INTRODUCTION

Preservice and beginning teachers face many complex and varied challenges (Brown, 2003), and experience major frustrations (Mintrop, 2001). Brown suggested one of the top three challenges causing major frustrations in the beginning teachers classroom was diverse student needs (2003). Educational researchers widely identify the need to better prepare new teachers for the challenges they will face in the classroom, however the literature is divided as to effective strategies for optimum preservice teacher growth. While a singular “best practice” does not exist in the teacher education field, much of the perceived failure within the American education system is blamed on ill equipped new teachers who have been educated in traditional teacher education programs (Ben-Peretz, 2001).

Teacher educators struggle with the challenge of preparing teachers for a pluralistic society. This challenge is becoming more complex as schools and communities are becoming more diverse (Hodgkinson, 2002) and university-based teacher education programs are not adequately preparing teachers for changes in education (Stuart, 2000). Career and technical education teachers need better preparation in meeting the needs of unique students (Ruhland & Bremer, 2002). CTE teachers need new and alternative instructional strategies to actively engage students in the learning process to raise academic standards (Ruhland & Bremer) and prepare students from diverse cultures (Adams & Hall). Adams and Hall recommended that enhanced preparation and professional development is needed if career and technical education is to have a positive impact on the education of our youth and our workforce during the 21st century.

There is a strong relationship between teachers’ educational beliefs and their instructional decisions and classroom practices (Pajares, 1992). Teachers with similar
knowledge may teach in different ways congruent or sometimes incongruent with how they were instructed in their teacher education programs (Hoop, 2003). To prepare teachers as agents for change in our nations schools, researchers must first understand the motivations and beliefs of preservice teachers (Pajares, 1992; Stuart, 2000). It is also for these reasons that examining the educational beliefs of teachers and teacher candidates should become a focus of ongoing educational research; and that teacher preparation programs cannot afford to ignore the beliefs of entering student teachers (Pajares, 1992).

Intellectual development is a journey requiring effort. Student teachers tend to be relatively passive learners. As a result of participating in and observing numerous classrooms throughout their educational career student teachers are reluctant to challenge their culturally conditioned beliefs about teaching and learning. These staunchly held beliefs about teaching and learning act as a filter for any new information that maybe presented in an educational setting.

Learners make sense of the world by combining prior knowledge with new experiences. Teacher educators should facilitate classrooms were students are able to construct their own knowledge by thinking, discussing, demonstrating, and evaluating their learning rather than complying with a method in which the teacher is the dispenser of knowledge (Toll et al., 2004). However, student teachers are reluctant to put forth the great deal of effort it takes to find unfamiliar and complex ideas useable in the real world (Hill, 2000).

Statement of the Problem

There is a call for more stringent learner-centered classroom teaching, and this is no different for the field of Agricultural Education. Beginning teachers must be equipped with the knowledge, skills, and dispositions that will enable them to succeed with all students (NCTAF, 1996). Here in the United States, we have an abundance of diversity. The 2000 U.S. Population Census showed that one in every three students enrolled in elementary and secondary schools is of a racial or ethnic minority background (Villegas, 2002). Preparing teachers to teach children of diverse racial,
ethnic, social class, and language backgrounds is a pressing issue in teacher education today in the 21st century and will continue to be for some time to come (Villegas, 2002).

Most modern industrial societies value a person who is willing and able to initiate and respond positively to change (Oreg, 2004). Within the context of a university teaching methods course, students must have the ability to think critically and be willing to challenge their “historically and culturally conditioned” (Hill, 2000) beliefs about teaching and learning.

The method with which students are taught to develop and implement instructional lessons in secondary education settings and their applications of these instructional methods during student teaching needs to be studied in relation to teacher epistemology and beliefs about teaching and learning in the classroom. This study was based on the proposition that student teachers that are challenged with a learner centered, constructivist teacher education methods course will be better prepared to adapt to the challenging real world. Research is needed to verify if this apparent proposition exists. Teacher epistemologies need to be studied further to determine if teachers are willing to challenge themselves to lead the next generation of scholars beyond what exists in the here and now.

Purpose

The purpose of this project is to determine the influence of epistemological beliefs, learner expectations, and imbedded traditions on the development of preservice teachers in a new instructional methods model in agricultural education. Additionally, because teachers and learners alike make meaning of their experiences based on their beliefs (Baxter Magolda, 1992), this study will explore the teachers’ and students’ motivation and epistemological beliefs of teaching and learning in an undergraduate/graduate teaching methods course during the 2003 and 2004 cohorts.
Objectives of the Study

The specific objectives of this proposed project are to:

1) Describe the teachers based on past experiences, embedded traditions, motivation, and epistemology of teaching and learning.
2) Ascertain how beliefs and motivations are affected by the “culture shock” that ensues in the classroom.
3) Explore the influence of “real-world” experiences on preservice teacher’s beliefs, motivation, and professional development.
4) Explore the tensions caused in the educational environment between instructor and learners and how the discomfort creates challenges to student comfort zones. Additionally, determining if those perceived tensions influence performance modifications.
5) Explore a model of professional development of preservice teachers for learner-centered teaching and accommodating learner differences in career and technical education.

Significance of the Study

This study strives to address a 2004-2005 high importance goal set forth by the Illinois University Council for Career and Technical Education to produce a product that will enhance professional development for preservice CTE teachers. Findings from this study addressing professional development of preservice Illinois CTE teachers will positively impact the field as an additional knowledge will be added to the greater body of knowledge in career and technical education teacher development. As a result of the need for a new era in agriculture, disseminating the effects of a learner-centered undergraduate/graduate teaching methods class on the imbedded traditional belief systems of preservice agriculture teachers will assist post-secondary teacher educators to better prepare new teachers for future challenges regarding diversity and cultural pluralism. This study strives to better understand and appreciate the diverse needs and
talents of all students thereby creating an enhanced curriculum to better serve the professional development needs of preservice career and technical teachers.

METHODS

Research Design

This was an exploratory, descriptive interpretivist study that used interviews, document analysis, and a posttest questionnaire administered at the completion of the teaching methods course. The study used methods from post-positivist, positivist, and interpretivist stances to triangulate the data. The data was gathered during the fall semester 2004.

Population and Subject Selection

The target population was the senior agriculture education – teacher certification students enrolled in the teaching methods in agriculture course at the University of Illinois. The University of Illinois Department of Human and Community Development provided the frame of the assessable population. Student teachers were in their final semester of formal instruction before they started their 12 week intensive student teaching experience. The cohort included fifteen (N = 15) student teachers from the University of Illinois.

Instrumentation

The data was collected using mixed methods. Data collection points include (1) posttest questionnaire (MSLQ), (2) field notes collected observing class three times a week over a 16 week semester, (3) assignments pertaining to teacher development completed by students, (4) semi-structured interview conducted six weeks into the course work after students completed their first micro teaching and training experience
in a real world setting, (5) semi-structured interview conducted at the completion of the course and after students had completed their fourth micro teaching and training experience again in the real world, (6) structured student reflections completed following each of four individual micro teachings and training, (7) video tapes of student’s micro teachings and trainings, (8) open-ended questions administered in the classroom used to identify tendency toward personal preference of behavioralist or constructivist teaching methods, and (9) mid-term student feedback offering open-ended questions concerning how students thought the class was meeting their needs as learners. The instructional period included four microteachings. The first microteaching (between 20 and 60 minutes in length) was conducted in a real world setting with a partner; the second and third microteachings (25 minutes in length) were conducted individually in a college classroom with an audience of peers. The fourth and final microteaching (full classroom period in length) was completed again in the real world setting. The posttest questionnaire measured students’ motivation, views relating to learning, and interest in changing.

Collection Procedures

The data was collected from fifteen student teacher candidates. The researcher observed the instructional activities and interactions between instructor and students as agricultural education methods instruction took place over the course of a 16-week semester throughout the Fall of 2004. Observations occurred three times a week for two hours every day.

Throughout the course of the semester data was collected through student questionnaires, formal and informal interviews, and written student reflections. The first formal interview occurred with each individual student after the completion of their first microteaching teaching an authentic audience. This interview occurred during the sixth week of instruction. The final interview transpired at the conclusion of the course, after each student had completed an individual full-length instructional sequence, again in a real world setting. Throughout the semester students completed questionnaires and reflections which measured their perspectives on learning in college.
Data Analysis

The quantitative data collected was analyzed using descriptive statistics, effect sizes, in addition to multivariate statistics. Means, percents, frequencies, and standard deviations were utilized to measure these objectives. Due to the nature of the mixed methods approach, the emergent qualitative data was scrutinized and correlated using a category system that was used to code the data. Open coding was used followed by axial coding. The research project was evaluated based on the successful implementation of the research procedures outlines, observations of student behaviors, student responses during the classroom activities, responses to the interviews, and the reliability and validity of the findings. Implications of the findings were assessed regarding further research, curriculum and program development, and professional development for preservice teachers.

FINDINGS

Student Teacher Characteristics

In a cohort of preservice teachers ($N = 15$), all but one of the preservice teachers enrolled in the teaching methods course had participated in an agricultural education program as a high school student ($\mu = 3.2$ years, $\sigma = 1.38$). Two thirds of the preservice teachers participated all four years in a high school agricultural education program. High school agricultural education programs provide students opportunities to develop their leadership and apply career skills through an extracurricular youth development club. The cohort averaged 3.7 years ($\sigma = 2.19$) of participation in the career and technical student organization (CTSO) for agriculture students known as the FFA. Two preservice teachers in the teaching methods course did not participate in the FFA organization. Three preservice teachers reported seven years (four in high school and three after high school) of experience in the FFA. Students can serve as officers in the FFA. Forty percent ($N = 6$) of the preservice teachers held leadership positions above
the chapter level in the FFA organization. Four of the 15 preservice teachers were section FFA presidents and two other preservice teachers were section FFA officers.

Preservice teachers self-identified their motivation as students within the context of the teaching methods in agriculture course (Agriculture Education 420) using the Motivated Strategies for Learning Questionnaire (Pintrich, 1990). Four motivation factors (intrinsic goal orientation, extrinsic goal orientation, task value, students’ perceived control of learning beliefs) were measured near the completion of the 16-week course. A 6-point summated rating scale was used to identify students’ motivation to learn (1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = slightly agree; 5 = moderately agree; 6 = strongly agree).

Intrinsic goal orientation refers to a student’s motivation for engaging in a learning task. If a student is intrinsically motivated she or he normally is interested in participating in tasks for reasons of personal challenge, curiosity, or mastery of a particular undertaking (Pintrich, 1990). Students were asked, “In a class like this, I prefer course material that really challenges me so I can learn new things.” Less than half ($N = 7$) of the class was identified by the MSLQ as being innately driven to learn from the class.

Conversely, extrinsic goal orientation was measured by the same MSLQ. Students who are identified as being extrinsically motivated are primarily interested in the course material for reasons such as course grades, evaluation by others, and peer competition (Pintrich, 1990). For example, participants in the study rated the statement, “the most important thing for me right now is improving my overall grade point average, so my main concern in this class is getting a good grade”. Twenty seven percent ($N = 4$) of the students in the teaching methods course were identified as being extrinsically motivated.

College students expect courses to have high task value. A student’s evaluation of how interesting, how important, and how useful a course is to their real life is an extremely important factor in their satisfaction with a college course. Most all students ($N = 11$) in AGED 420 scored high in the task value component of the MSLQ. Participants recognized that this teaching methods course would be applicable to other courses, their future careers, and their interest in the subject matter.
An additional element of motivation that was measured by the MSLQ refers to students' beliefs that their personal efforts to learn the material presented in class is a result of their own effort. Students were queried, “If I study in appropriate ways, then I will be able to learn the material in this course.” Many preservice teachers felt they personally had little control or responsibility for their own learning. Three students acknowledged that they were autonomous in their development as future guiders of instruction.

Understanding human experience can be difficult and complex. Therefore, mixed methods were used to triangulate the data to better understand the preservice teachers’ experiences. The following five observations were found as a result of extensive data triangulation. Individual examples are shared and discussed to better understand the breadth of learning experiences and reflective responses concerning a new model for teacher education.

Role of Past Experiences

Past belief forming experiences play major roles in how preservice teachers approach their learning about teaching and learning. Due to past experiences talking in front of groups of people, preservice teachers reflecting on their first micro teaching in the real world felt confident in their abilities to educate. One recounted “I don’t have any troubles standing up in front of people and talking as much as I can” (Wade interview Sept. 2004). This statement implies a particular belief framework from which he is measuring his success as a teacher. He is implying that teaching is little more than presenting oneself in front of an assembly of people and disseminating information. During Gabe’s first interview a month into the course, he was also able to reflect upon some of the beliefs he had come into the methods classroom with. He shared that, “If it was up to me, I just would have walked in the classroom and said, “Hey I’m Mr. (teacher’s name) and here’s what we’re doing today—1, 2, 3.” Both student teachers implied their beliefs were formed as a result of past personal experiences. They additionally believe they are the sole directors of instruction.
Many preservice teachers seem to be heavily influenced by their experiences in high school career and technical education programs. Time and time again preservice teachers commented, “that’s not the approach I had when I was in high school” (Bill interview Dec 2004). At other times in the semester preservice teachers indicated that because the particular learning technique that was being presented in class did not match up with their previous experiences they were unwilling to even think about the proposed teaching strategy and its potential impact on learners. Preservice teachers were also prone to using particular activities because “I had done it before when I was in high school” (Cheryl interview Sept. 2004).

Motivation is Key

Students learn more when they are motivated. A majority of the preservice teachers \((N = 8)\) recorded low scores in both categories of intrinsic and extrinsic motivation. More than half of the students felt little to no need to learn the material in the course. Gabe, for instance shared, “I had no felt need to learn in the course.” Felt need is an important part of any learning exercise, especially when student-centered instructional methods are used.

Not only do a majority of preservice teachers struggle with their own personal motivation, they have difficulties identifying motivational strategies for their students. This is of particular need due to preservice teachers’ role in recognizing and planning motivational strategies for their students. For example, Adam orchestrated his first micro-teaching at a local urban high school. He and a colleague were responsible for 20 minutes of instruction for 30 freshman high school students directly before lunch. While teaching a lesson on leadership he was perplexed why a short lecture followed by an activity dealing with marshmallows did not engage students like he had hoped. He was more willing to dismiss the lessons failure on the context of the time period in which he was teaching, which normally is set aside for an un-graded period, rather than his planned lessons inability to engage learners through triggering their motivation.
Willingness to Change

Each person approaches a situation with a set of experiences that they use to filter and analyze a newly presented piece of information. A simplified illustration of this phenomenon could be described through person A being introduced to a new food. This particular new food is greenish in color and somewhat slimly in texture. Depending on your adopted culture you might have differing thoughts about tasting this new food substance. Some parts of the world would embrace this food as a highly nutritious food product, others plausibly would determine by cues of outward appearance that it is an unwholesome food, while still another might pull out their adventurous spirit and gobble down this new attempt to empower humankind.

Similar to our adventurer above, preservice teachers need to be able to change and adapt to new methods of instruction. However, preservice teachers were fairly resistant to change. Gabe shared an excellent example when he explained his frustration with planning a constructivist lesson when he strongly identifies with behavioralists view of teaching. He shared, “it forced me to kind of go outside of my comfort zone to a great extent, although I fought it until wit’s end and I still will to this day.” Gabe is obviously resistant to what he sees as a difference in his preconceived notions of classroom instruction.

In the absence of challenge, beliefs are basically unchanging. The teaching methods course was designed to introduce new challenging ideas for synthesis by learners. Throughout the course various preservice teachers struggled at varying times with the instructional methods used. At the completion of the course Tori was able to connect the idea that the teacher educator “didn’t tell us [all the details about teaching] and we had to figure it out”, and furthermore that “a lot of times people didn’t see it and they didn’t want to see it.” Another preservice teacher observed that the teacher educator “requires, I think, things that people aren’t used to” (Marcus interview Dec 2004).

Critically thinking about newly presented information is also a mechanism for change. Lydia was also able to reflect on the need for critical thinkers in the classroom. She shared, “you really have to think about everything and REALLY think about it and
apply it because if you just come to class, you’re not going to learn it.” Observations and other quantitative data from the entire class found that several of the students in the course left their “thinking caps” at home. The MSLQ critical thinking questions found that little more than half (53%) of students were willing to use the class as a means to critically think about teaching and learning. Preservice teachers examined the statements “I treat the course material as a starting point and try to develop my own ideas about it” and “When a theory, interpretation, or conclusion is presented in class, I try to decide if there is good supporting evidence”. Few preservice teachers agreed with these statements.

Understanding How Other People Think

Being able to recognize that students have different learning need and connect learning needs to lived experiences of learners is critical for the success of an effective educator. When asked how he had grown over the course of the semester, Wade (a self-identified behavioralist) was able to harvest the idea that “I have more appreciation for how other people learn now. Before I took this class I knew how to stand in front of people and talk, but I wasn’t meeting any needs of the learner.” Wade was able to reflect on his experiences in the classroom as well as the real world and glean the “Ah-ha” moment that the teacher educator was looking for. Yet another preservice teacher was excited about the tools that he had been given in the class. He iterated, “now I’m more excited to try all the different ones [methods] and see what works better, [because] each class will be different.” Bill further explained that the course asked him to “stretch beyond…touch more people and use more methods and do more things”.

Yet, still others in the course struggled with seeing beyond themselves to the spectrum of learners they needed to reach. Bill seemed to see his classmates very clearly. He explained, “instead of seeing the concept, there were individuals that were taking it very personally.” During an classroom exercise the teacher educator introduced the “7 why approach”. The “7 why approach” encouraged students to think through a problem by asking strategically placed “whys?” into classroom discussion. Bill noticed that preservice teachers “were offended by it because nobody’s ever” “asked them
seven why’s in a row” to stimulate thinking. Bill defined the situation as “touching a nerve” and concluded that it “really stimulates thinking.” He further quoted, “instead of leaving there saying, “Wow, that was a great example of the concept,” there were individuals that left and said, “Man, what an ***hole! He wouldn’t leave me alone. Why, why, why.” The teacher educator added a supplementary quotation by stating, “I wasn’t treating them personally. It was the treatment of this is another way to teach, to get people stirred up.”

This interplay of preservice teachers reflectively finding themselves as teachers and learners coupled with being challenged in a new way tended to “send sparks flying”. Often the preservice teachers who identified with behavioral/cognitive approaches to teaching tended to invalidate and discard the student-centered presented information, while the smaller number of student teachers who identified with a constructivist/social cognitive epistemology tended to be less frustrated with the course content.

Real-World Teaching Experiences

Real-world teaching experiences seemed to be beneficial to preservice teachers. After his first microteaching Webb verbalized that the real world taught him, “I wasn’t as prepared as I thought I was when it [microteaching #1] was all over with” (interview Sept. 2004).

Real-world microteachings allowed students to be critically reflective of their teaching. Jackie recalled her experience teaching a floriculture lesson. She said recounted, “I taught and the kids weren’t receptive at all. I was really wondering, “Why aren’t they receptive? I was teaching about flowers! Isn’t it interesting? I don’t understand.” But it was just one of those deals where it was like pretty much straightforward lecture at the beginning and I wasn’t really involving the students in the lesson and it was…it was traditional.” An authentic setting taught Jackie that her perception of as long as the teacher is interested (Jackie really likes flowers!) her students would just follow right in line.
Most all of the potential teachers in the course communicated at varying degrees that, while practicing to teach in the real world may not give them an overwhelming felt need to learn, experience in the real world is irreplaceable.

There were also favorable reviews for the in-class peers teaching peers’ microteachings. One student explained that while understanding that constructivist teaching is unfamiliar to most student teachers, “instead of throwing you into a classroom that’s new and doing a new type of teaching, I felt like doing it here [in-class] where you’re kind of comfortable made it a little easier.” Another student further illustrated that without the in-class microteachings, he would not have been as prepared for the real-world microteaching experience at the end of the course.

**IMPLICATION FOR PRACTICE AND FURTHER RESEARCH**

The study found that student teachers rely on their past experiences of being students to form their personal epistemologies of teaching and learning. They especially rely on experiences they remember from formative high school years in the subject matter they are preparing to teach. Student teachers approach the senior teaching methods course with preformed personal belief systems. Early in the semester students, when asked to identify their personal beliefs on a multifaceted diagram depicting the choices of 1) behavioralist 2) cognivist 3) social-cognivist 4) constructivist; they were generally able to be self-reflective enough to identify their learning preference. However, when the teacher educator presented teaching methods that were incongruent with the student teachers personal epistemology, they became frustrated and in some cases discarded the newly presented information. Despite this initial disturbance, learners should be encouraged to see the safety, yet shortcomings of their apprenticeships of observations.

Real-world experiences were beneficial to student teacher learning. Student teachers validated the need and success of incorporating structured (classroom with peers) and semi-unstructured (real-world classroom with pupils) into course instruction. Contrary to the teacher educator’s design, experiences in the real-world did not produce
sufficient levels of felt need. It was evident to the researchers that student teachers need additional personal accountability to make the most of prescribed experiences. The importance of a structured reflective process is also critical to an engaging real-world professional development experience. It is of high importance for student teachers to become reflective practitioners able to determine instructional practices that were effective and ineffective.

Student teachers must comprehend the differing epistemologies of themselves as well as their students. It is imperative that student teachers be admonished to evaluate their own beliefs and tendencies towards a particular learning conception, and fully identify that their natural tendencies towards a particular method may not meet the needs of all of their learners. Teacher educators need to further encourage their students to replace the dualist thinking of good teaching or bad teaching. This dualist thinking should be replaced with strategies to promote diversity of thought and action. This study found the “teaching diamond” instrument to be effective in helping student teachers self-discover.

In developing student teachers for a new era of career and technical education teacher educators must help students develop a desire to learn. This study found that a majority of student teachers a single semester before their intensive student teaching internship were not motivated to learn the essential tools needed to guide student learning. Understandably, senior level students do manage extensive demands on their time. However, the extensive complexity of the professional world and demanding nature of career and technical education should be introduced in an authentic manner in the teaching methods course. Clearly communicated course and assignment objectives should be implemented to reduce the frustrations, while at the same time motivating and equipping student teachers to become effective professionals.

References


