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Personal Pedagogical Systems: Core Beliefs, Foundational Knowledge, and Informal Theories of Teaching

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Abstract: This case study describes a personal pedagogical system that acts a guide for adult educators in their practice. The system reflects core beliefs (assumptions about truth or propriety), foundational knowledge (essential knowledge for effective teaching of adults) and an informal theory of teaching (a theory of what works and what doesn't work), all of which interact dialectically. Implications for further research and practice are discussed.

Introduction

Teachers routinely adjust to a maze of rapidly changing circumstances, often in the face of less than certain evidence of what is actually happening. How do they do this? With what map do they make their way through the emergent maze of classroom practices? Kagan (1992) suggests that teachers gradually develop a "personal cohesive pedagogical system that they support without reservation." In other words, over time teachers develop a kind of personal compass or gyroscope which helps them make decisions and reflect upon what works, what doesn't work and why that might be so. To some extent, this is what distinguishes those who persist and flourish as teachers of adults from those who don't. Teachers who do not create a cohesive pedagogical system are often at the mercy of others, relying on institutional traditions or curricular directions to guide their approach to teaching. When challenged by students, colleagues, or administrators, such teachers experience considerable difficulty explaining or defending their approach to teaching. Evolving pedagogical systems are, therefore, an essential aspect in the development of effective teaching. While we are convinced of the existence of something like 'personal cohesive pedagogical systems' we are less certain as to what they are, how they develop, and how teachers use them to guide their practice. The purpose of this study was to explore the pedagogical system of adult educators working in diverse settings.

Methodology

The methodology that guided our research is grounded theory, a well-known methodology used to generate or discover theory that is closely related to the phenomenon under investigation (Strauss & Corbin, 1998). The six educators whom we studied were chosen because they represent quite different, yet typical, adult education activities. They taught computer applications, occupational education, and surgery. Each educator was interviewed twice - once before and again after an observation of teaching. In all interviews we were trying to understand what governed their approach to teaching. It is not necessary to explain the process in detail, as

that has been done much more thoroughly elsewhere (Strauss & Corbin, 1998). However, we need to note ways in which we deviated from the usual procedures. First, we employed a 'photo-elicitation' technique, where videos and/or field notes of the teaching episode were used to explore the "participants values, beliefs, attitudes, and meanings and in order to trigger memories..." about their teaching strategies (Prosser, 1998, p. 124). Second, the educators were invited to give direction and interpretation, as well as validation, to the interview process and data analysis. Third, because this project combined data from separate studies, in significantly different contexts, each data set was re-analyzed by the two researchers not involved in gathering or initially analyzing that data. This proved to be useful not only as a check on the initial findings, but also as a means of looking for commonalities and differences between data sets.

Findings

Initially, we thought the most important (perhaps the only one) ingredient in a personal pedagogical system was an underlying set of core beliefs, or a belief system. Much has been written about teachers' beliefs and it was from that literature that we were convinced of the central role of beliefs in teachers' pedagogical systems. (e.g., Dirkx, Amey, & Haston, 1999; Fang 1996; Nespor 1987; Pajares, 1992; Pratt, 1992, 1998; Richardson, 1996; Taylor, 1999) However, as our research progressed it became clear that beliefs were only part of teachers' personal pedagogical systems. While beliefs were perhaps essential, they were not sufficient to understanding what guided teachers in their practice and in their reflection on practice. Our observations and interviews began to reveal evidence of informal theories of teaching. Again, this was not surprising, given the considerable literature on informal or personal theories of practice that professionals construct to navigate their worlds. (e.g., Argyris & Schön, 1974; Dirkx & Spurgin, 1992; Nespor, 1987; Schön 1983). Finally, as we talked with teachers and observed their practice a third aspect emerged that seemed central to teachers' personal pedagogical system - foundational knowledge, that is, what they considered to be essential knowledge for the teaching of adults. This, too, has a vast literature to buttress its place and purpose in the development of coherent personal pedagogical systems (Richardson, 1996; Pajares, 1992).

Thus, as we set out to explore teachers' beliefs we discovered that beliefs were but one leg of a tripartite pedagogical system upon which teachers, as they carry out their duties, build a sense of identity, justification, role and direction. The other two legs, foundational knowledge and informal theories of teaching, helped support these teachers in the pursuit of their work. Each was constitutive of the other; that is, they depended upon each other for their meaning and activation. When all three were in agreement, the teacher had a coherent personal pedagogical system by which to conduct and govern the work of teaching. Figure 1 shows the intersecting relationship of the three elements of our emerging model. To link the components of the model with our data, two participants are discussed. We caution readers to remember that the components of the model are dialectically related, even though presented separately.

Figure 1. A Model of Personal Pedagogical Systems

First, Joan is a white woman in her early 50's who teaches at a satellite campus of a large university in the northeast. She is Director of Technology Education for her institution and her teaching responsibilities include graduate instruction in a technology certification course for K-12 educators. Observations and interviews focused on a course where students, as described by Joan, learn "everything from how to use technology to how to create web pages, use multi-media, develop computer-based training, etc." Second, Anita, an engaging African American woman in her early 40's is the lead teacher in the technology division of a large midwestern community college. She is primarily responsible for teaching computer-aided design (CAD), "drafting on the computer, computer applications...how to do [drafting] in a graphic digital environment." Observations and interviews focused on an advanced CAD course that Anita teaches.

Core beliefs

Core beliefs were identified as declarative statements about what is assumed true or what is assumed to be 'right' or 'proper' in relation to adult instruction or learning. They were stated with certainty and most often used to justify foundational knowledge or one's informal theory of teaching. Joan's core beliefs are revealed in several strongly held assumptions about adults as learners. She repeatedly characterizes adult learners as being intimidated by technology, coming to learning with a sense of fear and carrying negative baggage about school. There is also evidence that Joan has projected her own experience as a learner onto those she teaches. Alluding to her schooling as something that was repetitive and negative, she is determined to not repeat that experience as a teacher. In sum, her core beliefs are built around a generalized image of the adult learner. Learners are in the foreground of virtually every statement she made about teaching or learning. As a result, all other aspects of teaching receded into the background or were not commented upon by Joan.

On the other hand, Anita's core beliefs are manifest largely through her assumptions about the nature of knowledge and the content of her teaching. She views this knowledge as driven by the requirements of the workplace. As their campus advisor for a national competition, Anita is "involved with students a lot" and she expresses care and affection for them. However, when explaining what she seeks to accomplish as a teacher she reverts to content. Within her belief system, learners are largely intermediaries between the employer and the college. The software she uses to teach CAD is chosen, in part, because it leads to the best chances for employment in the industry. "Time is money in the industry and so [the students] want to work as efficiently as they can." The content is contained within a text and "a CD that comes with their textbook." Anita's assumptions about content suggest that she believes knowledge is largely external to learners and is best learned through application. Thus there is, for Anita, a set of rules that define how one is to correctly proceed in CAD. "Its either right or wrong, right?"

Foundational Knowledge

Foundational knowledge is that body of knowledge or skill that is deemed essential to the effective teaching of adults. It is often stated with clarity and precision, sometimes as a script for teaching. Foundational knowledge is rationalized has if it was consistent with core beliefs. It is also the basis for the person's informal theory of teaching. For example, Joan's foundational knowledge is derived from her core beliefs about learners. She describes how assessment of learning must flex to the needs of the learner: "When you're teaching adults because you have

such a broad spectrum of learners in the class that just one assessment, one type of assessment, would not work for everyone. [When] evaluating, I'm constantly asking, what haven't I given you yet,...what is it you need, what back on the job have you been looking for in this class." In another example, Joan talked about how important it was to know her learners so she can link instruction to that which would make learners comfortable, "I try to always, number one, know my audience before I get there, because a lot of things that I teach them I try to relate back to their jobs, so I want to know what their jobs are." Most of her reflections on how she teaches and why that is justified had recourse to her strong commitment to, and beliefs about, adults as learners.

As mentioned under her core beliefs, we have reason to think that her foundational knowledge is also a product of her past school experience. For example, she describes how she makes the classroom comfortable, letting the students bring food and coffee. She states, "[I'm] trying to make them get rid of those early perceptions of going to school, like mind where the straight and narrow rows and the teacher at the front with ruler or erasers." Joan's past experience school experience emerges throughout both interviews, revealing a present teaching practice that is continually described in contrast to her past experience.

For Anita, the technology of CAD and the technology of teaching are very parallel, suggesting the centrality of the content and its mastery for her teaching. Anita conveys a clear sense of what students are supposed to learn and within this description is a strong sense of sequence and hierarchy to the content. Her focus is on what they need to know at the end of the day to work as a CAD practitioner. Her map of *what* she teaches is *how* she teaches. To teach effectively requires continuous updating of her knowledge of the subject matter: "It's work for me to go out and stay up to date with the current software." She devotes a considerable amount of time to developing her content-based skills. Also important to Anita was her understanding of the problems that learners encounter in working with CAD. Procedures may be explicit and step-wise, but the process of implementing these procedures is fraught with problems that need to be addressed. Working through these problems is how students learn. These problems are understood, however, as problems in technique or procedure - deviations from or inappropriate use of the rules - and not as intellectual or creative challenges. For this reason, a teacher needs to know just where in the learning of a particular body of content students might encounter difficulties. "I've been teaching this a long time. I know problems exist...So I will try to emphasize *where* problems exist." Also, as with Joan, Anita's foundational knowledge seems clearly shaped by her journey of becoming a teacher. She began as a worker in the automotive industry and this experience continues to influence her sense of what it means to be a teacher, such that there is relatively little difference between Anita's conception of herself as a CAD expert and as a teacher of CAD.

Informal Theory of Teaching

Informal theories of teaching were seldom stated explicitly but, instead, were inferred from core beliefs and foundational knowledge. By knowing what was required or essential for the teaching of adults (Foundational Knowledge) and by knowing why that was justified (Core beliefs) teachers inferred a sense of role and responsibility and a theory of what works and what doesn't in the teaching of adults. That is, they had articulated a generalized sense of identity and purpose. For example, Joan's core beliefs and foundational knowledge combine to form a clear sense of

her role and responsibility as one of making the learning comfortable and less intimidating. Her primary goal, or sense of purpose, is highly aligned with this sense of role, that is, "to decrease intimidation with technology. Making people comfortable with it is usually the very first thing that I need to do." Throughout, the learner is always prominent and her teaching is to be in service of the needs and interest of the students. She sees herself as creating an ideal classroom that is comfortable and helps rid students of early negative perceptions of attending school. It is this theoretical lens that helps her interpret what works, why it works, and if things aren't working, what to do about it.

Compared to Joan, Anita's informal theory of teaching is more obvious in her descriptions of her teaching practice. Content mastery is central to her informal theory. Everything she does within the learning setting is directed toward helping students learn how to use CAD in the most effective means possible. Similar to CAD, Anita sees teaching as a kind of technology, defined by rules and procedures. After an initial, friendly conversation "to get them grinning about something and get their interest," teaching involves setting directions for the day, carefully describing the specific rules involved in the lesson, demonstrating the use of the rules in constructing a drawing through computer images projected onto a large screen, and modeling their application. In the "lab", students then attempt to apply what Anita has covered in the "lecture" portion of the class. During this portion, she "floats through the isles helping students, answering questions" as students predictably run into problems experienced by many learners before them. In Anita's view of teaching, the procedure of teaching is her informal theory of teaching. In other words, similar to the application of CAD knowledge, teaching is a kind of technology. Her role as a teacher is to provide students with the content they need to use the CAD technology. Student questions are less an opportunity for fostering more complex cognitive skills than they are moments to provide learners with problem-specific knowledge of the appropriate rules.

Discussion and Implications

This exploratory study reveals several important aspects of teachers' personal pedagogical systems and ways that researchers can better understand the meaning making process of teaching. From the data, we developed a framework to analyze and make sense of a teacher's personal system of teaching. This framework involves three essential components - an informal theory of teaching, foundational knowledge, and core beliefs. Each of the components was articulated to a greater or lesser extent in the interviews of the two participants. In Anita's case we started with a detailed description of what she did in the classroom, a perspective she stressed in the first interview. Her description was clear and algorithmic in structure and there was a high degree of consistency between interviews and observation. More importantly, this description provided insight into her core belief about teaching; that is, the centrality of content in teaching. With Joan, we saw the same consistency between interviews and observations.

In addition to this framework, we were able to confirm as other studies have shown that there is a tremendous amount of consistency between espoused beliefs about teaching and how beliefs manifest in practice. This was not only observed by the researchers but, more importantly, the espoused beliefs emerged again and again as the participants, when viewing a videotape of their teaching, explained and justified their actions in the classroom. This strong internal consistency

between what was espoused and acted out by these participants in the classroom provided the participants a sense of logic to and control over their teaching. This characteristic is similar to what is found by Argyris and Schön (1974) in their description of a theory in-use. "Theories-in-use are the means of maintaining specific constancies, but they also come to be valued in their own right for the constancy of the world-picture they provide. The inherent variability of the behavioral world gives us more information than we can handle, so we value a stable world-picture, being predictable, and being able to predict. We work at maintaining the constancy of our theories-in-use" (pp. 16-17). On the other hand, this consistency found in Joan and Anita reveals a simplistic notion of teaching, with little recognition or appreciation for variation found in difference among students, context, and other variables that influence the teaching experience. In essence, this internal consistency seems to manifest and perpetuate a cognitive simplicity of teaching. Also, this simplicity appears to be a product of another interesting finding not discussed in previous research; i.e., that of the power of a central core belief held by both of these participants. These core beliefs - Anita's mastering of the content and Joan's, the student as the center - seem to have such a driving influence on their teaching practice, that there was not only little awareness how this belief shaped their practice, but little recognition of the consequences of having such a monolithic view of teaching.

The implications for practice are significant. Adult educators, both in preservice and inservice training, need to spend time exploring their educational biographies especially how their history of schooling and learning shapes their beliefs about teaching. Secondly, it means spending time identifying core beliefs and recognizing the influence they have on their teaching practice. Utilizing the framework developed in this paper, that of core beliefs, foundational knowledge, and an informal theory of teaching, adult educators have a more effective way to make meaning of their personal pedagogical system. With this new understanding they can begin to critically reflect upon more simplistic notions of teaching and develop more complex understandings of how teaching plays out in adult educational settings.

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