

CHANGES IN PRESERVICE TEACHER BELIEFS: INDICATION OF LEARNING

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Abstract

Conventionally field experiences of preservice candidates occur towards the end of a program. This study investigated the beliefs of three preservice teachers who were enrolled in a unique program, which allowed them to experience teaching as freshman in college. With these experiences earlier in their program, they were challenged to reflect on the complexity of teaching. Four semi-structured interviews and observations were conducted over a year to examine what the teachers were learning and thinking about teaching through teaching experiences at elementary and middle schools. As Lave and Wenger (1991) suggest, a person learns through being an apprentice interacting within the community of practice. Through these rare early experiences the preservice teachers were better situated to learn about teaching. The findings indicate that the early experiences change their beliefs about the reality of teaching.

Keywords: preservice teachers, early field experience, situated learning

Typically, students who set out to earn a degree for education do not usually experience teaching until the end of their program. For the first three years, generally students in a traditional program are subjected to theory, specific content knowledge, and instructional methods. Therefore, these soon-to-be teachers rarely experience teaching in a classroom until the final year of their program. A general and more common practice of the teaching programs is to have student teachers enter a yearlong internship at the end of coursework. There is a unique difference of those traditional teaching programs and the UTeach program in which preservice teachers (PSTs) begin their experience by actually teaching early in the program, usually in their freshman year.

A replication of UTeach program, designed by the University of Texas at Austin, combined a degree in either mathematics or science, with a minor in secondary education (grades 8-12). Specifically, these students enrolled in the program are earning bachelor degrees in mathematics and/or science. In addition, if these particular students are interested in teaching, they generally seek secondary certification. The UTeach program is distinctive from other secondary teacher preparation programs because preservice teachers experience observations during the first semester for coursework (UTeach, 2017). These early experiences give secondary science and math preservice teachers a glimpse into the demands of teaching focusing on the expectations, challenges, and nuances of teaching. Ten years of reports from the UTeach program refer primarily to retention of science and mathematics teachers in the field following UTeach preparation (Walkington et al., 2012). The replication retention data align with the UTeach program reports. However, neither program, until this study, investigated the beliefs of preservice teachers during the first year of the teacher preparation program regarding the factors

that related to their decisions to continue in the program, progressing toward teacher certification. This study examined preservice teachers' beliefs about teaching science and mathematics, as noted during the first year in the program. The following research questions guided the study.

- R1. What are secondary mathematics and science preservice teachers' early beliefs about teaching?
- R2. How do their perceptions change about teaching throughout their experiences?
- R3. What factors of the preparation program contributed to preservice teachers' perceptions of teaching?

Review of Literature

Preservice teachers are motivated to teach for various reasons. The experiences and beliefs a person has prior to entering the field of education impacts the grade level and content they choose to pursue to teach (Shulman, 1986). According to Pajares (1992), beliefs are a set of notions brought about through predetermination, experience, changes, inferences and behaviors/actions. Throughout their experiences in the classroom, preservice teachers' beliefs are often altered.

Because there is difficulty in defining and collecting data about teacher beliefs, researchers such as Lasley (1980) and Pajares (1992) only theorized the reasons people choose to teach. In fact, Pajares (1992) attempted to "clean up the messy construct" of teacher beliefs and argued understanding these beliefs can inform many branches of educational research such as education courses, curriculum, practices of teaching and theories of teaching. Considering individual's beliefs can change from moment to moment, it is challenging to gather data. It is often captured in limited ways such as interviews and surveys. Researchers explained a major limitation of their studies have been the number of participants, numbers of interviews and limited amounts of collected data (Doppen, 2007; Fajet, Bello, Leftwich, Mesler, & Shaver, 2005; Lasley, 1980).

Yet, since 1992, research conducted for understanding preservice teachers' beliefs has continued in various contexts. Researchers have specifically explored beliefs about teaching content such as mathematics, social studies, science and technology (Berry, 2013; Chai, Wong, & Teo, 2011; Kirtman, 2008; Rosas, 2011). Hancock & Gallard (2004) and Nuangchalerm & Prachagool (2010) particularly studied the effects of the field experience component on science teachers' beliefs of teaching. The assumptions are that the actual experience changes the preservice teacher beliefs about teaching. Moore (2003) suggested experience should begin sooner than the final apprenticeship semester, in order for richer learning to occur.

Ongoing changes are constant in teacher preparation programs. Within the teacher preparation programs there is a relevant need to understand the prior beliefs, changes in beliefs and the factors of preservice teachers that lead to those changes. Throughout a teacher preparation program, promoting early reflective teaching practices is beneficial for the preservice teachers. Providing opportunities for students to learn in social setting, not in isolation and within the confines of a classroom is where a teacher will learn to teach (Herrington & Oliver, 2000; Moore, 2003; Putnam & Borko, 2000). The preservice teachers may learn to analyze their reasons for teaching, what they believe they know about teaching, and ultimately change their beliefs of teaching (Darling-Hammond, 2000; Pajares, 1992; Usher, 2009; Watson, Miller, Davis, & Carter, 2010). Pajares(1992) reported a synthesis of current teacher preparation practices remain elusive. Currently, theories and definitions surround how, why, and what impacts beliefs, but few studies are being continued to get at the reality.

Theoretical Perspective

Primarily used for this study, Lave and Wenger's (1991) Situated Learning Theory (SLT) which suggests learning occurs when individuals are engaged in practices. According to the SLT, having an experience can alter opinions or beliefs about any phenomena. Specifically, the concept of legitimate peripheral participation is that the learner is slowly emerged into practice, transforming learner beliefs. The end goal, within this theoretical framework, emerge preservice teachers through apprenticeship earlier in the program as a way to become masters of pedagogy--the art of teaching.

According to Lave and Wenger (1991), a person learns through a contextualized experience in which they are participating actively. The structure of the program aligned with the primary principles of the SLT. The two principles are: (1) knowledge needs to be presented in an authentic context, i.e., settings and applications that would normally involve that knowledge; and, (2) learning requires social interaction and collaboration. Within the authentic social context of the preservice teachers' early field experience, preservice teachers are learning through interaction and collaboration with both classroom teachers and teacher educators. The preservice teachers gain exposure to authentic learning situations earlier and can practice teaching in their first semester of college, rather than waiting until the end.

In addition to teaching in the classroom, they receive immediate and reflective feedback on their performance as a classroom teacher. As a result, preservice teachers reflect on their prior beliefs about teaching while gaining new insight and understanding of the practice of teaching. This legitimate peripheral participation and experience is unique to these preservice teachers. It is necessary for researchers, educators, and mentors to understand how early experience allow preservice teachers to reflect and build upon beliefs about teaching practices. This study holds the assumption that the experiences from the apprenticeship will impact their beliefs and knowledge regarding teaching.

Methods and Procedures

A multiple case study was conducted to examine early beliefs of three preservice teachers completing the first two introductory teaching courses, taught in the first year of the UTeach program. The courses, in addition to instruction about theory, included teaching lessons, prepared by the university staff, in elementary and middle schools, three times each semester, under the tutelage of mentor teachers. Conducting a yearlong case study allowed the researcher to observe how beliefs and ideas about teaching changed throughout the participants' experiences in elementary and middle school classrooms.

Setting

Within the context of this program, the participants were placed in a mentor's classroom six times in each of the first two courses. The first semester, preservice teachers instructed and observed in an assigned elementary classroom, and the second semester in middle school classrooms. During the first semester, the preservice teachers taught prescribed lessons for three classes and observed and reflected on the mentors' instructional practices for the remaining three classes. In the second semester, preservice teachers created and taught three lessons as well as observed multiple mentor teachers to witness different teaching perspectives.

Throughout all experiences, preservice teachers were expected to reflect as a teacher rather than as a student. Being able identify with various teaching practices allowed them to decide on instructional practices they might implement in their future classrooms. As they progress through the program, preservice teachers learn about theory and apply it in their practice, encouraging them to develop and alter their personal teaching philosophy. Korthagen (2010) and Moore (2003) argued that theory alone is not enough for an upcoming teacher to have prior to their experience, having theory alongside practice is optimal for connections to be made between the two.

Data Sources

Data were collected from three students during their tenure in two program courses, across two semesters and included: a demographic survey, multiple interviews, field observations, and narrative reflections. Students volunteered after an interest survey was sent out to recruit participants from the introduction course. However, several students decided after the first interview they did not want to commit to the entire year. The three participants discussed in this study completed all interviews and observations. Pseudonyms for participants were used to protect their identities. The three participants were either math or science majors who chose to minor in education.

Peter identified as a twenty-year-old Caucasian male. Paul identified as a Latino male age twenty-one. Mary identified as a twenty-year-old Asian female. Although Seidman (2012) recommends 3 interviews, there was a necessity for

a pre-and post- interview for each semester to determine changes in beliefs. Therefore, at least 2 semi-structured interviews were conducted each semester, for a total of 4-6 interviews per participant, followed by member-checking of transcribed interview data. Additionally, the researcher followed Seidman's basic protocol of the interview processes: life history, experiences, and reflection and connections - using the art to elicit reflections.

During the second semester, both interviews were conducted using art as metaphor where students created a gallery of art that represented their beliefs of themselves as teachers. On average interviews lasted forty-five to sixty minutes. NVivo software was used for coding the transcribed data. The multiple data sources were analyzed and triangulated, employing discourse analysis methodology and an analytical approach that mapped the findings onto the SLT.

Results

Overall, findings indicated that participants became more reflective about their instructional practices and pedagogy. The participants' beliefs revealed a growing understanding of the teaching profession, as more than just teaching from a PowerPoint. Responses given by the all three participants indicated a stronger understanding of theory through practice, and gained a deeper understanding and appreciation for the intricacies of the art of teaching.

Authentic Contexts and Settings

Throughout the interviews the participants were asked what they were learning about teaching in their coursework and classroom experiences. They each claimed, that almost immediately, they obtained a new identity. They could visualize themselves as preservice teachers versus being a student solely. For example, after teaching his first lesson, Peter stated:

If anything, it has kind of opened my eyes to like how much you have to put into teaching, how much it is really not just getting up there and reading a book, how much you have to find a way to grab the attention of the students, and make it somewhat fun for them, but at the same time really just teach them.

Conversely, preservice teachers in traditional education programs often do not reach this status until their fourth year of college. This important paradigm shift in identity created an awareness of becoming responsible for others, which in turn pressed PSTs to take ownership of their learning. In addition, each of these preservice teachers were challenged to know more content than their students, coupled with a readiness to address questions posed by curious elementary students. For example, Paul stated, "Patience, understanding, just really paying attention to your students – be able to read them, and know why they are confused and not learning the stuff that you do."

Once inside the classroom, the preservice teacher was both a student and teacher simultaneously. Within the moments of teaching, they have to constantly reflect and revise their thinking. What this means is in the act of doing, they are teaching themselves how to learn about teaching – self-directing themselves towards understanding. For example, Mary realized,

Well, at first, I didn't think it would be that hard to be a teacher. I found out that it is harder because they have to [solve] a lot of problems, improvising as they are teaching, because you don't know what the students will say and so, sometimes you would have to change up your lesson while you teach according to what they say.

Legitimate Peripheral Participation

All of the participants repeatedly expressed a desire to be an interactive teacher. Although the three participants offered different, but overlapping definitions of what it means for a teacher to be interactive. They wanted to create a classroom environment that would be student-led, hands on, and connect to personal experiences

During each interview participants in this study noted each time they teach, they learn. For each participant, this experience showed that teaching is a daily lesson and constant change. All participants agreed that to be a successful teacher it is important to first be lifelong learners. Although not in those exact words, they all spoke about their inclination to do what is required to be the best teacher for their students. While each had different opinions as to the methods of delivery,

they realized teaching requires continual reflection and learning. For example, Peter recognized his dual role as both student and teacher, “I don’t want to walk in with the teacher’s hat, because it’s like I am just here to teach you, but you also want to learn [about teaching].” Mary expressed a similar feeling,

Well for me it wasn’t what I expected it to be. I just got a lot more out of it than a textbook kind of material, it was more of... probably more just like what it would feel like if I was a real teacher, I guess, I didn’t just feel like a student in that class.

During the last interview, when they used the art to explain how the experience had shaped their views of teaching, they all realized teaching was more than “standing and delivering a PowerPoint”. In the beginning of the program, they believed teaching was easy. Paul stated, “I never really knew how much work goes into teaching and I can see whenever I complained about my teachers now, it was a big deal and really hard.”

Specifically, one participant, Mary came full circle to realize the beauty of teaching. She chose a print for her gallery that included an abstract of a Christmas tree with lights and childlike faces. She stated, “Teaching is like packages at Christmas, lots of different wrapping, and always full of surprises. Now, I look forward to Christmas every day.” All three participants acknowledged the requirements for a teacher is different from what they originally believed and the job was more intense and important than they ever realized. A primary factor for these changes was the actual experience of teaching. Peter said, “We didn’t just sit around and talk about what we would do to teach, we actually had to get out there and do it.” By creating their own lesson plans and being more involved in a classroom with students who had many different needs, they learned more about the complexities of teaching.

Discussion

As the preservice teachers progressed through the teacher preparation program, the combination of theory and practice appeared to be a powerful combination altering their beliefs about teaching. Their beliefs transitioned and transformed into learning and understanding; specifically, what it truly means to be a teacher and how to teach effectively. The participants of this study experienced several transformations as they progressed through the program. Additionally, they were able to verbalize and express their new beliefs as a tool for learning.

It is important to note that during a majority of the conversations, the students’ expressed early experiences to teaching allowed them the best insight. Furthermore, the theory about teaching would not have been enough to actually learn about the practice of teaching. From this study, we could glean the importance of early field experience on a student’s decision and desire to become a teacher. Perhaps, further research studies could determine if a program, such as UTeach, imposes a greater impact on the preservice teachers in other areas aside from early learning about teaching.

After these experiences, the participants were more open to teaching different grade levels, using new instructional practices, and serving diverse student populations. Do these beliefs alter deeper understanding of teaching as more than a job, do they change the course the student chooses to take? Should experience in the field begin much earlier in a preparation program for teachers? Further review and analysis of this study is underway to seek more understanding of how the beliefs of preservice teachers informed their education of teaching. Findings indicated the students were influenced and had changes in their beliefs, but what does that mean for the program and for us as teacher educators?

Conclusion

This study adds valuable insight to the area of teacher preparation program research. Early field experience can impact the beliefs preservice teachers hold regarding teaching, expanding their ideas of what teaching entails. Insights include, but are not limited to: (a) students’ ideals about teaching as they are immersed into teaching quickly, (b) overt conversations about the theory and practice of teaching, and (c) effects of opportunities and exposure to classroom pedagogy and practice earlier within a teacher preparation program.

The goal of the study was to understand how the ideals of preservice teachers shift, change, or alter once they have begun to learn about teaching through authentic teaching experience. The very structure of this program allowed the preservice teachers to become teachers immediately. It incorporated multiple forms of data to triangulate and more clearly understand the perceptions of secondary mathematics and science preservice teachers. The majority of existing literature regarding preservice teachers' perceptions is based on data collected at the conclusion of a teaching preparation program. Yet, this study occurred at the beginning of their journey, rendering knowledge of the preservice teachers' early beliefs and how these changed throughout teacher preparation. The results from this study suggest earlier teaching experiences should be implemented in teacher preparation programs.

As Lave and Wenger (1991) states, "learning is not merely situated in practice- as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the lived-in world" (p. 35). In the beginning of their college career they are quickly immersed into being a teacher, even if it is only a brief time. Naturally, this brings about a change in identity for them and new ideals on learning. Simply stated, their beliefs changed-- they learned.

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