ABSTRACT

Title of Dissertation: TEACHER KNOWLEDGE: AN IDEAL TYPOLOGY

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This collective case study examined the possible roles for received knowledge and classroom experience in the formation of an ideal typology for teacher knowledge. The problematic nature of teacher knowledge development was examined with regard to behavioral, psychological, and social influences. Theoretical underpinnings drew principally from schema theory and formative theory about the nature and development of teacher knowledge. The compatibility of tacit and codified knowledge about teaching was a key concern. Special attention was given to examining how teachers integrate received knowledge with classroom experience and the frequently reported discord between the two. Other issues addressed included teacher compliance and the effectiveness of teacher preparation. An initial conceptual framework founded upon possible roles for received knowledge and classroom experience was expanded into an ideal topology for teacher knowledge when combined with a concern for personal versus collaborative processes. Data suggested four ideal types: a) personal-experiential, b) personal-received, c) collaborative-experiential, and d) collaborative-received. The qualitative research design involved open-ended questionnaires, in-depth interviews, and lesson plan documents from 14 classroom teachers in the mid-Atlantic region. Participants were chosen from public and private schools, and were diverse in ethnicity,

gender, years of experience, teacher preparation, and grade levels taught. The purpose of the study was twofold: a) to arrive at a better understanding of the relationship between received knowledge and classroom experience in the formation of knowledge about teaching, and b) to contribute toward general theory on teacher knowledge and its development. The study is significant in that a better understanding of how teachers integrate classroom experience with received knowledge may contribute to a more workable model for teacher knowledge development and thereby contribute toward more effective planning of teacher education, professional development, and graduate level coursework.

TEACHER KNOWLEDGE: AN IDEAL TYPOLOGY

by

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Dissertation submitted to the Faculty of the Graduate School of the
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Dedicated to my family,

Mary Ann, Casey, John, and Derek

who lost me to all of those weekend writing binges

and to Dr. Beatrice Sarlos who inspired me to pursue a doctorate.

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Statement of the Problem

Although teacher knowledge has been seen to develop in personal and practical ways that are situated in classroom events (Carter & Doyle, 1989; Lave & Wenger, 1991; Munby, Russell, & Martin, 2001), classroom educators are nonetheless urged, and sometimes required, to heed "received knowledge" (Belenky, Clinchy, Goldberger, & Tarule's, 1986) about teaching from external authorities such as learning theorists, principals, professors, and educational researchers (Grimmet & MacKinnon, 1992). Frequently, tensions arise from this interface between received knowledge and teachers' personal, practical knowledge from classroom experience (Feiman-Nemser & Floden, 1986; Garrahy, Cothran, Kulinna, & Hodges, 2002). For example, teachers have long criticized master of education programs as being overly abstract or irrelevant when compared to the realities of classroom instruction (Eisenhart, Behm, & Romagnano, 1991; Tom, 1999). Likewise, implementing suggestions from external knowledge authorities has been problematic for experienced educators as well as novices (Kennedy, 1997; Russell, 1989). In addition, received, propositional knowledge about teaching in the form of published research is frequently seen by classroom teachers as inaccessible, impractical, and too time-consuming to find and read (Kincheloe, Slattery, & Steinberg, 2000).

Furthermore, although scholars have addressed questions about the development of teacher knowledge and the tensions found therein for over five decades, research has long been characterized by inconsistencies, ambiguities, and a need for further study in this area (Doyle, 1990; Kagan, 1992a). Recently, researchers have noted that recurring

questions about the exact nature of teacher knowledge and what teachers need to know "continue to plague teacher education, teacher assessment, and teacher practice" (Fives & Buehl, 2008, ¶ 13). Terms used to describe or define teacher knowledge "often seem to duplicate, subsume, or contradict one another" (Alexander, Shallert, & Hare, 1991). Made even more complex and finely nuanced by the emergence of interpretivist and critical research approaches, the phenomenon of teachers' knowledge development has been seen as increasingly difficult to conceptualize, describe, or manage (Kagan, 1990). Apparent anomalies in current theory about the development of teacher knowledge seem to call for attention. For example, although attempts to explain the development of teacher knowledge with concepts such as "reflecting-in-action" and "reflecting–on-action" (Schon, 1983; 1987) have been influential, other studies have indicated that teachers may not always have the opportunity for conscious reflection about their actions either during or after instruction because of the incessant and ongoing need to complete instruction-related tasks, maintain classroom activity levels, and plan for upcoming lessons (Berliner, 1988; Michaloski, 2004a, 2004b, Zeichner, 1996). In addition, current theoretical perspectives have tended to address only a portion of the whole picture of teacher knowledge and its development; scholars have argued that behaviorism may neglect personal, social, and cultural considerations (Schon, 1995); cognitive theory does not integrate cultural influences effectively (Grossman, 1992); and socio-cultural theory tends to downplay human agency and the importance of individualized experience in the learning process (Dance, 2002). Nonetheless, it seems that teachers *do* continue to develop ways of knowing about how to educate students.

Purpose and Significance of the Study

With the foregoing concerns in mind, the purpose of the study was twofold: first, to arrive at a better understanding of the relationship between received knowledge and classroom experience in the formation of teacher knowledge, and second, to contribute toward general theory on teacher knowledge and its development.

The results of this study are significant in that a better understanding of the roles of and relationships between received knowledge and classroom experience, along with a more workable model of teacher knowledge development, may contribute toward more effective planning of teacher education, professional development, and graduate level coursework.

Rationale

While there may be similarities between this study and other examinations of teacher knowledge, there are important differences. First, I offer an ideal typology for teachers' ways of knowing that may complement and integrate theoretical positions ranging from agent-centered, psychological vantage points, such as radical constructivism (von Glaserfeld, 1991) and information processing theory (Gagne, 1977; Miller, 1956; Newell & Simon, 1972), with community-centered, sociological orientations such as situated cognition (Craig, 2004; Lave & Wenger, 1991; Wenger, McDermott, & Snyder, 2002) and socio-culturalism (Vygotsky, 1978; Anyon, 1995; Delpit, 1995; Ginsburg & Newman, 1985; Ladson-Billings, 1994, 1999). The ideal typology that I offer is not merely another stance in a field of stances, but is a mapping of the field itself—a mapping that organizes contemporary theoretical stances, implies relationships between received knowledge and classroom experience, and suggests

approaches that may improve efforts to foster the development of teacher knowledge. Second, although researchers in the professional development field have offered promising guidelines for teacher development in the form of structures (Joyce & Showers, 1995), models (Shulman & Shulman, 2004), or a summary of consensus (Valli & Hawley, 2002), I suggest specific sequential trajectories of teacher knowledge types upon which professional development may be organized. Third, I provide a way to view received knowledge and experiential knowledge as components of an overarching gestalt—not as mutually exclusive phenomena. The fact that participants frequently reported that they learned how to teach from experience, received knowledge, and various interactive fusions of these two knowledge sources gives further support for this argument.

Overview of Chapter One

In the following sections of Chapter One, I present and clarify the central concepts of the study: *received knowledge, classroom experience, and teacher knowledge*. Each concept is examined and discussed in light of current research and theory in order to arrive at workable, "constitutive definitions" (MacMillan, 2000) that not only reflect current thought about teacher knowledge but also provide a focus for the study. Having defined and provided a focus based on these central concepts, an initial conceptual framework is then presented by positing possible roles for received knowledge and classroom experience in the formation of teacher knowledge. These possible roles served not only as the central features of the conceptual framework, but also as initial coding schemes for interview data. Finally, by reflecting on the problems involved in examining teacher knowledge, and with the conceptual framework in mind,

Chapter One concludes with the development of five research questions in order to further focus the study.

Clarification of Central Concepts

One of the major challenges in this area of study is confronting the multiple meanings and shifting contexts that have arisen from a wide range of disciplines employed in the examination of the nature and development of teacher knowledge (Munby, Russell, & Martin, 2001). Perhaps the nature of this challenge is at least partially due to the fact that during the last century educational researchers have adopted methodologies from a wide range of disciplines such as philosophy, psychology, cognitive science, neuroscience, and the social sciences along with their accompanying paradigms, philosophical underpinnings and basic assumptions about the nature of reality. For example, the positivism of experimental psychology and neuroscience assumes a measurable reality that exists independently from observers, while the interpretivism and critical theory of social science assumes observer-dependent, multiple realities (Krathwohl, 1998). Teacher knowledge may be and has been viewed from the outlooks of constructivism, information processing theory, behaviorism, social interactionism, schema theory, and critical pedagogy (Kelsay, 1989; Phillips & Soltis, 2004). All of these theoretical perspectives generate their own idiosyncratic sets of assumptions and lexicons of terminology.

In response to concerns and issues introduced earlier in this chapter, this study was focused around three central concepts: *received knowledge, classroom experience, and teacher knowledge*. In the following section, I develop definitions for these concepts,

relate them to theory and research, and develop a conceptual framework for examining the ways that teacher knowledge may develop.

Knowledge in Light of Schema Theory

Before I began to explore the nature of teacher knowledge and how it develops, I chose an epistemological orientation that was inclusive enough to reflect varied research findings and that seemed as if it would be effective in approaching my area of focus—teacher knowledge and how it develops. I drew principally from schema theory as my underlying conceptual basis for understanding the nature of knowledge—in this case—knowledge about teaching. My choice was based on my concerns for a theory of knowledge that would encompass individual and personal, as well as collaborative and social constructions of knowledge; teachers seem to accrue skills and know-how not only as individuals in a classroom but also from collaborative activities with peers and more knowledgeable others. Schema theory has long been associated with teaching and learning in that it has evolved within and between disciplines that directly impinge upon education, such as cognitive psychology, learning theory, epistemology, information processing theory, and studies in the acquisition of reading skills—and, as such, provided a useful heuristic for this study. Seen from the viewpoint of schema theory, human knowledge is considered to consist of schemata, or cognitive structures, that form as a result of the way we interpret events in the environment (Rumelhart & Norman, 1980). A schema may also be thought of as a cognitive structure that represents a general concept and its framework of supporting, associated concepts, or as the way that humans organize information about concepts, knowledge domains, or events (Ellis & Hunt, 1993; Gagne, 1987). Bartlett (1932) and Piaget (1926a, 1926b) are credited with advancing ideas that

first contributed toward schema theory, namely, that new information and new experiences are either assimilated into existing cognitive structures (schemata), or the structures accommodate the new information by becoming modified. Schemata have also been seen to develop through experiences with solving problems and are used to interpret the problem in the context of relevant prior knowledge and experience (Marshall, 1995). It appears that schemata may have a dynamic, ever changing nature evident through three main processes: a) accretion—acquisition of new information that fits in with a current schema, b) tuning—minor modification of a current, incomplete schema in order to match increased experience and new information, and c) restructuring—the creation of a new schema in response to information or experience that does not fit into a current schema and is too unwieldy to be assimilated in the tuning process (Gagne, 1987; Rumelhart & Norman, 1976, 1980). Schema theorists would argue that as we are confronted with new experiences and new information, we try to construct meaning by making connections to mental structures already present. This is not, however, a foolproof process; it may be possible for new information to be "misfit" into poorly structured, partially completed, or misconstrued schemata resulting in misperception or confusion (Fenstermacher & Soltis, 2004).

Schema theory also reflects socio-cultural influences on knowledge development. Price and Driscoll (1997) have argued that schemata are strongly situated in time, place, and context. Therefore, schemata may be seen not only as individual mental constructs, but also as important components in socio-cultural differences (Quinn & Holland, 1987). If schemata are seen to develop from accumulating experiences and information, then socio-cultural influences should play a major role in how schemata are constructed and

modified: in short, schemata may be seen as culture-specific. For example, what constitutes one's schema for gourmet dining, being a "good" wife, or political participation may vary according to race, ethnicity, gender, class, and geographical location (Ellis & Hunt, 1993). I chose to view knowledge through the lens of schema theory in both its cognitive and socio-cultural implications. I am not claiming, however, that schema theory is identical to ideas from cognitive or socio-cultural orientations, only that it may be seen as compatible with both orientations for the purpose of this study.

Therefore, in light of schema theory, knowledge about teaching may, for the purpose of this study, be considered as having to do with cognitive structures that organize one's general concepts about teaching and integrate associated concepts into a framework for understanding how students learn and how instruction should unfold. Knowledge about teaching, as schemata, may be understood to develop not only from information and knowledge about teaching received from others in a social context but also from teachers' individual classroom experiences.

Teacher Knowledge

Having chosen a theoretical stance for approaching an understanding of the nature of knowledge in general, I then looked more closely at the definitions for and connotations associated with the term *teacher knowledge.* Part of my argument for simpler, clearer, terminology for research on what teachers need to know and how it develops is that the term, *teacher knowledge*, has recently taken on considerable ambiguity. Does it refer to the body of knowledge about teaching that has been codified and is available publicly, or does it refer to the tacit, unexpressed know-how of individual teachers? Could it be a blend of the two? Other terms range from the seemingly

synonymous, “knowledge base for teaching,” and “professional knowledge for teachers,” to generalized mental activities of teachers such as, “teacher thinking,” “teacher cognition,” “teacher learning,” and “teacher decision-making.” For the purposes of the study, these terms for generalized mental activities may be overly inclusive. For example, “teacher cognition” seems too broad: there may be a significant amount of teacher “cognition” that would not count as “knowledge” and therefore not be a part of a practitioner’s knowledge about teaching. For example, teachers may engage in the mental activity of making decisions in the context of compliance with district guidelines or administrator directives—not as a result of their knowledge about teaching and how to best organize instruction.

In addition to these concerns about ambiguity, I was also concerned that my concept of teacher knowledge needed to be one that would encompass both personal and social dimensions of knowledge production. That is, a term that would subsume not only the academic, codified, propositional knowledge about teaching found in educational literature and professed by theorists and researchers, but also the personal, practical, know-how of individual teachers developed on the front line of the classroom. At first, I used *personal knowledge about teaching* as this overarching concept, but eventually it took on a connotation that seemed to exclude the professional, academic dimension. I also considered Clandinin and Connelly’s (1995) metaphor, *professional knowledge landscape*, where teacher knowledge is seen to have “a sense of expansiveness and the possibility of being filled with diverse people, things, and events in different relationships” (pp. 4-5). I considered Clandinin and Connelly’s concept to be broad enough to include both experiential and academic knowledge and modified it to *teachers’*

professional knowledge as the term that I hoped would encompass both kinds of knowledge about teaching—personal and academic—but eventually, I dropped *professional* from the phrase. I did this because I began to see the term, *professional*, as de-emphasizing the personal, practical aspect of teacher knowledge. Returning to a simpler approach, I decided to use the term, *teacher knowledge*, along with an inclusive but specific definition. I adapted a definition used by Alexander, Schallert, and Hare (1991) from a review of how educational researchers talk about knowledge. Alexander et al. define teacher knowledge as "an individual's personal stock of information, skills, experiences, beliefs, and memories related to the practice and profession of teaching" (p. 317). I considered this definition to be useful because, like schema theory, it reflects not only the individual's role in knowledge construction but also allows for socio-cultural influences that may be embedded in individuals' interpretations of experience and information.

The concept of specific knowledge tailored to a profession and developed through the interaction of experience and received information is, of course, reflected in many professions. Practitioners in fields such as medicine, business, physics, and social work, for example, may be seen to develop their particular brand of knowledge as teachers do—through the integration of technical knowledge, intuition, and on-the-job experience. Schon (1987) commented on the nature of this process and the necessity for practitioners to go beyond the information given:

> A physician recognizes a constellation of symptoms that she cannot associate with a known disease. A mechanical engineer encounters a structure for which he cannot, with the tools at his disposal, make a determinate analysis. A teacher of arithmetic, listening to a child's questions, becomes aware of a kind of confusion and, at the same time, a kind of intuitive understanding, for which she has no readily available response. . . because the unique case falls outside the categories

> of existing theory and technique . . . she . . . [must] deal with it competently . . . by a kind of improvisation, inventing and testing in the situation strategies of her own devising. (Schon, 1987, p. 5)

And what about beliefs? Should beliefs about teaching be considered as teacher knowledge? Teacher beliefs[1] may be based on previous experience, received knowledge from authorities or colleagues, or just plain hunches. For example, teachers may *believe* that using fraction bar manipulatives is the best way to teach students about equivalent fractions because they have experienced success with that approach—or because a trusted colleague suggested it—or because a respected mentor demonstrated it—or because it seemed intuitively to "feel right." Some beliefs, especially those based on evidence of some sort, may prove to have a high level of truth-value, that is, they are significantly congruent with classroom reality. On the other hand, some beliefs about teaching may turn out to be incorrect or only partially correct. Teachers may continue to hold errant beliefs because the beliefs have worked in the past. For instance, teachers may continue to believe that using behavior charts and time-out sessions are the best ways to manage disruptive student behaviors because these interventions have worked with previous classes—in spite of the fact that these classroom management tactics may not be producing positive results for the current class. Likewise, beliefs about best practices may be influenced by mistaken notions about how children learn or by personal theories that do not match well with classroom reality. For example, teachers may continue to adhere to instructional approaches that attempt to facilitate learning in a sequential, cumulative, bottom-up fashion without realizing that many students learn best by whole-to-part, top-down teaching where students are first shown final products or given overviews to help

[1] An entire dissertation could easily be devoted to a study of teacher beliefs. This fairly brief discussion is offered only to support my decision to include teacher beliefs in my concept of teacher knowledge.

organize new information. Teachers may believe that students fail because they are lazy; others may believe that it's all the parents' fault.

Whether they prove to be successful or not, and regardless of their level of congruence with classroom reality, teacher beliefs have long been seen by researchers as important factors in teachers' knowledge development (Bandura, 1986; Kagan, 1992b; Pajares, 1992; Posner, Strike, Hewson, & Gertzog, 1982). In fact, Pajares has agued that "knowledge and beliefs are inextricably intertwined . . . The potent, affective, evaluative, and episodic nature of beliefs makes them a filter through which new phenomena are interpreted" (p. 19). Thus, I included teacher beliefs as an essential component in my concept of teacher knowledge. However, beliefs about teaching may emerge not only from classroom experience as a teacher or received knowledge, but may also precede and influence them. For instance, beliefs may be acquired from many years of experience in the classroom *as a student* (Lortie, 1975). Seen from the vantage point of a student, however, teaching may seem easier than it really is; students are not always privileged to observe the planning and preparation for lessons, nor are they always aware of all of the possible repercussions that teachers consider before making final decisions. For this reason, beliefs formed from experience as a student will not be considered as a part of teacher knowledge—only those beliefs stemming from experience *as a teacher* were considered in the study.

In light of the foregoing discussion, in this study, *teacher knowledge* will refer to *the totality of knowledge about teaching, both propositional and practical, decision-making criteria, beliefs about teaching, intuitive sets, and knowledge of instructional strategies that individual teachers may possess at any given moment in their professional*

lives. This definition refers directly to the knowledge of an *individual teacher* that may or may not include publicly codified, propositional knowledge about instruction—although publicly codified, propositional knowledge may certainly be a part of an individual teacher's knowledge. Simply put, I use the term, *teacher knowledge* as the actual knowledge about teaching possessed by an individual teacher and available for use at that moment in time. In short, the focus of the study is *not* a better understanding of an abstracted body of propositions about teaching, but a clearer perception of the processes by which individual teachers form their knowledge about teaching.

Received Knowledge

Received knowledge is another central concept around which the study is organized. I adapted it from Belenky, Clinchy, Goldberger, and Tarule's (1986) study of how intellectual development may differ for men and women. Belenky et al. suggested a five-stage model for women's ways of knowing involving silence, received knowledge, subjective knowledge, procedural knowledge, constructed knowledge. Although these stages have been interpreted as developmental, they are not necessarily linear, and are also referred to as epistemological dimensions or perspectives. The second dimension, "received knowledge" struck me as particularly relevant to the questions about how teacher knowledge may develop because teachers are frequently expected to heed the received knowledge from external authorities as they develop knowledge about teaching[2]. Belenky et al. further described received knowledge as a way of knowing characterized by "knowledge and authority . . . construed as outside the self and invested in powerful and knowing others from whom one is expected to learn" (Goldberger, 1996, p. 4). For

[2] For a comprehensive discussion of these five stages see Belenky, M., Clinchy, B., Goldberger, N., & Tarule, J. (1986) and Goldberger, Tarule, Clinchy, & Belenky (1996).

teachers, these "powerful and knowing others" may be administrators, professional development leaders, professors, or researchers. In my study, *received knowledge* refers to *any knowledge, suggestions, theory, or advice about teaching that comes from an external knowledge source, such as published research and theory, publishers' teacher manuals, district policy, administrators' guidelines, communications from colleagues, or influences from socio-cultural norms and folk psychology*.[3]

At first glance, using an important dimension from a model for women's intellectual development in a study involving women *and men* may seem inappropriate, but several feminist scholars, including the authors of *Women's Ways of Knowing*, have advanced arguments that the Belenky et al. (1986) model for epistemological dimensions may not only apply to women, but to men as well. For example, Goldberger (1996) argued that the "women-only studies were seen (by us and others) as correctives to psychology's historical neglect of women's experience" (p. 7). Maher and Tetreault (1996) reminded us that "once feminist thinkers began to think about "truths" for women and men . . . they began to see some of the limitations inherent in basing theoretical distinctions exclusively on gender" (p. 151). In fact, when criticized for excluding men from the research sample for her study, Belenky herself stated:

> In the book, we say that we felt that the male template was so powerfully etched on our minds that it seemed very important to stand back from it and to find, to hear, the woman's voice. This is very hard work, and we wanted to do whatever we could to make it more pure, to hear it. *Although we studied women and make these claims for women, we are not claiming that these might not also be men's ways of thinking. Actually, I think most of what we say in the book applies to human ways of knowing*. [italics added]. (Ashton-Jones & Thomas, 1990, ¶ 13)

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[3] "Folk psychology is the unsystematic but usually compelling and useful body of ideas about mental life that we use to get along in our daily lives" (Pashler, 1998, p.1)

With the foregoing in mind, I applied Belenky et al.'s (1986) concept of *received knowledge* to male teachers as well as female teachers, and used it in the development of a conceptual framework and data analysis.

Classroom Experience

In sharp contrast to *received knowledge*, I use the concept, *classroom experience*, to refer to teachers' direct participation in classroom events as an instructor and the knowledge about teaching that develops as a result. Here, "experience" not only connotes sensorial consciousness of events, but also implies what was learned from the experience, as in, "She was hired for the job because she had experience." In general terms, experiential learning may be seen to have two facets: explicit and implicit. Kolb, Rubin, and McInture's (1971) theory on experiential learning characterizes the explicit nature of experiential learning as a four step process consisting of a) concrete experience, b) observations and reflections, c) formation of concepts, and d) testing concepts in new situations. On the other hand, the implicit facet of experiential learning may be seen as latent, unconscious knowledge that cannot be articulated but can be demonstrated in appropriate and relevant situations (Dienes, Broadbent, & Berry, 1991; Reber, 1989; Schon, 1983, 1987). With these concepts in mind, *classroom experience* will refer to *the personal, practical know-how about teaching, at all levels of effectiveness, implicit and explicit, developed from first-hand experience in the classroom as a teacher*.

Having defined and clarified the central concepts of the study, in the next section I develop a conceptual framework in order to set the stage for examining the roles for and relationships between classroom experience and received knowledge .

Conceptual Framework

In this section, a conceptual framework is developed for the purpose of examining how teacher knowledge is formed from classroom experience and received knowledge. Possible roles for classroom experience and received knowledge are suggested, and each possibility is informed and supported by previous scholarship in order to couch the study in relevant literature. When the concepts of received knowledge and classroom experience are considered in light of previous thought in this area, at least four general possibilities arise. These possibilities are discussed in this section in the context of schema theory and presented as the principal components of the conceptual framework illustrated in *Figure 1*.

Received Knowledge as Unchanged

According to schema theory, when information or knowledge from external authorities is compatible with previously formed knowledge structures, or schemata, the incoming information may be subsumed or "assimilated" unchanged and unchallenged (Rumelhart & Norman 1976, 1980; Piaget, 1926a, 1926b). Received knowledge may remain abstract, propositional, informational, or memorized by rote. Here, knowledge is seen as academic rather than practical (Sternberg & Caruso, 1985). For example, a novice teacher may memorize the steps for teaching the long division algorithm after reading it in a publisher's teacher edition of a mathematics text, or a student teacher may memorize the actions of her cooperating teacher while observing her teach a reading lesson. Both are instances of unchanged, received knowledge from external knowledge authorities. In

this way, received knowledge in its original, unedited[4] form may become part of teacher knowledge.

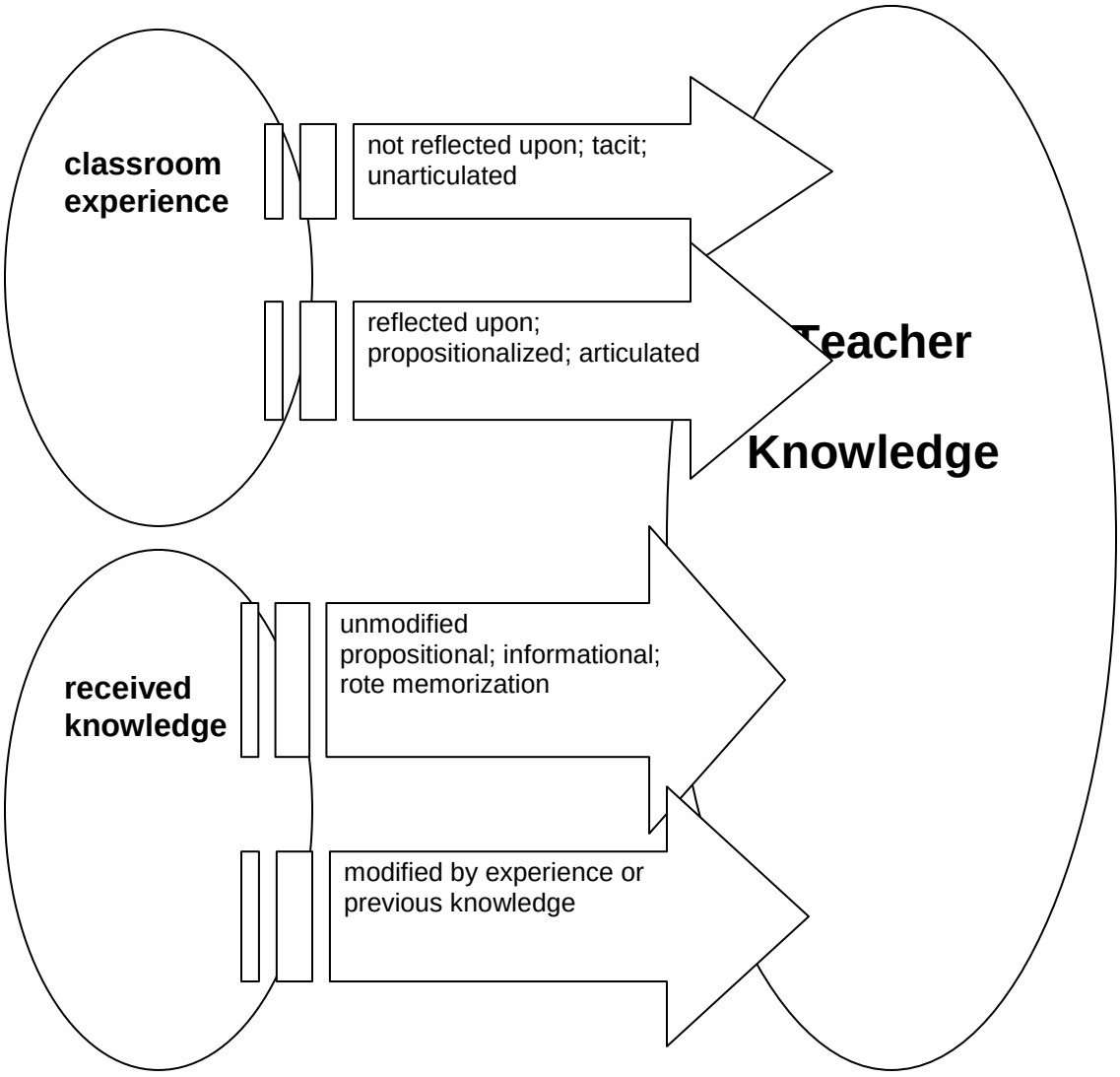

Figure 1. **Conceptual framework for examining teacher knowledge**. Classroom experience and received knowledge contribute to the formation of knowledge about teaching in four principal ways

[4] It may be rare but possible that received knowledge is assimilated unconsciously; because cognitive processing capacity may be seen as limited (Miller, 1956), teachers may be influenced by information received unconsciously while totally emerged in classroom tasks.

Received Knowledge as Modified

When received knowledge is not compatible with existing knowledge structures it may bring about a tension, or cognitive dissonance, and resulting modification of knowledge structures, or "tuning," may ensue; if the misalignment is severe, then a complete restructuring is possible and new schemata may arise (Anderson, 1977; Gagne, 1987; Rumelhart & Norman, 1976, 1980). In this case, received knowledge is interactive with both current schemata and ongoing experience as it acts upon and is acted upon by these previous knowledge structures and is tested and evaluated by current experience to bring about a modification in both. For example, after reading literature that encourages the use of constructivist approaches in mathematics instruction, a teacher may test some ideas in classroom context and find that although her previous mind-set about how much direct instruction is appropriate has changed, some constructivist ideas work well while others do not. In this way, received knowledge has interacted with previous knowledge structures and with current, ongoing classroom experience to bring about modifications in what is accepted by the teacher as "knowledge." These modifications are probably most likely to occur as a result of disconnect between current schemata, new information, and new experience.

Classroom Experience as Unarticulated

Classroom experience, both previous and ongoing, may be stored in memory but not reflected upon—learning (if any) is this case would be tacit, unarticulated, semi-conscious, image- and metaphor-driven (Eisner, 1985; Elbaz, 1983, 1991; Munby & Russell, 1989a). This kind of experience may contribute toward teacher knowledge but remains tacit, unreflected upon, and subconscious (Anderson, 1982, 1990). Much like a

dancer whose moves have become automatic after intense and lengthy rehearsal, or a chess player who quickly and instinctively makes an effective move after having seen that particular board configuration appear hundreds of times, teachers may spontaneously act or react upon current situational displays without going through a measured, linear, logical, reflective process because, like the dancer or the chess player, they have seen that problematic situation hundreds of times before and have "learned" what best to do.

Classroom Experience as Reflected Upon

In contrast, classroom experience may be intentionally reflected upon and compared to previously formulated notions about teaching or to previously assimilated received knowledge, both during and after instruction, thereby facilitating a conscious process of creating declarative, propositional knowledge about or personal theory on teaching (Schon, 1983, 1987, 1995). In this way, practitioners may create new knowledge structures about teaching or modify previously existing ones. For example, after completing the first few months in the classroom, and after reflecting upon several re-occurring problems and possible solutions, a middle-school science teacher may formulate more successful ways to organize lab sessions, present challenging information, and assess student learning. These ideas may then be tested, reflected upon during or after instruction, and modified further. There is, however, no guarantee that what is learned from experience will be the most successful instructional approach or the most appropriate way to problem-solve classroom conflict; teachers may learn to do whatever it takes to get by, merely postpone conflict, or simply commit errors in judgment about students' learning or their own efficacy as instructors (Feiman-Nemser & Buchman, 1985).

These four possibilities of interactive and non-interactive roles for received knowledge and classroom experience[5] are summarized in Table 1.

Table 1

Possible Roles for Received Knowledge and Classroom Experience in the Formation of Teacher Knowledge

Received Knowledge

-Received knowledge may remain abstract, propositional, informational, rote memorization, content knowledge, or

-Received knowledge may be tested and modified by classroom experience or by comparison to previously received knowledge

Classroom Experience

-Classroom experience may remain unarticulated, tacit, not reflected upon; does not interact consciously with received knowledge, or

-Classroom experience may be consciously reflected upon, compared to previously formulated personal theory or to previously assimilated, received knowledge.

It is important to note that the conceptual framework detailed in this section is a heuristic device used solely as a means for organizing data and answering my research questions, and, ultimately, capturing a glimpse of what may occur in teachers' lives as they learn their craft. Alternate views about the nature of knowledge and the roles that theory, research, and experience may play in learning to teach have, of course, been adopted. Other lenses through which teacher knowledge may be viewed may rest upon socio-cultural, behavioral, or critical theory and be supported by as many reasons as I

[5] Student feedback about teaching poses an interesting issue; when overtly specific it may be considered as received knowledge; when nonspecific and embedded in classroom life, it may be seen as classroom experience.

have given to explain why my conceptual framework works best for my research purposes and goals. I anticipate possible critiques from several various alternate viewpoints and offer my response in Chapter Five.

In sum, in order to better understand how teacher knowledge may develop, four possible roles involving received knowledge and classroom experience were used as an initial conceptual framework for examining teachers' ways of knowing. These roles were also used as a first and tentative coding scheme when questionnaire and interview data were examined. As data collection and analysis progressed, an ideal typology would eventually emerge from my interpretation of the data and subsume the initial conceptual framework described in this section. This process will be discussed in detail in Chapter Four.

Research Questions

Having clarified the central concepts of the study, and built a conceptual framework, I developed the following research questions as guidelines for inquiry. Initially, I was guided and limited by the central question, "How does teacher knowledge develop in relation to received knowledge and classroom experience?" Specific aspects of teacher knowledge development were examined using supporting questions that were generated after a close reading of relevant literature, conducting a pilot studies (Michaloski 2004a, 2004b), and reflecting on personal experience. In order to better understand what may considered as a hidden, psycho-social process such as teacher knowledge formation, participants' perceptions about the process of knowledge formation were given a high level of importance along with their reflections on classroom experience, and evaluations of professional development activities; that is, in order to

better understand a hidden, mental activity I needed to closely examine teachers' self-reports arising from their immediate conscious experiences. This assumption will be argued further in Chapter Three.

The following supporting questions were aimed at collecting qualitative data that supported inferences about the nature and development of teacher knowledge.

- What are the underlying contexts[6] that may influence teachers' experiences and thought processes when attempting to integrate received knowledge about teaching with knowledge gleaned from classroom experience?
- Under what conditions is using received, academic, research-based knowledge most successful?
- Under what conditions is learning from classroom experience most successful?
- How do classroom teachers resolve the tensions that may arise from the frequently reported disconnect between received knowledge from external authorities and practical knowledge from classroom experience?

Overview of Chapters Two through Five

In Chapter Two I examine research and theory on teacher knowledge and current thought in the areas of received knowledge and classroom experience. First, literature that characterizes teacher knowledge as a duality is examined and discussed. For example, I explore ideas about teacher knowledge as being formal vs. practical, declarative vs. procedural, and received vs. experiential. Next, various taxonomies of teacher knowledge

[6] I use the term context to mean the interrelated conditions in which something exists or occurs.

are reviewed and critiqued subsequent to a review of literature that reflects socio-cultural concerns involving teacher knowledge. The chapter concludes with a close look at research and theory that specifically addresses whether learning to teach grows out of classroom experience or comes from actually being taught about teaching.

In Chapter Three, I present a rationale for and description of qualitative, collective case study as an effective approach for collecting and analyzing data in order to answer my research questions. Participant sampling is discussed and participant demographics are displayed. I discuss how questionnaires, interviews, and lesson plans were used and how data were analyzed. Procedures for verification are reviewed along with ethical concerns that were addressed. I conclude the chapter by narrating my experiences related to teacher knowledge, my background as a researcher, and possible biases I may bring to the study.

In Chapter Four, I present and begin to analyze findings. First, participant statements are organized according to whether received knowledge or classroom experience seemed predominate in each participant's development as a teacher. Second, I explain how an ideal typology emerged as incoming data was played against the initial conceptual framework, resulting in four ideal types of teacher knowledge: Type I (personal-experiential), Type II (personal-received), Type III (collaborative-experiential), and Type IV (collaborative-received). Third, each ideal type is, in turn, illustrated and characterized by participant statements. Finally, I conclude the chapter by presenting findings that describe relationships between received knowledge and classroom experience and point to emergent themes of socio-cultural context and teacher compliance.

In Chapter Five, the four ideal types of teacher knowledge are first summarized and discussed in relation to recent theory and research on teacher knowledge. Next, the central research questions of the study are revisited and discussed in light of the data presented in Chapter Four and in the context of the four ideal types of teacher knowledge introduced in that chapter. After that, implications for practice and professional development are examined, anticipated critiques from alternative viewpoints are discussed, and limitations of the study are detailed. Finally, lingering questions and ideas for further research are presented.

Chapter Summary

Learning to teach has been characterized as complex and problematic, although it seems that received knowledge from external sources and first-hand experience as a classroom teacher may certainly be considered as major components in the development of teacher knowledge. With this in mind, a conceptual framework was developed involving possible roles for received knowledge and classroom experience. This initial conceptual framework was eventually transformed into a broader scheme when an ideal typology emerged from data analysis. This process will be described in Chapter Four. My hope is that deeper understanding of teacher knowledge and how it develops may contribute toward more effective planning of teacher education, professional development, and graduate level coursework. In the next chapter, relevant literature is reviewed in order to provide further background against which the nature and development of teacher knowledge may be viewed.

Chapter Two: Review of the Literature

Literature on the nature of teacher knowledge is organized in this chapter according to a) epistemological considerations about the dual nature of knowledge in general, b) recent conceptions about the nature of teacher knowledge, and c) theory and research on the possible dual nature of teacher knowledge.

Arguments for Knowledge Types

It was especially important to place this study in the context of relevant prior research for several reasons. First, it provided me with existing theory about teacher knowledge and its development—a place to begin—an entry point. Second, it was used as a justification for this study—to show how my particular examination of teacher knowledge may serve to offer possible suggestions regarding unanswered questions about the roles for received knowledge and classroom experience in the formation of teacher knowledge. Third, it gave me the opportunity to see if my conclusions were supported or challenged by previous studies. Finally, it helped me to generate a conceptual framework to guide the study. Literature addressing the duality of knowing, or the existence of discretely dual knowledge types, is presented in this opening section from disciplines as diverse as philosophical inquiry and brain research.

Epistemological Underpinning: A Duality of Knowing?

As epistemological inquiry, literature about knowledge construction has consistently demonstrated concern for the differences between knowing facts *about* something and knowing *how to do* something. This dichotomy may be traced back to the time of Aristotle where *episteme* referred to worldly knowledge held with a high level of confidence, and *techne* referred to the know-how involved in an art or craft (Brennan,

2002; Klein, 1998). More recently, functionalist philosopher Gilbert Ryle (1949) characterized the two knowledge types as "knowing that" and "knowing how." Ryle would probably have argued that although a novice teacher may "know that" a lesson needs to begin with an engaging motivation (received knowledge), she may not "know how" to go about it until she actually accumulates experience in doing just that (classroom experience). Likewise, even when it may not be possible for prospective teachers to have actual experience in the classroom, teacher knowledge may develop from "approximations of practice" (Grossman et al., 2005) where prospective teachers, before entering the classroom, have "opportunities to rehearse and develop discrete components of complex practice in settings of reduced complexity" (Grossman & McDonald, 2008, p. 190). Similarly, other scholars from various disciplines have noted the dual nature of knowledge characterized by that which may be received from external knowledge sources and that which may develop in a more personal, subjective, experiential fashion (Arnheim, 1980, 1985; Berscheid, 1999; Bruner, 1966, 1983, 1985; Colaizzi, 1978; Eisner, 1985; Fenstermacher, 1994; Polanyi, 1961; Schon, 1983, 1987, 1995; Schunk, 1991; Sternberg & Caruso, 1985; Sternberg, Ogagaki, & Jackson, 1990). These notions of knowledge duality with accompanying descriptive terms are summarized chronologically in Table 2.

Evidence from Brain Research

Research in neuropsychology also supports the notion of a discrete duality of knowledge. Recent studies involving patients with anterograde amnesia resulting from impairment of the brain's medial temporal lobe reveal that although patients have severe

difficulties with remembering fact-based, declarative, propositional knowledge, they remain adept at procedural skills such as automatically finding a light switch in a familiar room, driving, playing golf, or playing card games. Researchers in the field explain this differentiation in performance by arguing that procedural knowledge and declarative

Table 2

Duality of Knowing as Conceptualized by Various Researchers

Researcher	*Discipline*	*Duality*
Ryle (1949)	philosophy	knowing that/knowing how
Polanyi (1961)	Philosophy. Chemistry, economics	scientific/personal, tacit
Bruner (1966, 1983,1985)	Cognitive psychology, education	paradigmatic/narrative
Colaizzi (1978)	Existential psychology	informational/genuine
Arnheim (1980, 1985)	Art, aesthetica	intellectual/intuitive
Eisner (1985)	Aesthetics, art education	scientific/aesthetic
Sternberg & Caruso (1985) Sternberg et al. (1990)	Cognitive psychology	academic/practical
Schunk (1991)	Educational psychology	declarative, propositional/procedural
Fenstermacher (1994)	Educational philosophy	formal/practical
Schon (1995)	Organizational theory	technical rationality/knowing-in-action
Berscheid (1999)	Psychology	impersonal/interpersonal

knowledge are managed by two distinct areas of the brain and, while impairment of the medial temporal lobe may affect declarative, fact-based knowledge, it does not interfere

with procedural knowledge facilitated by the basal ganglia in the back of the brain (Kohn, 2005; Myers, McClinchey-Berroth, Warren, Monti, Brawn, & Gluck, 2000).

If, as it seems, there are two distinct areas of the brain that are each responsible for a certain type of knowledge, then it may be that there are intrinsic, functional and structural differences between declarative and procedural knowledge, and it may be helpful to think about the two knowledge types as discretely different—within certain limitations. For example, after damage to the medial temporal lobe and its ensuing disruption of declarative memory, other parts of the brain may at times assume the role that the medial temporal lobe played and patients regain certain portions of declarative memory; however, the two different types of memory (and we might therefore say different types of knowledge) continue to remain mutually exclusive as far as location, structure, and function (Kohn, 2005).

Overlap and Interaction among Knowledge Types

Although perceiving knowledge to be dichotomous and polar may be helpful in highlighting the differential attributes of extreme, "pure" cases, it seems more likely that there may be gradations, interpenetrations, and fuzzy boundaries. When considering the possible dual nature of knowledge, for example, it may be wise to allow for the possibility of varying degrees of overlap and interaction between procedural and declarative types and, for what is more specific to this study, between received knowledge and knowledge acquired through first-hand experience. Thus, rather than viewing knowledge in light of a strict, mutually exclusive dichotomy, I attempted to be vigilant about the possibility for overlap, interpenetration, and levels of integration or exclusivity between propositional knowledge about teaching *received* from external

authorities, and personal, practical know-how about instruction *developed* from first-hand experience. A simple, mutually exclusive relationship was not expected, and, more than likely, propositional knowledge from external authorities, once applied and tested in the classroom, may certainly be modified and integrated into personal knowledge about teaching; whereas after know-how is accumulated from classroom experience, it may be that it is translated into propositions, concepts, and personal, practical theory. Of course, there is always the possibility that little or no modification of either received knowledge or classroom experience will occur, and they may remain, in some cases, as polar extremes thereby maintaining a strict dichotomy. I allowed for all of these possibilities in the study. A caveat from Borko and Putnam (1996) seems appropriate:

> A potential danger inherent in any description of categories of knowledge is that people may come to see the categories as representing an actual storage system in the human mind rather than a heuristic device for helping us think about teacher knowledge. That is, we may find ourselves thinking that teachers' knowledge is organized into abstract, isolated, discrete categories whereas, in fact, what teachers know and believe is completely intertwined, both among domains and within actions and context. (p. 677)

With this caution in mind, the following review of literature first addresses recent thought about the nature of teacher knowledge subsequent to a closer look at teacher knowledge seen as various dualities.

Recent Conceptions about the Nature of Teacher Knowledge

The following review of literature on the nature of teacher knowledge is offered in order to couch the focus of the study, i.e., the possible roles for received knowledge and classroom experience, in the context of theory and research on how practitioners learn to teach.

Teacher Knowledge Seen as Stages and Levels

It may be prudent to keep in mind that frameworks for understanding the development of teacher knowledge tend to be ideal in that teachers do not necessarily move through stages in linear, well defined trajectories, nor do they structure their knowledge about teaching according to the neat, architectural framework featured in the multiple categories and compartments of various taxonomies for teacher knowledge. Stages and levels may overlap, be skipped, coincide, be reduced, or collapse and re-evolve. With this in mind, several of the most prominent and influential conceptions of teacher knowledge that are also especially relevant to the study are presented.

One of the first notable models for understanding teacher development within the last three decades was developed by Fuller (1969), who first suggested a three stage, then a four-stage (Fuller & Brown, 1975) theory of teacher growth. In the first stage, teacher candidates identify realistically with students but not with teachers. They seem, Fuller argued, to be only vaguely aware of what a teacher needs to be concerned with. In the second stage, teachers are concerned with survival in classroom contexts: controlling pupils, subject matter knowledge, and adequacy in filling the role of teacher. The third stage is characterized by teachers' self-evaluation of instructional performance, and the fourth stage by a concern for the academic, social, and emotional needs of their students. Although Fuller's model may fit the knowledge trajectories of many novice teachers, it does not address the possible roles for received knowledge and classroom experience.

Reflecting the duality of knowing in general, and harboring one of the least complex conceptions, Berliner (1986) argued that teachers must know subject matter as well as the organization and management of classrooms. He contended that it is the

integration of these two knowledge types that makes for a successful teacher. Later, Berliner (1994; 2004) adapted a five-stage theory from Dreyfus and Dreyfus (1986) to describe how student teachers might develop into experts. These five stages are: novice, advanced beginner, competent, proficient, and expert. This strictly linear development, however, may be confounded in cases where teachers enter the field with widely varying backgrounds and talents, or where teachers' knowledge levels may co-exist on more than one level; for example, one may be a competent teacher when demonstrating how to add fractions with unlike denominators but remain a novice at teaching geometry.

Kagan (1992a) integrated Fuller's and Berliner's models to construct a model of teacher development for pre-service and first year teaching that progresses through a) acquiring knowledge about students, b) reconstructing self-image as teacher based upon new knowledge of students, and c) developing routines and procedures that integrate classroom management with instruction. She further contended that pre-service teacher programs fail to address these three tasks with success. Kagan also presented features of a new model for teacher learning that stressed procedural knowledge over theory, hyperbolically musing that, "one might begin to question whether formal theory is relevant to teachers at any point in their professional development" (p. 163). Grossman (1992) countered that any stage theory that puts concerns for discipline before concerns for reflection will result in teachers' lack of theoretical perspective, and that one stage does not necessarily lead to another. In my study, the importance of formal theory to a practitioner's personal knowledge about teaching is a central focus.

A recent three-stage theory that may be applied to developing teacher expertise was advanced by Glaser (1996). The first stage is termed *externally supported* and

involves initial skill acquisition for the novice teacher through environmental structuring where the beginner is heavily influenced by the knowledge, advice, and support from other practitioners in the field. This stage correlates well with the concept of received knowledge as I am using it in this study. Glaser (1986) calls the second stage, *transitional*, where there is a decrease in support for the novice. The third stage is termed, *self-regulatory*. In this final stage, teachers begin to control their own learning environments and set their own parameters for practice. In this final stage, the emerging expert teacher chooses appropriate levels of challenge based on feedback from teaching experiences and controls his or her development—a view that emphasizes the importance of classroom experience and may imply that theory and research decline in importance.

Teacher knowledge has also been seen as occurring in "levels of reflectivity" (van Manen, 1977, p. 226.) Van Manen presented a three-level hierarchical model that allows prime consideration for how teachers' lived experiences are interpreted in a social context. For van Manen, the first level consists of teachers' quest for practical knowledge in the form of "the technical application of educational knowledge and of basic curriculum principles for the purpose of attaining a given end." (p. 226). At this first level, teachers must choose between an abundance of theories and approaches according to what they perceive is most effective for accomplishing educational goals. At the next, higher level, teachers become aware that "every educational choice is based on a value commitment to some interpretive framework by those involved in the curriculum process" (p. 226.). At this level, "practical" has to do with communication and common understanding. Finally, at van Manen's (1977) highest level of reflective, practical, knowledge, teacher development "assumes its classical, politico-ethical meaning or social

wisdom" (p. 227). Here, teachers are most concerned with social justice and adopt a stance of ongoing critique of social structures. My study, however, was focused more on the possible roles for received knowledge and classroom experience rather than the progression through stages of reflection. It may be, however, that a dialectic involving received knowledge and classroom experience occurs at each of van Manen's levels to varying degrees.

Teacher Knowledge Seen as Discrete Components

Several models and taxonomies for teacher knowledge have been proposed that reflect more of a concern for content than process. For example, a more complex and nuanced description has been advanced and refined by Shulman (1987a), who outlined categories of teacher knowledge that form the criteria for decision-making. The seven categories include:

1. Content knowledge - the accepted truths in a domain or discipline along with an understanding of why propositions are held to be warranted, why they are worth knowing, and how they relate to other propositions
2. General pedagogical knowledge – broad principles of classroom management that transcend subject matter
3. Curriculum knowledge - knowledge of the scope and sequence of topics within subjects and how they are related to other aspects of the curriculum
4. Pedagogical content knowledge – knowledge about the teachability of content and how to make it understandable to students: an amalgam of content and pedagogy
5. Knowledge of learners and their characteristics

6. Knowledge of educational contexts – small group, whole class, governance and finance of school districts, communities, and cultures
7. Knowledge of educational ends, purposes, and values, and their philosophical and historical grounds.

Although there is unquestionable merit in this comprehensive and analytical categorization of teacher knowledge, it does not address the received or experiential nature of the categories in the way that my study does. Shulman's (1987a) categories seem to consist of knowledge *content*, not *types*, and therefore may be received, experiential, or both. For example, while content knowledge may be predominately received, pedagogical content knowledge may draw upon both received content and classroom experience. In fact, Shulman later proposed a more comprehensive model that accounts for other facets of teacher learning that emerge when teachers' individual reflection is seen within the context of a professional community of learners (Shulman & Shulman, 2004). This subsequent conceptual scheme of the Shulmans' is discussed later in the section that addresses teacher knowledge seen as socially constructed.

A similar but more compact model of teacher knowledge was offered by Banks, Leach, and Moon (1999). The Banks et al. model consists of four components:

1. Subject knowledge – practically equivalent to Shulman's "content" knowledge
2. School Knowledge – historical, ideological, educational origins; similar to Shulman's knowledge of educational ends, etc.
3. Personal Construct – experience, culture, gender, ethnicity, views on learning
4. Pedagogic Knowledge – knowledge of learners, goals, instructional approaches

The Banks et al. treatment was used as the principal template for Leach's (2005) applied research project involving new models of teacher education using information and communication technologies in rural and research challenged environments, but can easily be considered as a compacted replication of Shulman's work.

Grossman (1995) has also conceptualized teacher knowledge into discrete categories, or "domains." Similar to Shulman's, her typology of teacher knowledge includes knowledge of a) content, b) learners and learning, c) general pedagogy, d) curriculum, e) context, and f) self. Grossman's inclusion of knowledge of self is a key difference between her typology and Shulman's; she argues that self-knowledge is a filter through which theory about teaching is processed before being integrated into personal knowledge about teaching. Grossman's "filter" of self-knowledge is reminiscent of schema theory in that they both feature a process in which incoming, received knowledge is assimilated or accommodated by existing schemata. It does not, however, detail other possible roles for received knowledge and classroom experience as I will do in Chapters Four and Five.

Yet another taxonomy of teacher knowledge was offered by Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, and Zeichner (2005). Labeled as a "framework for teacher learning," (p. 386), the Hammerness et al. (2005) model features four facets of teacher learning—understanding, practices, dispositions, and tools—in an interactive revolution around vision (images of the possible) and set in the larger context of a learning community. Although the Hammerness et al. framework encapsulates several important facets of learning to teach in an elegantly interactive structure, it does not highlight the differences and tensions

between classroom experience and received knowledge as will my data analysis and discussion in later chapters. Also, the Hammerness et al. model is similar to that of Shulman and Shulman (2004) discussed later in this chapter as far as couching individual attributes such as practice and understanding in the larger context of a community of learners, but Shulman and Shulman broaden the analysis and move past the learning community and into the realm of policy and capital.

Teacher Knowledge Seen as Forms

Shulman (1986) also proposed three *forms* of teacher knowledge—propositional, case, and strategic, where propositional knowledge encompasses principles, maxims, and norms; case knowledge is formed by prototypes, precedents, and parables; and strategic knowledge is the wisdom of how to use propositional or case knowledge and what to do when paradoxes arise. Shulman (1986) reminds us that in a field such as teaching, where there exists a high degree of unpredictability, and where many cases harbor an indeterminacy of fixed rules for teacher behavior, strategic knowledge is of utmost importance. There are significant similarities between Shulman's forms of teacher knowledge and the knowledge types presented in the initial conceptual framework of this study, but there are also important differences. For example, in Shulman's framework, propositional knowledge stands in contrast to case knowledge, but in my conceptual framework, propositional knowledge may be either received or emerge from cases of classroom experience; as an illustration, consider that teachers may read about principles of instruction or may have developed them after years of reflection on their teaching experience. Furthermore, knowledge that is received may frequently be propositional, but may also be procedural; for example—learning by imitating an expert teacher.

Likewise, case knowledge may be acquired from reading about case studies or having experienced them, and although knowledge acquired from classroom experience may frequently be of the nature of a "case," it may also be propositional; for example—a teacher may form personal, practical theories after accumulating classroom experiences. Shulman's "strategic" knowledge is similar to what I have detailed as possible roles for received knowledge and classroom experience in that propositional knowledge must be "tested" in the context of classroom experience, and case knowledge must be reflected upon to be used effectively. Most probably, strategic knowledge, or how to use propositional or case study knowledge, is predominately formed from teaching experience in general, although it may be supported by advice and suggestions from external knowledge sources.

In a review and analysis of literature on "expertise" in various professions, Kennedy (1987) concluded that expertise in teaching can be seen as a) technical skill where teachers accumulate a repertoire of effective strategies for achieving educational goals, b) application of theory, that is, the ability to appropriate and understand educational theory in a way that facilitates its implementation in real-world classroom situations, c) critical analysis in that expert teachers must critically evaluate themselves, their students, and the curriculum for effectiveness, and d) deliberate action—knowing what to do in a case by case, situated context. Kennedy's work was a thorough examination of theory and research through 1987 on teacher expertise but left unanswered questions about how expertise develops. It did however foreshadow future studies in that she recommended the need to "define the relationship between codified knowledge and experiences in the formation of expertise" (p. 50). That is exactly what

my study offers to do; Kennedy's call to detail the relationship between "codified knowledge and experiences" is what I have addressed in elaborating the possible roles of received knowledge and classroom experience.

Teacher Knowledge Seen through Conceptual Orientations

Feiman-Nemser (1990) viewed teacher knowledge through a "cluster of ideas about the goals of teacher preparation and the means for achieving them" (p. 1). Four conceptual orientations were proposed: academic, personal, critical, and technological. Seen from the academic orientation, teacher knowledge is viewed primarily as subject matter knowledge, whereas from a personal orientation teacher knowledge is seen to be "a process of learning to understand, develop, and use oneself effectively" (p. 4). Feiman-Nemser describes the critical orientation as a context in which teachers are seen not only as educators but also as political activists who "combine a progressive social vision with a radical critique of schooling" (p. 6). Finally, the technological orientation emphasizes teacher knowledge as being derived from the scientific study of teaching and is evaluated by student performance. The academic and technological orientations may be considered as complementary to the notion of received knowledge as I am using it, in the sense that standardized subject matter knowledge and teaching practices supported by process-product research are both easily propositionalized, codified, and expressed as principles and best practices. In contrast, Feiman-Nemser's (1990) personal orientation reflects my notion of classroom experience as the process of individually developing teacher know-how and learning to teach as a direct result from the act of teaching itself. According to the authors, within the critical orientation the notions of classroom experience and received knowledge both play important roles; teachers are invited to be acutely aware of

political and economic surroundings of educational sites as well as theory and research centered on critical pedagogy, emancipatory teaching, and student empowerment. In Chapters Four and Five I will go one step further in my data analysis and develop an ideal typology for teacher knowledge that not only details various roles for received knowledge and classroom experience but will address how personal and collaborative processes may affect knowledge development.

Teacher Knowledge Seen as Socially Constructed

In recent decades, scholars have argued that the primary influence on learning to teach is neither received knowledge from external authorities, nor implicit, personal theories developed from experience, but instead emerges from the interaction among practitioners in the context of community (Cochran-Smith and Lytle, 1999; Lave & Wenger, 1991). Described as "communities of learners" or "communities of practice," teachers are seen to be members of a "group who share an overall view of the domain in which they practice and have a sense of belonging and mutual commitment" (Wenger, McDermott, & Snyder, 2002). Craig (2004) introduced the concept of "knowledge communities" where "teachers negotiate meaning for their stories of experience" and "take different stories and different versions of their stories to different people in different knowledge communities for interpretation" (p. 2). Seen from this orientation teacher knowledge is viewed as being situated in contexts, and cognition is understood to be socially situated and distributed (Putnam & Borko, 2000); its nature is considered to be event-structured and episodic (Carter & Doyle, 1989). In a similar fashion, Brown, Collins, and Duguid (1989) called attention to the situated nature of learning to teach, suggested an epistemology of situated cognition, and argued that teacher learning is

actually enculturation supported by social interaction and formed by the circulation of narratives among groups of practitioners. Others have emphasized the socially and culturally embedded archetypes of "what teachers should be like" formed from long years in the classroom as students themselves (Lortie, 1975; Stigler & Hiebert, 1999), as well as the context of power and authority in which teachers operate (Apple, 1982, 1986). From this vantage point, teacher knowledge is seen to be firmly situated in human relationships and cultural patterns.

In an effort to explore how different settings can result in different learning experiences, Grossman, Smagorinsky, and Valencia (1999) used activity theory[7] to explain why there is a frequently reported "disjuncture between the values and practices in the different settings that comprise teacher education. These settings include university courses and experiences in schools, including sites for field observations, student teaching, and initial job placement" (p. 3). Activity theory points toward the value systems and social practices inherent in the settings where teachers learn their craft as the chief contributors to the type of teacher knowledge that develops. Grossman et al. suggest that teachers ultimately identify with the attitudes and values of their field experiences or the schools where they eventually teach rather than the values expressed in their teacher education experiences because, "the ultimate goal of the enterprise of teacher education involves identification with the role of teacher, not with the role of university student" (p. 25). The insights offered by Grossman et al. are especially revealing about the tensions and differences between values and practices in various educational settings. However, they seem to favor a focus on teacher behaviors and attitudes more so than teacher knowledge.

[7] For a detailed description of activity theory see Cole (1996), Leont'ev (1981) and Wertsch (1998).

Proponents of social learning theory would also argue that teachers best learn how to teach when interacting with and observing other teachers (Bandura, 1977, 1986; Schunk, 1991; Vygotsky, 1978, 1987). Bandura (1986) has delineated the forces at work in these social situations in the following manner: learning may occur either enactively, that is, by doing; or learning may occur vicariously, that is, by observing and listening to others who serve as models. Bandura also contended that one's belief in one's own capacity to achieve desired outcomes (self-efficacy) along with one's belief about the relationship between actions and outcomes (outcome expectations) mediate the social learning experience. Seen from the vantage point of social learning theory, teachers learn best when working with or observing colleagues. Ironically, this type of social learning is not fostered by relying on received knowledge or by expecting teachers to operate as autonomous, reflective individuals in the classroom—although teachers are decidedly in a "social" context in a classroom, the basic tenets of social learning theory are not being met because for the considerable majority of their time, teachers are usually not interacting with other teachers but working in isolation (Lortie, 1975; Mawhinney, 2008; Schlichte, Yssel, & Merbler, 2005; Waller, 1961).

In a more recent attempt to integrate social influences into models of teacher knowledge, Shulman and Shulman (2004) presented a conceptual scheme in which teacher knowledge is seen to develop through individual reflection nested in the contexts of community and policy. According to the Shulman's model, knowledge formation occurs simultaneously and interactively among individual, community, and policy levels. Seen from this viewpoint, teachers individually construct knowledge according to their vision, motivation, practice, and understanding, while under the influence of a communal

knowledge base, a shared vision or ideology, and the support, incentives, and shared commitment of colleagues. Ultimately, this entire process is seen to be nested in the overarching context of policy, where moral, venture, curricular, and technical capital determine the allocation of resources. In Chapter Five, I will compare and contrast the Shulman's model to the ideal typology that will emerge in Chapter Four.

Because of the socio-cultural context in which teacher knowledge may be understood to develop, scholars have recently pressed for forms of "culturally relevant pedagogy" (Anyon, 1995; Delpit, 1995; Ginsburg & Newman, 1985; Ladson-Billings, 1994, 1999; LeCourt, 2004) or "culturally responsive teaching" (Villegas & Lucas, 2002). Gay (2000) argues that culturally relevant pedagogy makes use of the experience, cultural knowledge, vantage points, and behavior styles of diverse students to make learning more successful and more relevant to students' lives and contends that "it teaches *to and through* strengths of these students. It is culturally *validating and affirming*" (p. 20). A central tenet of culturally relevant teaching is the rejection of the deficit-based model for thinking about culturally diverse students in an attempt to a) acknowledge that traditional approaches within education are infused with deficit-based thinking about diverse students, b) use students' cultural capital[8] as an asset not a detriment, and c) incorporate a broader spectrum of dynamic and fluid instructional approaches (Howard, 2001). Some scholars such as Murrell (2001) and Anyon (1995) have suggested that culturally relevant pedagogy may develop through direct experiences with culturally diverse learners as teachers not only interact with students in the

[8] Cultural capital is defined by Pierre Bordieu (in Borocz & Southworth, 1986) as " 'the disposal of taste' or consumption of specific cultural forms that mark people as members of specific classes" (p. 799), and as "an instrument for the appropriation of socially determined symbolic wealth" (Dimaggio, 1982)

classroom but also as teachers spend time in culturally diverse communities. Ladson-Billings (1996, 1999), however, cautioned that teachers may actually reinforce biases and preconceptions about culturally diverse students from unsuccessful or unpleasant teaching experiences in diverse communities thereby underscoring the importance of theory in raising consciousness and developing appropriate forms of pedagogy.

Another example of teacher knowledge seen as socially constructed may be found within collaborative group study where practitioners are "responsible for sharing and thinking together; not an occasion to come and hear a presentation" (Birchak, Connor, & Crawford, 1998, p. 6). In these groups, teachers have the opportunity to identify their own problems, elaborate their various ways of knowing, and improve themselves as educators in order to bring about positive changes in their schools (Fullan & Stiegelbauer, 1991; Lieberman & Miller, 1991). Some collaborative group study may be centered on received knowledge in the form of a book, article, teacher guide, or other curricular materials whereas other groups may rely solely on members' experiences in the classroom. Shared study groups that rely on received knowledge are generally known as "study groups" and are appealing for many reasons: they can be integrated with teachers' daily work, they are inexpensive, and they provide teachers with opportunities to assume leadership roles (Keller, 2008). The study group approach has also taken on a more structured implementation known as "lesson study" (Lewis, 2002; Stigler & Hiebart, 1999). In this approach, teachers first plan a lesson together and then take turns either teaching it or observing colleagues teaching it. After each lesson, participants discuss and critique the lesson in order to improve it and collaboratively develop their pedagogical content knowledge. Although it may seem that study groups and lesson study are

creatively collaborative, what begins as teacher-centered may quickly devolve into sessions driven by administrators or their designees (Lewis, 2002; Puchner, & Taylor, 2006) These collaborative aspects of teacher knowledge development will be examined more closely during data analysis in Chapter Four and discussion in Chapter Five.

Teacher Knowledge Seen as Received Knowledge

Traditionally, received knowledge has been the mainstay of forming personal knowledge about teaching. Simply put, learning to teach has long been considered as vocational education where teacher candidates are expected to ingest information presented by college professors of education and copy the actions of master teachers demonstrated in apprenticeship without much attention or value attributed to student teachers' own reflections and emerging, implicit knowledge based on classroom experience (Britzman, 1986; Zeichner, 1993). In fact, even when reflective practice is a goal, "certain levels [of knowledge] might be prerequisite to others (e.g., a basic grasp of technical knowledge and skill is needed for deliberative reflection)" (Valli, 1992, p. 223). Seen from a behavioral approach, and most prevalent from the 1950's to 1970's, teaching was thought of as acquiring knowledge about "human engineering" where successful teachers possess the knowledge of how to maintain classroom conditions and control reinforcement of desired student behaviors (von Hilsheimer, 1971). Skinner (1961) argued that teachers should know how to reinforce students for every correct response with immediate feedback in order to "shape" desired student behavior and maintain its strength. More recently, researchers working from a behavioral/technical knowledge orientation have identified specific instructional approaches, such as summarizing, reinforcement and recognition of desired student behavior, questioning strategies,

advance organizers, and nonlinguistic representation, that have resulted in medium to high effect sizes in experimental studies (Marzano, Pickering, & Pollock, 2001). Teachers are expected to adopt these "best practice" strategies and develop knowledge about them while supervised at times by external authorities and at times by themselves (Valli, 1992). Utilizing a meta-analytical approach, Marzano et al. identified no less than 17 instructional strategies for before, during, and after a lesson about which, he argued, teachers would benefit from knowing.

Professional development for teachers has also been traditionally organized along the lines of expectations for adopting received knowledge about academic subject matter and observable, specific teaching skills (Sparks & Hirsh, 1997; Zeichner, 1993). Until recently, professional development has been predominately initiated and controlled by principals or district administrators in an effort to present received knowledge about teaching and model what has been deemed "effective practices" in an effort to facilitate the replication of modeled teacher behaviors into classrooms (Lambert, 1989; Smylie & Conyers, 2000). Pre-service teacher education has also been characterized by received knowledge and may unknowingly be supported by pre-service teachers' search for comfort levels in the face of the complexity and uncertainty of the classroom, and their search for suggestions, advice, and quick fixes (Heron, 1992; Hogan & Clandinin, 1993; Kagan, 1992a; Sumison, 1994).

In some instances, reliance on received knowledge about teaching may support Apple's (1982) concept of deskilling to explain how complex activities that require considerable decision-making and know-how, such as teaching, can be reduced into simpler sub-tasks that less skilled and less costly personnel can perform when trained to

do so thereby controlling the work pace and enhancing the outcome in an assembly line fashion. Other scholars have further delineated how this deskilling process can lead to a "vicious circle of harm," whereby a) the scientific management and prescription of instructional methods leads to a loss of teacher autonomy and supports the perception that teachers are incapable of self-direction and inept, b) increasing forms of supervisory and administrative controls arise, c) there is a further loss of autonomy, d) there is further deskilling, and e) more intense applications of scientific management and prescription of instructional methods develop (Kincheloe, Slattery, & Steinberg, 2000).

Teacher Knowledge Seen as Classroom Experience

In contrast to being "received," teacher knowledge has also been seen as "nonpropositional" (Munby, Russell & Martin, 2000), "event-structured" (Carter & Doyle, 1987), "knowing-in-action" (Schon, 1983, 1987), "personal, practical knowledge" (Ojanen, 1996), and "classroom knowledge" (Doyle, 1990). In one of the earliest studies of teachers' practical, experiential knowledge, Elbaz (1983) concluded that teachers may develop practical knowledge from classroom experience in the form of "rules of practice," (p. 132), practical principles, and images, or "metaphoric statement[s]" about self-perception, teaching, and subject matter that may help to "organize knowledge in relevant areas" (p. 137). Leinhardt (1990) characterized "craft knowledge" as "the wealth of teaching information that very skilled practitioners have about their own practice. It includes deep, sensitive, location-specific knowledge of teaching; unfortunately, it also includes fragmentary, superstitious, and often inaccurate opinions" (p. 18). Scholars have long called for a closer examination of craft knowledge to answer questions about its essential nature and its relationship to theory on teaching (Munby, Russell, & Martin,

2001; Tom & Valli, 1990). The validity of craft knowledge is also supported by the basic tenets of incidental learning theory where "incidental learning is a by-product of some other activity such as task engagement and accomplishment or interpersonal interaction" (Smylie, 1995, p. 100). Marsick and Watkins (1990) argued that teachers, as learners, effectively develop their instructional skills when they are ready to confront problematic situations, critically reflect on their underlying assumptions, and think creatively about new courses of action. Aryris and Schon (1974) suggested that conditions for this type of critical reflection are optimum when characterized by distributed authority and power, freedom of communication, and collaborative working arrangements.

Berliner (2004) compared experience in teaching to experience in radiology, chess, and golf in an effort to support propositions about how experience in general may be transformed into expertise. He identified several processes arising from accumulating classroom experience as being central to teachers' knowledge development:

> Expert teachers often develop automaticity and routinization for the repetitive operations that are needed to accomplish their goals. . . are more opportunistic and flexible in their teaching than are novices . . . have fast and accurate pattern-recognition capabilities . . . perceive meaningful patterns in the domain in which they are experienced . . .and bring richer and more personal sources of information to bear on the problem that they are trying to solve . . . [Expertise] is developed over hundreds and thousands of hours. (p. 200-201)

Of particular interest to my research is Schon's (1983, 1987) model of professional knowledge development. Schon included both practical and propositional knowledge in his model, but argued that although propositional knowledge has "technical rigor . . . [and] solid professional competence . . . [it is] a narrowly technical practice" (p.43). In contrast, he emphasized the importance of knowledge gained from classroom experience. Although Schon describes narrative, practical knowledge about teaching

derived from first-hand experience as "the swampy lowlands," he commends its focus on "experience, trial and error, intuition, and muddling through" (p. 43). Schon's (1987) concept of an epistemology of professional practice is not only grounded in practice but inseparable from it. Personal, practical knowledge, he argued, is constructed by reflecting *in* practice and reflecting *on* practice. He also introduced the concept of frame awareness—a consciousness of the frames or organizational patterns we apply to experience—and suggested that in order to grow and mature in knowledge we must be able to reframe experience when we receive unexpected or discordant "backtalk." Schon's concept of reframing seems very similar to the concept of restructuring in schema theory, but schema theory delineates other processes—for example, accretion and tuning—in which knowledge and experience may interact. Using a similar notion of "reconstruction," and drawing on Dewey's (1938) conception of education as a "reconstruction of experience," Clandinin and Connelly (1990) have described learning to teach as the interpretation and reconstruction of classroom experiences that can lead to "retellings and rewritings of teachers' and students' stories [that can] lead to awakenings and to transformations, to changes in our practices as teachers" (p. 158).

Although Schon's (1983, 1987) perspective may be seen as an entry point to understanding how teachers resolve tensions arising from the discord between knowledge from external authorities and reflective experience, there has been widespread criticism of his views. For example, Harris (1989) argued that Schon puts too much emphasis on reflection and does not acknowledge that written, codified knowledge can be useful. Grimmett (1989) agrees with Harris, in that he criticizes Schon's reliance on a rigorous dichotomy between technical rationality and reflection, and adds that Schon is guilty of

that for which he criticizes technical rationality: he generalizes from one particular aesthetic setting (e.g., architecture) to less aesthetic ones (e.g., education). Laboskey (1989) argued that there might be such a thing as "bad reflection," criticized Schon for not advancing a specific criterion for effective reflection, and asserted that reflection may serve to maintain existing beliefs instead of challenging assumptions. In fact, it seems that the very nature and definition of "reflection" has significantly varied over the years. Seen through the lenses of Foucault's (1972, 1973) genealogy and sociology of scientific knowledge, Fendler (2003) argued that reflection has been variously viewed as a) Cartesian self-awareness that brings about knowledge, b) that which replaced irrational thinking with scientifically based criteria for choices (see e.g., Dewey, 1933), c) Schon's idea of a practice-based cognitive process in counter-distinction to science-based technical rationality, or d) one's own "center of knowing" untouched by the socialization processes of "masculinist technical rationality" (Fendler, 2003, p. 19). As a major component of the ideal typology that I will detail in Chapter Four, classroom experience will be seen not only as a personal enterprise but also in light of personal versus collaborative processes.

Theory and Research on Teacher Knowledge as a Duality

In light of the preceding review of literature, it would seem very appropriate, then, to entertain the notion of teacher knowledge as a duality involving received knowledge and classroom experience. In fact, theory and research on teacher knowledge have previously focused on dualities such as formal vs. practical (Fenstermacher, 1994), propositional vs. practical (Russell, 1989), propositional vs. experiential (Munby & Russell, 1994), and theoretical vs. practical (Dewey, 1904; Hargreaves, 1984, Shulman,

1998). As discussed in Chapter One, although these dualities have been presented as useful ways to approach the nature of teacher knowledge, there is considerable overlap and interpenetration. Terminology can also be confounding. What one scholar identifies as "propositional," another may call "theoretical." "Procedural" may, and frequently does overlap, with "practical" but is not always the same. Furthermore, the frequent discord between practical ways of developing teacher knowledge and academic approaches has been a concern. Understanding the relationship between knowledge types (i.e., declarative/procedural, theoretical/practical, or, most importantly for my study, received vs. experienced) is crucial not only for planning instruction at the graduate level but also for honoring and utilizing craft knowledge to its fullest potential at all educational levels. My research addressed this problem by closely examining the possible roles for academic knowledge received from external authorities and for the know-how that is developed from classroom experience.

Formal vs. Practical

Fenstermacher (1994) has directly addressed the notion that there may be distinct types of teacher knowledge and carefully articulated a position that recognizes two: teacher knowledge as formal (TK/F), and teacher knowledge as practical (TK/P). He argued that formal and practical knowledge about teaching are "discrete epistemological categories . . . [and] are instances of *types* of knowledge" (p. 7). For Fenstermacher, TK/F comprises statements about teaching generated by certain methods of inquiry that demand acceptable standards of generalizability and validity, and is connected to what is usually designated as scientific research. TK/P, on the other hand, is a "claim to know something about an action, event or situation in this particular instance," (p. 28) and, as

such, is contextual and limited by time and place. While TK/F maps well onto what may be referred to as propositional knowledge about teaching, or a "knowledge base for teaching," Fenstermacher's TK/P is more than just performance knowledge; it also includes what has been called the "wisdom of practice"[9] and "strategic knowledge" (Shulman, 1986, 1987b), but is not subjected to the rigorous scrutiny of validation as is TK/F.

Fenstermacher's conception of TK/P is very close to what I have designated as classroom experience. However, where Fenstermacher sees formal teacher knowledge as "scientific research," my concept of received knowledge expands upon his and includes that which may be considered as somewhat less than scientific—teacher manuals, district guidelines, administrator's expectations, and tips from colleagues. Although these sources of received knowledge may not survive rigorous scrutiny, they are, nonetheless, important and ubiquitous aspects of teachers' lives and may frequently play important roles in teacher knowledge development.

Declarative/Propositional vs. Procedural

My central focus on received knowledge and classroom experience has been alluded to but not directly addressed by researchers investigating declarative vs. procedural knowledge about teaching. Russell (1989), for example, highlights the importance of investigating the relationship between knowledge types:

> If we accept the distinction between research knowledge (or more broadly, propositional knowledge) about teaching and practical knowledge of teaching (knowing-in-action), and if both are seen as significant elements of teacher knowledge, then it is essential to ask how the two interact with each other. (p. 12)

[9] Although Shulman's phrase, "wisdom of practice," has been widely used, Munby and Russell (1989b) argue that this phrase does not capture the complexity of teachers' practical knowledge

Carter (1990) emphasized the importance of the relationship between propositional and procedural knowledge about teaching by arguing that learning to teach is not so much an effort to create meaning from classroom experiences, but the ability to translate knowledge from one form to another—from propositional to procedural knowledge in a practical context. Echoing Carter's premise, Leinhardt, Young, and Merriman (1995) claimed that integrating declarative knowledge from the academy with procedural knowledge from practice

> involves examination of the knowledge associated with one location while using the way of thinking associated with the other location by asking learners to particularize abstract theories and to abstract principles from particulars. The task before us then, is to enable learners to make universal, formal, and explicit knowledge that often remains situational, intuitive, and tacit; and to transform universal, formal, explicit knowledge for use it situ. (Leinhardt, Young, & Merriman, 1995, p. 403)

Although the studies mentioned above have been an entry point for investigating the relationship between declarative and procedural types of knowing, they have not viewed the interaction of knowledge types as received knowledge vs. experience, and have not presented a detailed picture of their possible roles. Russell (1989), for example, describes the interaction of learning from experience with learning from research as a "reframing of the dilemmas of experience" (p. 11), but does not attempt to delineate the possible components of the reframing process. Similarly, although the studies by Carter (1990) and Leinhardt et al. (1995) emphasize the importance of being able to translate from one knowledge type to the other, there is no picture presented illustrating how this may occur.

Theory/Research vs. Practice

Teacher knowledge has also been seen to consist of the multi-dimensional relationship between theory and research about teaching and the practice thereof. For example, seen from a positivist orientation, where the correlation between teacher behaviors and student achievement is considered to be highly positive and frequently causal, theory and research should guide and inform practice in a one-way flow of knowledge from theory to practice (Gagne, 1983, 1985; Popkewitz, 1980). Educational positivists have characterized the theory-practice relationship as one where generalizations developed from rigorous empirical studies can be systematically applied to classrooms in a context-free fashion in order to improve student performance. Some may go as far as to consider these generalizations as rules for practice in the hopes of reforming it along scientifically based prescriptions. In contrast, seen from a phenomenological, interpretivist viewpoint, the theory-practice relationship has been described as one in which practice is enlightened, not informed by theory; teacher knowledge is considered to be generated on a case-by-case basis where context is eminently significant, and teachers develop personal, practical theories about teaching and learning (McCutcheon, 1990; Ojanen, 1995, 1996; Tom & Valli, 1990; van Manen, 1977, 1990). A third view of the theory-practice relationship is offered by scholars who view educational phenomena through the lens of critical theory. Critical theorists in education argue that because educational practices are often infused with racist, sexist, and class biases, theory must be used to change, modify, and restructure educational practices so that they become more just for all stakeholders involved (Anyon, 1995, 1997; Apple, 1982, 1986; Giroux & McClaren, 1986; Ladson-Billings, 1996, 1999). Seen

from this vantage point, theory and practice should be elements of a dialectical relationship where interactions are reciprocal and teachers not only apply theory but also generate it in personal, practical ways in order to change current practices and institutional structures (Dewey 1904; Wuestman, 1997).

In contrast, theory and research have been widely considered by teachers as too abstract, too general, and too disconnected from classroom life to be useful (Hiebart, Gallimore, & Stigler, 2002; Morine-Dershimer, 1987; Tom, 1999). In fact, classroom experience has long been considered by teachers to be superior to theory. For example, after listening in on staff discussions at a middle school, Hargreaves (1984) found that when teachers were justifying, supporting, or explaining their educational decisions, they "drew overwhelmingly not on the logic and principles of formal educational theory but on their own experience" (p. 246). Hargreaves offers the explanation that teachers de-emphasize or ignore educational research and theory as a cultural strategy for defending against impositions and criticism on teachers' existing instructional behaviors. At best, teachers might consider whether selected bits of research or theory might be adapted to their own classrooms (Kennedy, 1999; Nuthall, 2004).

At other times, the domains of theory/research and practical experience have been considered as interdependent and co-creative in teacher knowledge development. In a qualitative study of reflective teaching involving three expert teachers, Kelsay (1989) found that participants built theories both inductively from experience, where observed data were organized into a cognitive structure, and deductively, where existing theories are tested, modified, and reformulated. Likewise, in a 5-year study involving 15 teachers that was based on Schon's (1983, 1985) notion of reflection-in-action, Munby and

Russell (1991) concluded that Schon's concept of reframing could be explained as the "resolution of puzzles about how theory can be played out in practice, as actions generate new meanings for theory. New actions and new frames go hand in hand" (p. 185). In my research, the notion of "reframing" will itself be "reframed" and seen as a sub-process in an ideal typology formed by mapping a locus of source (received versus experienced) onto a locus of process (personal versus collaborative).

Received vs. Experienced

An examination of literature has shown that descriptions of the roles for received knowledge and classroom experience have varied widely according to the idiosyncratic nature of the cases studied. At times, the relationship has been understood to be dialectically constructive, where tensions within the relationship between knowledge types eventually lead to new personal theories. For example, Veal, Tippins, and Bell (1999) followed two prospective physics teachers through their science curriculum class (received knowledge) and teacher education experience (classroom knowledge) in order to examine how pedagogical content knowledge was constructed. They detected a process whereby received knowledge was integrated, differentiated, reflected upon, tested, and stimulated new thinking according to the following six phases:

1. integration of curricula, resources into coherent lesson plans
2. increased differentiation in how they viewed the teaching of physics
3. dissonance from initial experiences; beliefs challenged
4. reflection
5. testing out of new ideas outside of cooperating teacher's paradigms
6. development of new personal theories.

The dialectically constructive view is also supported by Schein's (1988) work in the field of individual change and learning where learning (here, learning to teach) is necessarily preceded by an experience that upsets the cognitive-psychological equilibrium that underlies current behavior and knowledge. Similar to Piaget's (1926a, 1926b) ideas about the nature of an organism's cognitive homeostasis, Schein contends that after this "unfreezing" of equilibrium, a search for information (received knowledge) is conducted until the problem is resolved in a process of "refreezing," or "cognitive redefinition." In both of the instances above, the interaction between received knowledge and experience seems to be natural, co-creative, and well organized into steps or phases.

In contrast, literature on the relationship between received knowledge about teaching and classroom experience also reflects fundamental tensions and their resulting unresolved discord that results, at times, in mutual exclusion between the two knowledge types. In the Belenky et al. (1986) model, for example, received knowledge from external authorities is sharply contrasted with subjective knowing based on personal experience. Received knowledge is characterized as "listening to the voices of others" (p.33) as opposed to "listening to the inner voice" (p.52). Scholars have also noted that teachers frequently see graduate coursework as irrelevant and unconnected to their practical knowledge and task perception, and may consider their practical knowledge to be in conflict with official, propositional knowledge (Munby, Russell, & Martin, 2001; Tom, 1999). These notions were reinforced by pilot studies that I conducted at the end of the first and second years of a 4th grade classroom teacher in a public school in southwest Baltimore County, Maryland (Michaloski, 2004a, 2004b). Data from individual interviews and lesson observations revealed unresolved tensions created by the

difference between how the teacher wanted to organize instruction (“I’d like to pull in things that are more real-life. I’m not sure what—just make it more real-life for them.”) and administrators’ expectations (“I know the consequences. . . definitely the administrators they want you to follow the script because they’re counting on that for the test and everything else, and that’s what they’re looking at.”) (Michaloski, 2004a, p. 27). The participant also admitted that she had little or no time to reflect about her teaching due to incessant student needs and a compact daily schedule.

Literature also reveals that tensions resulting from differences between teachers’ perceptions about organizing instruction and those of administrators or texts may be so great that teachers may, at times, rely solely on either received knowledge or on their classroom experience. It seems that a teacher may prefer to base instructional decisions on received knowledge instead of reflected experience. For example, Rovegno (1992) conducted a case study where a pre-service physical education teacher preferred the received knowledge of listening to others as opposed to using opportunities to foster reflection by journaling and discussion. Although the teacher in this case preferred the received knowledge of others, Rovegno still maintained that “received knowers” should be helped with respect and patience but nonetheless be persistently urged to move beyond relying on the advice of others to a place where teaching is characterized by reflective practice. However, it seems that teachers may, at certain points in their career, prefer to be guided by received knowledge instead of reflecting on their classroom experience. This notion is supported by the Belenky et al. (1986) model in that it poses received knowledge as an epistemological stance where the authority for knowing is *knowingly* and *preferably* placed with others.

On the other hand, teachers frequently rely exclusively on craft knowledge, or "knowledge derived in response to experience" (Munby, Russell, & Martin, 2001), whereby instructional decisions emerge from implicitly held beliefs and forms of nonpropositional knowing that have accumulated over years of classroom experience (Connelly & Clandinin, 1990; Grimmett & MacKinnon, 1992; Russell & Munby, 1991; Schon, 1983). In the Belenky et al. (1986) model, this way of knowing is characterized as "subjective," insofar as "the predominate learning mode is one of *inward* listening and watching" (1986, p. 85). Teachers' rigorous reliance on experiential knowing has also been seen as connected to the evolution of self-concept, where practitioners struggle to become the kind of person they deem necessary to function as a caring, effective educator (Fuller, 1969; Noddings, 2001; Schempp, Sparkes & Templin, 1999).

Classroom experience, however, may be necessary but not sufficient for the development of effective teacher knowledge. In a case study of three, new secondary school English teachers with no teacher education experience, Grossman (1989) found that the new teachers lacked a sense of planning, were awkward answering unexpected student questions, and were unsure about how to motivate students. They assumed that students would be like them. Grossman concluded that the kind of pedagogical expertise that these new teachers lacked does not develop automatically from the experience gained in the period of initial entry, and perhaps a directed, supervised student teacher experience would have helped. Similarly, teachers may develop impartial or unwieldy notions about what effective teaching should be based on sincere but faulty interpretations of experience. For example, novice teachers may assume that once they are very familiar with classroom activities that they have mastered certain aspects of

teaching, or that because, as student teachers, they are successful in completing teacher education activities, that they are ready for real-life classroom dilemmas (Feiman-Nemser & Buchman,1985). Experience, it seems, is not always enough.

Literature also reflects that the relationship between received knowledge and experience may be accompanied by shifts of power and authority. For example, Munby and Russell (1994) argued that learning to teach may be seen as a personal movement from one authority scenario to another. After listening to student teachers' comments after having completed a physics methods course, Munby and Russell characterized professional development as a movement from the "authority of reason and position" (the received, propositional knowledge espoused by their teacher educators) to the "authority of experience"—their own reflected-upon experiences as a source of knowledge about teaching (p. 94). When pre-service or beginning teachers are able to navigate this movement along the axis of authority, some researchers in this area have claimed that they "become simultaneously students and architects of their own professional development" (Bullough, Knowles, & Crow, 1991). In a related study on aspects of teacher autonomy and loci of control for beginning student teachers, Sumison (1994) made use of the Belenky et al. (1986) model's five epistemological dimensions to characterize and measure professional and personal growth in terms of relying less on imparted learning and more on constructed learning. Constructed learning was interpreted as a condition where "student teachers are encouraged to develop their own understandings of what it means to be a teacher" (p. 2), and also as the integration of a teacher's inner voice with the voices of others. Working with twelve student teachers, Sumison (1994) was able to match student teacher profiles with each of the five

epistemological dimensions and concluded that student teachers' voices need to be heard not only by themselves but also by teacher educators in order to facilitate professional and personal growth. All of Sumison's participants, however, were student teachers in a Bachelor of Education program for early Childhood Education at Macquarie University and therefore did not reflect differences between levels taught or between teacher preparation institutions as I attempted to do in my research.

Chapter Summary

Literature on teacher knowledge reflects the complex and multidimensional nature of being a teacher. The process of developing teacher knowledge has been variously seen as developmental (Berliner, 1986; Fuller & Brown, 1975), behavioral (Marzano et al., 2001; Skinner, 1961), reflective (Schon, 1983; van Manen), social (Lave & Wenger, 1991), cultural (Ladson-Billings, 1999; Stigler & Hiebart, 2002), and critical (Apple, 1982; Kincheloe, Slattery, & Steinberg, 2000). Literature on teacher knowledge also reflects several alternating dualities such as, formal vs. practical (Fenstermacher, 1994), propositional vs. procedural (Russell & Munby, 1991), and technical vs. craft (Schon, 1983). Although some research has examined teacher knowledge in relation to received vs. experiential knowing, my sense is that there is still a need for clarification and a more detailed, more inclusive model to describe how teacher knowledge develops. I offer such a model in the form of an ideal typology for teacher knowledge in Chapter Four.

It seems, however, that many of the studies relating to received knowledge and classroom experience involved few participants and gave little or no consideration to allowing for diversity in participants' backgrounds. For example, Russell (1989)

presented his conclusions using excerpts from only five participants while Munby (1986), drawing from five junior-high-school teachers from a southwestern state, published his report about metaphor based on the data of only one teacher—"Alice." Likewise, Veal, Tippins, and Bell (1999) based their conclusions on two physics teachers, Rovegno (1992) worked with one pre-service physical education teacher, and Kelsay's (1989) study of reflective teaching involved only three teachers—all considered to be expert. In my research the thoughts and experiences of all twelve participating teachers were factored into my findings and discussion. Sumison's (1994) study involved many of the aspects of my study, such as using the Belenky et al. (1986) model, including at least twelve participants with varying socio-cultural backgrounds, and relying on interview data, but there was no consideration for maximizing differences in levels at which participants taught. These aspects may be important influences on teachers as they develop knowledge about teaching from received knowledge and classroom experience and were considered when I selected participants for my research.

Although literature suggests that teacher knowledge may develop within and through several different but related sets of dualities, it is my assertion that all of these dualities may be reflected in the proposed ideal typology for teacher knowledge. In the next chapter, a research design is proposed for the purpose of examining received knowledge and classroom experience in the formation of teacher knowledge.

Chapter Three: Methodology and Research Design

Overview

This qualitative study examined the possible roles for received knowledge and classroom experience in order to better understand the process by which teacher knowledge develops. As discussed in Chapter One, "received knowledge" is a phrase used by Belenky et al. (1986) to describe an epistemological state where knowledge is considered to come from outside the self, and "classroom experience" consists of practical know-how about teaching that arises from first-hand experience in the classroom as teacher. I chose a qualitative approach for several reasons. First, although mental phenomena are regularly evaluated by quantitative analyses of questionnaires and psychological inventories, teachers' lived experiences and the meanings generated therein may be more vividly portrayed through a qualitative approach (Maxwell, 1996; Silverman, 1993; van Manen, 1990). Second, the nature of my research questions appeared to call for qualitative inquiry because I chose to investigate the nature and character of teacher knowledge—not a cause and effect relationship between highly selective and controlled variables. Third, I wanted to present a detailed description of how teacher knowledge is developed by using teachers' language—teachers' own voices.

The research design may be characterized as a multiple case study (Yin, 2003), or collective case study (Creswell, 1998), where the multiple cases generate data that are compared to previous or formative theory in order to support or modify that theory. Multiple case studies can be seen as "generalizing from one case to the next on a basis of a match to the underlying theory, not to a larger universe" (Miles & Huberman, 1994, p. 29). In this multiple case study, each individual case was bounded by several dimensions;

conceptually, each case was a classroom teacher who had learned to teach as a result of experience and received knowledge; physically, each was a practitioner in central Maryland; and temporally, each drew from their career experiences ranging from their years as an intern to their present assignment when answering interview questions. The multiple cases were further bounded by social size (12 individuals).

Multiple case study may also be characterized as what Stake (1998) has termed *instrumental*:

> In what we may call *instrumental case study*, a particular case is examined to provide insight into an issue or refinement of theory. . . researchers may study a number of cases jointly in order to inquire into the phenomenon , population, or general condition. (p. 88)

Stake also explains that

> *collective case study. . . is not the study of a collective* but instrumental study extended to several cases. . . [Individual cases] are chosen because it is believed that understanding them will lead to a better understanding, perhaps better theorizing, about a still larger collection of cases. (p. 89)

In light of the foregoing, I examined individual cases of teachers who have been exposed to received knowledge about teaching and who have accumulated differing years of classroom experience in order to arrive at a better understanding of the general phenomenon of teacher knowledge development. Data consisted of participants' reports, perceptions, reflections, and memories relating to their teacher knowledge and how it developed. Following general procedures suggested by Ragin (1987) and Strauss and Corbin (1994), data were then compared to and played against the initial conceptual framework presented in Chapter One in order to support or modify it. Finally, the initial conceptual framework was modified as I constructed an ideal typology by integrating aspects of the conceptual framework with newly emerging themes from data.

Participants

The study involved twelve classroom teachers from elementary, middle, and high school levels. Some were selected from graduate education students at a private college in the mid-Atlantic region of the United States and some selected from a public school system in central Maryland. The sample was purposive in that participants provided information in the form of perceptions about, and self-reports of personal, mental phenomena directly related to the study and allowed special access to qualitative data (Krathwohl, 1998). Convenience sampling was also an aspect of the study in that the volunteers were not only "readily accessible" but were "assumed to possess characteristics relevant to the study" (Schensul, Schensul, & LeCompte, 1999, p. 233) such as classroom experience and exposure to received knowledge about teaching. In short, participants were practicing classroom teachers who necessarily have been and are being exposed to received knowledge and also first-hand classroom experience.

Participants in this qualitative, multiple case study were not "considered [as] representative of a broader universe of cases" (Miles & Huberman, 1994, p. 29) but as multiple attempts to generalize to theory about teacher knowledge and its development in light of received knowledge and classroom experience. In order to make this kind of "analytical generalization" (Yin, 2003, p. 32) as rigorous as possible, some differences among participants were maximized in order to add a sense of breadth and scope to data analysis, while others were minimized in order to limit the study (Merriam, 1988). For example, differences were maximized by selecting participants who teach at elementary, middle, and secondary levels, had widely varying years of experience in the classroom, taught at private as well as public schools, received their teacher preparation at various

institutions, and differed in race, class, and gender. Because of the wide variation in participant background, I was able to examine a range of participants' perceptions about teacher knowledge and engage in a broader, more inclusive analysis than if I had only looked at a few cases. Differences were minimized by including practicing classroom teachers only. This assured me that participants were actively involved in classroom experience and exposed to the kinds of received knowledge about teaching to which practitioners are frequently exposed—such as professional development, district guidelines, and administrators' suggestions.

In order to minimize intrusions to teachers' work schedules, participants were involved in the study for one academic semester. Data were collected from the first six participants from September to December, 2005, and from the second six participants from January to June, 2006. Table 3 summarizes the demographics of the sample.

Data Collection

In general, case studies are characterized by the use of multiple data sources (Creswell, 1998; Krathwohl, 1998; Yin, 2003). In order to gain access to a wide range of teachers' self- reports about the possible roles for received knowledge and classroom experience, data were collected from open-ended questionnaires, in-depth interviews, and lesson plans. Another reason for using multiple data sources is that they provided for triangulation of data whereby elaboration of formative theory is possible by examining the extent to which different data sources converge (Yin, 2003). In this study, multiple data sources were analyzed in order to elaborate upon the ideal typology for teacher knowledge.

Table 3

Participant Demographics

Pseudonym	Level teaching at	Years in teaching	Race/ethnicity	Gender	Education level attained at private or public institution
1. Pauline	ES	3	White	F	Masters degree candidate; private & state
2. Darla	HS	30	White	F	Masters degree; state
3. Amanda	ES	8	White	F	Masters degree; private
4. Della	HS	28	African American	F	Masters degree; state
5. Michelle	ES	3	White	F	MAT; private
6. Mary	MS	5	Asian American	F	Masters degree; private
7. Ryan	MS	4	White	M	Masters candidate; private
8. Jasmine	MS	18	African American	F	Masters degree; state
9. Brandon	MS	3	African American	M	Masters candidate; private
10. Lou Ellen	ES	17	White	F	Masters equivalency; public
11. Taisha	MS	4	African American	F	Masters degree; state
12. Belinda	ES	6	White	F	Masters degree; private

Open-Ended Questionnaires

Questionnaires may serve as initial, exploratory inquiries about a topic that may serve to identify broad themes that will be examined later in more depth via in-depth interview (Krathwohl, 1998; Mills, 2000). Participants completed open-ended questionnaires involving three items related to their experiences with the central focus of the study—received knowledge and classroom experience. Topics and issues emerging

from the questionnaires were used as targets for further probing in individual interviews. A sample questionnaire is included as Appendix C.

Individual Interviews

Glesne and Peshkin (1993) have metaphorically described interviewing "as the process of getting words to fly" in order to gather "information that you transmute into data" (p. 63). For Patton (2002), the purpose of conducting interviews is "to allow us to enter into the other person's perspective . . . to find out what is in and on someone else's mind" (p. 341). I conducted two interviews with each participant. The first interview was driven mainly by general questions about the relationship between experiential and received knowledge. The second interview was organized not only around follow-up questions based on statements from the first interview but also on specific questions relating to materials used in instruction, such as lesson plans, curriculum guides, rubrics, and textbooks, several of which participants had brought for reference. In addition, conducting a second interview gave participants a chance to reflect on issues from the first interview.

In order to explore commonalities of participants' perceptions of and experiences with constructing teacher knowledge, and, at the same time, be able to probe for unique, individual differences, a "focused interview" method was used (Krathwohl, 1998; Merton, Fiske, & Kendall, 1956). The focused interview begins with questions centered on a broad area of experience, continues with semi-structured questions, and ends with structured ones. In this way, after a period of building background and rapport, participants' remarks became increasingly focused on summarizing what they felt to be significant in the interview session, and finally directed explicitly toward research

questions. For example, early in the interview, a participant may be asked, “How do you organize your reading groups?” Toward the end of the interview, questions were more structured according to the study’s central question: “How did you come to organize your groups in that way? Did someone show you, or tell you how to do that, or did you develop that on your own?”

The nature of the interview questions may have been the most significant factor in obtaining the kind of relevant data that may have contributed to a better understanding of how teacher knowledge develops. Glesne and Peshkin (1993) advise that

> the questions you ask must fit your topic: the answers they elicit must illuminate the phenomenon of inquiry. And the questions you ask must be anchored in the cultural reality of your respondents: the questions must be drawn from the respondents’ lives. (p. 66)

Thus, interview questions were developed in alignment with research questions, the four possible roles for received knowledge and classroom experience presented in the initial conceptual framework, and related literature reviewed in Chapter Two such as Shulman’s (1987a) categories of teacher knowledge and Grossman’s (1995) domains of teacher knowledge. Also, topics emerging from questionnaire data were probed more deeply in individual interviews. I drew from my experience with two pilot studies and adopted or rephrased questions that had previously produced significant participant responses. The guidance and feedback from my dissertation advisor also helped me to choose and refine interview questions that matched the research questions and focused data collection on participants’ perceptions about and experiences with teacher knowledge. I also drew on my fourteen years of experience as a classroom teacher to ground questions in classroom practice and school culture. Interviews were audio taped and transcribed as soon as possible. Follow-up interviews were conducted to provide participants opportunities to

clarify statements from the first interview and provide me with opportunities to probe further into promising areas.

Interview data were particularly valuable because they allowed me to gain description of past events to which I had no observational access, such as teacher preparation, first years of teaching, and pivotal classroom experiences. In this way, I was able to make inferences about participants' teacher knowledge from their verbal behavior (Maxwell, 1982).

As I detailed in the previous section, interview questions about specific instructional strategies, planning, and classroom management that reflected the combined influence of received knowledge and classroom experience had been tested in pilot studies with promising results (Michaloski, 2004a, 2004b).

Records of Practice: Lesson Plans

Ball and Cohen (1999) suggested that teacher learning does not necessarily happen in the "rush of minute-to-minute practice" and that "although the bustle of immediacy [of a real-time classroom experience] lends authenticity, it also interferes with opportunities to learn" (p. 14.) Teachers may, the authors contend, have more opportunity to reflect on their instructional effectiveness after the fact, so to speak, by using records, documents, and artifacts that are "centered in practice," including video tapes, audio tapes, teacher notes, lesson plans, student work samples, and curriculum materials. In the same way that video and audio have been used to stimulate recall during interviews, I used lesson plans as a basis for some of the interview questions. Participants supplied lesson plans, sections of curriculum guides, and assessment rubrics related to lessons that they had recently taught. These records of practice served as springboards for questions

relating to the nature of teacher knowledge involved, for example: “Why did you decide to do that at this time in the lesson? Is that something you were taught to do, or did you develop that on your own?” In this way, teachers’ responses to interview questions were grounded in practice and not merely reflections about practice: I wanted to know what teachers were thinking when they planned and implemented the lesson as well as what they think now. Even if lesson plans originated with publishers or in school district teacher guides, most participants modified lesson plans to various degrees in light of classroom experience.

Data Analysis

Because “Coding is analysis” (Miles & Huberman, 1994, p. 56), and “Coding is interpreting” (Krathwohl, 1998, p. 307), I needed to establish a coding strategy that reflected the conceptual framework and research questions, but also allowed for new, unexpected responses and allowed opportunities for initial interpretation. I began by using codes that reflected the following: possible roles for received knowledge and classroom experience (received-unchanged, received-interactive, experience-unarticulated, and experience-reflected upon, Shulman’s seven categories of teacher knowledge, significant statements that were related to teacher knowledge such as autonomy, staff development, school and district politics, and cultural contexts. A complete list of codes may be found in Appendix X. Each participant’s set of data (questionnaire, interview, lesson plan) was first reviewed and coded as a separate case before any attempts toward cross-case analysis were made, thereby grounding my assertions in individually specific contexts and authentic, real-world experiences (Glaser & Strauss, 1967).

After several read-throughs and re-codings I noted that all of the participants discussed their development of teacher knowledge in terms of individual effort, collaboration, or various combinations of both. This allowed me to begin thinking in terms of an organizational scheme for teacher knowledge that not only highlighted received knowledge and classroom experience but also reflected personal and collaborative processes in knowledge development. Data were then re-coded according to four ideal types that emerged, namely, *personal-experiential*, *personal-received*, *collaborative-experiential*, and *collaborative-received*. The development of the ideal typology is further elaborated upon in Chapter Four using data to illustrate each type.

Next, I examined the degree of overall alignment and functional fit between the data and the ideal typology. Although I discovered that all four ideal types were represented and supported by various participant statements, there were statements that seemed to embrace two or more ideal types and some that did not seem to reflect any of the ideal types at all. In other words, there was not a perfect one-to-one correspondence between data and ideal typology, but, as Weber (1949) explained, an ideal type is a "one-sided *accentuation* . . . [that] cannot be found anywhere in reality" (p. 90). The sequence for data analysis and formation of an ideal typology is illustrated in *Figure 2*.

This entire interpretive process was documented as it unfolded. For example, I noted where and when new codes emerged, documented ongoing analysis of the appropriateness of the ideal typology, and tracked questions or doubts that arose along the way in memos (Maxwell, 1996; Miles & Huberman, 1994; Strauss & Corbin, 1990). In this way, not only was there a record of my thought process, but there was also a method for "pushing" my thinking as well as for stimulating insights.

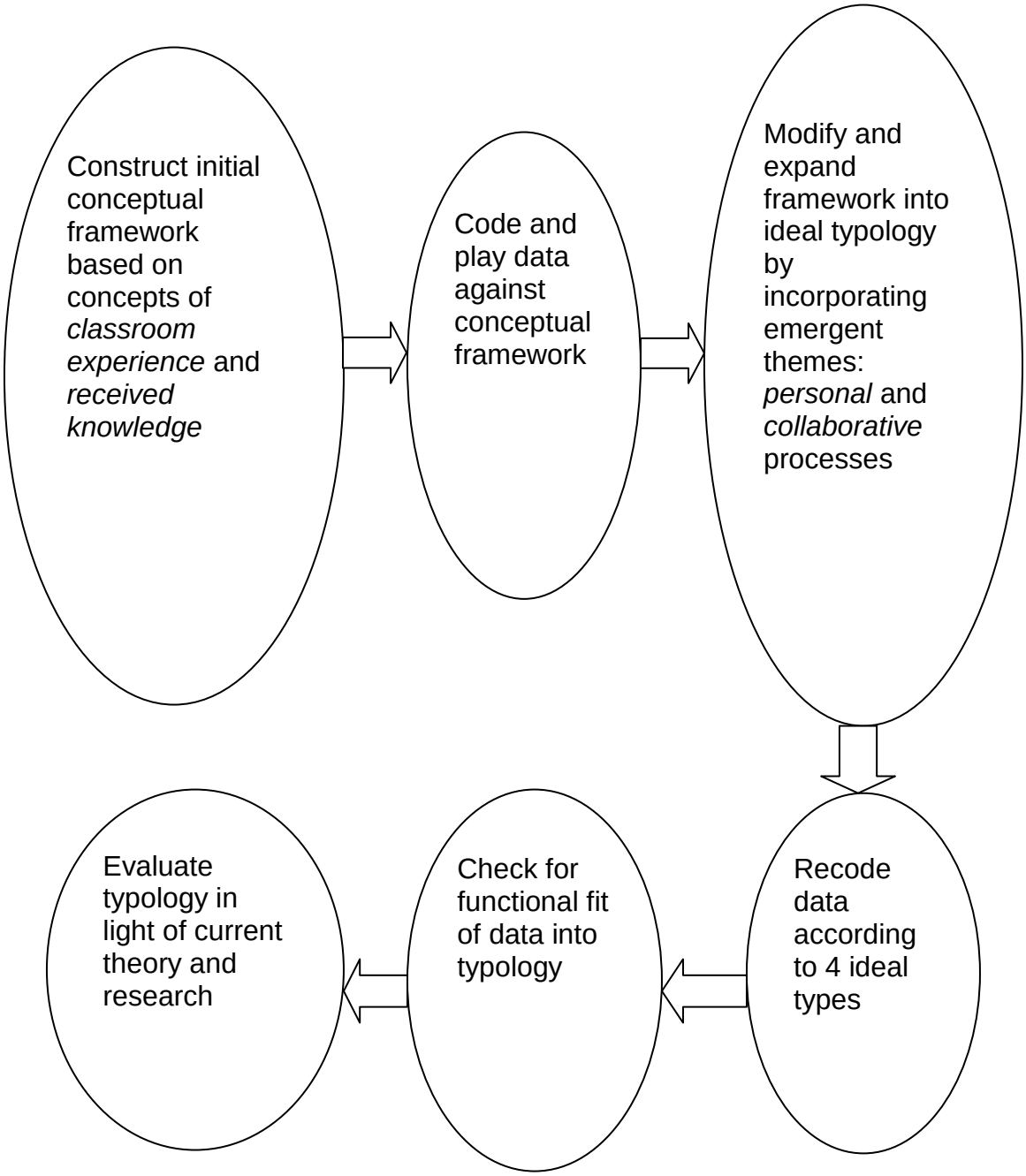

Figure 2. **Sequence for data analysis and formation of ideal typology.**

Procedures of Verification

Although scholars have attempted to find qualitative equivalents for quantitative procedures that ensure validity, many researchers in the qualitative field have argued that, because qualitative interpretive research is a distinctly different paradigm, there should be different terms and concepts concerning verification of data collection and analysis that are a better fit with qualitative approaches (Anderson, Herr, & Nihlen, 1994; Guba, 1981; Maxwell, 1996; Wolcott, 1994). For example, Lincoln and Guba (1985) use the terms "trustworthiness," "dependability," and "transferability" when discussing verification issues (p. 300), whereas Eisner (1991) uses the concept of "credibility" established by structural corroboration and consensual validation. Based on their review of major articles on procedures of verification in qualitative inquiry, Creswell and Miller (1997) noted that the following procedures are frequently discussed in literature about validity in qualitative research: *triangulation, peer review, negative case analysis, researcher bias, member checks,* and *rich, thick description.* I decided to follow these six procedures identified by Creswell and Miller because they reflect commonalities culled from a broad range of literature. In the following section, I define each of the six procedures, explain why they have been considered as processes of verification, and detail the ways in which I included each of them in my research design.

Triangulation. Typically, triangulation attempts to illuminate an assertion or perspective with corroborating evidence (Creswell, 1998; Lincoln & Guba, 1985; Patton, 1980, 1990). Maxwell (1996) explains that triangulation may be accomplished by "collecting information from a wide range of individuals and settings, using a variety of

methods" (p. 75). Likewise, Miles and Huberman (1994) suggest that effective triangulation occurs when

> independent measures of [a finding] agree with it or, at least, do not contradict it. . . . We can think of triangulation by *data source* (which can include persons, times, places, etc.), by *method* (observation, interview, document), . . . [and by] *data type* (qualitative text, recordings, quantitative). (pp. 266, 277)

In light of Miles and Huberman's suggestion, data in my study were triangulated by *source* (participants varied in their teaching experience from 3 to 30 years; ethnic/racial backgrounds were African American, White, and Asian American; both men and women participated in the study; interviews were conducted in classrooms, workrooms, and faculty rooms in various elementary, middle, and high schools), by *method* (questionnaire, interview, lesson plan document), and by *type* (audiotape recordings, interview transcriptions, hand-written and word-processed questionnaire responses). Participant statements from initial interviews were compared to statements from follow-up interviews and also compared to previously written questionnaire data in order to check for consistency and accuracy.

Peer Review. Lincoln and Guba (1985) describe the role of a peer reviewer as a "devil's advocate." Likewise, Creswell (1985) sees a peer reviewer as

> an individual who keeps the researcher honest; asks hard questions about methods, meanings, and interpretations; and provides the researcher with the opportunity for catharsis by sympathetically listening to the researcher's feelings. This reviewer may be a peer. (p. 202)

I met with a fellow doctoral student at the midpoint and the end of data analysis and asked her to review my coding of the transcribed data. She agreed with the majority of my coding but some of my coding decisions opened discussions in which I had the opportunity to further clarify why I had labeled participant statements the way I did.

Discussions about alternative coding provided different ways to think about certain participant statements. For example, a participant statement such as “I think it’s intuitive; It just seems like automatic” was seen by both of us as personal-experiential, whereas a statement such as “It comes out of my knowledge; I think it just comes out, and I just do it and if it doesn’t work I try something else” was seen by both of us as too difficult to characterize as either received knowledge or experiential knowledge.

Negative Case Analysis. This type of analysis occurs when negative or disconfirming evidence necessitates revision of working hypotheses or initial conceptual frameworks (Creswell, 1985; Miles & Huberman, 1994). As incoming data were played against my initial conceptual framework—the possible roles for received knowledge and classroom experience—I noticed that my initial conceptual framework was too narrow to address personal vs. collaborative processes involved in teacher knowledge development. As participants continued to make statements concerning both individual and collaborative ways of learning their craft, I expanded my conceptual framework to include these aspects. Likewise, my initial notion about developing an ideal typology was based on the observation that most of the teachers interviewed could be seen as a “type” of teacher or a “type” of learner, such as an “intuitive”, an “ideologue”, or a “realist,” but there were also many participants for whom a type was not evident and still others who could be characterized as amalgams of many types of teachers. I rejected this kind of typology in favor of one that described types of knowledge—not types of teachers. This process will be discussed further and illustrated with examples from data in Chapter Four.

As mentioned earlier in this chapter, some participant statements seem to reflect both experience and received knowledge, some reflected several ideal types, and some

could not be readily coded or classified at all. These statements were coded as "uncodable," "ambiguous," "code pending," or with a tentative coding. Although many statements provided insight on the complexity or ineffable nature of teacher knowledge, there were others that were not used at all because they tended to confuse more than reveal meaning. For example, Darla's statement, quoted in Chapter Four, about not being able to separate her intuition from what people have "given" her, and her use of lasagna as a metaphor for teacher knowledge provided rich insight into the complexity and multi-faceted nature of teacher knowledge. On the other hand, the participant statement quoted in this chapter's *Peer Review* section was an example of one that was uncodable and provided little or no insight.

Clarification of Researcher Bias. Creswell (1985) charges that "clarifying researcher bias from the outset of the study is important so that the reader understands the researcher's position and any biases or assumptions that impact the inquiry (p. 202). At the outset of the study, I recorded my reflections about my perceptions, attitudes, and previous experiences that I thought may engender biases, and discuss this process in the section titled "Researcher Background" found later in this chapter.

Member Checks. Maxwell (1996) claims that

> One particular sort of feedback deserves particular attention. This is systematically soliciting feedback about one's data and conclusions from the people you are studying, a process known as member checks. . . It is the single most important way of ruling out the possibility of misinterpretation of the meaning of what they say and the perspective they have on what is going on. (p. 94)

In light of Maxwell's advice, transcriptions were taken back to participants in order to check for accuracy and credibility. I asked participants, "Did I get this right?" As a result, some words that were either inaudible or indistinguishable were able to be filled in. Some

words that I interpreted incorrectly were changed in the transcription. Some words remained as unidentified even after conferring with participants—they were not able to remember or infer what they were saying. However, for most participants where this was the case, they were able to paraphrase the original sense and meaning of the statement that contained an unidentified or inaudible word. Lincoln and Guba (1985) consider this procedure as "the most critical technique for establishing credibility" (p. 314). Stake (1995) claims that participants should "play a major role in directing as well as acting in case study" (p. 115).

Rich, Thick Description. This phrase has an interesting history as its meaning has shifted and evolved over time. Maxwell (1992) notes, with a hint of irony, that the phrase, "thick description," was originally used by philosopher, Gilbert Ryle (1949), in his attempt to eliminate mental concepts from philosophy and replace them with statements about individuals' dispositions to behave in certain ways—a kind of logical behaviorism. Geertz (1973) later adopted Ryle's phrase but, according to Maxwell, used it instead to denote "description embedded in the cultural framework of the actor; the term does not refer to the richness or detail of the account" (pp. 288, 289). Four years later, Maxwell (1996) himself added to the complexity of the story by using the phrase, "rich data" to describe

> data that are detailed and complete enough that they provide a full and revealing picture of what is going on. In interview studies such data generally require verbatim transcripts of the interviews, rather than simply notes on what you noticed or felt was significant. (p. 95)

Finally, Creswell (1985) combined the terms, "rich" and "thick" in his phrase, "rich, thick, description" to indicate that that "the writer describes in detail the participants or

setting under study" (p. 203). Thus, the current understanding of the phrase has shifted away from both Ryle's and Geertz's original intent.

However, in light of Maxwell's and Creswell's statements, it seems that the aspect of using detailed, descriptive data embedded in the culture of research participants continues to be an important procedure for verification in qualitative inquiry. In this sense, I used the original language and wording of participant statements taken directly from audiotape recordings throughout the transcription, coding, and analysis of data. With its specific, professional vocabulary, abbreviated, slang modifications, and attitudinal colors, classroom teachers' exact language is not only embedded in school culture but may provide windows through which it may be glimpsed. In order to support, clarify, and illustrate the ideal typology, and to support certain assertions in Chapter Five, I used participants' original statements whenever possible. This process was supported by using multiple sources of data for each participant, and by allowing liberal time periods for interviews. Creswell also (1985) claims that "rich, thick, description allows the reader to make decisions regarding transferability because the writer describes in detail the participants or setting under study" (p. 203). That is, I not only presented my interpretations and analysis of what participants said, but I also provided the original statements so that readers of my study can make their own decisions about whether or not the opinions and perceptions expressed by participants transfer to other settings. In this way, participant statements not only provide a source for supporting my assertions, but also a test and criterion by which readers may evaluate the emerging ideal typology (Maxwell, 1996, p. 95).

Advice and Consultation

Along with the input I received from my peer reviewer, I also consulted my dissertation advisor, Dr. Linda Valli, on various matters such as sampling, data analysis, interview protocol, and thoroughness of content. Although it cannot be considered as an *external audit* because Dr. Valli had a direct connection with the study, this process provided me with opportunities to push my thinking and ensure clarity in my writing. It also provided what Creswell (1998) has called "a sense of interrater reliability" (p. 203)

Quasi-Statistics

When examining the amount of interview data devoted to each of the four ideal types, and noticing considerable discrepancies, I followed a suggestion from Maxwell (1996) for testing inherently quantitative conclusions within the context of a qualitative study, namely, "the use of simple numerical results that can be readily derived from the data" (p. 95). Becker (1970) coined the phrase, "quasi-statistics," to describe this procedure, claiming that

> quasi-statistics may allow the investigator to dispose of certain troublesome null hypotheses. A simple frequency count of the number of times a given phenomenon appears may make untenable the null hypothesis that the phenomenon is infrequent . . . [and] may make stronger a possible conclusion. (p. 81).

Maxwell adds that "quasi-statistics not only allow you to test and support claims that are inherently quantitative, but also enable you to assess the amount of evidence in your data that bears on a particular conclusion" (p. 95). Because I drew conclusions about the relative amount of language devoted to ideal types, I needed to support those conclusions with numerical data without detracting from the overall qualitative nature of the study. In Chapter Four I present a tabulation of the frequency with which participants made

representative statements about each of the four ideal types in order to support my conclusion that certain ideal types occurred more frequently. In order to focus on the central concepts of the study and avoid spurious data, the word count was based on statements that clearly reflected one of the four ideal types in light of personal vs. collaborative processes and a received vs. experiential sources. A listing of these statements can be found in Appendices E through H.

Ethical Considerations

Locke, Spirduso, and Silverman (2000) remind us that there is "*always* . . . the lurking possibility of harm to participants in a naturalistic field study. Anonymity can never be guaranteed, if only because it is not entirely under the researcher's control" (p. 261). With this concern in mind, I needed to do everything possible in order to ensure anonymity, confidentiality, and safety for participants. Thus, all participants were represented with a pseudonym assigned to questionnaire, interview, and lesson plan data. The private college where several participants attended was referred to as "a private college in the mid-Atlantic region," and the school system at which many taught as "a public school system in central Maryland." All data were housed in my home during the study, and I was the only one with access to the data. Participants were fully informed about the nature of the study, how it would be used, and were able to withdraw from the study at any time with no penalty. Because harm to participants may come from "blows to self-esteem, or looking bad to others . . . threats to one's interests, position, or advancement in an organization" (Miles & Huberman, 1994, p. 292), participants were not aware of each other's statements from any of the data sources, and information from

the completed dissertation was not shared with any personnel related to participants' employment.

I also reflected on relevant aspects of Flinders's (1992) framework for ethical conduct in qualitative research: namely, utilitarian, deontological, and ecological ethics. The central idea of utilitarian ethics is the greatest good for the greatest number, or, simply put, more good than harm should result from the study. As stated earlier, one of the purposes of the study was to examine ways that teachers may be better prepared for the classroom and continue to grow in their knowledge as practitioners. Therefore, results of the study promise to benefit not only teachers but students as well. Deontological ethics may be seen as being related to honesty in relationships with participants. My guidelines for honesty were reflected when disclosing the exact nature and purpose of the study in interest surveys, Human Subjects applications, Informed Consent documents, and conversations with participants before and after interview sessions. Flinders (1992) describes ecological ethics as having to do with relationships between researcher and participants determined by "roles, status, language, and cultural norms" (p. 108). These concerns were addressed as my role and status as researcher were somewhat transformed by the collegiality arising from the fact that, like the participants in the study, I am also a classroom teacher who continues to be immersed in questions and issues related to teacher knowledge. Furthermore, I attempted to establish rapport and comfort levels by sharing with participants that I had 14 years of experience as a classroom teacher in a variety of settings—I was able, therefore, to use discourse, terminology, concepts, and illustrations that were readily accessible and understandable for the teacher/participants.

In this way, along with member checks, I was able to establish a sense of trust and avoided setting myself apart as an overly authoritative or exploitative "outsider."

Several other ethical considerations were addressed by features of the research design described in previous sections. The worthiness of the project was discussed in Chapter One—new insights about teacher knowledge may contribute to efforts in professional development and teacher education. My competence and expertise in carrying out the study was monitored, supported, and informed by my advisor, by a doctoral colleague, and my completed coursework at the University of Maryland. The study was a benefit not only for me but participants as well: they were provided an opportunity to "get listened to" and gain insights about their teaching that they may not have had in the fast-paced role of classroom teacher.

Researcher Background

I have been a classroom teacher for third, fourth, and fifth grades for seventeen years for a public school district in Central Maryland. In 2000, after earning my master of education degree at the Loyola College in Maryland, I began teaching graduate education courses there as an adjunct instructor. Through conversations, class discussions, and graduate students' written work, I have become keenly aware that classroom teachers experience inherent tensions in the process of integrating academic, university-based pedagogical knowledge with classroom experience. Although competent, experienced educators, some graduate students who are experienced classroom teachers frequently become frustrated with the abstract, theoretical, and research-based nature of much of the knowledge about teaching that I have presented in graduate courses. What seems at times to be the elite and barely accessible discourse of research language is often cited by my

graduate students as an impediment to understanding theory and research on teaching. Course work in general is frequently criticized for not being relevant in terms of grade level, school setting, and administrative or instructional focus.

In stark contrast, other graduate students have described having success with being able to apply ideas discussed in graduate class to their professional practice and have expressed gratitude for the productive and educative nature of the courses. Why do some students have extreme difficulties with the relationship between their craft knowledge and "college knowledge," where others do not? I began to frame my research questions within a qualitative research design that would allow me to closely examine classroom teachers' experiences with the two kinds of knowledge about teaching.

My experiences as graduate student and classroom teacher enrich this study in the sense that I have experienced the same tensions, discord, and ambivalence in the relationship between received knowledge from external sources and first-hand, classroom experience. At times, I perceived course work as completely isolated from my professional life. However, at other times, I was able to apply methods learned in graduate study to my elementary school classroom and integrate received knowledge with classroom experience. What made the difference? This study was an important first step toward understanding this question because it interpreted and reconstructed teachers' experiences with received knowledge and "classroom know-how."

As a White, middle-class male, I carry with me certain expectations for behavior and norms of thought and perception that have been forged during the range of my social experiences (Maxwell, 1996; Price, 2000). When planning, organizing, and analyzing data collection and analysis, I was aware of and planned to counterbalance biases

emerging from the research context itself (Hitchcock & Hughes, 1995) by keeping in mind the following sources of potential researcher bias identified by Schensul, Schensul, and LeCompte (1999).

- Asking leading questions
- Failing to follow up on or omitting topics that participants introduce
- Redirecting or interrupting participants' narratives
- Failing to recognize reactions of the participants to the researchers' personal characteristics, including dress, age, race, gender, body size, or social status.
- Using nonverbal cues to indicate a "right" answer or to give approval of certain participant responses
- Stating opinions on an issue related to the research focus.

Although my own experiences and personal characteristics may have provided elements that contributed to the conceptual framework from which I may interpret teachers' self-reports about received knowledge and classroom experience, I attempted to bracket them in order to let the voices of my participants sound directly and clearly through data collected from questionnaires and individual interviews.

Chapter Four: Findings

In this chapter, the results of the data collection from individual interviews and open-ended questionnaires are examined subsequent to a presentation of a rationale for the formation of an ideal typology for teachers' ways of knowing. Each ideal type of teacher knowledge is explained and illustrated with qualitative data from participant interview statements and comments from open-ended questionnaires as a preliminary step to answering the research questions and revisiting the conceptual framework presented in Chapter One. In this way, dominant patterns are highlighted and supported with data, beginning with teachers' preferences for experiential or received knowledge, continuing with the emergence of four ideal types, and concluding with themes of ineffability, socio-cultural influence, and compliance.

Teacher Profiles with Respect to Preferred Knowledge Types

Although all of the participants made statements that reflected both received knowledge and their classroom experience, most teachers seemed to favor a predominate way of knowing how to teach. In the following section, I offer a brief, introductory profile of participants and group them according to whether their statements emphasized classroom experience or received knowledge as being most important in their development as a teacher. This dual categorization occurred in the first stage of data analysis. After establishing teacher orientations to either classroom experience or received knowledge, an ideal typology for teacher knowledge is then presented in light of personal and collaborative dimensions.

Classroom Experience Predominate

These teachers made statements indicating that they placed highest value on classroom experience in developing their teacher knowledge. Although, it may be tempting to assert that as teachers become more experienced they rely more on experience than received knowledge, that was not the case for all the teachers in the study. Darla, for example, had 30 years of experience but saw her development as a teacher mainly as a response to literature and mentoring—not as a result of her classroom experience. Moreover, asserting that teachers with more experience will rely on that experience more than teachers who have less experience is too close to a tautology to be a meaningful assertion.

Pauline. Although she had only three years of classroom experience teaching at the elementary level, Pauline strongly emphasized that she considered classroom experience to be highly superior to received knowledge. Pauline's preference for experience was evident in statements such as, "I feel that I have gained the most through my experience in the classroom," and "I think that [my knowledge of teaching] comes from my experience in teaching. I don't think it came from anything that I ever read." Pauline also downplayed the importance of theory in light of what she called "common sense": "Piaget I thought was interesting but when you actually get in the classroom, I think a lot of it is common sense type of information."

Amanda. With eight years of experience teaching third grade, Amanda explained that most of her teacher knowledge was derived from "trial and error." She developed a mistrusting attitude about knowledge from sources external to her classroom experience. She vividly remembers following a mentor's advice about how she should organize an

observation lesson and receiving an "unsatisfactory" evaluation: "I was just so mad that I took somebody else's suggestions and they didn't work and that I didn't try it on my own."

Lou Ellen. Having taught third and fourth grades for seventeen years, Lou Ellen shared that she relies heavily on experience as the arbiter and evaluator of received knowledge about teaching, claiming that "as you become more experienced you can look at a new idea and know how to pick and choose those parts that best fit your style and comfort level." She argued that theory learned from graduate study was not as effective in helping her build teacher knowledge as were more informal in-service classes that were collaborative in nature:

> In grad school—they don't seem to have a focus sometimes, I guess. In a reading class you might get twenty-five different theories of reading and when you're teaching reading and I guess they're trying to prepare you for a broad base, I guess, I don't know. I found the informal courses more helpful.

Lou Ellen maintains a low opinion of her teacher education program, complaining that "My education classes did not prepare me at all. I walked into my classroom as a new teacher and I had no idea. . . . I didn't know where to start."

Ryan. Having taught middle school for four years, Ryan sees learning to teach as "on the job training." He emphasized several of the personal and experiential aspects of teacher knowledge:

> I think teaching in some respect comes naturally to me which is why I've always wanted to do it so a lot of the things that I do, a lot of the interactions I have with kids it just comes automatically for me.

Ryan's student experience with a caring teacher opened up a source of non-declarative teacher knowledge:

> Every single class he would stand at the doorway and greet you as you came in and he would stand in the doorway and say goodbye to you as you left. Just that. I remember that. It's something very small and you're not going to read about you have to do that in any textbook. It's just something that stuck with me.

Della. One of the more experienced teachers in the study, Della has been teaching at the high school level for twenty-eight years. In her statements, I heard the voice of one who has been disappointed by theory and has had somewhat less than successful attempts to translate theory and research into practice. For example, "Sometimes theory is useful, but sometimes it is hot air," or "Co-operative discipline may be intended to teach self control, yet instead it teaches kids that they can manipulate adults." In fact, when attending a professional development session that introduced the theory behind cooperative discipline Della remembered:

> The only thing there was offered was this thing called "Cooperative Discipline" which from the very title I knew that I was not going to agree with. I really did try to keep my mouth closed as long as I could and at one point I just kind of exploded and told them that adults don't negotiate with children. An adult has to be an adult. A parent has to be a parent. A teacher has to be a teacher. You have to set some guidelines. What was really funny was that I was the only high school teacher taking the course. Everybody else was either elementary or middle school and though a lot of people came to me after class and said, "I agree with you," and they were telling me about these horror stories, not a single person would speak up in class.

Received Knowledge Predominate

In contrast to those who placed highest value on experience, the following teachers attributed the most important parts of their professional development to literature, theory, and ideas from others. One might prematurely expect that new teachers would rely more on received knowledge than on what little experience they have, but that was not a strong pattern in the data. For example, Darla (thirty years experience) and Belinda (six years experience) both identified literature, theory, and mentoring as

extremely important aspects of their professional development. Although the following participants also credited their classroom experience as contributing to their teacher knowledge, during their interviews and in their questionnaires, they spoke most often and with most regard for various types of received knowledge.

Darla. With thirty years in the classroom, Darla was the most experienced teacher in the study. She shared that her teaching has been and continues to be significantly influenced by the writings of Jonathan Kozol, Maria Montessori, Nancy Atwell, Donald Graves, and Lucy Calkins. Darla likened her interest in research to reading for pleasure: "I continued with the vein of research in writing—reading Calkins, Graves, and others *as if I were reading novels*." As far as using the received knowledge of others, Darla plainly stated, "Well [my knowledge] comes from I guess . . . ideas from books, you know, theorists, research."

Mary. During interviews, the works of Howard Gardner, Jerome Bruner, and Elizabeth Cohen were credited with being major influences in Mary's professional development. As a middle school teacher with five years experience, Mary explained that "I keep these theories in mind when designing my lessons." She described the process through which she became an avid reader of research and theory after a curriculum writing experience:

> They had us going in and looking at brain research and looking at Cohen's work, looking at Bruner, and looking at all that, and going okay, so what does this tell us and how can we use that to come up with some great instructional strategies that are going to really help our children in multiple ways—not just one lesson one way that's it because there's got to be more to it than that and that's when I got into it and that's what got me to join the ASCD and I get their magazines and I read up that way, but I'll be honest, had I not been there at that right moment in time I'm sure I would have still read things randomly just because I was working on my master's but I would not have pursued it on my own. You know?

Belinda. Having six years experience teaching fifth grade, Belinda described the friction that arose when she attempted to bring the influence of received knowledge into her first teaching assignment:

> When I came out of undergrad, constructivism was the thing, so there's a lot about Vygotsky and ideas about cooperative learning and having students make their own learning. So I was really into that . . . students trying to figure out concepts on their own with facilitating and I was really kind of excited about that and when I came I felt like the structure of the school didn't support it as much. It was like, "Well, what we want you to do is model," and direct instruction. I got the impression that it was going away from the more constructivistic approach. So the theory helps me with like Gardner and multiple intelligences, and the guy with emotional intelligences—a lot of the ideas I got in grad school I try to incorporate in my instruction, but I feel like theory is really strong when you come in because you have a big background of it from school but then it just kind of filters off to whatever like your school's or your county's vision is and you take bits and pieces of that and you incorporate what the county's telling you to do and what seems to fit with your instructional style.

Belinda's concern was echoed by others as they commented on levels of expected compliance. This issue will be discussed further in the "Compliance" section in Chapter Four. She did, however, find areas of the curriculum where there was a good "fit" with theory and research, and was supported by administration:

> Like with constructivism, it fits really well with science and using 5-E's in science, using multiple intelligences in that discipline because it really promotes a hands-on approach and using inquiry and figuring things out and the teacher being like the guide on the side.

Taisha. Explaining how she typically addresses classroom issues that need attention, Taisha shared:

> If I notice a problem in the classroom I immediately read the literature to find out what has been done to help in the past. . . . For example, I noticed that students were not using the feedback I was spending hours providing for them on their writing. After reading several articles I realized that perhaps students did not understand the language I was using on their feedback or even what they were supposed to do with the information I was providing them. I began to explain orally through conferences and kept writing portfolios for each student to monitor how they were progressing and using the feedback.

Having four years experience in middle school, Taisha also mentioned the received knowledge from more experienced others:

> I learned a lot from working with my Special Ed teacher. She showed me how to make changes to the lesson plan according to what the kids had in their IEP and make accommodations according to that.

Knowledge Types in Tentative Balance

Not all of the participants could be classified as crediting either received knowledge or classroom experience as most important in their professional development. The following participants expressed balance, discord, and various levels of integration concerning the two knowledge types.

Jasmine. Having taught eighteen years in middle school, it may be that Jasmine's background has allowed her to see how received knowledge and experience may complement each other:

> Knowing what research has discovered about teaching and learning has helped me to change my style of teaching. I do not teach the way I was taught. Theory and research are key elements in teaching, and that knowledge determines how I plan for instruction and what strategies I use to support the information to be taught. But experience has taught me, for example, that students grasp the concept of probability more readily when they are knowledgeable about fractions. Knowing this I change the sequence of topics in math curriculum when I deem it necessary to do so.

Jasmine explained how research on building background knowledge helped to implement a constructivist approach:

> Building background [knowledge] came from research. In one respect the school I came from was upper middle class and you could talk to them on their level and understand them but when I came here the students didn't know what I was saying so I had to stop and go back and not take it for granted that they knew because I never taught a population like this. I took some classes at the university and they tell you in the classroom you do this you do that, for example, they were doing the constructivist method where children construct their own meaning. I came and I tried it with some of these kids but they couldn't construct meaning

> because they had nothing that went before so I had to show them what to do. I couldn't just leave it to them to build meaning just by giving them some numbers or a sentence or something. It's like if I was reading a medical book—I could read the words but I wouldn't understand.

Brandon. As a middle school chemistry teacher with three years experience, Brandon recognized the importance of received knowledge in his discipline, but had no formal education courses, resulting in a sensed lack of a knowledge base for teaching:

> My classroom teaching experience has been paramount in my development of teaching and learning knowledge. My academic degree was in chemistry so I initially had very little knowledge of education; thus, the practical component was essential. However, I do not necessarily think this is a strength. If I had a fuller knowledge of the theory behind education I might be more effective at implementing learning strategies and evaluating student growth and progress.

It seems that although Brandon found himself in a position where it was necessary to learn chiefly, if not solely, from experience, his respect for theory may have brought about a desire to investigate theory on teaching and learning.

Michelle. Having three years experience as a fifth grade teacher, Michelle credited the received knowledge of more experienced others as an important facet of her professional development but also noted the difficulty in translating theory to practice:

> It was even better when we got to the classes where the actual strategies, you know—these are things you can try in your classrooms. And it was taught by teachers who had been teaching for years and now their teaching at college level and they're saying these are strategies that I've used in my classroom. This works. Here's research that shows that this works. And I have them and I try them consistently with my students but I don't feel like I'm getting the results that I should.

Michelle continued to describe how theory may seem promising but needs to pass through the filter of what a teacher has already experienced in her class and her dampened expectations:

> At first as I was looking through [Quantum Learning] I found it very similar to Dimensions of Learning that I had taken a whole class on and then been

> reinforced through student teaching, and I looked at some of the ideas and I did like them. I thought, "Oh, this sounds interesting. I think this would work. You know, this would be good," *but some of the things I feel wouldn't go over well in my classroom.* For example, the stuff we concentrated on in that workshop about cheering students for their responses and the sounds and all that would create more chaos in my room based on the behaviors that I see. I try in my own way to give them positive reinforcement as much as possible but I didn't think that the way they presented it would work in my room with my students. It would make them silly. They would want to be making noises all the time and it would be hard to bring them back in. They need a very, very structured setting.

And yet, at times, Michelle lauded the effectiveness and support provided by received knowledge stemming from a professional development training session:

> Last year was my first year at teaching math so I went to a quarterly training and the information they gave us I found very useful because they gave us different ways to teach multiplication. They are several different ways that you can teach it so you can find ways that work for the students rather than the traditional algorithm that I learned when I was in school—using manipulatives—drawing pictures—those kinds of things. *So I feel like they've given me a lot of strategies that immediately be put to use*. I think it's just more cut and dried with math. It's clear, "Okay, well try it this way or this way or this way." Generally students are going to pick up on the way that's most comfortable for them to get the answer and that's what had been working.

Eventually, however, Michelle had to rely on experience to create instructional materials for herself—although her creations were based on suggestions from more experienced others. Also, she implied that received knowledge, as well as experience, may play different roles for different disciplines:

> I mean they give us the . . . test and they give us the guise of every day this is your objective—what you should be doing, but they don't give us the materials to do it. So last year I had to create it all myself and they gave some suggestions about how to go about doing it. This year it seems to be working better. Part of it is because I'm more familiar with it. Those materials I created, I'm using the same ones and I feel like I have a clearer sense of where I want to go with the lesson—what strategies I can pull in to help them. I don't always feel that way with the reading. Sometimes it's just overwhelming—it's just so much there! What's going to work and what isn't? With math, it's more like I'm showing—we're practicing we're more at the same pace than reading.

Formation of Ideal Types

During and shortly after my analysis concerning whether received knowledge or classroom experience was a predominate factor in participants' teacher knowledge, I also noticed that most participants seemed to illustrate a "type" of teacher. For example, one seemed to be an intuitive type—another an ideologue, another a pragmatist. I wanted to reflect this in my analysis and considered organizing participants by their "type." In order to maintain a systematic approach and ground this process in relevant theory and research, I examined the literature for examples of studies that used types and was informed by Weber's (1949) concept of ideal typology. Weber argued that using ideal types may be an effective way to examine characteristic traits of humans or aspects of culture:

> An ideal type is formed by the one-sided *accentuation* of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent *concrete individual* phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified *analytical* construct. In its conceptual purity, this mental construct cannot be found anywhere in reality. It is a *utopia*. . . When carefully applied, those concepts are particularly useful research and exposition. (Weber, 1949, p. 90)[10]

According to Watkins (1952), ideal types do not occur naturally in their pure state, but can be extremely useful as standards against which natural phenomena may be compared in order to increase our understanding of them. Discussing the most effective use of ideal types in qualitative research, McClafferty (2000) notes that

> The ideal type provides a way for the researcher to synthesize observations (e.g., data collected through interviews), to create a comprehensive yardstick that serves to illustrate and describe the 'reality' of the situation in question . . . used in this way, the ideal type is an excellent tool for describing qualitative data and hypothesizing about the implications and significance of the data. (McClafferty, 2000, p. 9)

[10] Thus, "ideal" does not infer perfection or that which is most desirable, but that which is abstracted—an analytical tool.

Concurrent with my interest in developing an ideal typology, I noticed that participants frequently alluded to either personal or collaborative aspects of learning to teach. Although I had been aware of personal and collaborative aspects of teacher development from my reflection on literature from cognitive psychology (personal, individual, agent-driven) and socio-cultural theory (collaborative, social, cultural, collective), the reality of the counterbalance between personal and collaborative ways of knowing became more interesting, more vivid, and more important as a potential feature of the emerging ideal typology now that it was couched in participants' own language. As previously noted in Chapter Two, teachers may be seen as professionals who contend with their roles not only as individuals but also as members of various kinds of collaborative groups. The notion of personal vs. collaborative was not reflected in my initial conceptual framework. I began to look for a way to include the balance between personal and collaborative ways of developing teacher knowledge into my notion of using an ideal typology.

As I continued to review literature on teacher knowledge in light of incoming data, Alexander's (2006) work on teaching and learning in light of cognitive theory fostered an idea for incorporating a locus of process—personal vs. collaborative—into my data analysis. Alexander posited knowledge along an axis or continuum ranging from radical constructivism at one end to social cognition at the other. That is, at one end, knowledge is seen to be strictly developed or constructed by the individual—what I am calling *personal*—whereas at the other extreme, knowledge is seen to be a social phenomenon, embedded in collaborative acts—what I am calling *collaborative*. Using Alexander's notion, I placed personally constructed knowledge at one end and

collaboratively constructed knowledge at the other. Mapping this locus of process (*personal* vs. *collaborative*), represented by a vertical axis, onto a locus of source (*experiential* vs. *received*), represented by a horizontal axis, gave rise to four ideal types of teacher knowledge—not types of individuals—and fit much better with my research questions about the nature of teacher knowledge. I then re-coded data according to how well they "fit" with the ideal types of knowledge—using codes that characterized statements about knowledge development as "personal" or "collaborative." Data were re-organized along these four lines of ideal types of teacher knowledge. In effect, I no longer was looking at "types" of teachers but at "types" of teacher knowledge—a subtle change of viewpoint that fit better with my topic and research questions. I do not want to assert that there are "types" of teachers—but "types" of knowledge through which teachers move in complex, nuanced, and ever-changing patterns. For most of the participants there did seem to be a predominate ideal type of knowledge. However, although one ideal type may have been predominate, the other types were also present to varying degrees. Furthermore, as data were played against the four possible roles for received knowledge and classroom experience discussed in Chapter One, I realized that each of the possibilities could be effectively discussed in the context of one or more of the ideal types. This discussion takes place later in this chapter and continues in Chapter Five.

Figure 3 shows the way in which I related these notions to one another to create four ideal types. Each quadrant represents a different relationship between the locus of process (*personal or collaborative*) and the locus of knowledge source (*classroom experience or received knowledge*). In this way, content and source are wedded to

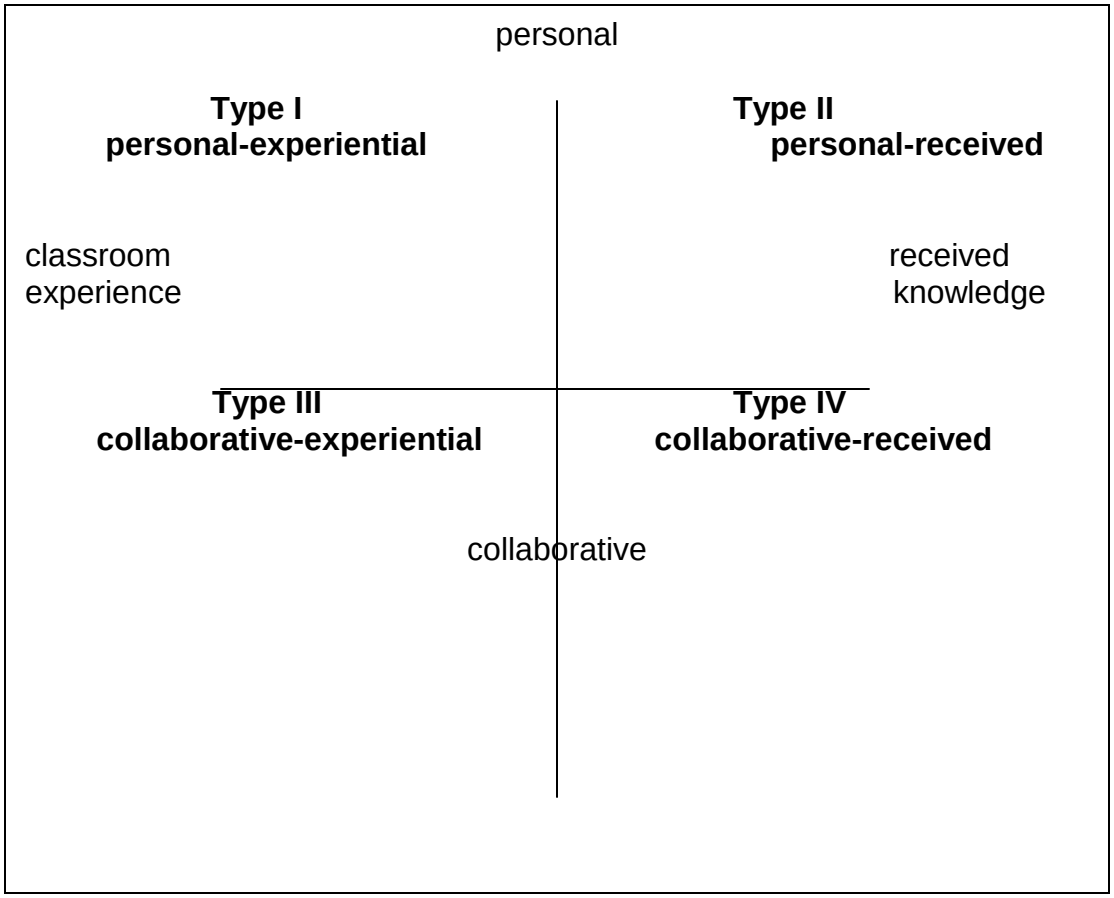

Figure 3. **Ideal typology for teacher knowledge**. Classroom experience and received knowledge interact with personal and collaborative dimensions to create four ideal ways for teacher knowledge to develop.

process. That is, the ideal typology represents what is learned, where it is learned from, and how it is processed. Each quadrant, therefore, represents a unique ideal type of teacher knowledge—a unique way of knowing. For example, when developing teacher knowledge primarily from individual experience in the classroom, a practitioner would represent Ideal Type I—*personal experiential*, whereas when sharing and discussing information presented in a professional development session with colleagues, a practitioner would represent Ideal Type IV—*collaborative received*. Thus, the emergence

of the ideal typology subsumed the notions contained in my initial conceptual framework. Namely, that Type I personal-experiential knowledge may be seen to be tacit or reflected upon, and that Type II personal-received knowledge may be assimilated as it is or modified. Types III and IV, however, would necessarily be propositionalized and articulated because they both involve communicating experience or sharing ideas about received knowledge—both of which require discursive thought. In the following sections, each of the ideal types is further explained and illustrated with interview and questionnaire data.

Type I: Personal-Experiential Knowledge

> Pretty much all the basics *I learned from being in front of a classroom*—where to stand, how to pass papers out, the little transitions . . . lesson plans, we had discussions about certain things, but I really had to learn it *on my own* Day One through the end of the year. (Brandon)

As Brandon shared in his interview, it seems that the basics of learning to teach may be accomplished while actually teaching, and also may be a personal, individualized process. For Ideal Type I, knowledge formation seems to depend upon the cognitive style, level of motivation, personality, and other idiosyncrasies of the individual; as practitioners navigate their way through face-to-face situations that demand their responses, knowledge about teaching develops. Type I knowledge may be explicit and conscious, or implicit and intuitive. Amanda described a kind of conscious, explicit Type I knowledge:

> All of my management techniques have been learned through experience. I see what works and what doesn't. For teaching, I think part of my skill is just *the ability to know what I want to accomplish and I get myself there* without a lesson plan written, and I am successfully able to teach the skill. Most often I relate my skills to personal experiences of the student.

Teachers who made statements that illustrate Type I knowledge were also concerned that much of what they had been taught in teacher preparation courses had to be rejected or substantially modified according to their personal experience in the classroom during their first years of teaching. Jamie shared that "I think that it comes from my experience in teaching. I don't think it came from anything that I ever read," while Ryan put it more forcefully:

> Even though my student teaching experience was fantastic, on my very first day of school, my first year of teaching, I was terrified because *there are so many things that a teacher education program cannot train you for*. And it's not the fault of any teacher education program; it's not the fault of any university—it's the nature of the profession. No teacher education program is going to prepare you for orientation week where you are slapped with all of this information—bombarded and overwhelmed with paperwork—piles of paperwork—everything you need to do before the very first day of school, and on the very first day you never learn what to do the very first week of school.

Although various levels of Type I knowledge were described by most of the participants, some teachers such as Lou Ellen, illustrated the irony of having to develop experiential knowledge without the luxury of having time to reflect:

> During the day *we really don't have time to really process because we're just moving on to something different*. We're just moving on, and moving on, and moving on. So you're thinking on your feet but you're not critiquing it or analyzing it. . . .When you're in the moment, I think you're always kind of doing that side-step—"Hey this is okay I can keep going," or, "Wait a minute, I've got to go over here," or, "Woa! I've got to pull these kids back here."

In contrast, Sharon described a more implicit Type I knowing:

> Before I would have to write it all out, now it's more of a—on my feet, *I just kind of know instinctively* and that's what my cooperating teacher said, 'You'll be able to think on your feet. You know? *It will come*.' Whereas before when I was a student teacher it was more like a script I needed.

Likewise, when asked to describe how she acquired her knowledge about teaching, Pauline offered that it may be an ineffable phenomenon, admitting that, "I don't know how to describe that process."

Thus, participants illustrated Ideal Type I knowledge when they described a way of knowing that was personal and experiential; knowledge was personally constructed from teaching experience in the classroom. It may have been implicit, or explicit; it may have been intuitional or consciously reflective. A more complete list of participants' representative statements illustrating Type I knowledge can be found in Appendix F.

Type II: Personal-Received Knowledge

> Every other summer I've gone to in-services or workshops the whole summer through. I just do them back-to-back. *I go to them just to increase my knowledge because that's what I need,* and like I said I don't pick it up as quick so I may need to hear it two or three times. (Mary)

Mary's statement illustrates a type of teacher of knowing whose source is external—from a recognized knowledge authority—in this case, her school district's professional development opportunities. I suggest that Type II knowledge may be seen as that which is personally constructed, but, unlike Type I knowledge, is initially received from sources other than one's own teaching experience. Instead of reflecting on classroom experiences, teachers acting within the parameter of Type II knowledge actively seek an authority—an expert.

At times, participants described Type II knowledge as originating from a text or existing literature. At other times, the knowledge was described as being received from more knowledgeable others such as colleagues, supervisors, professors, or professional development leaders. Lou Ellen illustrated this process:

> Demonstration lessons are really great. It's nice to go around and see other teachers and pick up from them things that work. We're always stealing from other teachers but it's nice to see it. Sometimes the theory is so darn out in right field that *you want them to come in and show you how to do it.*

Even when teachers combine others' ideas into a novel amalgam, originality is often shunned, and the "received" aspect of this kind of knowing is acknowledged, as Mary explained:

> What makes me, I guess, is that I'll take everybody else's ideas and put them together to create something else like a little bit different *but it's not like I came up with it.* Like I literally beg, borrow, and steal ideas, and I put them together and I go, "Okay. How's this going to work when we kind of mix a little bit of this with a little bit of that?" and sometimes it works and sometimes it doesn't.

Instances of teacher learning such as those of Mary or Lou Ellen illustrate the difference between knowledge that is *personal-received* (Type II) and *collaborative-received* (Type IV) knowledge; because knowledge is coming from a more knowledgeable other rather than from direct experience (received knowledge), and because the relationship between mentor and mentee may be seen as reflecting an aspect of authority—not collaboration—it is classified as Type II. If teachers were collaboratively sharing, discussing, and analyzing information from a knowledge source, it would have been classified as Type IV—collaborative-received.

Participants' statements classified as Type II knowledge such as the ones presented in this section, reflect the idea that there are such things as "best practices" that need to be learned and implemented in a certain fashion in order to optimize learning. Best practices have been defined as the "solid, reputable, state-of-the-art work in a field" (Zemelman, Daniels, & Hyde, 1998, p. viii). Originating in the fields of law and medicine, the term describes professional practice based on current research and is informed by the latest knowledge and technology in the field (Brighton, 2002). When

Bryan said, "I *immediately read the literature to find out what has been done to help in the past*," and when Lou Ellen complained that sometimes "*you want them to come in and show you how to do it*," they were reflecting the need and appropriateness of Type II knowledge. In fact, this type of received knowledge is seen as necessary by many first year teachers in order to provide them with a reliable structure in the fast-paced and unpredictable sweep of classroom events, as Michelle noted, "My first year I was pretty much by the book. I would follow lessons. I would plan my teaching partners who had been teaching for 8-10 years. I would take their suggestions. I kept all my notes and information from my teaching."

In sum, participants illustrated Type II knowledge when they shared a way of knowing that was received from a more knowledgeable, external source, and then processed in an individual, personal way. It may have been knowledge received from a text (research, curriculum guide, etc.) or from a person (colleague, administrator, etc.). A more complete list of representative statements for Type II knowledge can be found in Appendix G.

Type III: Collaborative-Experiential Knowledge

> We have a team meeting every Tuesday and each week we are discussing planning for instruction . . . so we are constantly talking and *even when you're not meeting in a team meeting you're talking over the fence over email* with each other. "What would you do about this?" (Jasmine)

Participants such as Jasmine, described how they not only learned but also refined their learning in the process of collaborating with others—discussions, team meetings, email, or just informally "talking over the fence." Type III knowledge is exactly this kind of learning that is collaboratively constructed by interactive sharing of classroom teaching experiences. It differs from Type I in that it is formulated collaboratively—not personally. It differs from Type II knowledge in that it emanates from shared classroom

experience by equals—not from an external, more knowledgeable source in an authority relationship. Mary illustrated further:

> It was just through basic lunch room talk. . . Like the color red you shouldn't use because it offends certain cultures. Those kinds of things I would not think of but *it's just through basic teacher talk that you pick up on that stuff*. . . And so it's there and it's in the lunch room that you get the most teacher talk.

In contrast to the informal "talking over the fence" kind of collaboration, Type III knowledge can also be very organized in a workshop setting as described by Darla:

> They used a writing workshop format for us to conduct action research in our classrooms, write about it, and they put us with *copartners* and we read it and shared and published it—that kind of stuff. So *as part of that group, that really influenced my thinking about teaching.*

Unlike ideal Types I and II, it seems difficult if not impossible to identify ownership for Type III type of knowing as Ryan stated, "I try to make it fun for them—add some humor, crack some jokes. I like to do group work presentations—*none of that I can say is my own. It's just something that teachers do*." Darla resonated with Ryan's sentiment:

> It's hard for me to separate what I intuitively know and did from what I'm learning to do from what others are giving me. Do you know what I mean? *I don't see anything as really original. I see everything as kind of a synthesis maybe.*

Interview data also suggested that even when tensions and disagreements may arise during teacher collaboration, the process may still serve to help formulate and refine teacher knowledge. Jasmine explained that

> You're really supposed to plan as a team . . . for example if you are visiting the school and you walk into my classroom in 4th grade you should see the same thing of information happening in the other 4th grades. We should all be on the same page. Well, I had a problem with that because all of the students are not on the same page on the same day. So yes we would teach the same information but maybe doing it at different times and of course I'm different. I have a different background so I'm going to do it differently. *So please don't expect me to teach it*

> *the way you teach it . . . because I have to put my own stamp on it because it's just me. And someone else will just do it according to who they are.*

Thus, participants illustrated Type III knowledge when they described a way of knowing that was collaboratively constructed in the process of dialogue about classroom teaching experiences. At times, dialogue was described as formal—in workshops or professional development settings—or as informal—in the hallway or faculty lounge. A more complete list of statements illustrating Type III knowledge can be found in Appendix H.

Type IV: Collaborative-Received Knowledge

> We took a lot of their theories—*we took a lot of theories that we had read about* . . . and we said, "All right this is what we can do." . . . It was really easy. All it was was us sitting down and tossing out ideas. "What about this? What about this?" And he'd say, "Well, where were you going with that idea? I hadn't thought of it that way. Why that?" And as long as I could say, "Remember that article about blah blah blah and blah blah blah?" *I think it was just having that intellectual discussion*. (Mary)

Another ideal type of knowing that participants such as Mary described was collaboratively constructed from received knowledge. In this type of knowledge, teachers may discuss, debate, evaluate, or reflect on propositional knowledge about teaching from external knowledge sources such as research, theory, curriculum guidelines or statements from supervisors or professors. Lou Ellen shared that

> The best (staff development session) I've had was when the math department was doing quarterly math inservice for us. They would walk you through a unit and give you manipulatives. They would give you background –new vocabulary, new terminology, whatever. *We worked in groups of 4 or 5 even though they talked to you, but then they would stop and you would do an activity together*—lots of hands on—that was the best.

Participants such as Darla also described an ideal type of collaborative-received knowing growing out of opportunities to apply received knowledge with a co-teacher:

> I was able to team-teach a class of writing workshop with another teacher *who also must have read the book or knew something about it from what I was telling her*—you know, all the components to it—who really helped. Well, we taught together so she really helped me.

Mary continued to describe the effectiveness of being able to pursue ideas found in literature about teaching with colleagues and translate them into practice:

> All the different readings that we had done-with that group—originally there were six of us . . . and we would read other things and talk about "How does this article relate to these strategies or how does it not? Does it go against anything?" *We were learning to think about research in a practical way because it's not something that came naturally.*

Participants illustrated what I have termed, Type IV knowledge, when they described a way of knowing that was *collaboratively constructed* after first being received from an external knowledge source. This type of knowing seems to emerge from dialogue about received knowledge or from shared experience using received knowledge as a springboard. A more complete list of participant statements illustrating Type IV collaborative-received knowledge can be found in Appendix I.

Relationship between Received Knowledge and Classroom Experience

Participants made statements about the complex nature of their teacher knowledge and its development. Data suggested that this complexity may be characterized by relationships between ideal types and by the nuanced nature of knowledge itself. At times, participant statements indicated that knowledge types may be complementary; at other times, data implied that one ideal type may be superior to another, or that two or more ideal types may be integrated into a whole. Other times, participants made metaphorical statements that reflected the ineffability of knowing how to teach. For example, Michelle considered her teacher preparation and classroom experience as complementary: "It [teacher preparation] reinforced things that I instinctively knew." She

implied that classroom experience may refine or professionalize the foundation of received knowledge:

> I think to sum it up they pretty much go hand in hand, but I think that my education gave me a foundation, but my experience is what made me a teacher. When I graduated I felt like I had the knowledge to do the job but it wasn't until I started to do it and interact with the students getting used to this school that I felt like I actually could say that I'm a teacher.

Many participants shared their perceptions that Type I and Type III experiential knowledge are frequently judged to be superior to Type II and Type IV received knowledge. Taisha explained, "Though it all sounded nice in the text, *when I entered a classroom with 20 students, I learned on my own* how to best help the students diagnosed with ADHA."

On the other hand, participants such as Pauline, described situations where Type I personal-experiential knowledge was in discord with Type II personal-received knowledge:

> This is actually where my education was bad because in college they taught us all these ways that we could do classroom management. When we student taught we had to try these different things, like you know, putting cubes in a jar and when the jar fills up you get a prize . . . all that kind of stuff. . . . When I used it in my own classroom it was horrible. . . the kids got so competitive and . . . were getting so mad . . . throwing books off the table . . . being like, "Why can't you put your books away! You're going to make us lose again!" It was so competitive it was a nightmare. And when I just ran the classroom without trying all those little games it was such a better experience. . . *So in the second year I think I just started out stronger myself because I had a year of experience. I didn't try to use all those games*.

Jasmine also commented on what may be seen as discord between experiential and received knowledge :

> The push for data collection and ongoing assessments has reduced the time teachers have for helping students to gain mastery of concepts. *I have disagreed with colleagues over the idea of hurrying through the curriculum in order to be ready for a test*. If two days are allotted for the teaching of a concept and students

> are slow to grasp it I do not move ahead until I think they are secure in the knowledge of what has been taught.

Other participants, such as Michelle, shared that received knowledge seemed incongruous with their experiential knowledge about the kind of learners in their classrooms. She made this comment about information presented in a professional development session:

> Often I will hear these things and think, "Wow! These are neat ideas!" I like the ideas that are being presented, but *I don't always find them useful because I think, "How am I going to do that in my classroom*? The students are not at the level to be able to do it independently. Their behavior's going to be inappropriate."

Furthermore, Darla complained about the problem of translating received knowledge into practice:

> I read this book in '87 or something and thought, "Boy, that's really nice. I'd like to do this in my classroom," but I didn't know how. *I just didn't know how to take it from the book into the classroom*. *There were so many pieces.*

Although some participants considered received knowledge and classroom experience to be complementary, others described many instances where knowledge that was received was incongruous with knowledge from experience. Data also suggested that although teachers frequently preferred experiential knowledge (Type I or Type III), received knowledge (Type II or Type IV) continued to contribute to what eventually became a part of their teacher knowledge.

Frequency of Occurrence

Representative statements that most strongly reflected each ideal type were organized and charted for comparison and reference in Appendices E-H. It soon became apparent that participants were devoting considerably more time and more language to making statements that could be characterized as Types I and II than those that could be

characterized as Types III and IV. Furthermore, the amount of language devoted to statements that could be characterized as Type IV was inordinately small. I used word counts instead of statement counts to assess the amount of language and frequency with which participants seemed to speak within the domain of an ideal type. I had two reasons for making this choice: first, counting the *number of statements* would have been a difficult and arbitrary task because most participants spoke in what might be termed a stream of consciousness, where rather than having definite beginnings and endings, statements tended to run on and into each other; and second, the length of individual statements, even when estimated, varied widely. A comparison of word count among the ideal types revealed an inordinate imbalance that favored Types I and II. This data is summarized in Table 4. A discussion relating to possible reasons for this imbalance will be presented in Chapter Five.

Table 4

Word Count based on Representative Statements of Ideal Knowledge Types

Ideal Knowledge Type	Number of Words in Representative Statements by Knowledge Type
Type I- *personal-experiential*	2204
Type II- *personal-received*	2234
Type III- *collaborative-experiential*	1732
Type IV- *collaborative-received*	342

Ineffability of Teacher Knowledge

> It's like lasagna, if I could use that as an analogy—that *everybody's lasagna's a little bit different, but it's always lasagna; it's all the same ingredients*. (Darla)

Darla's metaphorical language reflects the complex and nuanced nature of teacher knowledge as she understands it. Many other participants also attempted to describe their understanding of teacher knowledge in a holistic, metaphorical fashion. Consider the following phrases and images that participants used to describe teacher knowledge:

"arsenal of strategies . . .arsenal of techniques"	Ryan
"a realm of what works"	Pauline
"your bag of tricks"	Lou Ellen
"practical know-how"	Belinda
"what really works"	Mary
"what works and what doesn't"	Michelle

Although most participants made statements that indicated classroom experience was highly valued, Della described how the complexity of real-life classroom teaching may confound teachers' understanding of what works and what doesn't:

> You know sometimes I'm not really sure if experience is what really makes things work because I can plan things, and I can reason out why I'm doing things the way that I'm doing them, but darn it sometimes I think I put a lot of time into developing a lesson and it bombs, and then other times I do something in five minutes and it's wonderful. *There are so many variables*.

Many participants' statements addressed the difficulty of being able to describe or merely be aware of how their teacher knowledge develops. Belinda was unable to identify specific influences:

> I feel like I just know what a good teacher should be. I don't think my ideal comes from any teachers I have seen or maybe like a blend of different things I see teachers doing. . . . *I don't know if my ideal comes from any specific person or place.*

Michelle described the complex nature of delayed reflection and "muddling through" when answers are not readily available:

> When I'm driving home, when I'm grading their papers I see a bigger picture—I think-of how it didn't really work, but when I'm up there teaching I think. "This is great. This is going fine," or "This is not happening. What am I going to do to fix it?" And sometimes there isn't much I can do to fix it right then. *I have to just muddle through until the next subject.*

In sum, participants commented on the complexity of teacher knowledge in terms of intricate and sometimes adversarial relationships between received knowledge and teaching experience. Participants also commented on the ineffable nature of their teacher knowledge and its development. Descriptions of teacher knowledge ranged from colorful metaphors ("arsenal," "bag of tricks") to practical tautologies ("realm of what works," "what works and what doesn't").

Emergent Contexts

As stated in my second research question, one of the purposes of this study was to examine emergent contexts that may influence teachers' experiences and thought processes when attempting to integrate knowledge about teaching from various external sources with personal experience. For this study, "context" was seen to be the interrelated conditions in which teacher knowledge may emerge, develop, or change. With this in mind, I began to consider the four ideal types of teacher knowledge as the predominate context for viewing participant statements about teaching. That is, I began to view teacher knowledge as developing in the context formed from the interplay between received and experiential knowledge, and molded by either a personal or collaborative process. Data that supported this argument were presented in the previous sections of this chapter, and there will be further discussion of the four knowledge types in Chapter Five. In addition to viewing data within the context of the ideal typology, there were also participant statements that led to inferences about other contexts that were seen to

influence the development of teacher knowledge—namely, socio-cultural background and teacher compliance.

Socio-Cultural Context

> Sometimes I will slip into African American vernacular when it's appropriate to make a point, but I try . . . for example in African history the first day we were defining "African American" and I made it very clear that African immigrants don't consider themselves "African American" and the kids were like, "What?" (Della)

Participant statements such as Della's revealed themes and patterns of thought supporting the view that the development of teacher knowledge frequently occurs in a socio-cultural context. What Della and others shared revealed teachers' awareness of and concern for student characteristics such as, ethnicity, race, gender, class, family background, and language, and the inclusion of these concerns in decisions about how to teach, and in helping students forge an identity. This kind of Type I, first-hand, experientially developed knowledge of learners' backgrounds may become an integral part of teachers' decision making. For example, when planning her lessons, Jasmine shared that, "I'm thinking, 'Where do these students come from? What was their life like before they got here?'" Approaching a lesson in this way may be an aspect of maturing as a teacher. Ryan reflected:

> What I found is that I have to keep in and very much who my learners are. I can't just think about what the curriculum is. My first year I focused on more of the *what*. Then I started thinking more about the *how* do I teach it? And finally I'm getting into, "Okay, *who* am I teaching?" That's just as important as the *what* and the *how*, you know, is *who*.

Ryan also shared that when the cultural background of a significant portion of a teacher's class may be different than what he or she has been accustomed to, changes may have to be made not only in instructional approach but also in mannerisms and teaching style:

> Because I haven't taught . . . such a diverse group of students . . . I did not grow up in a very diverse environment. . . This new group of students is very diverse and I'm happy because it opens up my horizons –opens up my view of the world and gives me a chance to see what's out there. *Things I was able to do, jokes that I was able to make, conversations that I was able to have with groups of students at my last school, I can't necessarily have because it doesn't interest them*. They don't care about it—because of the topical nature of it—because of, pardon me saying it—not giving a damn? It takes a lot more of my time to get them interested . . . It's been a culture shock for me. I'm happy that I did it, but it's been a change.

Likewise, one of Taisha's main concerns was "add[ing] some things for my English language learners so they would have some words to pull—words they could comprehend."

Although many participant statements such as the preceding examples suggested that teachers would do well to consider students' cultural backgrounds, Mary expressed her concern about unwarranted generalizations about those backgrounds and raised an interesting point about the individual dimension of culture:

> I have to be very careful not make the broad statement that, you know you're from Sweden—you must be like this. You're from China—your family values are like this. No! When I think about culture I have to remember that *a culture is something's that's individual to a person not just to a group* and that's a paradigm shift for me to get away from that because that way I'm not stereotyping and enabling. I'm truly treating each individual because I'm South Korean right? But I was raised in a French-American home because I'm adopted, so my culture is extremely different than a French person's or a Korean person's just because of the nature of how I grew up, you know? And *everybody has their own little twist*, I think so you have to keep that in consideration.

One may ask, at this point, "Wouldn't this be an example of Type II received knowledge about how to teach students from diverse backgrounds rather than Type I experiential?" I would answer that a subtle difference is illustrated in Mary's statement. That is, if a student would explicitly state how they should be taught with respect to their cultural background, I would classify that as Type II received knowledge; however, when

teachers develop this kind of knowledge indirectly through student-teacher relationships, then Type I personal-experiential knowledge is exemplified because teachers experience everybody's own "little twists" and incorporate them into lesson planning and building further rapport with students.

Likewise, some participants reflected that an awareness of class distinctions may benefit instruction. Amanda stated her concerns about students' lack of background knowledge, building schema, and her ability to learn about class differences from Type II Personal-Received Knowledge:

> I very much think about multiculturalism and diversity—a lot of it with the socioeconomic class because I think that our school is such a lower socioeconomic class than other schools in the area—that these students come to us without the background knowledge that other students might have in other schools . . . I focus on that and how much they really know about a topic because . . . *if they have no background knowledge you can't do anything, so you build some of that up*. I did take a . . . grad school class though, something about social issues in education, and it was looking at different classes and poverty . . . and there's a great saying, something like in the lower class the question is always, "Did you get enough—food. Did you get enough? Are you full?" And the middle class it's always, "Well, how did it taste?" And in the upper class it's always, "What's the presentation? What did you think of it? Did it look pretty?" And that's something that's always stuck with me.

Jasmine also became aware, through Type II personal-received knowledge, that socioeconomic class may have an effect on students' schema

> That [building background and clearing vocabulary] came from research . . . The school I came from was upper middle class and you could talk to them on their level and understand them, but when I came here the students didn't know what I was saying, so *I had to stop and go back and not take it for granted that they knew, because I never taught a population like this.*

Della reached similar conclusions through her interactive experience with students and demonstrated another side to Type I knowledge:

> I try to generally mix things up. I try to do a little bit of both so that the kids who may be part of what I would say is an experientially disadvantaged group whether

> that kid is a poor white kid or an African American kid or a Hispanic kid, I can give them something to grab onto that they can relate to. And if I can't think of something, I may give an example and ask them if they could come up with more examples. So in a sense they help me understand.

In contrast, although socio-cultural influence on learning to teach was a strong theme in the data, it must be noted that some participants stated that they did not consider cultural differences when planning lessons; they expressed more concern for personal attributes than for group-centered ones. This attitude most frequently was accompanied by Type I personal-experiential knowledge. Michelle admitted, "It's not that much of a factor when I'm teaching. I try to be sensitive to students' backgrounds during a lesson . . . *but just in day-to-day planning it's at the bottom of the list.*" Pauline echoed this thought when she shared an experience that involved raising a student's consciousness about racial issues while maintaining her stance about the individuality of student perceptions:

> I think that all kids are different and sometimes that difference includes ethnicity and culture and sometimes it doesn't, but I think as a rule all kids are different and all kids are also similar, so when I look at a child to see if they are similar or different to another child and maybe ethnicity is included in that but *it's not the thing that jumps out at me*. One thing I do remember that we discussed openly in the classroom was I remember we taught about slavery and we were talking about Harriet Tubman . . . and there was a girl in that class who was African American and . . . raised her hand and said, "Well, I would have been a slave if I would have lived back then." And it was kind of he first time that something like that had ever come up and we actually talked about it. That's the first time I remember it standing out.

Michelle expanded this train of thought but added some concerns that she may not be giving enough consideration to socio-cultural factors:

> It's more like, "How can I present the information so students will best understand it and will be engaged and want to learn it? *So the diversity factor isn't high up there. I look at them as individuals but I don't think I factor in as much their cultural background maybe as much as I should*. I factor more of it into their behavior, their interests, their personalities, and I do have a few students who were not born in this country and I don't think that I factor—put as much emphasis on their background as I should.

There was also concern about not knowing how to differentiate for diverse cultural backgrounds; Belinda reflected this uncertainty and, in the absence of received or experiential knowledge about how to be "culturally sensitive," described a situation in which she improvised instructional approaches in order to incorporate concerns about students' socio-cultural backgrounds:

> They'll say, "Well, you should present to different cultures in your lesson plans and, you should make sure that you're not expecting for everyone to have the same cultural value," but they never tell us how. They say, "This is what you need to do to be a good teacher," but I feel like there are never workable strategies, so if that's something that I'm really interested in and I feel that it's really important that I do it, *I'll go the extra mile on my own and try out things*—see how they fit in. I don't feel we ever got, "This is how to be culturally sensitive . . . this is how to make sure everyone's diversity is appreciated in class." *It's more like the ideas without the specific strategies*.

It seemed that socio-cultural influences on learning to teach were interwoven within participants' efforts to become more familiar with students' backgrounds and with a concern for making instruction as relevant and engaging as possible. Although this was the most frequent theme in participants' statements, there were, however, other voices implying that teacher knowledge about socio-cultural concerns seems too general because it lacks specific instructional guidelines.

Viewed in the context of the ideal typology, socio-cultural concerns may be addressed in all four ideal types of teacher knowledge: from classroom experience with students from diverse backgrounds (Type I), received knowledge about culturally responsive teaching (Type II), sharing experiences involving diversity with colleagues (Type III), and participating in study groups in response to literature about teaching with socio-cultural differences in mind (Type IV).

Compliance

> We got a new principal . . . and he came into my eleventh grade class of students and he meets with me afterwards and he says, "I'm sure that there's learning going on in your room, but I can't see what it is." . . . He kept [evaluating] my lessons [as] unsatisfactory . . . He said, "I want you to do this lesson," and told me what to do. *He scripted it out for me* . . . And so I did it. And all of a sudden it was wonderful, you know? *But it was his lesson*. And he just thought that was like good. *That was the kind of instruction he could understand and that's what he liked.* (Darla)

Another contextual influence on the development of teacher knowledge that was reflected in participant statements such as Darla's relates to the power structure in which teachers work, in other words, the degree of expected compliance. Lou Ellen perceived this as a "my way or the highway" attitude that administrators can sometimes adopt:

> I have invited the administration to come into my room and demonstrate a successful morning or afternoon implementing this "Four-Step Model" for all instruction. They have not taken me up on the offer. Needless to say they insist that this is the only way to present material and it is not open to discussion. *Closed minds do not allow free dialogue*.

According to participant statements, constraints and imposed parameters from supervisory personnel seemed at times to be related more to expectations for adhering to prescribed teacher behaviors than to developing instructional approaches. Nonetheless, I include participant statements concerning compliance because they were frequent, seemed heart-felt, and influenced practice. For example, Belinda commented about how the pressure to receive a satisfactory evaluation from administrators can influence how much of a teacher's knowledge is able to be implemented and how at times, what results is a blend of the teacher's ideas and the administrators':

> So I try to still stick to *what I think is the right thing to do* because personally when I see kids learning like that I see that they get more excited and they're more engaged, but I also feel that *I have to make the administration happy because they're the ones observing me and evaluating me.* I try to incorporate that as well so it's kind of like a blend.

Darla commented about the loss of autonomy as a result of being expected to use scripted programs of instruction:

> I told [my principal] that a trained monkey could do it. [He] said, "It's nice to have a skilled teacher." It's not that it's hard but you know what I mean? *Why are they paying people all this money to read scripted programs*? Where's the trust? You know for a teacher to be able to do something? *I used to have a lot of autonomy. This year I have none*.

In ironic counterpoint, after first railing against scripted lessons and feeling like a "trained monkey," later in the interview, Darla shared that she actually enjoyed the ease and support that using pre-made lessons provided:

> This is what I've discovered—that doing things that other people have written is much easier than creating your own stuff. *It's so easy. I don't have to think about anything*—what I'm doing when I come into work. I have planning from 9-9:50. I know that I have to make charts and I have to plan with S. for a couple of minutes and make a chart for what we're doing up there. *I mean it's really simplified my job*.

When I asked her about this seeming contradiction, Darla's voice reflected frustration and resignation when she explained that she didn't have to spend as much time planning for reading intervention lessons:

> V. [an instructional aid] could do it. And V. does do it on Wednesdays when I'm in ARD team. Parent helpers could do it. So what else is there to teaching? . . . but once I started doing these little programs I didn't have to do that anymore…thinking about teaching. . . . I think that I know a lot about reading and writing and how to teach it even though I can't make it evident to the administration.

Compliance issues figured prominently in other participant statements as well. For Belinda, administrators seem to tightly control the flow of information from research:

> [The principal] talks about brain-based research with us, but *she doesn't really talk about the research* . . . we never really hear about studies that were done or anything like that and *the only professional development we get is just what the county supports* . . . like we had a faculty meeting last week on multiculturalism

> that H. presented because she's the multicultural liaison so she went to a meeting. . . . and she just presented what they told her. That's pretty much what it is.

For some, such as Lou Ellen, curricular components are sometimes perceived to be adopted or rejected with little or no rationale or connection with instructional theory:

> Unfortunately, in today's curriculum we are just given a new curriculum and told to teach it, then in another year or two, that is thrown out and *another curriculum takes its place with no explanation of theory or research.*

As a teacher in private school, Pauline perceived the power structure of public schools as being overly controlling:

> *From what I've heard it's not as much room for creativity*. It's more like you're given a set of lessons and here's where you need to be on this day. I think that would be stressful. I think that would be very stressful, and I think that you wouldn't have the flexibility to do a project and take an extra day.

In summary, participants reported that they became aware of constraints, imposed parameters, and expectations for compliance directly from classroom experiences such as observations and walk-throughs , and from specific communications from supervisors about behavioral expectations and suggested instructional guidelines. In some cases, participants implied that access and implementation of Types II and IV received knowledge from research literature may be heavily controlled by administrators.

In the next chapter, the four ideal types of teacher knowing, along with the emergent contexts described in this section are discussed in light of their contribution to theory on teacher knowledge and its development. Implications for practice and teacher development are also addressed.

Chapter Five: Discussion

At the beginning of the study, an initial conceptual framework was developed that viewed teacher knowledge as the interplay between the duality of received knowledge and classroom experience. Support for this notion from theory, research, and participant statements was presented. In the initial stage of analysis, participants were seen as practitioners who relied on either received knowledge or classroom experience as the predominate means for learning how to teach. After repeated readings and re-coding of data, however, the initial conceptual framework was broadened to include the notion that knowledge could be developed in personal and/or collaborative ways and an ideal typology for teacher knowledge emerged from this expansion of the initial conceptual framework. The typology was pictured as a four-quadrant mapping of a locus of source (*experiential vs. received*) onto a locus of process (*personal vs. collaborative*). Subsequent data analysis was carried out within the context of the ideal typology. The typology is offered as an organizational scheme in which various and differing theories on the nature of teacher knowledge may be seen as discrete positions in a larger whole—each position describing a portion of teacher knowledge—with no one particular position in itself being able to capture the depth and complexity of teachers' ways of knowing.

In this chapter, the four ideal types of teacher knowledge are first summarized and discussed in relation to recent theory and research on teacher knowledge and in light of the possible relationships between received knowledge and classroom experience put forth in Chapter One. Next, the central research questions of the study are revisited and discussed in light of the results presented in Chapter Four and in light of the four types of teacher knowledge in the ideal typology. After that, implications for practice and teacher

development are examined, anticipated criticism from alternative viewpoints is conjectured and responded to, and limitations of the study are discussed. Finally, lingering questions and ideas for further research are offered.

Four Ideal Types of Teacher Knowledge in Light of Recent Theory and Research

In order to place the findings from Chapter Four in the context of current theory and research on teacher knowledge and how it develops, each of the four ideal types of teacher knowing will be discussed in relationship to theory and research introduced in the Review of Literature. In this way, each ideal type can be seen as a contribution to current theory on teacher knowledge—a contribution to the ongoing process of constructing a theoretical framework within which we may better understand the ways that practitioners learn their craft.

Ideal Type I: Personal-Experiential

Participants alluded to Type I Knowledge (*personal-experiential*) when they made statements that reflected personal and experiential ways of learning how to teach. Simply put, it is learning to teach by the experience of teaching itself. Type I knowing is strongly reflected in Schon's (1987) concept of an epistemology of professional practice, where teachers learn by reflecting during and after teaching, and seem to access their knowledge in the act of teaching itself. Type I knowing is also reflected in the concept of craft knowledge (Leinhardt, 1990), classroom knowledge (Doyle, 1990), and personal, practical knowledge (Ojanen,1996). It may be implicit and nonpropositional (Munby, Russell, & Martin, 2000), or it may be the result of reflection on and articulation of the teaching experience itself (Clandinin & Connelly, 1990). The nature of Type I knowledge posited in Chapter Four is also consistent with research and theory on learning that

emphasize the personal, individual aspects of knowledge construction. From this viewpoint, knowledge is seen to be a truly individual creation and judgments about "truth" or "reality" are completely dependent upon individual, idiosyncratic mental constructions (von Glaserfeld, 1992).

Many participants reflected that their knowledge about teaching relied on what may be referred to as "intuition" or "instinct." It may be that this type of knowing has to do with the process of automatization. According to information processing theory, cognitive capacity is limited, and information that is accessed automatically, with a minimum of effort, allows more cognitive capacity for higher order mental tasks, such as, in this case, meeting the demands of classroom teaching (Anderson, 1976; Miller, 1956; Sweller, 1988). However, when Sharon said, "I just kind of know instinctively," and Amanda commented about knowledge "coming out of nowhere," it may be that they are expressing something more than automatization. Isenman (1997) has looked closely at the process of intuition in a wide range of professions, and has argued that

> Through intuition, the unconscious with its vast memory banks, its associative accessing system, its speed, and its ability to process multiple items in parallel, greatly enriches the ability of conscious mental activity to manipulate logic and construct empiric tests. (p. 397)

When Amanda talked about a light bulb going off and ideas coming out of nowhere, it may be that the intuitive processes that Isenman described are in effect. Other researchers such as Csikszentmihalyi (1990) and Gladwell (2005) have also attempted to examine and describe the intuitive process. Csikszentmihalyi contends that there is mental state characterized by a high degree of focus and concentration, full immersion in the activity at hand, and success in the process of the activity. Referring to this mental state as "flow," Csikszentmihalyi argues that in education, flow may be supported by visualizing

the desired performance as a singular, integrated action instead of a set of actions. That is, at times, teachers are able to "see" what needs to be done in order to maximize learning and then act upon their visualization. Amanda reflected:

> I've always been told that I have this natural ability and that's the one thing that I think I had on my own. I know what I what to get taught –I know what I want to teach, and I know how to get there. . . I think that I have a lesson plan going one way and then I listen to my kids, and *I see what they need, and then I just take off and get to where I need them to be like that*. And I don't necessarily have to stop and look up things in a book or other lesson plans. I'm just able to very quickly think on my toes and then just keep going. . . And I don't think I ever learned that in school or from any theory.

Gladwell (2005) has also presented an explanation of how intuitive processes may work. He has described a process called "thin-slicing" where one makes split second decisions based on markers that indicate aspects of experience that are considered to be ultimately important. For teachers, this would involve the recognition certain aspects of student behavior that would signal a specific instructional action. As Amanda stated, "I see what they need, and then I just take off and get to where I need them to be like that."

It seems, therefore, that Type I *personal-experiential* knowledge, as I have defined it and as alluded to by participant statements, subsumes both of the possible roles for classroom experience *as knowledge* posited in Chapter One. First, I would argue that participant statements about knowing "instinctively" what to do, about knowledge being "intuitive", and about not knowing how to describe the process of knowledge acquisition, are all supportive of the notion introduced in Chapter One that experiential knowledge about teaching may remain unarticulated, tacit, unreflected upon, and does not interact (at least consciously) with received knowledge. Second, I contend that participants made statements that provided support for the idea that classroom experience may also play a role in which it may be consciously reflected upon, compared to previously formulated

personal theory, or "tuned" to previously assimilated, received knowledge. Della emphatically summarized this point when she stated

> I may have taught something two or three times but darn it, I'm gonna look at it again and I'm not gonna just tough it out . . . I'm always gonna find a way to fine tune or find a better way of doing something.

Although the idea of Type I personal-experiential knowledge is consistent with participant statements about learning to teach from the teaching experience itself, and developing personal knowledge about teaching, it has been criticized as being overly "subjectivist" and as being remiss in reflecting socio-cultural influences (Garrison, 1997). These environmental influences will be discussed in the following sections that address Ideal Types II, III, and IV. Nonetheless, there does seem to be a personal and experiential aspect to many of the participant statements such as, "I feel that I have gained the most through my experience in the classroom," and "all of my management techniques have been learned through experience."

Ideal Type II: Personal-Received

In contrast, Type II (*personal-received*) knowledge was reflected in participant statements that were characterized by reliance on received knowledge from a knowledge source other than self, but may then be interpreted and formulated in a personal, individual way, or may be retained exactly as it was received. In other words, Type II knowing may be assimilated unchanged into existing cognitive structures or it may be modified in order to accommodate existing schemata for knowledge about teaching (Rumelhart & Norman, 1976, 1980; Piaget, 1926a, 1926b). Type II knowledge is reflected in the concept of received knowledge (Belenky et al., 1986), formal teacher knowledge (Fenstermacher, 1994), and the idea that there are best practices, supported by

research and elaborated by theory, that teachers should adopt in order to achieve better student performance (Gagne, 1983, 1985; Marzano, 2001, 2003). The nature of Type II knowledge posited in Chapter Four is also consistent with research and theory on learning that have attempted to describe how information from the environment is processed and transformed into knowledge that is stored in the mind as long term memory (Miller, 1956; Simon, 1978). For teachers, this information from the environment may be in the form of teacher preparation courses, graduate study, professional development sessions, or advice from colleagues. In order to be classified as Type II knowledge, however, this process must satisfy two criteria: first, the information must be received and processed in a personal, individual fashion—in other words, there must have been an opportunity for the practitioner to individually process the received knowledge; and second, the information must be propositional, previously articulated, and not experiential—otherwise it would be classified as Type I personal-experiential knowledge.

Furthermore, it should be noted that even in social situations, persons may still act as individual agents. That is, even in a social situation, learning may continue to be characterized as individual. For example, a teacher may participate in a professional development session with colleagues, but if there is no interaction among participants, and the teacher is effectively "alone in a crowd," the learning remains predominately, if not completely, individual and personal. Type II knowledge was reflected in participant statements such as, "I'll take everybody else's ideas though and put them together to create something else like a little bit different but it's not like I came up with it," and

"[reading research and theory] forced me to keep reading, and then if I'm reading naturally I'm going to start thinking that way."

Type II knowledge as posited in Chapter Four is also consistent with a theoretical viewpoint that may be described as cognitive constructivism, where knowledge is seen to be individually and idiosyncratically constructed from received and processed information (Byrnes, 2001; Phillips, 1995; Piaget, 1926a). Seen from this vantage point, the development of knowledge is dependent on stages of mental maturation and the linking of new knowledge with prior knowledge in order to construct new mental structures or assimilate incoming information into those already formed (Bruner, 1966, 1973; Piaget 1926a, 1926b; Seigler, 1998). With this in mind, Type II knowledge differs from Type I in that it is based on received information from external knowledge sources—not on direct experience.

As far as the possible relationships of received knowledge and classroom experience posed in Chapter One, I contend that within the context of Type II personal-received knowledge, support may be found not only for received knowledge integrated into existing schemata as is—unchanged—but also for received knowledge modified by comparison to previous knowledge or experience. First, participant statements relating to the use of "tried and tested materials," learning by carefully observing demonstration lessons, and the nonreflective nature of following scripted lesson plans indicate that, as suggested in my initial conceptual framework, received knowledge may remain abstract, propositional, informational, and possibly memorized by rote. Second, when participants argued that there was a difference between "what sounds good and what really works," and that certain ideas about teaching may "sound nice in the text" but need to be

significantly modified, they appeared to support the notion that received knowledge may be tested and modified by classroom experience or by comparison to previously received knowledge.

As with Type I knowledge, however, this approach to understanding the nature of knowledge has also been criticized as being overly concerned with the personal, idiosyncratic dynamics of knowledge development, and as lacking an awareness of the role that social and environmental interaction may play in the process. Gibson (1966), for example, argued long ago that human knowledge is not the result of personal reflection, contemplation, or interpretation of incoming information, but is instead "situated" in environmental resources which "afford" human thinking and human knowledge. This viewpoint will be examined further in the following discussion about Ideal Types III and IV.

Ideal Type III: Collaborative-Experiential

Unlike Types I and II, Ideal Type III (*collaborative-experiential*) knowledge was illustrated by participant statements that described a collaborative process whereby teachers share and discuss their teaching experiences and what they have learned from them. Type III knowledge as posited in this study is consistent with theory and research based on the premise that knowledge is socially constructed (Bakhtin, 1981; Vygotsky, 1978, 1987). This type of teacher knowing has been described as developing in a community of practice (Grossman, 1989, 1992; Lave & Wenger, 1991), and from "what accomplished teachers know as it is expressed in their practice, their reflections, and their narratives" (Hammerness, Darling-Hammond, Bransford, 2005, p. 382). It is "knowledge

. . . constructed collectively within local and broader communities" (Cochran-Smith & Lytle, 1999, p. 274).

The process of developing Type III knowledge may be initiated informally, as Mary stated:

> Where [teacher preparation courses] fell short was teaching me how to deal with behaviors related to Special Ed students. That I was not prepared for, and I had to teach myself as I went, and it was you know just ask around the building you know?

On the other hand, Type III knowing may also develop as a result of formally orchestrated professional development sessions where teachers are given opportunities to share and discuss their experiences from the classroom with other teachers. Type III knowledge is especially evident when teachers first have the opportunity to experience a slice of classroom life together and then are able to dialogue about it such as co-teaching or teaching different subjects to the same students. As Darla remarked:

> I was able to team teach a class of Writing Workshop . . . with another teacher who also must have . . . known something about it—you know, all the components to it—who really helped. Well, we taught together so she really helped me.

Lesson study is a robust example of Type III knowledge in that it is based on collaborative reflection and dialogue about common and diverse classroom experiences before, during, and after teaching collaboratively planned lessons. In this case, teachers' collective ways of knowing are allowed to converge and interact giving rise to the opportunity for novel combinations and syntheses.

Simply put, whether informal or structured, Type III collaborative-experiential knowing involves the formation of teacher knowledge as a result of teachers having the opportunity to dialogue about their classroom experiences. Although this may seem like

an obviously effective way to facilitate the growth of teacher knowledge, it may be that this aspect of teacher development has been frequently neglected. This point was forcibly emphasized in a statement from a teacher in the Compass Point Practices Project—an attempt to apply multiple intelligence theory throughout the school curriculum—"We don't believe in workshops. We don't believe in bringing experts for a day . . . [That is] time we could be talking and learning from our own experiences" (Kornhaber, Fierros, & Veenema, 2004, p. 35).

It seems that Type III knowledge fits well with my assertion that experiential knowledge has the potential of being consciously reflected upon, being compared to previously formulated personal theory, or being contrasted to previously assimilated, received knowledge. All of these processes may be seen as being particularly characteristic of sharing experiences in a collaborative context. That is, as participating members of an interactive, discursive collaboration, teachers would be confronted with a range of colleagues' ideas that would have the effect of facilitating re-examination of personally held assertions and beliefs about teaching. For example, in the crucible of co-teaching there is also co-planning, co-implementing, co-assessing, and the resulting interactive influence of both practitioners on each other. Also, as ideas emerge and flow from recounted experiences, there would probably be opportunities for comparison to already assimilated notions from research, theory, district guidelines, and other forms of received knowledge. Type III knowledge does not, however, support the notion that experiential knowledge may remain unarticulated and tacit because by the very nature of dialogue itself ideas are being verbalized into propositions. Perhaps the very process of verbalizing experience necessitates a conscious organization of that experience into

discursive, declarative frameworks. This lack of support for tacit, unarticulated knowledge, however, does not negate the typological framework because ample support has already been established in the context of Type I. It may be that as we move from the personal realm in which we may retain our intuitive powers, to the social/collaborative realm in which we are placed in situations that demand discursive thought, knowledge development becomes necessarily more openly public and less tacitly personal.

Ideal Type IV: Collaborative-Received

Similarly, Type IV knowing (*collaborative-received*) was reflected by participant statements alluding to collaborative contexts, however the impetus and origination for this type of teacher knowledge is from a source external to the collaborators—not from their own experiences. That is, the key difference between Type III and Type IV knowledge is that Type III knowing involves teachers coming together to discuss experiences where Type IV involves teachers coming together to discuss literature, presentations, or any other authoritative knowledge source. Type IV knowledge is characterized by "ongoing inquiry by teachers . . . into other systematic and practical sources of knowledge for addressing critical problems of practice" (Hammerness, Darling-Hammond, Bransford, 2005, p. 383). Type IV knowledge is the aim of professional development when teachers have the opportunity to engage in dialogue about theory and research, and make connections to their practice. Mary's statement is a robust example of what I describe here as Type IV knowing—a constant and focused effort to not only incorporate research, theory, and best practices into one's teaching, but also to discuss and dialogue about these topics with colleagues:

> Working with [my colleagues] pushes me to have to go, "Okay, let's take all that abstract theory that we read about in class. How do I relate that to [the

> classroom]" You know? All the different readings that we had done-with that group—originally there were six of us . . . and we would read other things and talk about how does this article related to these strategies or how does it not? Does it go against anything? We were learning to think about research in a practical way because it's not something that came naturally.

Type IV knowledge may be seen as the kind of know-how and insights about teaching and learning that develop when practitioners participate in study groups or collaborate within the context of teacher preparation and graduate study programs. (Birchak et al., 1998; Keller, 2008).

The notion of Type IV knowledge, as defined above and alluded to by participant statements appears to support the idea that received knowledge may be tested and modified by classroom experience or by comparison to previously received knowledge. When teachers participate in book study, in professional development activities that incorporate opportunities to collaboratively examine literature, or in cohorts that share graduate study courses, they are necessarily placed in a position where previously held ideas about teaching may collide with ideas of colleagues, or may be measured against personal experience, or may be evaluated in light of previously received knowledge. In the same way that the social component of Type III *collaborative-experiential* knowledge facilitates discursive reflection on previously held assertions and beliefs, the collaborative nature of Type IV knowledge draws teachers into a stance where received knowledge may be evaluated in the context of collegial dialogue.

Both Ideal Type III knowledge and Ideal Type IV knowledge are consistent with theory and research that attempt to understand knowledge development as a socio-cultural phenomenon and that consider "the roots of learning and development [as existing] in human socio-cultural interactions and the way groups, not individuals,

construct understandings" (Alexander, 2006, p. 71). As collaborative kinds of knowing, both Type III and Type IV knowledge are also consistent with Deweyan education philosophy in that they adhere to the assertion that "every individual has grown up, and always must grow up, in a social medium. . . Through social intercourse, through sharing in the activities embodying beliefs, he gradually acquires a mind of his own" (Dewey, 1958, p. 317). Dewey's statement not only highlights the significant difference between cognitive and social approaches to examining the nature of knowledge, but also intimates an over-arching framework in which what I have described as ideal types of teacher knowing may not merely coexist but may be inherently interdependent. That is, although we form our knowledge within and among socio-cultural influences, we arrive at a place where our personal knowledge landscape is underlain with our own unique interpretations as we acquire a "mind of our own."

Thus, the four ideal types of teacher knowledge proposed in this study embrace a wide range of philosophical stances and pedagogical paradigms. My assertion is that no particular one of the ideal types gives a complete picture of teacher knowledge and its development. Personal reflection on classroom experience or research literature may occur with or without the collaboration of colleagues. Collaborative sharing of teaching experiences or study group reflections may occur in spite of or without previous individual reflection. At any one moment in a teacher's life, one or more of the ideal types may be dominant, but may then give way to another type according to the particular needs of the teacher and students at that moment.[11] It may be reasonable to assume that new teachers may rely most frequently on Type II and Type IV knowledge because they

[11] Fuzzy but interesting boundaries may be seen, especially in higher education, in cases where teachers and students alternate between being co-learners (collaborative) and being in a teacher/student relationship.

have not yet accumulated a sufficient amount of classroom experience yet. On the other hand, experienced teachers may be wary of new methods or attitudes that are in discord with their well established, experience-based instructional approaches. With this in mind, it may be that the best, most comprehensive structure for professional development would address all four ideal types of teacher knowledge formation. This idea will be pursued further in a discussion of implications for practice stemming from this study. A graphic summary of the previous discussion is displayed in *Figure 4*.

Discussion of Central Research Questions

Having established a background of relevant literature consisting of theory and research about teacher knowledge and its development, and having presented an ideal typology of teacher knowledge based on participant data, the original research questions may be addressed.

Research Question #1

How does teacher knowledge develop in relation to received knowledge and classroom experience? Most directly, this question has been answered by the presentation, description, and discussion of an ideal typology of teacher knowledge that incorporates received knowledge and classroom experience as attributes or components of a holistic gestalt of teacher knowledge. Received knowledge, therefore, may be seen in two aspects—personal or collaborative—teachers may personally interpret and reflect on knowledge sources other than self, or they may respond to these knowledge sources as part of a group or community of practitioners. Likewise, classroom experience may also be seen as an immediately accessible source and refiner of instructional practice. Experiential knowing also has a personal and collaborative aspect—teachers may

Type I … personal-experiential	*Type II … personal-received*
• Wisdom of Practice (Shulman,1987) • Craft Knowledge (Munby, Russell, & Martin, 2001) • Classroom Knowledge (Doyle, 1990 • Epistemology of Practice (Schon, 1983, 1987)	• Received knowledge (Belenky, et al. , 1986) • Best practices (Marzano, Pickering, & Pollock, 2000) • Formal Teacher knowledge (Fenstermacher, 1994) • Use of teacher manuals; adherence to district guidelines
Type III…collaborative-experiential	*Type IV…collaborative-received*
• Lesson Study (Lewis, 2002; Stigler & Hiebart, 1999) • Communties of Practice (Grossman, 1989, 1992; Lave & Wenger, 1991) • Social Construction of Knowledge (Bakhtin, 1981; Vygotsky, 1978,1987)	• Collaborative graduate study • Ongoing inquiry by teachers . . . into other systematic and practical sources of knowledge (Hammerness, Darling-Hammond, Bransford, 2005) • Study Groups (Birchak, et al., 1998; Keller, 2008)

Figure 4. **Theory and activities characterizing ideal types of teacher knowledge.**

personally interpret and reflect on their unique classroom experiences or they may take the opportunity to share their experiences in dialogue with others, forging new understandings and asking new questions.

However, although received knowledge and classroom experience may be parts of a whole, participant statements also indicated that teacher knowledge may be seen as developing from a complex relationship between received knowledge and classroom experience that may alternately be described as complementary, discordant, or

interactive. Furthermore, this relationship takes on a complexity and nuance that emerges from the differences between a personal, individual approach and a collaborative one. Each of these ideas will be examined further in the following discussion.

Knowledge Types as Complementary. Participant statements indicated that knowledge types may at times be complementary—one may provide an aspect of teacher knowledge that another is lacking. For example, Mary appreciated her undergraduate coursework in education, "because they taught you the little things that it would take you years to pick up—things like proximity," but lamented the fact that she was not taught "how to deal with behaviors related to Special Ed students," and had to "teach myself as I went and . . . ask around the building." Here, it seems that Type II knowledge from a teacher preparation program is complemented by Type I knowledge from classroom experience and also by Type II knowledge from more knowledgeable colleagues.

Furthermore, one knowledge type may help to interpret another. For example, teacher knowledge formed as Type I (*personal-experiential*) is based on personal teaching experience and seems to rely on an implicit and procedural dynamic; it is frequently difficult for teachers to articulate. Type II knowledge (*personal-received*) however, has already been propositionalized because it has been communicated from an external source. Being exposed to Type II knowledge that is directly related to Type I knowledge would seem to strengthen both in a complementary relationship. For example, a teacher who has developed a keen knowledge of her students' learning styles from her teaching experience (*Type I personal-experiential*), or from discussion with colleagues (*Type III collaborative-experiential*), and who differentiates accordingly but cannot explain this to a new teacher who is eager to learn, may benefit from reading literature on

multiple intelligences, learning styles, or brain differentiation (*Type II personal-received*) in order to use appropriate terms and concepts that will help her share her experiential knowledge. Likewise, the Type II and Type IV knowledge that may include reading research and theory may be complemented by the Type I and Type III knowledge of implementing practices suggested in the literature and either reflecting on the process or sharing experiences with colleagues.

Participants also spoke of instances where received knowledge and classroom experience interacted to forge a synthesis that may have been a novel instructional approach but maintained the basic sense of its components. For example, Jasmine wrote in her questionnaire about how her experience helped her to modify the received knowledge inherent in the math curriculum:

> Experience has taught me for example . . . that students grasp the concept of probability more readily when they are knowledgeable about fractions. Knowing this, I change the sequence of topics in the math curriculum when I deem it necessary to do so. So please don't expect me to teach it the way you teach it.

Knowledge Types as Discordant. Participant statements also reflected instances where knowledge types were discordant. The most frequent discordance in the data was between Type I-personal experiential and Type II-personal received. Frequently when new teachers implement strategies and ideas for organizing instruction that were either suggested by university professors or found in educational literature, there may be enough difficulty and tension involved that teachers either lose confidence in the process or cannot visualize the effective translation from theory to practice. This may result in a mildly suspicious "Let me see you do it first" attitude. Ryan reflected this attitude when he stated,

> I don't like sitting in a professional development seminar and just being told how to use a strategy. The first time I'm hearing about it I like to see it in action. I better understand how to use it in the classroom if I see someone else doing it.

Another source of discordance between received knowledge and classroom experience may center upon the intricate structure of student-to-student relationships. Participants alluded to the idea that received knowledge might not be sensitive enough to the affective dimensions involved in student interactions that teachers become aware of when they get to know their students. This may give rise to what Feiman-Nemser and Buchman (1985) have called the "two worlds pitfall" where new teachers experience a disconnect between what they have been taught in teacher preparation programs and what they now experience in the classroom setting. For example, Pauline reminisced about the awkwardness of pairing the more competent students with the less competent:

> So I remember . . . hearing probably in college or somewhere that it was good to group kids like that because the higher achiever will really master the skill more and the lower achiever would learn something. But I tried it but I still didn't like it because it was very apparent to the higher achiever that the other kid couldn't do it. . . . They felt bad in comparison with the higher achievers.

Moreover, there seemed to be an underlying assumption among most participants that, when in doubt, experience always trumps received knowledge and that classroom teachers and educational researchers need to better understand each other. Pauline continued,

> I have begun to realize that any individual could read or write thousands and thousands of pages of articles, but never truly understand children until they set foot in a real classroom. I find the lack of cooperation between research and teaching to very frustrating, as researchers and teachers each think that they know best, but rarely take the opportunity to set foot in each others shoes.

Participant statements also revealed discordance within collegial discussions about best practices—especially those involving district guidelines about assessment. Jasmine shared that

> The push for data collection and ongoing assessments has reduced the time teachers have for helping students to gain mastery of concepts. I have disagreed with colleagues over the idea of getting through the curriculum in order to be ready for a test.

Another source of discordance between knowledge types was identified when participants described tensions arising from their responses to direct instruction and levels of "scriptedness." That is, teachers may struggle when expected to closely adhere to scripted lessons, and are not allowed leeway by administrators or by educational program guidelines. However, as reported in Chapter Four, for some like Darla, there was an ironic counterpoint to her lament about lack of autonomy in that she eventually admitted to liking the fact that it "simplified" her job by alleviating much of the cognitive demand involved in planning, preparing, and implementing instruction. The foregoing scenario may be seen as an example of the complex and, at times, tension-ridden relationship between Type I experiential knowing (reflection on the experience of teaching) and Type II received knowledge (scripted lessons).

At times, received knowledge may be completely rejected when considerable tensions arise during its implementation. For example, when Pauline described her experience with implementing classroom management suggestions from her teacher preparation coursework, she was unsuccessful; she realized that she would have to reject it in favor of a management system she would have to create herself and that was based on student characteristics and what she felt confident in doing perceiving received knowledge about classroom management to be "all those little games."

Yet another source of discordance described by participants was a situation where theory that was emphasized in teacher preparation programs or graduate school turned out to be at odds with what administrators expected. For example, Belinda complained that after being excited about adopting an approach that reflected constructivist and multiple intelligence theory, she was then expected to use modeling and direct instruction as her primary instructional methods. Other participants complained about administrator expectations leading to lost opportunities for "teachable moments," because administrators expected them to adhere strictly to program guidelines for pacing and content. Several participants struggled with overly "purist" administrator attitudes about instructional programs and complained that there was not enough room for adaptive ideas based on their teaching experience.

Frequency of Occurrence. Participant statements reflected Type I and Type II knowledge much more frequently than Types III and IV with Type IV as the least indicated. This difference in frequency may indicate that teachers consider professional development to be predominately a personal, individual effort. This may be due in part to the relatively isolated nature of teaching in most school settings (Boreen & Niday, 2000; Lortie, 1975) and to the lack of collaborative aspects in professional development activity. Although considerable theory and research have been focused on the effectiveness of training teachers in collaborative settings (Cochran, Smith & Lytle, 1999; Grossman, 2001), for the most part of most teachers' days, teaching remains an individual enterprise that gives rise most frequently to Type I-personal reflection on experience and/or Type II- personal reflection on received knowledge (Lewis, 2002; Stigler & Hiebart, 1999). In addition, Type III knowledge may be suspect by

administrators and professional development leaders because of lowered perceptions about the teaching enterprise itself due to deskilling and recent emphasis on scripted instruction (Kincheloe et al., 2000). Another reason why opportunities for Type III collaborative-experiential knowledge seem to be infrequent may have to do with the way that states, districts, and national organizations set firm standards for curricular content and, in the process, neglect teacher input about content and implementation (Apple, 1990). Researchers have also noted that these attempts to "teacher proof" content, instructional approach, and classroom management, relegate practitioners to serve as pipelines for prepackaged knowledge (Darling-Hammond, 1994; Nelson, 1998).

Research Question #2

What are the underlying contexts that may influence teachers' experiences and thought processes when attempting to integrate knowledge about teaching from various external sources with personal experience?

Socio-Cultural Context. As reported in Chapter Four, data revealed significant themes and patterns reflecting emergent contexts that may play an important role in the development of teacher knowledge. For example, data indicated that teachers frequently develop Type I personal-experiential knowledge in a socio-cultural context where students' background knowledge and experiences form the framework in which lesson planning and instructional approaches are chosen, rejected, or created. Data implied that this kind of teacher knowing was predominately experiential for participants because it relies on forging student-teacher relationships through authentic classroom events that reveal the range and diversity of students' perceptions about themselves and their world; ultimately, it is personal because it requires teachers to enter into a reflective space where

pre-conceived notions about race and ethnicity, for example, are revisited, reviewed, revised, or discarded. Jokes may fall flat, conversations may wither and die, and instructional strategies may fail because attention has not been paid to *who* the students are and *what* they already know—or more importantly—*what they think they know*. This may be especially important for new teachers for whom student's socio-cultural backgrounds are unfamiliar, for teachers transferring into a school in which socio-cultural dimensions may seem alien, or for teachers who have English language learners in their class.

Similar to the way in which Type I knowledge develops in socio-economic contexts, Type III collaborative-experiential knowledge seems to be formed as teachers share experiences with what works and what doesn't work when teaching students from diverse backgrounds. Participant statements revealed that this kind of knowledge may frequently emerge from informal contexts such as "asking around the building," "lunch room talk," or "talking over the fence or over email" as opposed to more formal activities in a professional development atmosphere. Data also suggested that teachers may tend to place more credibility on this kind of consensual knowledge formed in the crucible of dialogue "from the trenches," so to speak, rather than on research literature from those that may be seen as outsiders, and where "sometimes the theory is so darn out in right field." In fact, there was a general consensus among participants that experiential knowledge—both personal and collaborative—always trumps received knowledge.

In contrast, the influence of socio-cultural context was not as robustly reflected in participant statements characterized as Type II personal-received knowledge. In fact, participants frequently complained about the lack of detailed suggestions from reliable

sources about how to differentiate for socio-cultural differences in students' backgrounds. There seemed to be a consensus among participants that although concerns for culturally responsive pedagogy may trickle down from supervisory authorities and research-based teacher development literature, "they never tell us how" and "it's more like the ideas without the specific strategies." In a similar fashion, there were little or no comments about the influence of socio-cultural issues on the development of Type IV collaborative-received knowledge—most probably for same reasons that applied to Type III knowledge—a general lack of practical suggestions about how to move toward culturally responsive teaching.

Compliance. Another context inferred from participant statements was that of compliance with supervisory guidelines. In situations for which there exists an emphasis on compliance, such as required use of scripted lessons, administrators' expectations about implementing specific instructional approaches, or the kind of highly controlled information flow found in some teacher development experiences, the development of Type I and Type III knowledge may be stifled or confounded. Because of the experiential nature of Type I and Type III knowledge, teachers may form strong opinions about the best way to teach, and because there seems to be a general consensus that experience trumps received knowledge, many participants shared feelings of frustration or anger when expected to perform in a way that went against their personally developed pedagogy forged in the crucible of personal or collaborative experiences. For some participants administrators were seen as unwilling to demonstrate instructional strategies, overbearing with expectations about adherence to scripted lessons, and insensitive to the need for creativity in teachers' knowledge development. At least one participant

perceived administrators as those who attempt to replicate their own ideas and beliefs about teaching through the teachers they supervise. In addition, pressures involved in receiving satisfactory evaluations from lesson observations were also seen as unnecessary stumbling blocks to developing and implementing teacher knowledge formed from experience.

On the other hand, because Type II and Type IV ways of knowing are both centered on received knowledge, they may flourish in compliance contexts. Where information about teaching practices is provided directly to teachers by authority sources, where "they [teach] you the little things that it would take you years to pick up on your own," and where teachers are able to take the received knowledge and adapt it to the needs of their students, effective ways of knowing about teaching may develop. For example, although many participants complained about the highly controlled information flow and lack of creativity in compliance contexts, there were many who, at the same time, seemed to be asking for more input, more strategies, more ways to achieve what their principals expected. The question arises then, "What determines whether an administrator's input will restrict the development of teacher knowledge or encourage it?" Based on participant statements, there seemed to be two basic factors in play. To begin with, it may be that as teachers navigate through their professional life-trajectories, there are moments when received knowledge from authority is not only appropriate but strongly desired—and other moments where it may be suffocating. That is, teachers with little experience may seek out more experienced others to help with lesson planning, implementation, and classroom management while more experienced teachers may resist being told how to teach and manage a classroom—areas in which they may have already

developed expertise. For example, Belinda, with six years experience complained about a lack of guidance, direction, and specific strategy instruction:

> They'll say, well, you should present to different cultures in your lesson plans and you should make sure that you're not expecting for everyone to have the same cultural value, but they never tell us how. They say, "This is what you need to do to be a good teacher," but I feel like there are never workable strategies. . . I don't feel we ever got, "This is how to be culturally sensitive and this is how to make sure everyone's diversity is appreciated in class. It's more like the ideas without the specific strategies.

Della, however, with 28 years' experience had a different complaint after a highly rated lesson observation:

> Well, it's something that I would normally do, but since I have been here I try to do it exactly the way that I was told to do it and at that particular time I just didn't, and it was a lesson that I had done for an observation and the people who observed me said, "That was wonderful! How did you . . ." Well that's normally what I would do but I stopped doing it because I didn't think that was what they wanted. You know to try to do what you think someone else wants you to do distorts the way that you do things.

On the other hand, the quality and nature of relationship between teachers and those who attempt to convey information about teaching may be the deciding factor in whether teachers will listen to or reject this kind of received knowledge. Teachers who have built professional relationships with colleagues and administrators characterized by trust and openness will certainly have a higher probability of being receptive to received knowledge than teachers who harbor animosity, fear, or awkwardness with those who come in close professional contact. For example, in one of her school settings, Darla described how, after a disagreement about using basal readers, her assistant principal was able to "win her over" because of a positive relationship:

> She invited me over to her home. I was so impressed. She gave me snacks to help me plan lessons with these basals. I was like—she got me. I would do anything—even if I didn't agree with it just because I liked her. She won me over so to speak. And then I realized, "Yea, they're right. The kids are more successful with

> the basals. They can actually read them." (laughs) You know like all the things they said about them were true. So that was really eye-opening for me.

In contrast, Darla expressed resistance to suggestions from her principal that may have stemmed from the indelicate nature of her principal's comment during a walk-through: "I'm sure that there's learning going on in your room, but I can't see what it is."

Research Question #3

Under what conditions is using received, academic, research-based knowledge most useful? Participants reported several conditions that seemed to facilitate the success of using Type II and Type IV received, academic, research-based knowledge. First, if teachers perceived that the received knowledge would save time and shorten the learning curve, academic knowledge tended to be more attractive. In that situation, research-based knowledge may be seen as a short-cut to learning "little things that it would take you years to pick up." It may be that this willingness to learn from academic knowledge is another reflection of the "practicality ethic" where teachers recognize the high value of saving time and effort in learning instructional skills (Doyle & Ponder, 1977).

In addition, it seems that received knowledge may be more attractive when it is reinforced by subsequent classroom experience or when it triggers memories of previous classroom experience. That is, when the information flow of professional development is followed by opportunities to apply the knowledge, the probability of successful implementation seems to increase. Several participants shared that this sequence was very helpful for them, especially when there was opportunity to debrief with colleagues after initial attempts of implementation—an example of Type IV collaborative-received knowledge followed by Type I personal-experiential, and then Type IV collaborative-experiential knowledge. Furthermore, it seems that when teachers make connections

between academic, research-based knowledge and previous experience, they may be more able to edit, sort, mix, and combine different facets of the received knowledge to fit their specific classroom situation. This connection between experience and received knowledge may also be facilitated when Type II and Type IV academic knowledge is presented in teacher-friendly, accessible formats. When written research uses familiar vignettes, interview data, or comfortable metaphors, teachers as consumers may be more apt to be "hooked" and therefore will spend the time to read and reflect on the academic knowledge more deeply.

Another condition that seems to facilitate the success of Type II and Type IV received knowledge may have to do with the severity of problems faced in the classroom. When solutions to problems are not apparent, teachers may be motivated to seek out help from academic authority sources. Participants reported that they sought received knowledge when plagued with doubts about how to differentiate lessons, when frustrated with nonresponsive students, or when confused by classroom experiences that did not fit into their schema about successful teaching. This condition may be especially important as a way for new teachers to formulate lists of "things to try." As far as supporting the development of Type IV collaborative-received knowledge, some participants related that participation in study groups had been helpful.

Research Question #4

Under what conditions is learning about teaching from classroom experience most useful? By far, the most prominent theme involving the usefulness of classroom experience was that teacher knowledge develops through the process of establishing

relationships with students. Many participants shared that although academic, research-based knowledge was an adequate entry point, the actual, day-to-day social intercourse with students and the increasing familiarity with their personalities and learning styles were most effective in developing knowledge about teaching. Perhaps Pauline expressed this perception the most directly when she stated, “any individual could read or write thousands and thousands of pages of articles, but never truly understand children until they set foot in a real classroom.” This frequently expressed example of Type I personal-experiential knowledge was seen to help teachers differentiate between the merely attractive and the practically productive. Practically speaking, there seem to be certain kinds of pressing needs that are best addressed through the knowledge that develops within the matrix of teacher-student relationships: “What do I do on the first day of school?” “How can I get this point across to poor readers?” “Why hasn’t cooperative learning worked for me?” “How do I get them to listen?” Body language, facial expressions, tone, approach, pacing, motivation, manner—these are all aspects of instructional approach that may only develop when the student-teacher relationship has passed the initiation stage and is maturing into a two-way, interactive dynamic that may fuel the formation of Type I personal-experiential knowing about how to teach. Although participants reported that teaching skills also developed from sharing experiences with colleagues (Type III collaborative-experiential), there seemed to be an overwhelming preference, respect, and faith in knowledge gleaned from the classroom experience of working with students. Pauline gave succinct voice to this perception: “I think I get a lot more from the kids than I get from the other teachers.” It may be that the most important

condition for developing teacher knowledge from classroom experience has to do with building rapport with students and learning about their lives and concerns.[12]

However, another aspect of learning through experience on which participants seem to place particular value was the crucible of trial and error. It may be that instructional approaches that stand the test of time and experience are subsumed and integrated into what participants metaphorically referred to as the "realm of what works," an "arsenal" of strategies and techniques, or "your bag of tricks." This highly usable but somewhat ineffable personal knowledge base may be seen as a storehouse from which teachers may draw either consciously or intuitively. After a critical period of classroom experience that may vary in length from teacher to teacher, there may come a time when this Type I teacher knowledge is accessed immediately and without much deliberation—being able to "think on your feet. . . . It will come"—as Michelle explained.

Research Question #5

How might classroom teachers resolve the tensions arising from the frequently reported disconnect between received knowledge from external authorities and practical knowledge from classroom experience? Data lent support for the assertion that some teacher knowledge may be developed as a result of the dialectic friction formed when experience does not square with received knowledge or when knowledge types simultaneously vie for teachers' attention and approval. For example, Type I personal-experiential knowledge may be in conflict with Type II personal-received knowledge when theory or suggested instructional approaches do not agree with teachers' acquired know-how from classroom experience. Multiple examples of this discordance were

[12] Again, I feel it is important to note that I am classifying experience with student behaviors and discourse as personal-experiential knowledge, not collaborative-experiential, because teachers are experiencing classroom life *as teachers;* students are experiencing classroom life *as students.*

provided in Chapter Four. According to participant statements, one way that teachers resolve these tensions is by evaluating received knowledge with the criteria of practicality. When doubt, confusion, or frustration arises from the discord between received knowledge and classroom experience, teachers may turn to perceived practicality as mediator where teachers will adopt ideas that are perceived as complementary with the classroom environment, that are accompanied by instructional materials, or that promise a likely and immediate return on teachers' time and effort (Doyle & Ponder, 1977).

Data also suggested that teachers may resolve tensions associated with discord between received knowledge (Types II and IV) and personal experience (Types I and III) through the process of trial, evaluation, and modification, where the original received knowledge is transformed and refined by classroom experience. For example, after experiencing difficulties when teaching through a curriculum for the first time, the sequence of units or lessons may be changed in order to be more responsive to the way that prerequisite skills accumulate and are automatized. Participants also reflected that, at times, highly recommended instructional approaches such as cooperative learning and heterogeneous grouping strategies may not work for all students in all schools because of variations in classroom climate and student personalities and therefore had to be either significantly modified or completely discarded. In fact, data indicated ample ground for asserting that participants frequently rejected, modified or transformed received knowledge even when "it all sounded nice in the text."

Implications for Practice and Teacher Development

If, as the data indicated, teacher knowledge may be viewed as reflecting four ideal types, then it may be prudent to organize teacher development activities and teacher education programs so that practitioners have opportunities to develop knowledge in the dimensions of all four ideal types. Seen from this viewpoint, practitioners, interns, and pre-service teachers should have opportunities to a) individually reflect about teaching experiences, b) individually read and reflect on received knowledge about teaching, c) share and discuss teaching experiences with colleagues in collaborative settings, and d) discuss theory, research, district guidelines, and any other received knowledge about teaching with colleagues. My assertion is that these four kinds of teacher learning opportunities not only reflect current thought about teacher education and professional development but take it a step further. For example, Valli and Hawley (2002) have also suggested the need for a broader scope for teacher development than traditional "sit-and-get, one-size-fits-all, quick-fix" approaches where participants are presented with information and expected to absorb and implement suggested guidelines for practice (Valli & Hawley, 2002, p. 86). This kind of "sit and get," non-interactive approach neglects the types of knowing represented by ideal types I, III, and IV. Furthermore, the same authors' suggestions for a more effective approach to professional development coincide with the four ideal types of knowing proposed in this study. For example, Type I personal-experiential knowledge is reflected when the authors suggest that teacher knowledge formation should "attend to individual stages of development" and embrace "inquiry skills of data collection, analysis, interpretation, evaluation, and reflection" (Valli & Hawley, 2002, p. 94, 95).

Type II personal-received knowledge is also reflected when the authors argue that "outside consultants should be valued sources of information" and "results of research, in comprehensible forms, need to be made accessible to teachers" (2002, p. 90, 91). The authors allude to Type III and Type IV knowledge with their concept of collaborative problem solving that "when done skillfully . . . . leads to the clarification of learning needs and the sharing of knowledge and expertise" (2002, p. 90). Type III collaborative-experiential and Type IV collaborative-received knowledge has also been reflected in recent thought on teacher development that encourages teacher research and teacher study groups (Cochran-Smith, & Lytle, 1990, 1993; Grossman, Wineburg, & Woolworth, 2001; Little, 1999). However, one of the features of the ideal typology that sets it apart from Valli and Hawley's work is its potential for providing a template for organizing professional development—that is, an answer to the question, "Okay. So how do we get started?" Simply put, for each desired goal in the professional development process, teachers should have opportunities to develop in each of the four ideal types. For example, if a faculty wants to incorporate new instructional approaches such as literature circles (Harvey & Goudvis, 2000) or genuine conversation groups (Lloyd, 2004) into its reading program to improve students' reading comprehension, there should be opportunities to a) independently read and reflect on current research and theory on the topic (Type I personal-received), b) discuss the literature with colleagues (Type IV collaborative-received, c) implement, try-out, and evaluate the new approaches through personal experience (Type I personal-experiential), and finally d) discuss experiences with colleagues (Type III collaborative-experiential) to further evaluate the initiatives and modify them according to observations and discussions. My assertion is that by using the

four ideal types of teacher knowing, professional development activities can be specifically organized, that is, each knowledge type will have opportunity to develop and the resulting teacher knowledge will have more of a chance to emerge in its broadest, most effective sense.

The ideal typology also shares some facets with the Shulman's (2004) model summarized in Chapter Two, but has significant differences. Like the Shulman's model, the ideal typology encompasses knowledge gleaned from individual and collaborative practice, from individual and collaborative reflection, and from the received knowledge of a propositionalized knowledge base. However, the Shulman's model does not clearly differentiate between received and experiential knowledge, and is characterized by a scope that may be bulky in its largesse as far as organizing professional development; their four levels of analysis may be accurate as an explanatory model, but the highest level of policy is not under the control of teachers or mid-level administrators and, therefore, would not be an effective template for bottom-up, participatory planning and management of professional development. In contrast, the ideal typology could be used by teachers, principals, and mid-level administrators regardless of policy concerns because it is centered on teachers as individual and collaborative receivers and creators of their knowledge about teaching.

Another similar but significantly different analysis of teacher knowledge in light of professional development was offered by Joyce and Showers (1995). It features a staff development governance structure built upon individual, collective, and systemic levels. Joyce and Showers' model is a nested hierarchy composed of a coaching team of two faculty, a study group built from three coaching teams, a council that includes school

principal and study group leaders, a cluster network, and finally a district office for staff development. The ideal typology detailed in my study shares some features with Joyce and Showers' governance structure, such as opportunity for collaborative study and received knowledge from academic courses and workshops, but Joyce and Showers' model gives little or no attention to individual reflection on classroom experience or to collaborative efforts to share experiential knowledge. Instead, Joyce and Showers' model relies heavily on received knowledge in the form of academic courses, workshops, and coaching from more competent others. Furthermore, the ideal typology that I propose uses *individual* in the constructivist sense of an autonomous agent and creator of knowledge, whereas in the governance structure *individual* is used in an evaluative sense and denotes the hierarchical level where "the product [knowledge?] is to be manifested in the individual's clinical competence as an instructor"(p. 31). Likewise, the Joyce and Showers model uses *collective* as a level or component of a system, whereas in my typology, *collaborative* is used to indicate an intentional process of individuals who choose to share interpretations of experience and received knowledge.

With the foregoing in mind, I suggest that in order to broaden the avenues of professional development, that it may be increasingly effective to provide opportunities for growth in all four ideal types of teacher knowledge. Although the collaborative contexts needed for types III and IV traditionally have been the most infrequent, it would seem that teacher development would benefit from a renewed emphasis on these processes of knowledge development. This means, of course, that when teachers gather in large numbers for professional development, there must be time and opportunity for dialogue and reflection in collaborative groups of a feasible size. The data also implied

that the wisdom acquired from practice must not only be honored to be as valid as received theory and credible research, but must also be "teased out" in dialogue among colleagues—a process that, aside from lesson study initiatives, may be looked upon with suspicious eyes from administrators who are anxious about their schools' performances in the arena of high stakes testing. Simply put, my argument is that practitioners would benefit from opportunities to develop knowledge in all of the four domains represented by the ideal typology described in this study.

Sequential Trajectories for Knowledge Types

One of my central arguments for the importance of this study centers on its potential for organizing professional development. If all four types of teacher knowing are to be included in professional development experiences, how then are they to be organized? What comes first? What would be the most effective sequence? Although these questions may be generative for future research, two general approaches based on the ideal typology are delineated in the following sections. First, I offer some suggestions for organizing ideal types of teacher knowledge in sequential trajectories that may be either *literature-initiated* or *experience-initiated*. After that I suggest some organizational schemes in which ideal types may overlap and occur simultaneously. Both applications are general organizational schemes and entry points—specific details would depend on the school site, the faculty characteristics, and students' needs. These suggestions are not meant to be exhaustive but to serve as examples of how the ideal typology could be effectively used to organize teacher development experiences.

Figure 5 shows three possible *literature-initiated* sequential trajectories upon which professional development may be organized according to knowledge types. For

example, sequence *A* proceeds as teachers a) are given ample time to read and reflect individually on research literature (Type II), b) share reflections about the literature and engage in dialogue that may clarify ideas or raise further questions (Type IV), c) build experiential knowledge by implementing the instructional approaches suggested by the research literature and refined by the subsequent collegial discussion (Type I), and d) share their experiences (Type III). This sequential trajectory, as well as any of those suggested, may be transformed into a cycle by returning to the first stage and repeating the sequence either in its entirety or in part according to student needs and teachers' discretion. For instance, after sharing their experiences in the final stage of the sequential Trajectory *A,* teachers may read further into related research literature or modify subsequent instruction according to ideas discussed in *A*'s final discursive stage. Sequential trajectories *B* and *C* are also based on received knowledge from research literature, and each demonstrates a different order of knowledge types upon which professional development may be organized. The first step in sequence *C* may at first seem puzzling—that literature can be discussed with colleagues (Type IV) before being read individually (Type II)—but many staff and professional development sessions begin with Microsoft PowerPoint technology that summarizes and condenses literature into an easily digestible sequence of slides where the audience may discuss the information presented either simultaneously or shortly after its appearance.

In a similar fashion, *Figure 6* shows three possible *experience-initiated* sequential trajectories upon which professional development may be organized. For example,

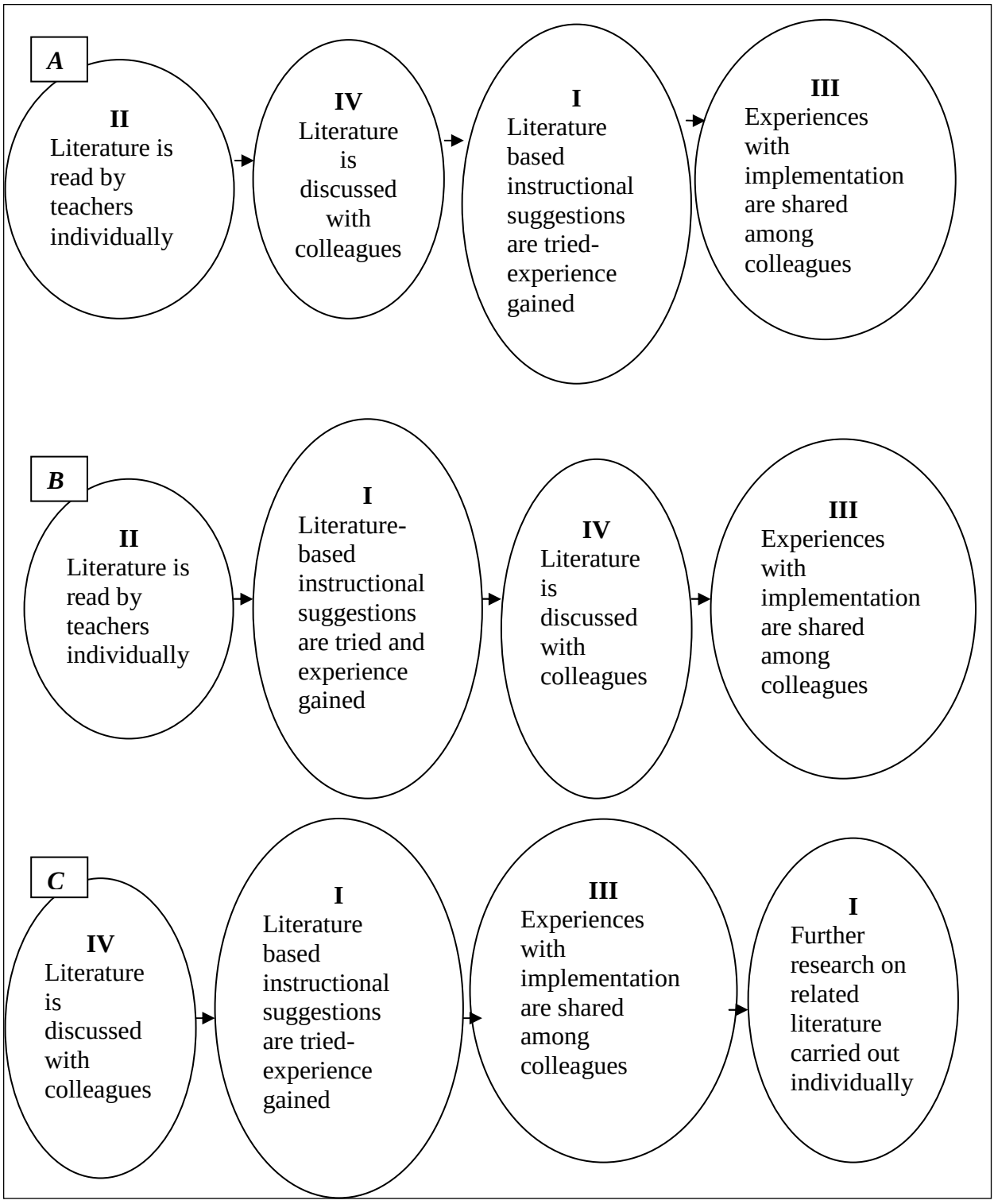

Figure 5: **Possible *Literature-Initiated* Sequential Trajectories of Ideal Knowledge Types**

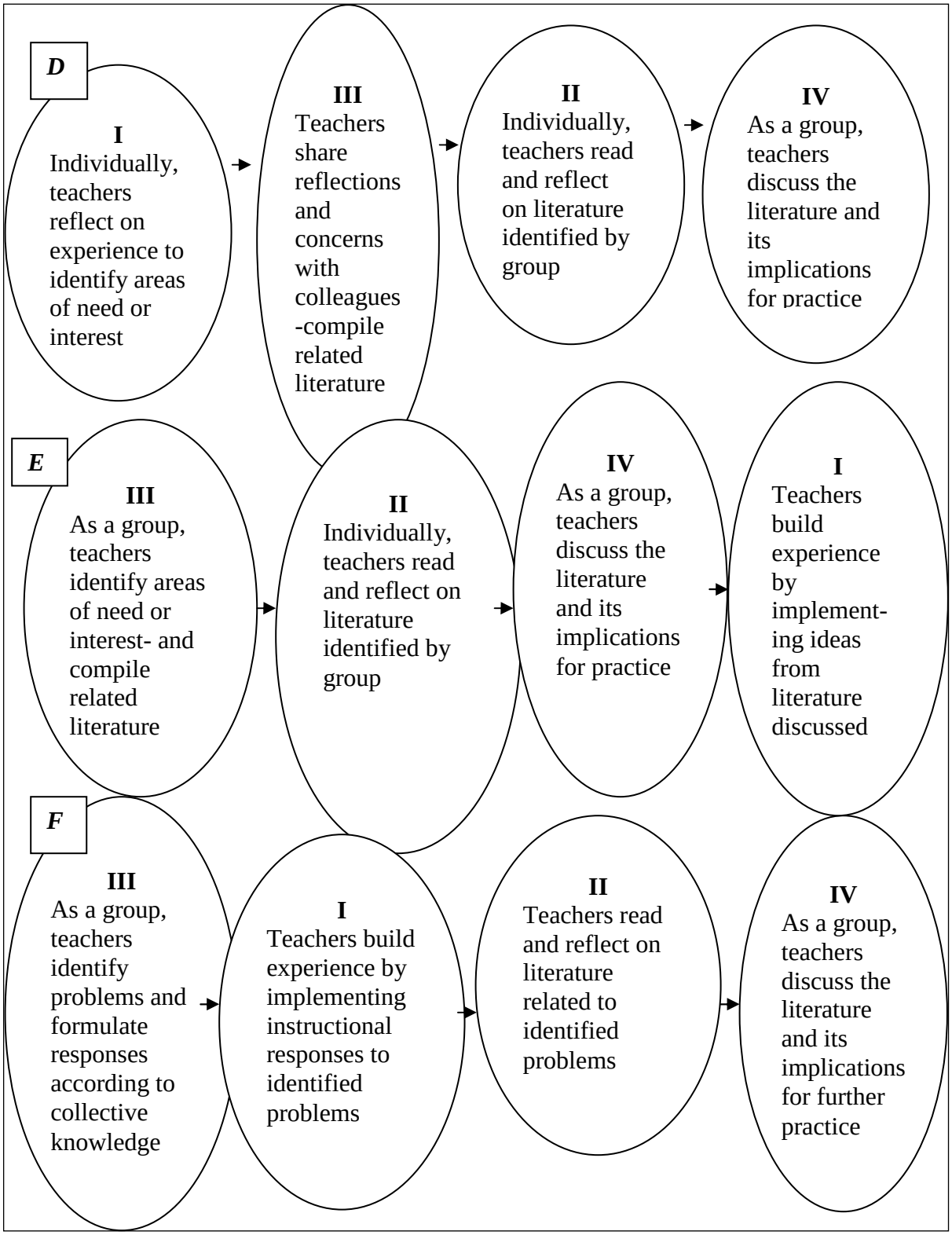

Figure 6: **Possible *Experience-Based* Sequential Trajectories of Knowledge Type**

sequence *D* develops as teachers a) reflect individually on experience to identify areas of need, concern, and interest that may serve as entry points for professional development (Type I), b) share their reflections and concerns with colleagues in order to finalize and prioritize areas and issues to be investigated, and compile a list of related literature (Type III), c) read and individually evaluate literature that was identified by the group (Type II), and d) discuss literature with colleagues to determine its implication for practice (Type IV). As with *A*, sequential trajectory *D* may be continued as a cycle, or edited cycle, by returning to the first stage. In this case, that would mean after discussing the literature that was identified by the group (Type IV), teachers might then build experiential knowledge (Type I) as they implement or modify instructional approaches in order to address the concerns that were identified in the first step. The remaining steps of sequential trajectory *D* may then be repeated as is or in modification.

Sequence *E* also begins with teachers identifying areas of need or interest (Type III), but instead of doing this individually as in sequence *D*, it is done collectively and, also in a collaborative fashion, a list of related literature is compiled subsequent to teachers having a chance to individually read and reflect on the literature (Type II). Next, the teachers discuss the literature and its implications for practice (Type IV). Finally, teachers implement and experiment with ideas from the collaborative literature discussions (Type I). This sequence may then be re-started, or another sequence initiated. In sequence *F*, teachers collaboratively identify problem areas, as they did in sequence *E*, but this time teachers collaboratively generate possible approaches to the identified problem areas and then move directly to implementation and experimentation with those

possible solutions (Type I). Next, teachers read and reflect on related literature (Type II) and finally discuss the literature and its implications on further practice (Type IV).

My notion of sequential trajectories for developing teacher knowledge finds support from research and theory on professional development but also contributes in different ways. Research on lesson study, for example, suggests that practitioners may best develop their teacher knowledge by moving through a trajectory that involves a) meeting together to discuss objectives and previous experiences with instructional approaches (Type III and IV), b) observing one of their group implement the lesson (Type II), and c) meeting afterwards to discuss and modify the lesson plan for its next implementation (Type III) (Lewis, 2002; Stigler & Hiebart, 1999). Lesson study usually does not, however, incorporate Type II personal-received knowledge as an essential element the way in which I have incorporated it.

A complementary image of what I have proposed as literature-based sequential trajectories may also be found in study groups, where teachers may first discuss relevant literature (Type IV), before attempting new or modified instructional approaches in their own classroom and reflecting on whether or not the approaches were useful (Type I) (Keller, 2008; Van DeWeghe, & Varney, 2006). However, in this process, Type III collaborative-experiential knowledge may not be involved, especially when the focus on reading professional literature has been set by administrators; in my suggested trajectories Type III is always present.

Another source of support for sequential trajectories of knowledge types as professional development can be found in the mission of the long-standing National Writing Project. The NWP encourages daily reflection and writing as a beginning (Type

I), followed by shared writing in small groups (Type III, Type IV), individual research projects (Type II), coaching and critical feedback from veteran Writing Project teachers and fellow institute participants (Type II), and finally a published anthology (Type II) (Wood & Lieberman, 2000). Although components of the NWP's professional development program resonate in a positive way with the ideal typology I have proposed, the sequential trajectories I have suggested do not necessarily have to be tied closely to written language goals.

Some research in professional development appears to support the ideal types of teacher knowledge as elements of sequential trajectories but leaves open the particular ways that the elements may be programmatically combined. For example, the "Consensus" model for professional development as detailed by Hawley and Valli (1999) includes essential design principles such as collaborative problem solving (Types III, IV), theoretical understanding (Types II, IV), multiple sources of information (Types II, III, IV), and teacher involvement in identifying needs (Types I, III). The authors do, however, acknowledge that "to be sure, there could be (and should be) a variety of specific ways to implement the strategies implicit in these principles" (p. 144). I offer the sequential trajectories illustrated in the previous section as a contribution to these "specific ways" for implementing effective professional development.

When considering the sequential trajectories for ideal knowledge types it is important to keep in mind that the sequences I propose here are offered as heuristics for arriving at solutions for problems and concerns involved in professional development; they are not to seen as set rules or rigid structures. In fact, teachers may move back and forth between types or even skip types completely.

Anticipated Critiques from Alternative Viewpoints

The sequential trajectories for organizing professional development suggested in this section are based, of course, on an ideal typology that rests heavily on the viewpoint that considers teacher knowledge as developing from the interplay among personal, collaborative, received, and experiential factors and the resulting knowledge about teaching that an individual practitioner may possess. The underpinning epistemological stance is an eclectic one: schema theory is based on a cognitivistic view where knowledge is seen as developing and residing in mental functions of individual minds acting independently or in concert with others but is ultimately personal and individualistic; received knowledge is a concept borrowed from feminist writer Mary Belenky (1986) and colleagues; and the way that I have incorporated personal versus collaborative distinctions embraces aspects of both psychological and social theory. There are, of course, alternative and less eclectic viewpoints from which those involved in education have viewed and continue to view teacher knowledge—namely, behaviorism/neobehaviorism[13], socio-culturalism, and critical pedagogy[14]. Although I have attempted to make the case that the ideal typology promises to be a useful one not only for better understanding how cognitive and socio-cultural forces interact in knowledge production but also for planning effective teacher development, other viewpoints, such as those resting upon behavioral, socio-cultural, or critical-pedagogy orientations may certainly pose different ways to think about teacher knowledge that would not be compatible with the typology I have proposed. In the following sections I

[13] In order to facilitate an easier read, I shall refer to both behaviorism and neobehaviorism as "behaviorism."

[14] I use the term "critical pedagogy" to include theory and research that challenges and critiques contemporary educational practices with special attention given to issues of power, domination, and status quo maintenance.

summarize what might be considered as probable arguments from alternative viewpoints and offer my response.

A Behavioral View. Seen from this viewpoint, knowledge, or learning, is identical with changes in behavior that arise as a result of changes in stimulus-response (S-R) connections; these changes may be brought about by conditioning, reinforcement, or any other result of interacting with environmental stimuli (Skinner, 1938, 1961; Watson, 1930). Behaviorists may especially object to ideal Types II (personal-received) and IV (collaborative-received) both of which rely heavily on the concept of received knowledge—learning from others through processes and with materials that may be characterized as linguistic, formal, propositionalized, and codified—not based on real experiences within an educational environment. Behaviorists may also object that unless rigorous, objective observation can be conducted in order to determine if behavior changes have occurred, it is meaningless to talk about any kind of knowledge production at all (Bigge & Shermis, 1999; Lefrancois, 1995). Behaviorists may deny that learning can develop merely from exposure to discourse in the form of research, theory, lecture, or discussion—activities within the parameters of Types II and IV. In addition, one who espouses the behaviorist viewpoint may also object to Type III (collaborative-experiential) knowledge maintaining that it is not until an individual evidences behavioral change as a result of interactions with environmental stimuli (i.e., students, lessons, classroom management) that knowledge is developed. Behaviorists may further contend that although sharing experiences with colleagues may be considered as "experience" in the abstract, it is not until the individual teacher interacts with the classroom environment that learning to teach is possible.

On the other hand, it is for this reason that behaviorists may support the notion of Ideal Type I (personal-experiential) that relies on teachers' classroom experiences. In a similar fashion as behaviorists have done, I have emphasized the importance of experience in my description of Types I and III. I do, however, contend that valid learning may occur from sharing about experiences with colleagues—even if the learning may be characterized as vicarious. As reported in Chapter Four, many participants related how they learned various aspects of teaching after discussions with colleagues about classroom experiences. Furthermore, although some behaviorists may take exception to the notion that learning occurs through observation, lecture, discussion, or exposure to theory and research (Types II, III, IV), the history of behavioral research itself provides evidence that there have always been rumblings—even in their own camp—about subjective and cognitivist notions such as "latent learning" (Tolman & Honzik, 1930), "insight" (Tolman, Ritchie, & Kalish, 1946), and "expectations" (Tinklepaugh, 1928).

A Socio-Cultural View. Although I have allowed for socio-cultural influences on teachers' knowledge development in the proposed ideal typology, the ideal types of teacher knowledge therein remain principally as reflections of individual thought and experience. In contrast, socio-culturalists may argue that the basis of learning and growth is to be found only within the ways that humans interact within a cultural context and that the meaning-making process occurs within groups—not individuals (Bronfenbrenner, 1979; Cole, 1996; Lave & Wenger, 1991; Vygotsky, 1978, 1987). Dewey (1958) emphasized this point: "The conception of mind as a purely isolated possession of the self is at the very antipodes of the truth . . . the self is not a separate mind building up knowledge anew on its own account" (p. 344). Likewise, Sfard (1998) has argued that

knowledge cannot be acquired or possessed by an individual but only through shared socio-cultural understandings. Seen from the socio-cultural viewpoint, Ideal Type I (personal-experiential knowledge) may appear to rely too heavily on personal and individualistic notions. In fact, those espousing a socio-cultural view may completely reject Type I knowledge, as I have defined it, and argue that although individuals interpret their experiences, they do so through filters of language, custom, norms, and shared beliefs—in a word—culture.

I acknowledge the filtering effect of socio-cultural factors but maintain that Type I knowledge, as I have presented it, would involve individual teachers' interpretations of classroom experiences—a necessarily personal affair—and would therefore vary from one individual to another according to personal idiosyncrasy and the uniqueness of individual experience itself. If it were true that socio-cultural factors and therefore experiential filters were the primary elements of constructing teacher knowledge from experience, it seems then that there would be considerably more uniformity and agreement on instructional approaches, assessment practices, and classroom management especially for teachers operating in similar or almost exact socio-cultural environments—that is, if socio-cultural forces are indeed the dominant factors in teacher knowledge development. However, that is not the case: instructional approaches range from those that are direct and teacher-centered to those that are discovery-oriented and learner-centered; assessment practices range from objectively scored, standardized, selected response tests to performance-based, constructed response approaches involving detailed rubrics that necessitate subjective interpretation; classroom management approaches range from those that are teacher-centered and described as "assertive" or "positive"

(Canter, 1986; Jones & Miller, 1974) to those that are student-centered and considered to be "cooperative" (Albert, 1989). Although individuals may interpret experience through social and cultural filters, the wide variety of resulting interpretations provides evidence for the uniqueness and individualistic nature of the interpretive process itself. Likewise, participant statements gave ample evidence that teachers interpret their experiences in widely varying ways.

Similar to the foregoing critique of Type I knowledge (personal-experiential), a socio-cultural critique of Type II knowledge (personal-received) may center on the notion that although an individual is receiving and interpreting knowledge from a source external to and independent of their own experience, the received knowledge they are confronted with is based on

> bodies of knowledge that have been built up in history or science, or the literary canon . . . [and] are all social products in the sense that researchers, writers, and philosophers have contributed to the construction of these bodies of knowledge over long periods of time, using such social processes as discussion, argument or debate, criticism, publication or public demonstration and dissemination, collaboration or teamwork, and adjudication or refereeing of disputes. (Phillips & Soltis, 2004, p. 54)

I would agree that received knowledge may go through a long, socially interactive process, but that does not preclude the possibility for Type II knowledge as being personal and received. Participant statements clearly demonstrated that teacher knowledge may be received without critique or interpretation—received and believed—or it may go through intense personal interpretation—involving both personal, idiosyncratic modification and socio-cultural filtering. Whether accepted without further thought, or reflected upon and modified, interview data also suggested that the idea of

Type II (personal-received) knowledge remains as a valid way to characterize one aspect of learning how to teach.

In contrast, Ideal Types III (collaborative-experiential) and IV (collaborative-received) appear to be complementary with a socio-cultural viewpoint. When teachers collaborate in the form of sharing experiences (Type III) or discussing research and theory (Type IV), they are constructing knowledge in the context of a community of practice as discussed earlier in this chapter. The ideal typology does differ, however, in allowing for the possibility that although individuals may be participating in collaborative activities, there nonetheless remain opportunities for personal, idiosyncratic interpretations of what transpires in the collaborative context—teachers may come away with widely varying notions about issues discussed with colleagues.

A View from Critical-Pedagogy. Those who espouse viewpoints associated with critical pedagogy may have mixed feelings about ideal Type II (personal-received) knowledge. On the one hand, critical pedagogues may object to any positive conception of received knowledge because it may support "the centralization of decision- making power in the hands of educational experts [and] reduce teachers to mere executors of the expert's conceptualization of the teaching act" (Kincheloe, et al., 2000, p. p. 231). Researchers and theorists espousing critical pedagogy may contend that received knowledge in the form of selected excerpts from research and theory, teacher manuals, district guidelines, in-service courses, and administrator-controlled professional development activities tend to be characterized by control-oriented views of knowledge that view learning to teach as mere adherence to teaching methods that have been shown by empirical and statistical research methods to be successful in raising scores on

standardized tests rather than promoting independence, intellectual development, and social consciousness in practitioners (Giroux, 1988; Wirth, 1983). In the same way, critical pedagogues may look askance at Type IV knowledge (collaborative-received) unless it provides an opportunity for teachers to collaboratively analyze received knowledge in light of social, political, and economic elements so that possible domination by educational "experts" can be challenged and resisted (Apple, 1982, 1986; Giroux, 1988, 1992). On the other hand, those who espouse a critical stance may want teachers to highly prioritize the reading of literature from critical, postmodernist, and feminist authors, otherwise, how would they get their points across? In this case, a heavy emphasis on Type II and Type IV knowledge, gleaned from an extensive reading and discussion of literature that reveals and elaborates upon postmodern themes, may be strongly recommended by authors espousing critical pedagogy.

I tend to agree with those who caution against an over-emphasis on received knowledge (Types II and IV). When accepted blindly without close examination, or when used as the only source for teacher education, it may prevent teachers from developing more personal, practical knowledge from classroom experience. Darla's comments about a trained monkey being able to do what she does, along with her perceived loss of autonomy exemplify this notion. However, when used in complementary conjunction with Types I and III, I would argue that received knowledge from educational "experts" (i.e., researchers, professors, theorists, veteran practitioners) may be extremely useful, not only as possible instructional approaches to examine and consider, but also as a counterbalance to awkward or errant notions that may arise from the "pitfalls of

experience" discussed earlier in this chapter. Mary's comments about seeking out ideas from research and theory to add to her experience emphasized this point.

Viewpoints from critical pedagogy may strongly support my notion of knowledge types I and III—both based on classroom experience. Types I and III may be opportunities for teachers to develop knowledge independently through interpreting their own experiences—free from domination by educational experts or administrators—an aspect of knowledge production in strong accord with ideas held by critical pedagogues—as illustrated earlier in this chapter by the exclamation from a teacher in the Compass Point Practices Project about not believing in "bringing in experts for a day." Types I and III knowledge are also congruent with the approach and underlying philosophy of action research, often associated with the critical stance, where teachers design, conduct, and evaluate classroom- or school-based research for practical goals that they establish themselves.

Although valid arguments may be anticipated from alternative epistemological and theoretical viewpoints, the inclusive, eclectic nature of the ideal typology may have the potential of incorporating and honoring the principal tenets of alternative views. The central idea underpinning the typology is that teacher knowledge may develop in four basic ways formed by mapping the loci of received-versus-experiential knowledge onto that of personal-versus-collaborative processes. In fact, the ideal typology may be seen as compatible with—not identical to—ideas from behavioral, cognitive, socio-cultural, and critical viewpoints; it is not intended to be seen as a rival conception but as an organizational scheme into which other viewpoints may be seen as complementary elements or subsets.

Summary and Concluding Thoughts

An ideal typology for teacher knowledge was developed from qualitative data consisting of interview and questionnaire statements made by classroom teachers from elementary, middle, and high school levels. The idea typology grew out of an initial conceptual framework formed by possible roles for classroom experience and received knowledge. Four ideal types were developed by mapping a locus of source (experiential vs. received) onto a locus of process (personal vs. collaborative). The four emergent ideal types were a) personal-experiential, b) personal-received, c) collaborative-experiential, and d) collaborative-received. Most participant statements were characterized as one of the four ideal types; other statements reflected complexity and implied overlap and interdependence among ideal types. Finally, suggestions for sequential trajectories of knowledge types for professional development were presented along with anticipated critiques from alternative viewpoints.

The ideal typology is offered as a contribution to theory on teacher knowledge in the form of a lens through which current theory and research may be seen, and upon which suggestions relating to specific sequential trajectories for professional development may be considered. The four types of teacher knowledge, also referred to as teachers' ways of knowing, may also be seen as an initial attempt to construct an inclusive organizational scheme—a gestalt—that may integrate and subsume theory from psychological and social stances into a workable template for professional development. This template, to my knowledge, is a new one, and when teachers are provided opportunities to develop knowledge in all four quadrants of the typology, characterized by a balance among received, experiential, personal, and collaborative elements, it may

allow for practitioners to learn their craft within broader, more expansive dimensions, and therefore foster higher levels of instruction and learning.

Limitations

Several limitations of this study need to be mentioned. First, while the sample size of 12 participants and their purposive selection were appropriate procedures for qualitative study (Maxwell, 1996; Miles & Huberman, 1994; Patton, 1990), generalizations to a larger teacher population cannot be supported; all generalizations were made to current thought on teacher knowledge—not to a larger population. The notion that there may be four ideal types of teacher knowledge is one that may broaden and amend theory on teacher learning, that is, it may provide a novel lens through which we may re-view long-held ideas about learning such as constructivism, schema formation, and social cognition.

Second, although I had no reason to doubt the trustworthiness of participants' disclosures, I was dealing with reports of experiences, interpretations, and perceptions—not empirical observations. However, it may be argued that even when directly observing teacher behavior, one must still infer teacher knowledge; one cannot directly see a mental phenomenon such as teacher knowledge, received knowledge, or accumulated experience, but these constructs were examined carefully and inferentially from teachers' self-reports.

Third, I assumed that every participant's perception of the relationship between received knowledge and classroom experience is valid *for that participant* regardless of how oppositional it may be to others' perceptions or emerging theoretical models. I attempted to maintain a stance of what philosopher Daniel Dennett (1991) has termed,

"heterophenomenology" and the "intentional stance," namely, one in which participants are assumed to be conscious agents who *intend* to say what they say and who *say what they mean* to the best of their abilities, and who genuinely believe that their unique perceptions of their own lived experiences are honest and accurate as far as honesty and accuracy are humanly possible.

Finally, there were limitations related to the nature of the sample. It may be argued that because there were only two men involved in the study that the findings reflect more of a women's viewpoint, and that had there been a balance between men and women one or more of the ideal types may have been reflected more or less frequently, or more or less robustly. Furthermore, because all of the participants were American, the findings may be limited by country and culture. For example, in country and culture where teacher preparation programs and schools are strictly controlled by government guidelines, such as China, received knowledge may take on a much more predominate role—becoming what might be described as "officially received knowledge" (J. Lin, personal communication, April 1, 2009). Also, because middle school teachers frequently have elementary level certification, there may have been a bias towards elementary level approaches in areas such as teacher preparation, classroom management style, and instructional approach. Teachers with secondary level certification may possibly hold received knowledge in greater esteem because they are required to earn a degrees in content areas whereas elementary teachers are not.

Complexity of Knowledge: Overlap and Intermingling

As stated in Chapter Four, an ideal typology consists of pure types that serve as standards against which natural phenomena may be compared; they cannot be expected to

represent all of the complexity and nuance found in naturally occurring events—especially those events within the panorama of human experience. Thus, there may be, and probably will be, one or more of the ideal knowledge types intermingled, interspersed, and overlapped with one or more of the other ideal types. For example, when teachers participate in book study (Type IV), they necessarily access prior experiential knowledge (Type I) to interpret the text in question, and prior experiential knowledge may have been formulated under the influence of district guidelines (Type II) or sharing experiences with colleagues in the faculty room (Type III). My contention is that although the knowledge types in this scenario intermingle and overlap, they nonetheless can be teased out and used as standards or prototypes with which we may analyze how teacher knowledge develops. That is, issues of complexity and nuance do not diminish the usefulness of the proposed ideal typology for teacher knowledge, instead, they may be seen as opportunities to apply it in increasingly refined ways. In the same fashion, recent attempts to typify thinking skills have been successful in helping to organize instruction and assessment even when considering the enormous complexity and nuance involved in human cognition (see, for example, Krathwohl, 2002; Ennis, 1987; Quellmalz & Hoskyn, 1997). It may be that participant statements characterized as expressions of ineffability in Chapter Four that referred to teacher knowledge as “a bag of tricks,” “an arsenal of strategies,” and “the realm of what works” reflect teachers’ attempts to understand and express the complexity inherent in the continuing process of learning to teach. Thus, although teacher knowledge may be characterized as complex and nuanced, the four ideal types may still be considered as convenient standards for analysis, and the central focus, purpose, and contribution of the proposed ideal typology

for teacher knowledge remains unaffected—to improve professional development and serve as an organizational scheme for theory and practice in the field of teacher development.

Lingering Questions--Further Research

There are several issues uncovered in this study that bear further consideration and may be entry points for further research in the area of teacher knowledge and how it develops. In light of the ideal typology for teacher knowledge I have presented, it may be fruitful to look more closely at teacher preferences for one or more of the ideal types. Why do some teachers passionately espouse Type I experiential knowledge and claim that "all the basics I learned from being in front of a classroom," whereas others emphasize the importance of Type II received knowledge gained by reading research literature that can "teach you the little things that it would take you years to pick up?" What factors may be involved in a teacher's preference for a certain knowledge type? How might it be influenced by relationships with students, teacher preparation programs, student teaching experiences, teachers' personalities and cognitive styles? In addition, it may be enlightening to explore the question of whether the infrequent occurrences of Types III and IV are due to individual preferences, as some of the data seemed to indicate, or whether the imbalance is systemic. In other words, might there be inherent biases in professional development infra-structures that limit opportunities for Types III (collaborative-experiential) and IV (collaborative-received) knowledge to develop? Do most administrators and professional development planners support the use of teachers' shared classroom experiences to facilitate on-site professional development, or is it possible that those in supervisory positions continue to hold beliefs about the necessity to

produce “teacher proof” lessons, programs, and curricula. Are most study groups and lesson study organized in a top-down, administrator-overseen fashion, or are they structured in a bottom-up, participatory way that honors teachers as practitioners who are able to set goals, identify problems, and implement solutions? In addition, the data suggested a further and more detailed examination of exactly how and when practitioners are most able to reflect on their experiences in the fast-paced, ongoing stream of decision-making demanded by classroom life—how and when can opportunities for reflection on and integration of experiences and received knowledge be scheduled into the school day? It may also be revealing to pursue questions about teachers’ expectations about received knowledge; that is, to what degree do teachers expect to be provided with specific strategies as opposed to “figuring it out on their own?” Finally, it may be revealing to ask questions about the best ways to provide opportunities for teachers to dialogue with colleagues about their classroom experiences and to collaboratively critique received knowledge about teaching from texts and authorities.

Appendix A: Interest Survey

I will be conducting a research study for the purpose of better understanding how classroom practitioners develop their knowledge about teaching as my dissertation research at the University of Maryland, College Park. The study will involve approximately 12-14 classroom teachers and take place between September 2005 and May 2006. Each participant will complete a brief one-page questionnaire and take part in two individual interviews. All interviews will take place after school hours.

Participants will be involved in the study for one academic semester only. All participants and schools will be referred to with pseudonyms in order to maintain confidentiality. Participants will be chosen in a way to maximize differences according to teaching experience, gender, race/ethnicity, public vs. private schools, grade level, subject areas taught, location of schools, and teacher preparation.

Participants will benefit from the opportunity to reflect on their professional practice, gain first-hand knowledge about aspects of qualitative research on teaching, and be given a letter of participation for their professional folder.

If you are interested in participating in the study described above, please provide the information requested on the following page and send it back to me as soon as possible along with a signed Informed Consent Form (attached).

FOR BALTIMORE COUNTY TEACHERS – send via interoffice mail to "Gordon Michaloski, Colgate Elementary"

FOR LOYOLA COLLEGE STUDENTS – submit at front desk of Timonium Graduate Center

FOR ALL OTHERS – mail to G. Michaloski, 2 Hyacinth Rd. Baltimore, MD 21234

Thank you for your consideration and interest,

Gordon Michaloski

Doctoral Candidate, University of Maryland, College Park

Classroom Teacher, 3rd Grade, Colgate elementary School
Baltimore County Public Schools

Adjunct Instructor, Loyola College in Maryland

Appendix B: Informed Consent Form

Identification of Project/ Title

Teachers' Ways of Knowing: Received Knowledge and Classroom Experience in the Formation of Personal Knowledge about Teaching

Statement of Age of Subject

You are stating that that you are over 18 years of age and wish to participate in a program of research being conducted by Dr. Linda Valli in the Department of Education/Curriculum and Instruction at the University of Maryland, College Park.

Purpose

The purpose of this research is to better understand the relationship between received knowledge and classroom experience in the development of teacher knowledge.

Procedures

The procedures involve completing a one-page questionnaire, two audio-taped individual interviews, and sharing documents related to a recently taught lesson. Individual interviews will last approximately 60-90 minutes. These procedures will take place over the course of one academic semester. Questions for individual interviews will include:

> *What are some of the most important ways that you have been helped by theory, research, or knowledge from others in your development as a teacher?*
>
> *In what ways have you changed or modified these ideas about teaching that have come from others?*
>
> *What are some of the most important aspects of learning how to teach that you developed on your own—from your classroom experience?*
>
> *Have you made any significant changes over the course of an academic year based on your reflection about you teaching?*

Confidentiality

All information collected in this study is confidential to the extent permitted by law. The data you provide will be grouped with that of others for reporting and presentation. Your name will not be used, but a pseudonym will substitute for your name. All data will be stored in a locked cabinet in the basement of the home of Gordon Michaloski, the student investigator, and he will be the only one with direct access to the data. At or before the conclusion of the project on 6/30/05 all audio tapes will be erased and documents will be returned to participants in order to ensure ongoing confidentiality.

Risks

There are no known risks associated with participating in this research.

Benefits, Freedom to Withdraw, & Ability to Ask Questions

Although you may benefit from reflecting about your professional practice, the main purpose of the investigation is to gather data about teacher knowledge and how it develops. You will be free to ask questions or to withdraw from participation at any time and without penalty. You may refuse to answer any specific question or questions.

Contact Information of Investigators

- *Principal Investigator: Dr. Linda Valli, Associate Professor, Department of Curriculum & Instruction, 2311 Benjamin Building, University of Maryland, College Park, MD 20742. Phone 301-405-7924. Fax: 301-314-9055. email: lrv@umd.edu*
- *Student Investigator: Gordon Michaloski, doctoral student, University of Maryland, College Park. 2 Hyacinth Rd. Baltimore, MD, 21234. Phone: 410-668-8346. email: gmichalsoki@loyola.edu*

Contact Information of Institutional Review Board

If you have questions about your rights as a research subject or wish to report a research-related injury, please contact: Institutional Review Board Office, University of Maryland, College Park, Maryland, 20742; (e-mail) irb@deans.umd.edu; (telephone) 301-405-4212

NAME OF SUBJECT _____

SIGNATURE OF SUBJECT _____

DATE _____-

Appendix C: Questionnaire for Teachers' Ways of Knowing

> Please answer each question as accurately and honestly as you can. Use the back of this paper if needed. If responding on a word processor, continue onto the next page if needed.

1. How have you been influenced by theory and research on teaching and how did you come to be familiar with it? What part has it played in your teaching? Please give an example.

2. What part has your classroom teaching experience played in the development of your knowledge about teaching and learning? Please give an example.

3. Has there ever been a time when you disagreed with administrators, colleagues, or professors about what successful teaching is? Please give an example.

Appendix D: Interview Protocol

Interview questions were developed from research questions stated in Chapter One and organized according to aspects of teaching that are most relevant to an investigation of the relationship between received knowledge and classroom experience in the formation of personal knowledge about teaching. In Part One of the interview, Shulman's (1987a) categories for teacher knowledge and Grossman's (1995) domains of teacher knowledge were used as a reference for generating topics for inquiry. In Part Two, teacher development is investigated. The focus in Part Three is reflection about a specific lesson. Finally, an opportunity to add and summarize is provided.

Because there will probably be some overlap and repetition from the questionnaire, some of the interview questions may be phrased differently for participants according to what they may have already shared in order to further probe and explore topics in the least repetitive manner.

FIRST INTERVIEW: Current Nature of Personal Knowledge about Teaching

General Pedagogical Knowledge

What are some of the most important ways that you have been helped by theory, research, or knowledge from others in your development as a teacher?

In what ways have you changed or modified these ideas about teaching that have come from others?

What are some of the most important aspects of learning how to teach that you developed on your own—from your classroom experience?

Have you made any significant changes over the course of an academic year based on your reflection about you teaching?

Curriculum Knowledge

I'd like to explore that idea a bit further as far as some specific categories of teaching knowledge. For example, your knowledge of the curriculum; does it come from your own experience or other sources?

Content Knowledge/Pedagogical Content Knowledge

(For Elementary Teachers)

Let's start with reading. What part has theory, research, or knowledge from others played in what you know about successful reading instruction, and what have you developed on your own from your teaching experience?

[Repeat questioning process for other subjects taught]

(For Secondary Teachers)

How did you develop your background knowledge of _____?

As far as your particular way of teaching _____, what part has theory, research, or knowledge from others played, and what part has been developed on your own from your teaching experience?

Knowledge of Learners and their Characteristics

I'd like you to consider what you know about how students learn. What part, if any, has theory, research, or knowledge from others played and what part has your teaching experience played?

Knowledge of Educational Contexts

How do you group students for instruction? Have you developed that from experience or was it suggested by another source?

How much do you think about cultural diversity or gender differences when you plan or teach a lesson? What kind of information have you received about those topics and how does it compare to your experiences in the classroom?

Knowledge of Educational Ends, Purposes and Values, and their Philosophical and Historical Grounds

Take a moment to reflect about the purpose of all this—education, schooling--what kinds of things have influenced the way you feel about the purpose of education?

Knowledge of Self as Teacher

How much of what you are today as a teacher is the result of previous role models or suggestions from others? Have you patterned yourself after someone you knew or something you might have read?

Teacher Education and Professional Development

Teacher Education

Now that you have been teaching, how do you view your teacher preparation coursework as far how much it has helped you in learning how to teach?

Has your teaching experience confirmed or contradicted what you were taught in teacher education courses?

Student Teaching

How did what you were learning from experience relate to what you were taught or what your cooperating teacher demonstrated?

First Year(s)

In your first years of teaching, do you think that you relied more on theory, research and knowledge from others, or on what you were discovering through your experience in the classroom?

Later Year(s)

In what ways, if any, do you feel that you still rely on information and suggestions about teaching from others?

What types of professional development opportunities have been the most helpful? Least helpful?

Relationship between Received Knowledge and Classroom Experience

Y*ou responded on the questionnaire about situations where you disagreed with administrators, colleagues, or professors about what successful teaching consists of. Take a moment to reflect on a time when you might have been asked to teach a certain way, or apply a certain theory, or use techniques suggested by a colleague or found in a research study that you may not have felt connected with, or perhaps simply seemed wrong to you. Would you share an example?*

On the other hand, has there has ever been a time when your experience in the classroom supported and agreed with suggestions from others or with ideas that came from theory and research on teaching? Would you share an example?

Closing

Is there anything else that you might want to add about how you learned to teach, how you work on improving your teaching, or about how theory and research on teaching relates to your classroom experience?

SECOND INTERVIEW: Specific Example of Personal Knowledge about Teaching

Lesson Plan

Tell me how you went about developing this lesson. . . .What were the sources of influence?

Lesson Implementation

Were there any specific instructions about how to implement the lesson? And how closely do you follow them?

During the course of this lesson, did you decide to do something not included in the lesson plan or to make a change? How did you go about making that decision?

Are there any aspects of the lesson plan itself that you would like to change? Do you base that decision on your classroom experience or on something you were taught or might have read?

Assessment of Instruction

What part, if any, do you have in deciding how to assess student learning for this lesson?

Other questions will be directed to the kind of documents presented. For example,

Tell me how you go about using this curriculum guide.

How would you evaluate the usefulness of these district guidelines for organizing reading instruction?

CLOSING

Is there anything else you would like to add? Anything you thought of during the interview but didn't get a chance to express about how your experience as a classroom teacher relates to what others have said and written about teaching?

Appendix E: Representative Statements Illustrating Ideal-Type I Personal-Experiential Knowledge

Knowledge is personally constructed from teaching experience in the classroom. It may be implicit, or explicit; intuitional or reflective.

Participant	Participant Statement
Pauline	There were a lot of things that I learned about that I was never taught. I think that it comes from my experience in teaching. I don't think it came from anything that I ever read. I don't know how to describe that process (learning to teach). I think I get a lot more from the kids than I get from the other teachers. I think there's like a realm of what works and so when you're writing a lesson you think about those things. I think it's intuitive. It just seems like automatic like "Oh, that would be a good way to do that." And then if it doesn't, then you learn from it. I feel that I have gained the most through my experience in the classroom. It is not until you are in a classroom that you realize what it truly means to teach to all students, regardless of ability levels, interests, etc. An example of this which comes to mind is the issue of children who are diagnosed with ADHD. As I sat in my college courses learning how to best help students with ADHD, everything was very textbook-driven, based on research findings. For example these students should have the least amount of visual stimuli possible, etc. Though it all sounded nice in the text, when I entered a classroom with 20 students, I learned on my own how to best help the students diagnosed with ADHA. I

	also realized that the proposed ideas from the textbook as I once thought. I think much of the teaching comes from experience and a passion for the job.
Mary	This has helped me distinguish between what sounds good and what really works. They had research that proved it worked. I hadn't read the research that proved it worked. I had done it and knew that it worked. I tried it and knew that it worked. I didn't know why it worked.
Amanda	All of my management techniques have been learned through experience. I see what works and what doesn't. For teaching, I think part of my skill is just the ability to know what I want to accomplish and I get myself there without a lesson plan written and I am successfully able to teach the skill. Most often I relate my skills to personal experiences of the student. a lot of the college classes I don't really think prepared you for the classroom and I think when you get into the classroom a lot of it is management and organization. Once you have the class organized, then "What are we supposed to do on the first day of school?" We learned how to teach reading, we learned how to teach social studies and science and all these things—writing—but what do we do on the first day of school? Where do we--How do we set up our desk? How do we do all of those things? I've always been told that I have this natural ability and that's the one thing that I think I had on my own I know what I what to get taught –I know what I want to each and I know how to get there so I have just I think that I have a lesson plan going one way and then I realize that listen to my kids and I se what they need and then I just take off and get to where I need them to be like that. And I don't necessarily have to stop and look up things in a book or other

	lesson plans I just able to very quickly think on my toes and then just keep going. . . and I don't think I ever learned that in school or from any theory. It comes out of my knowledge. I think it just comes out and I just do it and if it doesn't work I try something else but it's not something that I actually think I think about what the kids are saying and how they're interpreting what I'm asking and then I guide my questions to make sure that I'm getting to the point that I want them to understand but it's not something that I really think about I happens like that. And I'll even say after my observation I'll say some thing like, "Well, I really didn't now how I was going to end the lesson and then right when I was sitting there I realized "Oh, well we did this" and it was like a light bulb went off in my head and boom that's how I took them there but sometimes it just comes to me out of nowhere and I just do it. So I think that there's always room for learning. I think because every year is different and every class is different that everybody always has to be on your toes. You always have to ready to modify and try something new with the kids
Jasmine	When I'm planning a lesson I'm thinking, "Where do these students come from? What was their life like before they got here? What is the education level in their home? Do they have parents there to help them?
Della	My experience drives everything. My students read poorly and those that read well still lack critical reading skills. I must often edit and otherwise modify curriculum materials and activities for my students. Sometimes that means editing a document and only providing part of the document, developing a graphic organizer, and/or glossary to use with a document.

	I may have taught something two or three times but darn I'm gonna look at it again and I'm not gonna just tough it out . . . I'm always gonna find a way to fine tune or find a better way of doing something You know sometimes I'm not really sure if experience is what really makes things work because I can plan things and I can reason out why I'm doing things the way that I'm doing them but darn it sometimes I think I put a lot of time into developing a lesson and it bombs and then other times I do something in 5 minutes and it's wonderful. There are so many variables. I try to generally mix things up. I try to do a little bit of both so that the kids who may be part of I would say an experientially disadvantaged group whether that kid is a poor white kid or an African American kid or a Hispanic kid, I can give them something to grab onto that they can relate to. And if I can't think of something, I may give an example and ask them if they could come up with more examples. So in a sense they help me understand**.**
Lou Ellen	As you become more experienced you can look at a new idea and know how to pick and choose those parts that best fit your style and comfort level. I've developed a lot of body language and facial expressions. I'm not much on checklists. …I've learned to control with body language, facial expression, proximity . . .not necessarily conferences but phone calls, emails. . . . I let the kids self-correct in math as much as possible to save time. . . . I'm not going walk around with a stopwatch hanging around my neck. You have to know your weaknesses. . . . I'm too busy working my kids to stop and put a check on the board. I can't do it I'm analytical when there's something there that I'm not comfortable with. . .When I'm working with the kids I think I'm more intuitive.

Taisha	Coming from my experience I had to add some things for my English language learners so they would have some words to pull—words they could comprehend. In teaching you learn on the job.
Belinda	So I try to still stick to what I think the right thing to do because personally when I see kids learning like that I see that they get more excited and they're more engaged I'll go the extra mile on my own and try out things see how they fit in. What am I suppose to be doing on a day to day basis, like what is the reading time supposed to spent doing? I felt like all of that I just picked on my own. . . . All I learned was theory and not the practical things to do. . . . I had to start thinking about trying to get into his head and figure out what would he work for? What things would want to cause him to behave? These were just things that I thought of. I feel like I just know what a good teacher should be. I don't think my ideal comes from any teachers I have seen or maybe like a blend of different things I see teachers doing. . . . I don't know if my ideal comes from any specific person or place.
Darla	You have this guy Hirsch who writes a book, "Everything you should know in 4th Grade" and it's in a book (laughs). You know? It worries me because and I think that's why you have a teacher.
Ryan	Being a teacher whose never taught certain parts of the curriculum before I've had to come up with a lot of things on my own where I felt it might have been nice to have a curriculum guide that has a lesson plan laid out for you—there's a part of me that would like to have that but I don't know if I'd be willing to relinquish the freedom that

	I have now for that. it's very stressful to me and it consumes me because I put a lot of pressure on myself to come up with lesson plans and the delivery of lesson plans to really make the students get it and when they don't get it, I take it personally whereas I need to . . .I'm getting better at that maybe not looking at it like it's my fault just try to have a more positive view –not that it's my fault but "What do you need to do to change it?" I feel that I am furthering myself as a teacher with an arsenal of strategies—I like to call it—than I was the past three years. When I had al GT students I didn't have to do these sorts of things, whereas now, especially with students who can read on grade level, I have to do those sorts of thing. Even though my student teaching experience was fantastic, on my very first day of school, my first year of teaching, I was terrified because there are so many things that a teacher education program cannot train you for. And it'd not the fault of any teacher education program; it's not the fault of any university—it's the nature of the profession. No teacher education program is going to prepare you for orientation week where are slapped with all of this information—bombarded and overwhelmed with paperwork—piles of paperwork—everything you need to do before the very first day of school and on the very first day you never learn what to do the very first week of school. And if you do it's through a professional development day where it's all crammed into a couple of hours. My first year of teaching it was really on the job training.

	I think teaching in some respect comes naturally to me which is why I've always wanted to do it so a lot of the things that I do, a lot of the interactions I have with kids it just comes automatically for me. I don't really have to think—"This is how I need to do it." I think a lot of it is intuitive for me.
Michelle	Before I would have to write it all out, now it's more of a—on my feet I just kind of know instinctively and that's what my cooperating teacher said, "You'll be able to think on your feet. You Know? It will come." Whereas before when I was a student teacher it was more like a script I needed. I just kind of regurgitated things that I was already doing based on something I found myself or suggestions from another teacher. A few have been helpful but most of them I feel like, "I'm already doing that," or "I'm already doing a piece of that." When I'm driving home, when I'm grading their papers I see a bigger picture—I think-of how it didn't really work, but when I'm up there teaching I think. "This is great. This is going fine, or this is not happening. What am I going to do to fix it? And sometimes there isn't much I can do to fix it right then. I have to just muddle through until the next subject.

Appendix F: Representative Statements Illustrating Ideal-Type II Personal/Received Knowledge

Knowledge is personally constructed after being received from source(s) other than self. Received knowledge may remain same or be modified.

Participant	Participant Statement
Pauline	So I guess in the public school was where a lot of my knowledge of curriculum was from—what I was taught in college. When we came back to school one year it was the big thing to make sure you had posters on your wall that had students from different ethnic backgrounds or cultural backgrounds and we had a person who was called multicultural coordinator or something who started coming through each classroom once a month. She'd schedule a time and she would talk to the kids about Kwanzaa and explained it to them –things like that. There was this huge emphasis in college to try to reach all kinds of learners and use different formats of instruction—you know visual things and tactile things—using multiple forms of instruction—and I think along with reaching different kinds of learners you need to make learning fun, and I think that was the thing that stood out for me the most because throughout all of our education courses we really had to learn how to teach in different ways or write lessons using XYZ and I learned how to make lessons interesting and how to motivate a kid who wasn't necessarily motivated. So I think the idea that there's not one way to teach really sunk in with me. I think teachers have a busy life and I don't think they're inspired to go out and find articles in their spare time. But at the same time I think that somehow that research—I

	mean there are a million articles out there that don't come into the school until they're made into the new trend of the year. So if there are all these articles that build up this new idea for the year then you hear about it, but it seems like there should be some connection on current, up-to-date educational research in another format than what appears to be for that year as a trend
Mary	I'm learning through reading more as opposed to I think when I first started I just thought, "Oh if I divide them into groups that's cooperative group work. Yea!" You know what I mean? I didn't take it to the next step. And I'm still working on that. Like I'm still figuring out what is the best way. I haven't figured it out yet. Every time, I don't care if it's your principal who tells you, you still want to be thinking about, okay, does this make sense? What do they have to back it up?" She said, you should try it—definitely—who knows? But you never want to jump in feet first only to find out that it's a disaster. You know? Because they taught you the little things that it would take you years to pick up—things like proximity. You know? And little cues that you can give them to make them focus or make them stop whatever they're doing without distracting the whole class. That was great. "You know what? This is a weakness for me. I need to take a course on how to do this better." Blah, blah, blah. But that's something that you have to do. What makes me, I guess, that I'll take everybody else's ideas though and put them together to create something else like a little bit different but it's not like I came up with it. Like I literally beg, borrow, and steal ideas and I put them together and I go, "Okay. How's this going to work when we kind of mix a little bit of this with a little

	bit of that and sometimes it works and sometimes it doesn't. My first year I focused on more of the *what*. Then I started thinking more about the *how* do I teach it? And finally I'm getting into, "Okay, who am I teaching?" That's just as important as the *what* and the *how* you know, is *who*. So that came out from a central office memo. It came out with this framework for learning and it wasn't until I saw it that I thought, "You know what? You're right. I should pay a little more attention to this Every other summer I've gone to in-services or workshops the whole summer through. I just do them back-to-back. I go them just to increase my knowledge because that's what I need, and like I said I don't pick it up as quick so I may need to hear it two or three times They gave you research to back it up and we had other stuff that we just happen to have read and we went, "Oh! That totally goes with Marzano. It totally meshes with Marzano—all the things they're saying *I liked being in this program because it did force me—even though I didn't want to do the readings all the time—it forced me to keep reading, and then if I'm reading naturally I'm going to start thinking that way. Thinking analytically about it but because I just read it especially in the days to come I'll think about it. Now in the months to come, chances are I will have read something else and I'll remember it.
Amanda	I think I learned to teach from watching my mother, watching other people teach, reading, and sometimes it's not simply reading about someone teaching but sometimes you read about a character who

	is has done something that's formal teaching but really it is teaching And I pull that from there and add it to whatever else I know. So it comes from all over. Sometimes it's not a teacher but it may be a grandmother doing something. So along the way all the things I've read, heard, and seen, you kind of modify them and put <u>your own stamp</u> on them.
Della	I think it's helpful to have hands-on things that you can just grab and use those tried and tested materials. I went to the teacher who, looked like she knew what she was doing and I said they say I can't give up my lunch so can I come sit in with my lunch? And she said yes. And in graduate school the same thing with the professor that was my advisor . . . an English teacher . . . they were really good teachers . . .
Lou Ellen	Demonstration lessons are really great. It's nice to go around and see other teachers and pick up from them things that work. We're always stealing from other teachers but it's nice to see it. Sometimes the theory is so darn out in right field that you want them to come in and show you how to do it. I didn't know where to start. It was trial and error. . .That's when I learned that you can steal from other teachers. What's working for them. Keep your eyes out. What's working here; What's working there? (Professional development leader) She's been in the trenches. . . .she takes the theory-- she takes the practicality. She puts it together and still centers it around the MSA.

Taisha	I learned a lot from working with my Special Ed teacher. She showed me how to make changes to the lesson plan according to what the kids had in their IEP and make accommodations according to that. If I notice a problem in the classroom I immediately read the literature to find out what has been done to help in the past. . . . (II after problem is identified from I) For example. I noticed that students were not using the feedback I was spending hours providing for them on their writing. After reading several articles I realized that perhaps students did not understand the language I was using on their feedback or even what they were supposed to do with the information I was providing them. I began to explain orally through conferences and kept writing portfolios for each student to monitor how they were progressing and using the feedback.
Belinda	(Becoming familiar with research) Pretty much through my school, through grad school and my undergrad work and I don't read educational journals home or anything like that so it's pretty much in staff development that we get that you can use the strategic learning model is really big now that the county's brought in (formal II The research I see as trickling on down is the PBIS program for our behavior program that's a lot of research they've been gathering collecting as they started the approach and they're trying to find support for it.
Ryan	Usually what I'll do is—I'll take a reading strategy and by this time I've already got to know my kids for over half a year so I already have the ability to kind of adapt it to my specific students. Things that I use at the beginning of the year, when I really didn't know my students that well I try just like textbook. Okay, this is what it says to do so this is how I'm going to do it.

	(Influence)There was a high school Civics teacher that I had in 11th grade . . . .I had wanted to become a teacher before . . .but he solidified what I'm going to become. I lived the way that he taught. We were talking before about having rapport with students? Every single class he would stand at the doorway and greet you as you came in and he would stand in the doorway and say goodbye to you as you left. Just that. I remember that. It's something very small and you're not going to read about you have to do that in any textbook. It's just something that stuck with me. The kids respected him. We all respected him. The courses that I've taken for the Curriculum an Instruction program in graduate school has either given me more of an arsenal of techniques to use and definitely to reflect on how I teach what I teach or think about ways to do it differently. I'm getting a lot more from my graduate program than I did from my undergraduate program. Maybe that's the way it's supposed to be.
Brandon	If I had a fuller knowledge of the theory behind education I might be more effective at implementing learning strategies and evaluating student growth and progress.
Darla	You know, I always used to reflect. I use to keep journals. I found some of them. And I tried to do it pretty much when it happened so I could—it would be fresh in my mind but I would be writing every day about what I was reflecting upon my teaching and what was going on and what I would want to change about it you know with kids saying things and what that meant to me and what I should because to (inaudible). I can honestly say that this year—well since I've been doing this stuff—I don't reflect at all…because I don't need to think about it. (laughs) Even at the beginning of the year

	when in was doing it—like I had them do journals—you know and I was trying to think of ways—like the word wall—I was really thinking of ways—reflecting upon ways based on what happened in the classroom—what I would do the next day. But once I started doing these little programs I didn't have to do that anymore…thinking about teaching. Well it [ideal teacher] comes from I guess my people that I've had. I'm sure, people that I know that are teachers and then I guess ideas from books, you know, theorists, research. I mostly want to be like teachers that use their teaching as research. When I think about it, that's what I think is ideal teaching because then you're always reflecting to change it.
Michelle	I became familiar with it through education classes and reading texts. –somewhat influenced—always in the back of my mind. Well, Think it helped me to have a general understanding of what to expect when I come in how students learn. What methods are tried and true that are going to work then that general background. It reinforced things that I instinctively knew and then it also gave me some ideas of how I should present (inaudible) and what works –best practices that have been tested and researched. It was even better when we got to the classes where the actual strategies, you know—these are things you can try in your classrooms. And it was taught by teachers who had been teaching for years and now their teaching at college level and they're saying these are strategies that I've used in my classroom. This works. Here's research that shows that this works.

	Yes I think it did prepare me to go into teaching. It didn't prepare me for the behavior aspect but it definitely prepared me to be able to plan lessons—know where to find resources—present the material in an effective way My first year I was pretty much by the book. I would follow lessons. I would plan my teaching partners who had been teaching for 8-10 years. I would take their suggestions. I kept all my notes and information from my teaching

Appendix G: Representative Statements Illustrating Ideal-Type III: Collaborative-Experiential Knowledge

Knowledge is collaboratively constructed by interactive sharing of classroom teaching experiences.

Participant	Participant Statement
Mary	Where they fell short was teaching me how to deal with behaviors related to special ed students. That I was not prepared for and I had to teach myself as I went and it was you know just ask around the building, you know, prior to that it was just through basic like lunch room talk. Someone would tell you something and you don't even know if it's true! Like the color red you shouldn't use because it offends certain cultures. Those kinds of things I would not think of but it's just through basic teacher talk that pick up on that stuff. Well, I work in a team. So in a team it's the way it's set up you're constantly—anytime your finished a (indistinguishable) you're all there. And so it's there and it's in the lunch room that you get the most teacher talk. And then there's others who they punch the ticket, you know. And it's not through talking to them, but you can, but they look at you like you're retarded because why do you care? Although if you invite the same people to something over the summer like, "This great workshop is going on. It's totally free. You get to go. You're going to learn all this great stuff." Their response is, "I have to give up two weeks of my summer?" But look at what you're getting. And they don't see it. And I don't know if that's just a personality difference? A value difference? These roles have to be interdependent on each other, but they have to work as a group. They can't just divide and conquer.

	It's got to be, "All right, you're leading the group through this stuff, but you must get input from each person to guide your whatever," because otherwise I found that they would just "This is my part and I'll go and do it." And then that's not cooperative. That's just each as an individual. You've got find a way to make it like "you're in charge of leading this or the process but it's not just you doing it." Does that make sense? There's this program at the teachers curriculum institute called (inaudible) Alive and there they do a lot of what's called problem-solving group work, and it's a lot of what I'm talking about. Like they totally embody all of that which is why I love the program.
Ryan	I try to make it fun for them—add some humor, crack some jokes. I like to do group work presentations—none of that I can say is my own it's just something that teachers do.
Darla	They used a writing workshop format for us to conduct action research in our classrooms, write about it, and they put us with copartners and we read it and shared and published it—that kind of stuff. So as part of that group, that really influenced my thinking about teaching. I saw all teaching then as being teacher researcher. We were using writing workshop in that we had to write, we got partners, and I thought I was a good writer. It was so powerful for me. I thought I was a good writer—I had this partner—she said, "I don't know what you're writing about. I don't understand what you're writing." And I said, "You don't?" (laughs) "It's not clear?" You know really it just helps so much to have a peer responder. I got to actually experience what being in a writing workshop was really like. And then, at Kenwood High School I was able to team teach a class of writing workshop

	with another teacher who also must have read the book or knew something about it from what I was telling her—you know, all the components to it—who really helped. Well, we taught together so she really helped me. They kind of worked together and they both worked with me. And they got me—and I'll never forget this--I remember it like yesterday--J.R. who is now an A.P. somewhere, was a mentor here. She invited me over to her home. I was so impressed. She gave me snacks to help me plan lessons with these basals. I was like—she got me. I would do anything—even if I didn't agree with it just because I liked her. She won me over so to speak. And then I realized, "Yea, they're right. The kids are more successful with the basals. They can actually read them." (laughs) You know like all the things they said about them were true. So that was really eye-opening for me. What I would want to change about it you know with kids saying things and what that meant to me and what I should because to (inaudible). I can honestly say that this year—well since I've been doing this stuff—I don't reflect at all. …because I don't need to think about it. (laughs) Even at the beginning of the year when in was doing it—like I had them do journals—you know and I was trying to think of ways—like the word wall—I was really thinking of ways—reflecting upon ways based on what happened in the classroom—what I would do the next day. But once I started doing these little programs I didn't have to do that anymore…thinking about teaching.
Jasmine	The push for data collection and ongoing assessments has reduced the time teachers have for helping students to gain mastery of concepts. I have disagreed with colleagues over the idea of hurrying

	through the curriculum in order to be ready for a test. If two days are allotted for the teaching of a concept and students are slow to grasp it. I do not move ahead until I think they are secure in the knowledge of what has been taught. You're really supposed to plan as a team and teams are supposed to for example if you are visiting the school and you walk into my classroom in 4th grade you should see the same thing of information happening in the other 4th grades. We should all be on the same page. Well, I had a problem with that because all of the students are not on the same page on the same day. So yes we would teach the same information but maybe doing it at different times and of course I'm different. I have a different background so I'm going to do it differently. So please don't expect me to teach it the way you teach it . . . because I have to put my own stamp on it because it's just me. And someone else will just do it according to who they are. We have a team meeting every Tuesday and each week we are discussing planning for instruction . . . so we are constantly talking and even when you're not meeting in a team meeting you're talking over the fence over email with each other. "What would you do about this.
Michelle	And it wasn't just doing it on a day-to-day basis, it was seeing the successes, seeing the failures, and deciding why did this not work and how can I fix it—getting the feedback from administrators and other teachers and parents.

Appendix H: Representative Statements Illustrating Ideal-Type IV Collaborative-Received Knowledge

Knowledge is collaboratively constructed after being received from source(s) other than selves. May remain unchanged or be modified through collaborative interaction.

Participant	Participant Statement
Mary	We took a lot of their theories—we took a lot of theories that we had read about and we took it all we said all right this is what we can do . . . It was really easy. All it was us sitting down and tossing out ideas. What about this? What about this? And he'd say well where were you going with that idea? I hadn't thought of it that way. Why that? And as long as I could say, remember that article about blah blah blah and blah blah blah? But sometimes he would say well I think the intent of that was more . . . and I think it was just having that intellectual discussion. Working with him pushes me to have to go Okay let's take all that abstract theory that I read about in class how do I relate that to—you know? And that's what I love. . . . The content's the easy part. [discusses ease of identifying what is to be taught but difficulty in choosing texts that are accessible to kids] Exactly. And the teacher with the same people that you find, like some people are very into like, "Oh. I read this article. It was so cool. Check this out." There is! Usually it's like someone says, "I saw this article I put it in your mailbox." And then maybe later you'll touch base with them like, "Yea. This part is so (indistinguishable) or is so this person. And then you might talk about it a little but you know how you have teachable moments in the classroom? Kind of like that. It's like that teachable hallway moment like you're there, "Oh my gosh! Did you see . . .?" But I'm finding now that I'm going school to

	school that it's very much like it's a certain environment that's conducive to it and certain that aren't. Maybe it's some have a bunch of people that have that personality so you see more of it and some don't or maybe I just don't hear it there. But I kind of get a vibe in each place, you know, for the energy level as far as like are they open and ready for these new ideas?
Lou Ellen	The best (staff development session) I've had was when the math department was doing quarterly math inservice for us. They would walk you through a unit and give you manipulatives. They would give you background –new vocabulary, new terminology, whatever. We worked in groups of 4 or 5 even though they talked to you but then they would stop and you would do an activity lots of hands on—that was the best. I came back here ready to go. I knew I could teach that. . . . Now they don't do that—only for new teachers. We have a new teacher, so she goes to the new training and brings it back.
Michelle	And it wasn't just doing it on a day-to-day basis, it was seeing the successes, seeing the failures, and deciding why did this not work and how can I fix it—getting the feedback from administrators and other teachers and parents.

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