Teaching Forward, Understanding Backward: In Search of Theorized Practice

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Life can only be understood backwards: but it must be lived forwards. Soren Kierkegaard

Abstract

In this study, teacher generated metaphors were closely aligned with three major educological themes: behavioral change, assisted performance, and radical constructivism. Teacher observations, in contrast, revealed much more complexity. A factor analysis of the follow-up survey results exposed nine distinctive teacher practice profiles. Each of these three strategies -- metaphor analysis, observations, and survey data -- provided teachers with unique topographical perspectives for uncovering the subterranean landscapes of the mind. Rather than viewing their work as an eclectic collection of strategies, teachers were able to identify the components of their own distinctive profiles and analyze their implications. Their analyses revealed that daily activities did not always reflect underlying patterns.

Introduction

Given the recent critique of reform efforts and the attempts to move into a framework of renewal, teachers' tacit constructions of their roles in this process may become increasingly critical to the success of these efforts. Rather than assuming that teacher belief systems can be brought

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into alignment using traditional reform strategies, this study examined the potential impact of teacher educological identification on the change process. Analysis of metaphors, observations, and surveys collected from 250 School of Education graduate students revealed unanticipated categorical complexity.

Rather than assuming that change can be imposed, metaphor analysis can be used to initiate a more personal, reflective approach. Using metaphor analysis, teacher conceptualizations can be articulated and analyzed for possible internal and external inconsistencies. Research has shown that metaphors provide a unique vehicle for giving deep meaning to sensory experience (Barker, 1985). By constructing images, and then assigning language to those images, teachers reconstruct their experiences in ways that translate tacit understandings into concrete expressions of personal and professional identity.

The purpose of this study was to explore the use of a professional development process that integrated the creation of metaphor with self-assessment surveys, observations, and reflection as a vehicle for uncovering and realigning teachers' educological identities. The study also examined the various ways teachers chose to link this process to classical learning theory. In addition, this study suggested that metaphor analysis corroborated by survey data may provide a strategy for linking teacher action and reflection within the context of sustained professional development.

Without such analysis, teachers' unexamined epistemological contradictions may inadvertently undermine professional development efforts. Teacher epistemologies evolve as they construct meanings from their everyday sensory experiences. In a continuous and dynamic construction of images they expand their educological

awareness. Metaphors, which embody this process, are personal referents and serve to organize sets of beliefs. Beliefs and metaphors of teachers are associated with curricular actions. To foster professional development that support curricular change, it may be necessary for teachers to reconceptualize the manner in which they make sense of their salient roles.

Literature Review

A significant shift is taking place in the understanding and practice of professional development. There is movement away from simply offering workshops and "telling" to knowing, understanding, acting, and reflecting. Standard district days are being rethought. People are attending to what it means to learn on the job and be supported in the process, with discussion of what is being taught as well as what is being learned. As Clandinin and Connelly (1998) have observed:

> Teachers feel listened to, researchers find themselves doing something human, and we sense that each feels closer and more in tune with one another as researchers collect and tell teacher stories. Some people tell us that schools now look less strange to researchers and universities look less forbidding and judgmental to teachers. (p. 245)

Schools can organize in many different ways, improve the professional lives of teachers and expand their roles, challenge regulations, and remove boundaries, but if student learning and engagement are not the focus, they will accomplish little of value for students. School change and improvement must focus on the students. A way to examine whether students are truly engaged in their work is through the process of educological identification. This is not simply a gimmick that will lead to an understanding of what the

school stands for. This is what helps shape the values and beliefs of a school community.

Adopting programs or practices without understanding the consequences of given ideas, the assumptions underlying the work, and the organizational conditions necessary to make them happen, will inevitably breed cynicism and confusion. Values without the necessary practices to help make them real make people feel fraudulent. Teachers learn by doing, and when they take the time to reflect on what they are learning, they often become clearer about what they know what they need to know and what they believe (Schon, 1995). This process of teacher-guided inquiry is growing in popularity as an effective means that produces knowledge about effective classroom practices. Erickson (1986) contends that an essential characteristic of master teachers should be the ability to reflect critically on one's classroom practice and to communicate to others the insights from that reflection process.

During the last decades, reflection has become a basic concept in teacher education all over the world (Gore, 1987; Hatton & Smith, 1995). It has emerged as a specific topic within the general movement of "teacher thinking," which started in the 1970s. Today, most professionals in the field seem to agree on the fact that reflection is a generic component of good teaching. However, close analysis of teacher education practices and the literature on reflection reveals that the term has been conceptualized in many different ways (Day, 1999; Grimmett, 1988; Tom, 1985).

Calderhead (1989) and Hatton and Smith (1995) point at the confusion about the precise meaning of the term reflection. Dewey and Schon's conceptualizations provide two pivotal examples. According to Dewey (1933 cited in Korthagen, 2000):

> Reflection involves not simply a sequence of ideas, but a con-sequence- a consecutive ordering in such a way that each idea determines the next as its proper outcome, while each outcome in return leans back on, or refers to, its predecessors. (p.4)

Dewey's "reflection" entails a chain of thoughts, which "are linked together so that there is a sustained movement to a common end" (p.5). In comparison, Schon (1983, 1987) distinguishes between reflection-in-action and reflection-on-action. Schon states that reflection-in-action and experimentation go together:

> When someone reflects-in-action, he becomes a researcher in the practice context. He is not dependent on the categories of established theory and technique, but constructs a new theory of the unique case. His inquiry is not limited to a deliberation about means which depend on a prior agreement about ends. He does not keep means and ends separate, but defines them interactively as he frames a problematic situation. (Schon, 1983, p.68)

Reflection-in-action is limited to what Schon calls the action present: "the zone of time in which action can still make a difference to the situation" (Schon, 1983, p.62). This is not the case in reflection-on-action, which takes place after the action itself. Reflection-on-action is prompted by unexpected results (Schon, 1987, p.26). This reflection-on-action can change our future rather than present actions. Schon gives the example of a person who, by reflecting on his Monday morning quarterback, plays differently in next Saturday's game (Schon, 1987, p. 31). According to Schon, reflection-on-action is more likely to foster inquiry into the personal theories which lie at the basis of one's actions.

While little attempt has been made to operationalize and measure reflection, Zeichner and Liston (1987) have developed a "reflective-teaching index" based on Van Manen's (1977) framework for assessing the level of reflection of teachers. Zeichner and Liston distinguished

between four levels of discourse during supervisory conferences in teacher education: (a) factual discourse, concerned with what has occurred in a teaching situation or with what will occur in the future; (b) prudential discourse, revolving around suggestions about what to do or around evaluations of what has been established; (c) justificatory discourse, focusing on the reasons employed when answering questions of the form "why do this rather than that?"; and (d) critical discourse, examining and assessing the adequacy of the reasons offered for the justification of educational actions or assessing the values and assumptions embedded in the form and content of curriculum and instructional practices (the "hidden curriculum"). The levels of reflection vary with the levels of discourse.

In addition to multiple ways of characterizing reflection, there are also distinctive programmatic usages. Calderhead and Gates (1993) state that professional development programs based on notions of reflective practice espouse one or more of the following aims:

> 1) to enable teachers to analyze, discuss, evaluate and change their own practice, adopting an analytical approach towards teaching; 2) to foster teachers' appreciation of the social and political contexts in which they work, helping teachers to recognize that teaching is socially and politically situated and that the teacher's task involves an appreciation and analysis of that context; 3) to enable teachers to appraise to moral and ethical issues implicit in classroom practices, including the critical examination of their own beliefs about good teaching; 4) to encourage teachers to take greater responsibility for their own professional growth and to acquire some degree of professional autonomy; 5) to facilitate teachers' development of their own theories of educational practice, understanding and developing a principled basis for their own classroom work; 6) to empower teachers so that they may better influence future directions in education and take a more active role in educational decision-making. (p. 2)

Zeichner (1993) has clarified the relation between the concept of reflection and a number of different views on the goals of teacher education. He distinguishes four paradigms of teacher education. The first is *behavioristic* teacher education, emphasizing the development of specific and observable teaching skills that are assumed to be related to effective learning. The second is *personalistic* teacher education, focusing on the psychological maturity of teachers, and "emphasizing the reorganization of perceptions and beliefs over the mastery of specific behaviors, skills and content knowledge" (p.4). Next, Zeichner describes the *traditional-craft* paradigm in which teacher education is viewed primarily as a process of apprenticeship. The fourth approach is *inquiry-oriented* teacher education, "which prioritizes the development of inquiry about teaching and about the contexts in which teaching is carried out" (p.5).

Reflection plays no significant role in either the *behavioristic* or the *traditional craft* paradigms. In both these approaches, the content of educology for teacher education can be specified and defined in advance. There is an existing body of knowledge about teaching and a given educational context. This leads to certain competencies, which the teacher has to acquire. In the *personalistic* and *inquiry-oriented* paradigms, however, teachers are active participants in the construction of the educological content. Reflection is the instrument by which experiences are translated into dynamic knowledge; both *personalistic* and *inquiry-oriented* paradigms aim at an ongoing process consisting of experience, looking back on experience, analysis, and reorganization. However, the two differ in the extent to which internal or external factors are incorporated into this process. The *personalistic* paradigm stresses the importance of the role of personal perception (Combs,

Blume, Newman, & Wass, 1974) and self-actualization (Joyce, 1975, p. 134), whereas the *inquiry-oriented* paradigm focuses on investigating contextual influences on the teaching-learning situation.

Teacher education can have greater impact if the teacher's background knowledge about teaching is incorporated into instruction in teacher education (Clark, 1988). According to Shulman (1987), teachers' background knowledge base includes both general and specific concepts: 1) knowledge of the subject to be taught; 2) general educological knowledge including classroom management and organization; 3) curriculum knowledge; 4) educologicall content knowledge connecting specific strategies to selected content areas; 5) knowledge of students; 6) knowledge of educational contexts; and 7) knowledge of educational ends, purposes, and values. It is sometimes difficult for teachers to identify the unique amalgams of content and educology that constitute their educological content knowledge. In an elaboration on Shulman's work, Grossman (1990) expanded the concept of educological content knowledge to include "knowledge and beliefs about the purposes for teaching a subject at different grade levels" as well as "knowledge of instructional strategies and representations for teaching particular topics" (pp. 8-9).

In related attempts to determine what teachers know that others do not, Elbaz (1983) and that of Clandinin and Connelly (1995) examined the various ways in which teachers encapsulate their knowledge. Many people know the content that teachers attempt to teach; however, teachers also have knowledge about teaching (i.e., they have educology). "The knowing of a classroom" is part of the "personal practical knowledge" each teacher possesses. "Personal practical" knowledge resides in "the persons past experience, in the person's mind and body, and in the

person's future plans and actions (Connelly and Clandinin, 1988, p.25). Teachers deal with the exigencies of the present by reconstructing the past as well as adjusting their intentions for the future. According to this research, teacher knowledge exists in categories other than those proposed by Shulman and Grossman including: images, rules, practical principles, personal philosophy, and metaphor.

Because much of the teacher's educological knowledge is tacit, the challenge for teacher educators (i.e. those who teach educology to students preparing to be teachers) is to make this knowledge explicit (Weinstein, 1989). Only by expressing tacit meanings can they be subjected to analysis and through scrutiny find justification (Polanyi, 1958). Metaphors are a vehicle for expressing these tacit understandings. Metaphors reflect the values and belief systems that shape thought and action (Shue & Lacroix, 1998; Grady, 1996; Wineck, 1996). Thus, metaphors can be a powerful tool in making sense of concepts associated with teaching and learning. They can also be a powerful tool in change efforts when the reconstruction of teacher educological content knowledge plays an integral role in reform.

There is a growing interest in the study of the metaphors that teachers use to reveal their self-understandings (Provenzo, McCloskey, Kottkamp & Cohn, 1989; Russell & Johnston, 1988; Hunt, 1987; Miller & Fredericks, 1988; Munby, 1986), what Bandman (1967) earlier described as "picture preferences" (p.112). Metaphors represent teachers' understanding about teaching and their conceptions of themselves as teachers, what Pajak (1986) calls their "professional identity" (p. 123). This view is based, in part, upon the belief that metaphor is the primary means by which humans come to terms with experience.

Just as in mutual understanding we constantly search out commonalities of experience when we speak with other people, so in self-understanding we are always searching for what unifies our own diverse experiences in order to give coherence to our lives. Just as we seek out metaphors to highlight and make coherent what we have in common with someone else, so we seek out personal metaphors to highlight and make coherent our own pasts, our present activities, and our dreams, hopes, and goals as well.

A large part of self-understanding is the search for appropriate personal metaphors that make sense of our lives. As Lakoff & Johnson (1980) explain:

> Self-understanding requires unending negotiation and renegotiation of the meaning of your experiences to yourself . . . . It involves, the constant construction of new coherences in your life, coherences that give new meaning to old experiences. The process of self-understanding is the continual development of new life stories for yourself . . . . (pp. 232-233)

Metaphors play a central role in this process storytelling. In addition, metaphors can be used as a reflective tool in teacher education (Bullough, 1991; Philion, 1990). In a study of preservice teachers, Bullough (1991) found that uncovering the teachers' metaphors was an essential process in their reflection about teaching and being a teacher. It forced them to reflect on the extent to which their practice mirrored the metaphors which they chose to describe themselves as teachers.

Methods

Teacher-guided inquiry as a tool for professional development is a recent development in in-service teacher programs. Its growing importance has emerged, in part,

from the fact that this process values inquiry, collaborative work and teachers' voices. Furthermore, this process of pedagogical identification allows practitioners to reframe their understanding of teaching and learning in meaningful ways. This exploration of teacher pedagogical identity within the context of professional development employed both combined qualitative and quantitative methods in addressing the challenges of discovery and verification (Patton, 1990). In the initial discovery cycle, 250 metaphors from teachers were analyzed by both researchers for recurring images and themes, then independently categorized as part of the peer review process. Three major themes emerged from this analysis which corresponded to themes in the learning theory literature: behavioral change (characteristic of Skinner), assisted performance (characteristic of Vygotsky), and radical constructivism (characteristic of Piaget). A componential analysis (Weber, 1985, Spradley, 1980) of these three themes revealed ten contrasting pairs of descriptors: 1) flexible/structures; 2) convergent/divergent; 3) build in/draw out; 4) teacher directed/student directed; 5) receptive attentiveness/engaged application; 6) emotional emphasis/rational emphasis; 7) individual focus/ social group focus; 8) teacher talk/ student talk; 9) self-esteem/academic performance; 10) predict and shape behavior/serendipity. In various combinations these descriptors constituted the distinguishing characteristics for categorizing learning theory profiles — behavioral change, assisted performance, and radical constructivism..

Initial verification was provided by 250 classroom teachers who used these descriptors to conduct a series of classroom observations over a ten-week period. Immediately after conducting a lesson or activity, teachers selected the dominant descriptors from each pair and explained their selections. Self reflections were

complemented by selected peer reviews. Because the results of this initial verification phase were not consistent, a survey was developed translating each descriptor into a specific statement of teaching practice (see Appendix A) This Likert-scale survey was designed to translate the various aspects of teacher practice reflected in metaphor into composite teacher profiles. The alpha reliability coefficient was 0.91.

Means and standard deviations of individual items were calculated for the survey. The data were then subjected to a series of generalized least squares factor analysis in an attempt to determine the optimal number of factors in a scale. Correlational analysis of the 10 pairs from the survey indicate a high degree of intercorrelation among the scales. To obtain a smaller number of more unique characteristics, the 10 pairs were subjected to a maximum likelihood factor analysis using the Varimax method of factor rotation. To evaluate the impact of the entire process from self-assessment survey to observation to metaphor analysis, a follow-up evaluation was conducted with selected in-service teachers. This evaluation consisted of survey and focus group data.

Findings

An analysis of teacher-generated metaphors revealed that most could be placed within one of the three themes, allowing for some individual variation. The following metaphors characterize each of the three themes: behavioral change, guided performance and radical constructivism.

Behavioral Change

Clear, non-negotiable goals and an emphasis on discrete steps reinforced by the teacher in a series of successive

approximations on the road to goal attainment characterized metaphors describing learning as product, outcome, or behavioral change. As one teacher expressed her role:

> As a teacher, I think of myself as a Film Producer, starting from scratch, developing a plan, utilizing a plan, molding the plan, working through the problems, and finally, feeling success with a finished product (The Movie) at the end (Excerpt from metaphor # 33).

Assisted Performance

Guided, reciprocal, mediated instruction designed to move students from the realm of social interaction to self-regulating internalizations characterized metaphors describing learning as assisted instruction. As one teacher expressed his role:

> I choose a destination and then encourage others to come along. I am knowledgeable about the locations of travel (subject matters) and can point out important things throughout the trip. I enjoy the places we go and like to go back. I find the more I go back, the more I discover to point out to the next group on the next trip (Excerpt from metaphor #12).

Radical Constructivism

Experimentation, discovery, and hands-on problem solving fostering individual construction of knowledge and the refinement of logical processes characterized metaphors describing learning in terms of "thinking" and problem solving. As one teacher explained:

> I see myself as a general contractor of my classroom. I oversee the construction of learning. Each student is his own builder of meaning, and I, as the general contractor, guide the student in the process. I allow for individual technique and style within each builder's mind while offering advice and direction when necessary (Excerpt from metaphor #5).

The initial verification phase consisted of teacher and peer observations using the following key descriptors: 1)

flexible/structures; 2) convergent/divergent; 3) build in/ draw out; 4) teacher directed/student directed; 5) receptive attentiveness/engaged application; 6) emotional emphasis/ rational emphasis; 7) individual focus/ social group focus; 8) teacher talk/ student talk; 9) self-esteem/academic performance; 10) predict and shape behavior/serendipity. These observations, which required teachers to choose one descriptor from each pair, revealed a surprising lack of consistency. Unlike the metaphors, the three major learning theory themes did not emerge as organizing categories. Instead, teacher observations revealed multiple combin- ations of descriptors across thematic boundaries. For example, an observation might combine a report of both structure (behavioral change and serendipity), which is assisted performance and radical constructivism. As a result of these incongruities, we developed the Likert-scale as a follow-up to the forced choice observations.

The factor analysis derived a 9-factor solution accounting for 80% of the variance in the items. Factor loadings for each of the items are presented in Table 1.

Five scales loaded on Factor 1, which we have named *cooperative convergence*. This factor describes teachers who focus on the achievement of pre-determined goals and prefer to control the planning and implementation of classroom activities.

Six scales loaded on Factor 2, which we have named *supportive realism*. This factor describes teachers who use lesson plans as rough guidelines to support student initiated learning and emphasize feelings, values, and relationships as well as logical problem solving.

Six scales loaded on Factor 3, which we have named *identity building*. This factor describes teachers who balance flexibility and structure allowing for both clear

goals and individualized outcomes, promoting in their students a strong sense of identity.

Factor 4, which we have named *progressive independence* describes teachers who use a subtle control to initially direct student action and facilitate subsequent student directed efforts.

Factor 5, which we have named *problem-based engagement* describes teachers who manage class time to get results while facilitating student directed activities.

Factor 6, which we have named *controlled convergence* describes teachers who emphasize the importance of systematic problem solving and carefully build in requisite content knowledge.

Factor 7 which we have named *grounded instruction* describes teachers who draw out students' prior knowledge and help to organize it.

Factor 8 which we have named *assisted performance* describes teachers who prefer to carefully organize class activities to help develop students' social and emotional as well as cognitive skills. Factor 9 which we have labeled *structured collaboration* describes teachers who encourage teacher, student dialogue and balance the need for class structure with opportunities for accidental discovery.

The original research which forms the basis for this overall self-reflective process, resulted in three organizing themes which clearly linked teacher practice with classic learning theory: behavioral change, assisted performance and radical constructivism.

While a factor analysis of the survey data produced nine factors which accounted for 80% of the variance, the purpose of this follow-up evaluation was to assess the overall process, which included observations and metaphor analysis in addition to the original survey data. The follow-up evaluation of the process revealed that while teachers

derived significant benefits from this extended self-reflective sequence, there were also some interesting limitations inherent in the process.

Teachers reported that the overall process provided structure, reinforcement and critical insight. Those who responded positively to the structure felt that precise survey questions kept them focused and encouraged reflection that, in the words of one teacher, "we so often do not do." In fact, this teacher reported that she was "grateful for the opportunity." Another commented that it "forced me to look at my teaching and my philosophy and see how they fit into the big picture of learning." For some, this "deeper look" into the classroom confirmed that they were "on the right highway." Others were surprised by the lack of congruence between their self-assessment surveys and their observations. A teacher who found some discrepancies noted that the self assessment survey provided an anchor for comparisons between "the style of teaching I thought I used versus the way I actually teach." Whether providing a confirmation or a question, teachers commented consistently on the fact that the process raised their levels of awareness on many levels.

In examining various aspects of this process, 73% of teachers surveyed reported that the self-assessment survey was most useful, 66% found the observations most useful, 50% identified the nine educological profiles resulting from the factor analysis most useful, and 36% ranked the metaphor as most useful.

Teachers who found the self-assessment survey most useful valued the precision, structure, comprehensiveness, and the emphasis on the self. As one teacher observed, "the survey helped me to review what, when, why and how." Another noted the importance of starting the process with the self-assessment survey to ensure honest reflection. He

remarked that he would have been tempted to change his responses if he had known where the process was heading. This survey provided a baseline for the subsequent activities.

Teachers reported that the classroom observations provided validation, insights and surprises. In terms of validation, teachers felt that the observations when linked to specific theorists gave them "permission to teach in particular ways." The observations also reinforced positive aspects of personal practice from multiple (peer, student, administrator) perspectives. Many teachers were surprised by the extent to which their educological practices were content specific – as confirmed in Schulman's (1987) identification of the importance of "pedagogical [i.e. educological] content knowledge." Others noted the way in which student population and physical constraints dramatically affected their range of teaching options. The observations also provided surprises when coupled with the self assessment surveys, specifically in the areas of prediction, control and shaping of classroom behavior and in the prevalence of student talk. Teachers were surprised at the levels of control they typically exerted, having assessed themselves earlier as more open to serendipity. As one teacher commented, "I teach with much more rigid guidelines than I thought." Many were also surprised by the lack of active engagement on the part of students as illustrated in the following: "I was surprised that my observations didn't show more student talk and interaction in class."

The most common educological profiles selected by high school, middle school, and elementary school teachers were Supportive Realism and Assisted Performance. Teachers clearly saw their own practice reflected in the varied class activities and emphasis on social relationships

characteristic of Supportive Realism and the sensitivity to the needs of individual students characteristic of Assisted Performance.   Identity Building, with its emphasis on individual performance as well as strong sense of self and Progressive Independence with its emphasis on facilitation and accidental discovery in the service of clearly specified goals were selected least often. Teachers did not view these two profiles as representative of either the practical or theoretical commitments they felt they possessed after completing the entire sequence. More high school teachers than middle or elementary school teachers aligned their practice with either Cooperative Convergence or Controlled Convergence. While the level of group work varied, the element of control in both of these profiles reflected the expressed need to prepare students for standardized tests. Teachers were also able to identify the ways their profiles had changed over the course of their careers. Most reported that they began their teaching careers with an emphasis on behavior management. As they continued to teach they began collecting strategies to enhance learning, but did not systematically evaluate and integrate these techniques in light of theoretical commitments or student needs. Later they became more concerned with aligning curricular outcomes with educological initiatives. The energy shifted from maintaining classroom control to deliberately pursuing "the best ways for students to learn and understand."

While a few teachers found the metaphor activity to be the most difficult and least enjoyable part of the self-reflective process, the majority reported that they enjoyed the "chance to be creative" and to look at teaching "in a new light" using a new modality. The metaphors allowed teachers to "shape . . . philosophy," to achieve a "better focus," and to gain a greater sense of "what's important in teaching and learning." The metaphors also provided an

opportunity for teachers to compare their profession to "the rest of the world," something many of them had never done. As one teacher expressed it, metaphors "created a much more colorful picture and it was inspirational to compare myself to my metaphor." Some were surprised at how similar their jobs were to other occupations. Some felt that the metaphors prompted them to "scrutinize" their personal "teaching styles" while other gained a greater appreciation for other professions by comparing them to teaching. Most were intrigued by their colleagues' metaphors; more than any of the other activities, teachers reported enjoying "listening to others' metaphors."

The evaluation of the overall process as well as specific activities within the process revealed a range of responses from reinforcement or confirmation to critical questioning of patterns and assumptions. The process made teachers more aware of their use of theoretical frameworks and techniques, providing "reasoning" to their practice: "Every time I teach, I think about which theorist I'm using." The process also provided some validation of selected educological patterns: "The things I found out in my observations were reinforced through the theory and I felt it supported the practices that I feel are important. I felt like it gave me the permission to teach the way I do." While some teachers confirmed educological patterns, others were led to question their practice: "This process helped me see that I need to broaden my range of theorists and that I need to be more flexible, less Skinner-like." In addition to questioning practice, some teachers were prompted to question the role of theory. As one teacher observed, "I think it is important to link theory to practice; however, at times I think theories are restrictive." Interrogating the role of theory is crucial for educologists and educators at all levels. As Clandinin and Connelly (1998) have cautioned, teachers' stories must

not become an end in on of themselves: "It is education that is at the core of our enterprise and not merely the telling of stories" (p. 246). The self-assessment-observation-metaphor process can be most effective, not as a vehicle for revealing teachers' educological identities, but as a catalyst for the "inquiry oriented conversation" (p. 252) which enlivens the journey from untheorized practice to informed educological practice.

Conclusion

In this study, teacher generated metaphors were closely aligned with three major educological themes: behavioral change, assisted performance, and radical constructivism. Teacher observations, in contrast, revealed much more complexity. A factor analysis of the follow-up survey results exposed nine distinctive teacher practice profiles. Each of these three strategies -- metaphor analysis, observations, and survey data -- provided teachers with unique topographical perspectives for uncovering the subterranean landscapes of the mind. Rather than viewing their work as an eclectic collection of strategies, teachers were able to identify the components of their own distinctive profiles and analyze their implications. Their analyses revealed that daily activities did not always reflect underlying patterns.

Too often reform efforts have focused exclusively on daily surface activities, ignoring the teachers' tacit understandings of their educological identities. Recent critiques of misguided reform efforts have prompted a closer examination of teachers' roles as integral to sustained systemic change. This preliminary investigation suggests that metaphor, as a vehicle for uncovering teachers' tacit constructions promotes "critical analysis, the shared construction of knowledge, and renewed commitment to

action" (Brown & Moffett, 1999, p. 4). Providing teachers with a strategy for focused critical reflection encourages them to explore their "personal practical knowledge" within the context of their own practice, translate insights into metaphorical expressions of professional identity, and integrate classroom educology into school renewal efforts. It also heeds the warning from Hargreaves (1996) who criticizes educologists and teachers of educology for meeting teachers' social and emotional needs while leaving their practice unchallenged and unchanged.

This study suggests that the explicit concept of educological content knowledge as developed by Shulman (1987) and refined by Grossman (1990) can be complemented by the exploration of its implicit dimensions. In addition, these implicit dimensions appear to be more complex than either learning theory frameworks or reform models suggest. Externally conceived reform models which are not grounded in teachers' personal practical knowledge do not align with teachers' educological content knowledge will not be effective in shifting the curricular landscape. When school reform initiatives are grounded in teachers' educological identities, educators can more effectively reshape the landscapes that define their practice.

The original research which forms the basis for this overall self-reflective process, resulted in three organizing themes which clearly linked teacher practice with classic educological theory: behavioral change, assisted perform-ance and radical constructivism.

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remarked that he would have been tempted to change his responses if he had known where the process was heading. This survey provided a baseline for the subsequent activities.

Teachers reported that the classroom observations provided validation, insights and surprises. In terms of validation, teachers felt that the observations when linked to specific theorists gave them "permission to teach in particular ways." The observations also reinforced positive aspects of personal practice from multiple (peer, student, administrator) perspectives. Many teachers were surprised by the extent to which their educological practices were content specific – as confirmed in Schulman's (199) identification of the importance of "pedagogical [i.e. educological] content knowledge." Others noted the way in which student population and physical constraints dramatically affected their range of teaching options. The observations also provided surprises when coupled with the self assessment surveys, specifically in the areas of prediction, control and shaping of classroom behavior and in the prevalence of student talk. Teachers were surprised at the levels of control they typically exerted, having assessed themselves earlier as more open to serendipity. As one teacher commented, "I teach with much more rigid guidelines than I thought." Many were also surprised by the lack of active engagement on the part of students as illustrated in the following: "I was surprised that my observations didn't show more student talk and interaction in class." The most common educological profiles selected by high school, middle school, and elementary school teachers were Supportive Realism and Assisted Performance. Teachers clearly saw their own practice reflected in the varied class activities and emphasis on social relationships characteristic of Supportive Realism and the

sensitivity to the needs of individual students characteristic of Assisted Performance. Identity Building, with its emphasis on individual performance as well as strong sense of self and Progressive Independence with its emphasis on facilitation and accidental discovery in the service of clearly specified goals were selected least often. Teachers did not view these two profiles as representative of either the practical or theoretical commitments they felt they possessed after completing the entire sequence. More high school teachers than middle or elementary school teachers aligned their practice with either Cooperative Convergence or Controlled Convergence. While the level of group work varied, the element of control in both of these profiles reflected the expressed need to prepare students for standardized tests. Teachers were also able to identify the ways their profiles had changed over the course of their careers. Most reported that they began their teaching careers with an emphasis on behavior management. As they continued to teach they began collecting strategies to enhance learning, but did not systematically evaluate and integrate these techniques in light of theoretical commitments or student needs. Later they became more concerned with aligning curricular outcomes with pedagogical initiatives. The energy shifted from maintaining classroom control to deliberately pursuing "the best ways for students to learn and understand."

While a few teachers found the metaphor activity to be the most difficult and least enjoyable part of the self-reflective process, the majority reported that they enjoyed the "chance to be creative" and to look at teaching "in a new light" using a new modality. The metaphors allowed teachers to "shape . . . philosophy," to achieve a "better focus," and to gain a greater sense of "what's important in teaching and learning." The metaphors also provided an

opportunity for teachers to compare their profession to "the rest of the world," something many of them had never done. As one teacher expressed it, metaphors "created a much more colorful picture and it was inspirational to compare myself to my metaphor." Some were surprised at how similar their jobs were to other occupations. Some felt that the metaphors prompted them to "scrutinize" their personal "teaching styles" while other gained a greater appreciation for other professions by comparing them to teaching. Most were intrigued by their colleagues' metaphors; more than any of the other activities, teachers reported enjoying "listening to others' metaphors."

The evaluation of the overall process as well as specific activities within the process revealed a range of responses from reinforcement or confirmation to critical questioning of patterns and assumptions. The process made teachers more aware of their use of theoretical frameworks and techniques, providing "reasoning" to their practice: "Every time I teach, I think about which theorist I'm using." The process also provided some validation of selected educological patterns:

> The things I found out in my observations were reinforced through the theory and I felt it supported the practices that I feel are important. I felt like it gave me the permission to teach the way I do.

While some teachers confirmed educological patterns, others were led to question their practice: "This process helped me see that I need to broaden my range of theorists and that I need to be more flexible, less Skinner-like." In addition to questioning practice, some teachers were prompted to question the role of theory. As one teacher observed, "I think it is important to link theory to practice; however, at times I think theories are restrictive."

Interrogating the role of theory is crucial for educators at all levels. As Clandinin and Connelly (1998) have cautioned, teachers' stories must not become an end in and of themselves: "It is education that is at the core of our enterprise and not merely the telling of stories" (p. 246). The self-assessment-observation-metaphor process can be most effective, not as a vehicle for revealing teachers' educological identities, but as a catalyst for the "inquiry oriented conversation" (p. 252) that enlivens the journey from untheorized practice to best practice informed by sound educology.

This "epistemology of practice" combines reflection, observation, and theorizing steeped in the day-to-day lives of teachers. It encourages educators to question the underlying assumptions which constrain them and consider alternative ways of conceptualizing practice. To facilitate professional development throughout an educator's career, in-service designs can incorporate teacher-guided inquiry with ongoing opportunities for critical dialogue, observation, and reflection. Such a process allows teachers to develop educological theories which are grounded, responsive, and tailored to meet the unique needs of students in diverse settings.

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