorize information (Schallert & Tierney, 1982), and write primarily to remember information or tell knowledge they have acquired (Applebee, 1981; Langer &

Applebee, 1987). Despite the evidence that reading and writing can provide the means by which students consider and remember information they process and reason in a variety of situations (Freeman & Sanders, 1987; Freire, 1982; Walters, Daniell & Trachsel, 1982), reading, writing and talking are not utilized in school to help students make sense. In a study to examine the effects on students' thinking of writing as a response to reading compared with the effects of activation of background knowledge and questioning, Tierney et al. (1989) found that reading and writing together helped students extend thinking and begin to see more ways of understanding issues. Perhaps immersing education students in reading, writing and talking would help them extend their thinking and help them see more ways of understanding teaching. This immersion might also help provide vivid and concrete models around which to dialogue and compare their previous experiences and beliefs with new experiences. My question was, specifically, would education students significantly change their attitudes and conceptions to believe in the effectiveness of using reading, writing response and talking as a learning tool when they were immersed in direct experiences with reading, writing response and talking to learn?

Methods

During a sixteen week early preservice education course in educational psychology, 20 students in the experimental class and 56 students in two control classes were given an objective pretest for attitudes and conceptions about the importance of reading, writing and talking connections to learning. Students were asked to respond to 43 questions on a 5-point scale from strongly agree to strongly disagree. Students were also asked to respond in freewriting form to a question posed by their instructor about their ideas with regard to a "good class" in their subject matter. During the control course, students participated in a traditional early preservice educational psychology course in which the teacher provided information through lectures, whole class discussions and small group discussions.

Most of the course was teacher-centered, where the teacher held information about good teaching practice and helped students to understand all of the theories and algorithms that support effective teaching. The teachers for the control courses had been rated "excellent" and "effective" by previous peer review and student evaluations. Both allowed student choice and opportunities for open discussion of ideas. Neither of the control classes had students write to reflect on their teaching beliefs and students were not explicitly asked to question their prior experiences in writing.

During the experimental course, students wrote journal responses to their readings, freewrote about assigned broad topics about their experiences in education, talked with peers and the instructor about their ideas, and reflected on their written ideas, reading, and ideas of peers to formulate new ideas about teaching. As teacher of the experimental section, I emphasized the importance of writing for reflection on thinking, and reading and talking with peers for formulating new ideas. For instance, after one class session where students shared written ideas about effective teaching with peers, I asked students why I had been asked them to write and talk about their ideas. I emphasized students' statements that writing helped them see what they knew and listening to others helped them formulate new ideas. I instructed students to look back at writings and notes taken during peer discussions for new ideas about their own thinking and how they were making sense of the course information. They were encouraged to use their new ideas to formulate teaching plans and share them with peers. Several videotapes using teaching models with K-12 students in real classrooms as they wrote, read with and talked to peers were shown to the students. Students used their new ideas to publish a class anthology about effective teaching at the end of the course. During the following semester, students in both the control and experimental course were asked to complete the same objective pretest and freewriting as posttests. Five

students were randomly selected and interviewed. Interviews were transcribed and used as triangulating data.

Questionnaire Analysis

The pretest and posttest questionnaire contained 43 questions that asked students about their attitudes toward reading, writing and talking in the classroom. For instance, several questions asked whether students thought that writing could improve reading. Students were also asked about their attitudes toward their own reading and writing. Each statement was scored on a scale of -2 to +2 depending on the students' positive attitude for reading, writing and talking. If a student answered Strongly Agree to the statement that writing their ideas helps them learn, their response was scored as +2; if their response to the same statement was Disagree, their response was scored as -1. Undecided responses were scored as 0. Several statements were phrased in a negative way about reading and writing and students responses were scored as +2 for Strongly Disagree to -2 for Strongly Agree for these statements.

Reliability. Reliability of the test was demonstrated in the similarity of the experimental students' responses before and during instruction. To test reliability, experimental students responded to the questionnaire at the beginning and half-way through the semester. Mean scores and item analysis showed that the responses were not significantly different in the two tests ($\alpha = .05$, $t = -0.69$, $T = 1.83$). Many students responses were similar, even following instruction. The test was designed by the researcher, so no other tests of reliability have yet been accomplished.

Writing Sample Analysis

Students' writing samples were scored according to Ammon, Hutcheson and Black's (1985) theory that teacher development in pedagogy evolves in a lawful, stage-like fashion. Students' written concepts about what constitutes a "good class" were interpreted to fit Ammon et al.'s model. (See page 4 of this document for a

description of Ammon et al.'s model stages.) Students' writing was also scored by their mention of the use of discussion, student interaction in peer groups and reflective writing as part of their description of a "good class".

Each student's writing was read first holistically to get a picture of what they were trying to communicate. Then each piece was read and phrases highlighted as they seemed to fit in one of Schneider and Ammon's categories above. Results were charted for numbers in like categories.

Reliability. Use of Ammon et al.'s framework for understanding the development of preservice teachers' conceptions is still young and will need much further replication and discussion to be able to state with any reasonable confidence that the framework is reliable. Ammon et al.'s categories provided a method of making sense of students beliefs about teaching and learning. It provided insight and helped me clarify and understand the complexity of students' statements.

Using students actual statements about whether they would see writing to reflect and understand and group talking as a method for learning in a "good class" was reliable in as much as students wrote what they actually believed would be present in an effective classroom and not what teachers wanted to see. Even if they wrote what the teacher might want, they were likely to write what they believed to be correct and thus, still showed their beliefs about what they thought should constitute effective teaching.

Results

Because of the transient nature of the students at our university, several students from the both groups have not yet completed the next phase of this study. Consequently, in this paper I will report only on the data from early preservice education students' conceptions about reading and writing based on the questionnaire results and the freewriting during the educational psychology course. In the following sections of this paper I will summarize the results of the pretest

questionnaire and the concepts most identified in students pretest freewriting (N = 76).

Questionnaire Results

The means for the results of the scoring on the questionnaire for the control class and the experimental class were not significantly different ($\alpha = .05$, $t = 1.0$, T = 1.7). When I analyzed individual test items further, none were significantly different. The mean difference on item #5 was most different between the groups but not significantly ($\alpha = .05$, $t = -0.66$, T = 1.67).

An interesting feature of the questionnaire was that it showed that education students that were tested (N = 76), as a whole, felt positive about reading, talking about ideas with others, writing about their learning, teacher as coach, and that talking, reading, writing can play a role in learning. Students generally reported being somewhat uncomfortable about writing and sharing their writing with others.

Writing Sample Results

When student writing samples (N = 72; some students who replied to the questionnaire did not complete a writing sample) were analyzed for concepts relating to Ammon et al.'s theoretical framework (1985), several interesting patterns emerged. Students main concerns seemed to focus on control in the classroom, such as obedient students, ready to learn, paying attention (N = 31, 43%); the classroom environment, such as colorful bulletin boards and a cheerful teacher with a comfortable atmosphere, presence of interaction between teacher and student (N = 45, 63%); and the presence of respect from the students for the teacher and from the teacher for the students (N = 19, 26%). The concepts identified by the students showed that most were in Ammon et al.'s first and second stages, Naive Empiricism and Everyday Behaviorism (N = 61, 85%). Statements such as "the students were practicing how to write sentences" and "the teacher spends time answering questions from the previous day's lectures" demonstrate the kinds of conceptions student

wrote. 16 (22%) of the students seemed to show evidence for Global Constructivism thinking. Phrases such as "students are engaged in different tasks such as journal writing and creative role playing" and "students talk freely of experiences" or "the teacher helps students see there is more than one answer to a question" were found in these students' writings. None of the students seemed to represent Differentiated or Integrated Constructivism.

Even though students were generally positive about the importance of writing response to reading, writing to clarify and understand ideas, and peer interaction in their questionnaire responses, writing, reading and peer response did not show up in their descriptions of a "good class". Most of the writing samples that described response were in the form of student discussion in the classroom (N = 22, 30%) and student interaction in groups or group projects (N = 25, 34%). Teacher-student interaction also seemed important although this group did not mention student-student interactions in their writing (N = 16, 22%). A few students mentioned writing and response in their early writings: There was some mention of discussion based on reading (N = 2, 2%), discussion based on writing (N = 2, 2%), having students write (N = 6, 8%) and having books in the room (N = 6, 8%). Although early preservice students see writing, reading and peer response as important to their students' learning, at least early in their education, they fail to "see" these events occurring in their "good class".

During interviews, students in the experimental course often reported that their ideas about how writing can transform thinking were more positive as a result of immersion in reading and writing to understand. They reported that they changed their ideas about the importance of response in writing and talking to make sense of reading, and begin to use information to construct new ideas of their own. Many students complained about the time it took to do some of the writing, but felt that it was the time was worthwhile for their learning. They also reported that they

found their group discussions more fruitful when they had pieces of writing to remind them about what they had been thinking after reading. One student said, "I've probably always had some of these ideas back there in my head, but I never pulled them out to examine them". Some students reported that writing about their previous experiences in education helped them get clear about the kinds of teaching they wanted to pursue and why. These attitudes have yet to show up in students' vision of a "good class". This researcher plans to follow these students through further experiences to see how the ideas identified in their interviews play out in their future writing, planning and teaching.

Further Research

This study will be ongoing to observe preservice students' thinking changes as they take further course work, observe, work in classrooms and eventually teach. The preliminary data confirm previous evidence that preservice education students come to their course work with preconceived notions about teaching and learning based on their schooling experiences. The students in this study showed that they have positive attitudes toward the importance of reading and writing, response and analysis with peer interaction. They have yet to show that they are able to translate these positive attitudes into teaching practice. The question remains for further study, what experiences will help these preservice teachers to make the conceptual shifts necessary to change their visions of teaching practice to include their positive attitudes about reading, writing and response? This researcher intends to follow both students in the control course and the experimental course to discover what, if any, ideas preservice teachers eventually use in their teaching practice.

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