

Chapter 20

Advanced Avenues in Adult Development and Learning: The Role of Doctoral Study

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In this chapter we explore the role of advanced graduate studies in the development of adults and its intended and unintended consequences. In the spring of 2002, one of the authors presented a paper at the Association for the Advancement of Higher Education (McClintock & Stevens-Long, 2002) on assessing the ineffable outcomes (the theme of the conference) of graduate study. The presentation covered literature on cognitive, affective, and behavioral outcomes, including such topics as changes in intellectual development, ego identity, and behavioral developments. We were especially focused on the development of scholar-practitioners in such areas as organizational development and clinical psychology. One particularly striking reaction to this presentation was the anxiety on the part of some attendees responsible for assessment that if there are emotional and behavioral changes accompanying graduate study they might, by delineating them, become responsible for them. Thus we make a distinction here between what graduate educators

appear to be intending and what graduate education as a process seems to potentiate in human development.

We begin with a brief review of what graduate school and, in particular the doctorate, appears intended to do. In an extensive study called "Re-envisioning the Ph.D.," Jody Nyquist and Bettina Woodford (2000) started with the statement that

Legendary achievements have come from graduates of doctoral programs in the United States. Expertise produced by doctoral training has resulted in advances in science, medicine, and engineering that were unimaginable only a few decades ago. Doctoral training in the social sciences has provided new understandings of the human condition that inform our daily life and public policy. Scholarly work in the humanities has enabled us to better understand and appreciate cultural differences and dimensions of the moral and ethical nature of our human existence. (p. 1)

Following this lead, we might assert that doctoral training is intended to produce new knowledge of all kinds, scientific and human, cultural, moral, and ethical. Certainly, the traditional emphasis on assessing the outcomes of graduate education through counting the research grants and publications of students and faculty underscores this proposition. Particularly in matters of evaluation and accreditation, honors, awards, articles, books, and funded research grants have been the main indicators of performance. Of course, publications and grants are believed to reflect graduate training and graduate learning. Yet neither training nor learning is directly addressed by those indicators. Furthermore, to the extent that they are addressed, only the intellectual and cognitive aspects of education are studied or evaluated. The emotional, moral, ethical, and even behavioral outcomes of graduate study are left unexamined. Often, they are considered irrelevant, and based on the experience of presenting at AAHE, one might argue that some even consider them dangerous as a topic of discourse.

In fact, there is much controversy about whether doctoral education prepares one for anything but conducting quality research, reflecting issues that have been raised about employing doctoral graduates outside of the research university. Employers complain that many Ph.D.s lack the social and emotional skills required in the business world. Yet as the extensive interview study reported by Nyquist and Woodford suggests and is supported by research at the Fielding Graduate University (Schoenholz-Read, 2000), doctoral studies usually are accompanied by intense periods of personal discomfort, emotional turmoil, cognitive struggle, and transformation.

DOCTORAL STUDY AND COGNITIVE DEVELOPMENT

If a modicum of agreement exists about development over the course of doctoral study, it is in the area of intellectual change. Graduate students are expected to become skilled at research, which implies the ability to question existing research and conventional understandings. One must be able to recognize problems, anticipate or forecast problems, and define ill-structured or unstated problems.

In terms of the literature in adult development, the recognition of problems and the ability to think

about ambiguous conditions and alternative solutions implies movement beyond Piaget's stage of formal operations. This argument finds support in extensive work by John Broughton (1977, 1984) as well as by Michael Commons and Francis Richards (2002) along with many others. As a model, formal operations is inadequate for understanding how people come to comprehend new systems. Formal operations are adequate for analyzing linear logical and causal relations but cannot explain how people reason about transformational relationships that require nonlinear conceptions of causality.

A number of descriptions of postformal thinking have been offered, including those of Arlin (1975, 1984), Basseches (1980, 1984), Benack (1984), Commons and Richards (1978, 1984), Kohlberg (1990), Sternberg (1984), and Sinnott (1984). Most cogent here, perhaps, is Patricia Arlin's (1975, 1977) argument that although formal operations are adequate for problem solving, postformal thinking is characterized by problem finding. Problem finding requires the ability to reflect on the nature of a problem and on the processes by which problems are solved. Certainly, doctoral studies move the student toward the ability to find problems that have not been previously identified or to reflect on how one might resolve problems that have not been adequately resolved. This would seem to be the essence of research.

Michael Basseches's (1984) work on advanced stages or postformal thinking follows Klaus Riegel (1973) in emphasizing the ability to tolerate contradiction and ambiguity and make effective use of these as a basis for thought. In particular, one must be able to follow structures or forms that are in constant transformation. Jan Sinnott (1981, 1984) used the concept of systems to talk about postformal thought. A postformal thinker, according to Sinnott, is able to consider the relativity of systems. For example, the patterns of relationships that characterize kinship in one cultural system might be meaningfully seen in relationship to different patterns in another system. Furthermore, the postformal thinker can make these comparisons without necessarily making value judgments. Certainly, these are the kinds of problems graduate students hope to engage.

Similarly, Commons and Richards (1984) used the concept of systems to describe postformal thinking but posited up to four stages beyond formal operations. At the stage of *systematic order*, the thinker sees that outcomes may be determined by many causes

and uses this observation to generate systems. Systematic thinkers tend to build matrix representations of information about various systems in the form of tables. These tables might show how, for instance, various theories of cognitive development can be compared with each other. Commons and Richards (2002) argued that "most standard science operates at this order. . . . Researchers carry out variations of previous experiments. Behavior of events is seen as governed by multivariate causality. Our estimates are that only 20% of the US population can now function at this systematic order" (p. 4).

At the next or *metasystematic* order, systems are the objects of thought. Metasystematic thinkers are able to compare, contrast, transform, and synthesize systems of relationships. The focus is on understanding the assumptions and methods used by thinkers within a particular system. According to Commons and Richards (2002), "almost all professors at top research universities function at this stage in their line of work" (p. 4).

Beyond the metasystematic stage, people are able to create new fields or, in very rare historical instances, new paradigms for thinking about existing knowledge (*cross-paradigmatic* thinking). Commons and Richards pointed to the development of the idea of curved space and the subsequent replacement of Euclidean geometry as an example. Finally, *cross-paradigmatic* thinkers are able to create whole new fields of knowledge. Copernicus's creation of the field of celestial mechanics and Descartes's creation of analytical geometry are examples. Clearly, not many of us achieve this level of cognitive function.

However, there is convincing empirical evidence that most graduate students do, at least, achieve the first stages of postformal thought. In their study of *reflective judgment*, Karen Kitchener and Patricia King (1991, 1994) outlined seven stages of development in the thinking of college students about ill-structured problems. The researchers sampled dilemmas in historical, scientific, religious, and everyday contexts. At stage 4 of the Kitchener and King scheme, thinkers began to see the uncertainty of knowledge and understand the distinction between problems that can be resolved with certainty and those that have no single solution. However, stage 4 thinkers were unclear about how to evaluate knowledge claims in ill-defined situations. At the next stage, students understood that interpretation was required to justify an explanation, but they still did not see how to evaluate

the worth of differing interpretations. This level of reasoning, Kitchener and King argued, is typical of most beginning graduate students.

The ability to evaluate the relative worth of differing perspectives through the comparison of evidence and opinion across contexts emerges at the next stage, stage 6. Such thought is typical of advanced graduate students and, we would presume, their mentors. At the final stage, stage 7, the thinker understands how to use critical inquiry, existing evidence, and opinion to justify claims about the better or best solution to an ill-defined problem. Kitchener and King reported that even among a college-educated sample, the majority did not use reasoning higher than stage 4 before age 24. The cognitive changes typical of doctoral education, then, appear in stages 5 through 7. Level seven appears about 50% of the time in graduate students over the age of 25. However, education is clearly more important than age in the development of reflective judgment. Fischer, Yan, and Stewart (2002) argued that stage 5 and beyond is characterized by the ability to see systems of systems, which comports with the Commons and Richards (2002) description of the systematic order.

Although the literature on adult education (Mezirow, 1991; Tennant, 2000; Tennant & Pogson, 1995) tends to focus on undergraduate work, there is much agreement that the goal of advanced study is the development of critical reflection. The line of reasoning here begins with Dewey's (1933) definition of reflection as "the active, persistent and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends," (p. 9) and continuing through Jack Mezirow's discussion of perspective transformation, this work emphasizes how we become critically aware of the assumptions that constrain how we view the world.

The test of perspective transformation, according to Mezirow (1991), is "not only that it is more inclusive, discriminating, and integrative of experience but also that it is permeable (open) to alternative perspectives so that inclusivity, discrimination and integration continually increase" (p. 156). Perspective transformation causes us to challenge the assumptions that constrain the way we perceive, understand, and feel about the world. Here is the first mention of affect—how we feel about the world. Most of the literature on cognitive development ignores the implications for emotional change altogether. Yet there is

clear evidence that advanced education and its attendant cognitive changes are accompanied by important emotional experiences and, often, by a rather thoroughgoing reconstruction of the self. As Mark Tennant (2000) argued, all adult education leads to profound personal change.

In fact, it has been our experience (Schoenholz-Read, 2000) at the Fielding Graduate University, that as students begin to report intellectual "stretching," "broadening," and the understanding of multiple perspectives, they feel deeply affected by their learning. Some report increased patience, empathy, and self-confidence. They talk about the ability to be less emotionally reactive, listen to others, and appreciate different points of view. They discuss profound changes in the way they see themselves. Certainly, increased sensitivity to multiple perspectives implies a change in how one holds or feels about one's own perspective, at the very least. So although a particular perspective may be learned, this ability to take perspectives has quite important developmental consequences.

EMOTIONAL DEVELOPMENT AND GRADUATE EDUCATION

"The interpretation of experience is social and political, as well as a psychological exercise. The self as a fixed, stable, and harmonious entity is replaced by the notion of self-construction as an ongoing process. The self, in effect, stands in a dialectical relationship to experience, both forming and being formed by the experience it encounters" (Tennant & Pogson, 1995, p. 169). The appreciation of multiple perspectives drives us toward a construction of the self that is partial, hybrid, and perhaps itself a multiplicity of lenses and truths. In a recent work, one of the authors (Stevens-Long, 2000) described the "prism self." This construct draws on the dialogic view of Vygotsky (1986) and Bakhtin (1984), as well as of Richardson, Rogers, and McCarroll (1998), to describe the adult self as a struggle among multiple voices internalized from the outside world, a continuous dialogue between perspectives that make claims on our attention. This conception of the self is postmodern and post-conventional.

Susanne Cook-Greuter (1999) has described the highly developed self as characterized by increased awareness of the constructed nature of reality and the

deconstruction of conventional assumptions. She refers to the "postconventional ego," and claims that the postconventional person sees the futility of searching for an objective sense of self or reality. Such persons have a sense of self that is fluid. At its most developed stage, the postconventional self displays ambiguities and paradoxes and a profound awareness of the process of becoming. Cook-Greuter's work extends the scoring system developed by Jane Loevinger for her sentence completion instrument. Two examples of postconventional responses illustrate the emphasis on process:

I am, in the end, unfathomable, but I enjoy the process of trying to fathom.

I am alive, trundling along, making sense as best I can, diversifying while consolidating and contracting. (Cook-Greuter, 1999, p. 266).

Consistent with Robert Kegan's (1984) formulation, one comes to "have" a self rather than "be" a self. Having a self, however, is not without its challenges. Dane Hewlett (2004) has described the developmental challenges and imbalances that can occur at even the very high-end ego stages described by Cook-Greuter, including strategies these individuals employ in handling emotions. Most broadly, these challenges center around the process of letting go of one's ego or the sense of a separate self. Individuals at high-end ego states increasingly experience their separate identity as illusory or as a mental construct that was sometimes associated, in Hewlett's study, with a loss of interest in the more mundane aspects of day-to-day life and a tendency to disengage from conventional society. People at the high end of the ego development scale also reported a sense of loneliness and isolation and the difficulty of integrating their personal sense of reality with more conventional conceptualizations.

Recent dialectic notions of human development have broadened to include the emotional as part and parcel of a theory of mind and self. Work at the interface of cognition and emotion is represented in the writing of Gisela Labouvie-Vief (2000) who argues that the higher use of reflection and the integration of contextual, relativistic, and subjective knowledge beyond formal operations is deeply interconnected with emotion and the construction of self. New work on wisdom (Baltes, Lindenberger, & Staudinger, 1998) focused on the integration of cognitive processes with knowledge of the emotional and interpersonal.

In one account, widely distributed and read by students at Fielding, the authors maintain that "the experiential mystery and uncertainty encountered when writing a dissertation are essential aspects of a liminal process that transforms the self" (Deegan & Hill, 1991, p. 322). We argue here that the transformation of the self is not so much a product of the dissertation process, although that may be a capstone event in the process, but begins with a transition from problem solving (formal operational thinking) to problem finding (postformal thinking). It means seeing one's perspective (whether intellectual, social, or personal) as just one of a universe of possibilities based in differing assumptions about reality and tending, as Dewey put it, toward differing conclusions. All of this, at a minimum, implies a more complex cognitive and emotional interplay and perhaps "representations that permit more complex and varied forms of emotional experience" (Labouvie-Vief & Diehl, 1999, p. 257).

Although there is some developmental research on emotional change with age, there is little if anything about the emotional changes that might accompany education. Certainly, in the work on wisdom, we see that emotional, intellectual, and behavioral maturity are strongly correlated with high levels of education and socioeconomic advantage (Baltes et al., 1998).

Even less well researched than the connection between cognition and emotion, the relationship between cognition, emotion, and behavior is almost uncharted.

CONATIVE DEVELOPMENT (STRIVING FOR ACTION) AND GRADUATE EDUCATION

Conative development refers to the development of actions or behaviors that appear to be accompanied by intent. We are not interested here, for example, in coughing or sleeping (although we might be interested in staying awake or paying attention). With Jochem Brandtstädter (1998), we are interested in observable behavior that is chosen by the individual on the "basis of beliefs and values, and that can be interpreted as serving some personal goal or expressing personal attitudes and values" (p. 814). In studying this kind of action, writers often consider such dimensions as intentionality, personal control, reflexivity, and (perceived) freedom of choice. Brandtstädter is

particularly interested in how beliefs, plans, and expectations influence what behavior means to the actor; how feeling affects actions; and how goals, evaluation, memories, and other cognitive events influence action. Brandtstädter maintains that the actions of interest are overdetermined (they often serve more than one intention), and they often have unexpected or unintended consequences that lead to changes in goals and beliefs.

Brandtstädter has argued that sometime during adolescence or young adulthood, people begin to monitor their own development, and begin to make choices and plans and execute processes that transpire over long periods of time. Emotions are linked to or mediate between cognition and action in such processes. Emotions signal mismatches between previous hopes and current circumstances or outcomes. Mismatches lead, for example, to planning, learning, self-punishment, and attempts at reparation. Development-oriented actions are also strongly related to feelings of self-efficacy. If people believe that they can control their own development, they are more likely to create the conditions that enable change. Moreover, their behavior is more likely to remain flexible and adaptive over the life span. However, although one would suspect a strong relationship, the correlation of these action-related variables with education is unknown. Certainly, feelings of self-efficacy are learned, forging another link between learning and development.

Self-efficacy is strongly related to learning (Cervone & Peake, 1986). Students with a strong sense of self-efficacy tend to set higher goals for themselves, persist longer at tasks, expend greater effort in the completion of tasks, and are more likely to persevere when confronted with failure. These students also display greater self-regulatory behaviors that facilitate personal study. Examples include tracking their time, organizing their schoolwork, and engaging in self-directed learning (Pintrich & Schrauben, 1992; Zimmerman & Martinez-Pons, 1990). Finally, such individuals have been found to take greater advantage of learning opportunities and to develop their capabilities more extensively through such opportunities (Gist, 1989; Hill & Elias, 1990).

In mainstream developmental research, work on human wisdom has the clearest implications for understanding the relationship between behavior and education. Wisdom stands at the intersection of cognition, emotion, and behavior. Krämer (2002) argued

that wise people interact in ways that allow others to remain open rather than to respond defensively. Achenbaum and Orwoll (1991) characterized wisdom as behavior that communicates understanding and caring. Labouvie-Vief (2000) and Pascual-Leone (1990) both proposed that wisdom allows one to individuate from the conventional norms that govern adult behavior to integrate the inner self and internal, affective concerns with outer, conventional reality. Furthermore, people who are nominated as wise persons tend to hold positions of leadership, be employed in human services, or to have exceptional experiences, like being a Nazi resister during the Third Reich (Staudinger, 1996). They are consistently seen as open to experience (Bacelar, 1998).

Wisdom may require a highly developed form of dialectical and relativistic thinking and appears profoundly related to emotion and action. There is evidence that it is related to education; but education, even very advanced education, certainly does not imply that a person will become wise. On the other hand, research on the scholar-practitioner (Schon, 1983) shows that the capacity for reflection in the midst of action allows one to cope with the unique, uncertain, and conflicting situations of practice. We might expect this capacity to accompany the kind of perspective transformation that seems central to graduate education.

In their paper, Nyquist and Woodford (2000) noted that interviewees in business and industry believe that doctoral training does not prepare graduates to meaningfully connect their work to the work of others. Many Ph.D.s lack the collaborative ways of thinking and working that are required in today's corporate world. These interviewees also claimed that students' interests are often disconnected from other knowledge and real-world problems, making them less than optimal practitioners outside the narrow boundaries of the traditional research university.

Even in the traditional university context, however, there is much concern expressed over whether graduate study overemphasizes scholarly research. Young faculty often seem unprepared for the responsibilities of undergraduate teaching, collegial evaluation, curricular planning, and service to the college, university, and community. Clearly, the research on wisdom is only tangentially related to graduate study.

There is some evidence, however, that particular kinds of actions and particular kinds of contexts are most conducive to the optimal development of gradu-

ate students. In the second part of this chapter, we explore four different avenues that lead to development in the context of graduate study. They include obtaining a different perspective on knowledge, gaining membership in the learning community, gaining a more complete understanding of the use of self in learning, and developing an increased awareness of social and cultural contexts.

THE FIRST PATHWAY: OBTAINING A DIFFERENT PERSPECTIVE ON KNOWLEDGE AND LEARNING

Table 20.1 provides an overview of the changes researchers have described in the general conception of knowledge and learning over the years of graduate education.

A number of researchers (Baxter Magolda, 1992; Kitchener & Brenner, 1990; Kitchener & King, 1981; Sinnott, 1984) have studied how student thought changes from undergraduate matriculation through postgraduate work. All of these studies show that students progressively demonstrate greater flexibility of thought, an increased openness to multiple perspectives, and the ability to reflect critically on the sources from which knowledge is derived.

Generally, this work suggests that most entering undergraduate students hold a view of knowledge as an abstract product, isolated from the surrounding social and ideological context in which it is embedded. They treat knowledge as an externalized entity, assuming that it exists in preconstructed form outside the self, ready for internal consumption. Knowledge is seen as a "bankable" commodity (Freire, 2000)—one that can be freely acquired or dispensed, quite independent of considerations of culture, ideology, or personal transformation. From this perspective, gaining knowledge is synonymous with amassing information.

Early in their college careers, most students also see truth as a matter of absolute, black and white constructs. This tendency to force-fit experience into polar categories is related to the notion of rigid schema (Aronson, Wilson, & Akert, 2002; Markus, 1977), and reveals itself in the belief that problem solving will uncover the one correct solution to any given problem (Kitchener & Brenner, 1990; Kitchener & King, 1981). As a consequence, undergraduate students often come to premature closure on problems without

TABLE 20.1. The Nature of Knowledge and Learning

<i>From a View of Knowledge as Absolute and Decontextualized</i>	<i>To a View of Knowledge as Complex, Relative, and Deeply Contextualized</i>
Knowledge is viewed as a commodity that can be absorbed, preconstructed, from the external environment (Freire, 2000).	Knowledge is treated as socially constructed and transformed through the very act of observation, reflection, and dialogue (Jarvis, 1987).
The learner assumes that knowledge is a context-free product that can be reviewed without reference to culture or ideology.	Knowledge is seen as situated in the broader social/cultural/ideological context (Brockett & Hiemstra, 1991; Lave & Wenger, 1991).
Knowledge is explicit, declarative, absolute.	Knowledge is seen as relative and often tacit, difficult to articulate, and a product of problem formulation leading to multiple alternative solutions. It is regarded as relative (Polanyi, 1966; Ehrlich & Soloway, 1979; Dixon & Baltes, 1986; Scribner, 1986; Sternberg et al., 2000).
Learners tend to adopt and defend a fixed position. The learner has difficulty incorporating and integrating contradictory findings.	Learners attempt to explore all possible perspectives (Baxter Magolda, 1992); thinking becomes dialectical through the juxtaposition of opposing perspectives (Kitchener & King, 1981; Basseches, 1984).
Problems are usually predefined for learners and clear parameters are established for problem solution (Wagner & Sternberg 1986; Tennant & Pogson 1995; Hedlund & Sternberg 2000; Sternberg & Grigorenko 2000).	Learners see that problems are often complex and unstructured and that solutions are guided by the way problems are formulated (Arlin, 1990). This aspect of learning is related to wisdom (Sternberg et al., 2000; Polanyi, 1966; Dixon & Baltes, 1986).
Simple "impermeable constructs" (Kelly, 1955) create a tendency to move to premature closure without first examining all views, or to pigeonhole experiences and concepts into simplistic, stereotyped categories.	Thinking involves increased cognitive complexity (Cockrill, 1989), and with this, the ability to analyze complex issues (Streufert & Swezey, 1986) and deal with discrepant information (Domangue, 1978).
Learning is experienced as a purely cognitive process.	Ability to synthesize objective, rational analysis with subjective, emotive forms of thought emerges (Pascual-Leone, 1990; Labouvie-Vief, 1992; Labouvie-Vief & Diehl, 2000). ²
Problems seem to exist in isolation from the surrounding system. Proposed solutions are likely to be limited because potential repercussions in the larger system are unconsidered.	Learners adopt a more systemic perspective working with problems that are "unbounded" containing a number of complex and interactive elements, including interpersonal factors (Ackoff, 1981).

first examining all possible views. Furthermore, their belief often leads them to defend existing positions and belief systems rigidly and to have difficulty working with contradictory information (Mezirow, 2000). The static constructions of knowledge and learning that younger students hold tend to be reinforced by learning environments that overuse predefined problems in the classroom and provide clearly defined parameters for problem solving. Often, predefined problems contain, in the statement of the problem, all the information needed to arrive at the correct solution.

As students progress through their undergraduate years, they begin to see how knowledge is actively constructed and tightly embedded in a given social and ideological context (Baxter Magolda, 1992; Kitchener & Brenner, 1990; Kitchener & King, 1981). They develop a greater appreciation of other perspectives (Sinnott, 1984) and an increased ability to move toward dialectical thinking through the iterative integration of opposing perspectives (Basseches, 1984). Moreover, a college education helps students develop more flexible approaches to unstructured problems. In an extensive summary of this research,

Ernest Pascarella and Patrick Terenzini (1991) concluded that when freshmen are compared to senior-level students, seniors

are more skilled at using reason and evidence to address ill-structured problems for which there are no verifiably correct answers, have greater intellectual flexibility in that they are better able to understand more than one side of a complex issue, and can develop more sophisticated abstract frameworks to deal with complexity. (p. 155)

Generally, an undergraduate education leaves much room for future cognitive development. In Marcia Baxter Magolda's (1992) longitudinal research, only 2 of 102 undergraduate study participants were found to have reached contextual knowing, the highest level of reasoning measured, by their senior year of study. This figure increased to 12% of the student population in the year following graduation. Similarly, when Basseches (1984) compared thinking among college freshmen, college seniors, and faculty members, he found a strong relationship between education and the version of postformal thinking he described as *dialectical*.

Dialectical thinking allows one to move beyond the analysis of relationships within a particular system to analyze relationships within competing systems. Dialectical thinkers also exhibit great sensitivity to contradiction. Basseches contends that dialectical thinkers see contradiction not as an unfortunate problem but as a positive source of change. He concluded that there are increases in dialectical thinking capacities with academic status well past adolescence, clearly linking learning and adult development.

We contend here that postgraduate education offers more than a linear extension of the cognitive developments that begin during the undergraduate years. Instead, in the process of becoming a contributor to a scholarly learning community, postgraduate students dramatically reconstruct both their views of self and their roles as knowledge creators. Critical to this reconstruction is exposure to complex problems that require students to make large-scale adaptations of their existing approaches to problem formulation and analysis and to carefully self-monitor their cognitive processes. Postgraduate students become increasingly aware of the way the formation of problems guides the exploration of solutions (Arlin, 1990). In the two years following the completion of their undergraduate degrees, as Baxter Magolda (2001) reported,

"Learning was facilitated when it involved complexity, acknowledging multiple perspectives, and questioning why things worked in a particular way" (p. 196). As an example, she provided an excerpt from one student's description of a team-based business simulation:

We ran a simulated airline. There was no one right answer because we had nine groups and nine airlines in the class and all of them chose different philosophies in how they wanted to run their business. And three completely different airlines finished up at the top. In fact, the way our airline did it was different, the teacher said, than any other class has ever done. We just took a completely different approach. . . . I like not always thinking there was one right answer because when you go out and try to deal with a lot of things, there isn't always one right answer. I think too much as an undergraduate we're taught to believe in black and white and there is no gray. (p. 197)

The opportunity to work with highly complex, unstructured problems provides one important avenue for encouraging increased cognitive complexity. Unstructured problems call for more selective differentiation and integration in the analysis of complex issues (Cockrill, 1989; Streufert & Swezey, 1986) and they require one to deal more effectively with discrepant information (Domangue, 1978). They often demand more dialectical thinking; that is, one must value opposing perspectives and seemingly contradictory views.

The need to take responsibility for their educational curricula, identify innovative learning projects, and direct the focus of their thesis or dissertation presents postgraduate students with a unique set of complex problems. For the student who is accustomed to more structured learning environments, such a situation can produce a good deal of anxiety. As one doctoral candidate put it:

I felt that my greatest challenge has been navigating the post-coursework portion of my degree. After essentially 21 years in the student role, things suddenly changed. The timelines blurred, expectations became unspoken, and now I was the only one who would provide structure to my educational process. . . . Not only did this shift leave me with a sense of loss (of the process), but also I lost confidence in myself. I think this was mainly due

to a feeling that somehow I should be able to fill the structural void and self-motivate better than I seemed to be able to do. (Kerlin, 1995, p. 29)

The move toward cognitive complexity is supported when students face a learning environment that is less structured, rule-driven, and prescribed than what they may have previously experienced. As students progress from undergraduate to postgraduate work and from structured to ill-defined problems, they come to see how knowledge is socially constructed and transformed through observation, reflection, and dialogue (Jarvis, 1987). Postgraduates come to realize that solutions must include a consideration of the broader social, cultural, and ideological bedrock out of which knowledge is formed (Brockett & Hiemstra, 1991; Candy, 1991; Lave & Wenger, 1991).

As students begin to consider contextual issues, they adopt a more systemic view of problem formation and analysis and reframe their view of self as existing "in" the surrounding environment. They now perceive themselves as part of the larger system (Bredo, 1997). Unstructured and ill-defined problems evoke a shift in perspective toward a more systemic and dialectical view. Similarly, change in the position

of a student in his or her learning community may deeply affect the student's view of how knowledge is created and the implications of that process for the creator.

THE SECOND PATHWAY: GAINING MEMBERSHIP IN THE LEARNING COMMUNITY

Table 20.2 presents an overview of the changes discussed in this section.

If learning may be considered a socially constructed process, postgraduate students must discover how knowledge construction occurs within their community of practice. Knowing how the community works and what it accepts as knowledge allows one to assume the role of knowledge contributor, expert in one's field, and mentor for other junior-level members.

Students initially assume a peripheral role when they enter a learning community as undergraduates. Large power differentials frequently exist in every relationship between student and instructor. The presence of power in student-teacher relationships seldom ever emerges as a topic for open dialogue be-

TABLE 20.2. The Use of Self

<i>From Myopic, Technical Review</i>	<i>To More Encompassing, Critical Reflection</i>
Learners do not reflect on the limits of what is known, and how knowledge is being acquired.	Learners come to self-monitor what they do, or do not know, and what constitutes critical gaps in learning (Meacham, 1990).
Reflection, when it occurs, resides at the "surface" of the phenomenological landscape—focusing only on the content or methods used in the analysis.	Learners expand self-reflection to include uncovering hidden power dynamics and the problems that follow from hegemonic assumptions (Brookfield, 2000a, 2000b).
The learner views the learning process as something which lies external to the self.	Learners increasingly engage in personal/critical reflection about work, self, and ideology (Privett, 2002), epistemic cognition (Kitchener & King, 1981; Kitchener & Brenner, 1990), reflection-in-action, and double-loop learning (Argyris & Schon, 1978).
The learner's reflective process, when it occurs, is largely encapsulated and segmented. Reflection occurs in a piecemeal process, with disconnections between insights drawn regarding self and the learning experience.	Learners see how self-reflection interacts with the learning process. They can engage the self as a mirror and as a window. The "self as window" raises the question: "How will my personal biases and assumptions influence my learning approach and the conclusions I draw?" The "self as mirror" raises the question: "What is being reflected back to me about how I change as a function of my learning?"

tween student and teacher in the undergraduate setting. Most often it remains submerged as a basic hegemonic assumption.

In part, such power discrepancies follow from the student's views of the teacher as a figure who possesses knowledge. Over the course of their years at college, students' views change. They begin to adopt the position that knowledge must be substantiated by evidence. In one study (Perry, 1970), most entering undergraduate students were found to view their instructors as figures of absolute authority. Sixty-eight percent of the entering college students in the Baxter Magolda (1992) study viewed themselves as heavily dependent on their instructors. Instructors are assumed to be accountable for managing the learning process by directing students to sources of information; establishing the pace, sequencing, and format for the delivery of this information; and dispensing knowledge to the learners.

Of course, instructors and educational institutions also actively exercise power, and that exercise is not restricted to undergraduate programs. Often, postgraduate educators confine students to the outer edges of the learning community, construct one-sided power relationships, and place a high emphasis on institutional compliance. As Alison Bartlett and Gina Mercer (2001) noted, the predominant model of postgraduate study assumes a power hierarchy that consists of knowing supervisors who dispense knowledge to unknowing students. The master and apprentice metaphor is often used to describe this relationship. Students are seen as disciples or acolytes or even "kids." Bartlett and Mercer concluded that such language "constructs a fundamentally unequal power relation and is deeply unsatisfactory in its oversimplification of a relationship which necessarily and fruitfully involves complex and dynamic negotiations of power" (p. 57).

In Scott Kerlin's (1995) survey of postdoctoral learners, many described their experience as a kind of hazing process in which they were subjected to rules of conformity and compliance that had never been made explicit ahead of time. Students often complained that their education was basically an endurance contest. They felt that they were required to jump through myriad hoops and that faculty never seemed to question whether the process actually produced intellectual or professional development.

When students' experiences and capabilities are disaffirmed by their instructors, the result can be the

negation of the student's identity as a contributor to knowledge creation. One participant in Kerlin's (1995) study put it this way:

No one seems to understand that I (and my fellow students) came here with several years experience in the workplace. I've managed several businesses and I don't need busy work to keep me focused. There doesn't seem to be any respect for what I have already accomplished. I'm just supposed to throw it away and act like I'm a clean slate. (p. 20)

Similarly, two doctoral students in a regional Australian university noted the irony in being selected as students on the basis of records as competent practitioners who had successful careers, but "with the swipe of the full-time student card, that expertise was made invisible. . . . As students we are recast as 'novices,' as uninitiated, and are sliced off from the 'real' work of the institution" (Balatti & Whitehouse, 2001, pp. 44-45).

When students move from the periphery to the center of their learning communities, learners and instructors assume more collegial roles. Power is an openly acknowledged and negotiated by-product of these relationships. Students are expected to take greater responsibility for their own learning, and the instructor or supervisor role evolves from authority to community guide and mentor.

Although the very nature of the postgraduate faculty role demands greater experience and responsibility for ensuring quality curricula, steps can be taken to gradually negotiate power and decision making within the postgraduate experience. Students can be given an opportunity to establish legitimate identities as co-contributors to knowledge. On the subject of space, power, and voice in postdoctoral research, Janet Conti, Daphne Hewson, and Judith Isben (2001) have suggested that by resisting hierarchical power and seeking mutual social power, the supervisor's role evolves toward that of a guide. These authors also use the term *interactive topographer* to describe the doctoral supervisor's revised role, acknowledging the need for experience and expertise in the relationship while minimizing power inequities.

In this revised relationship, discourse becomes more egalitarian. Mezirow (2000) defined discourse as the process "in which we have an active dialogue with others to better understand the meaning of an experience"

(p. 14). As an example of discourse, Mezirow described the model graduate seminar as follows:

There are a set of commonly accepted norms that support the ideal conditions of discourse—there is no outside coercion . . . everyone has an equal opportunity to contribute, participants are informed on the topic to be discussed, and there are norms of courtesy, active listening, studying issues in advance, and taking turns to talk. Academic freedom permits anyone to be critically reflective of established cultural norms or viewpoints. (p. 15)

Roger Hiemstra (1998) has agreed that the successful socialization of graduate students requires a shift from the traditional supervisory relationship to one in which the partners become co-creators of knowledge. He suggested, however, that the relationship would require adjustment by both parties. For the mentor, it means allowing the protégé to develop his or her identity apart from the mentor. This can mean watching a protégé surpass one's own professional accomplishments. For the protégé, it means reducing one's dependence on the mentor. For both, it means that loyalty and trust must be a feature of the relationship.

A move toward the center of a learning community also requires greater awareness of the contextual and cultural features of the community by the protégé. Undergraduates experience the learning community to which they've gained membership largely in terms of practices and methodologies, rather than the beliefs and values that underlie these. Postgraduate members begin to understand that communities of practitioners are connected by intricate, socially constructed webs of belief. Such beliefs shape what they as practitioners do (Brown, Collins, & Duguid, 1989). Postgraduate students become aware of how the community's preferred modes of inquiry are connected to its culture. That is, they discover that the meaning of learning is configured by cultural practices that subsume the learning of skills (Lave & Wenger, 1991). Without such acculturation, students come away with only a surface understanding of available methods and methodology. To become a practitioner, one must become a full member of the community and its culture (Brown et al., 1989).

As emerging creators of knowledge, the unique challenge that postgraduate students face is one of developing awareness of the norms and models of inquiry that define and delineate the community of practice, while being able to trace the boundary area

that confines and constrains that community. In other words, a new scholar-practitioner must learn how to become a good community citizen while engaging creative dissent.

Certain postgraduate experiences seem particularly helpful in moving students toward more centralized participation in their learning community. Experiences that provide opportunities to work with peers and instructors in the co-construction of learning within contextualized settings are often critical. Law students might be asked to work as court clerks or to conduct mock trials. Medical students may be asked to generate suggested treatments for mock cases. Challenging research assistantships can serve this purpose.

A good example is presented by Scott Taylor (2000), who described working with law students in moot court. Practicing lawyers from the community were asked to evaluate student arguments and, because the cases involved arguing tax law for businesses owned and regulated by a Native American tribe, local tribal officials also participated in the trials. In another kind of project, instructional design students at George Mason University formed teams to create e-learning programs for selected government agencies.

Experiential learning projects help transform student-teacher relationships from one-way information exchanges to true cognitive apprenticeships. Of course, many professions, from law and medicine to research science, offer some form of cognitive apprenticeship. When these are structured with care for the power implications they support, the student moves toward the center of the learning community, and being in the center of the learning community supports development. Figure 20.1 shows this movement. Note the factors that help students shift from the periphery to the center, and to co-ownership, of the learning community.

Another feature of experiences that enhance a student's position in the community is the structuring of markers or milestones over time. Milestones help students identify their transition from novice to journeyman and expert. They also serve as guides to the degree of supportive scaffolding students can or should expect. At Fielding Graduate University, for example, advanced students are invited to guide newer students through a doctoral orientation process. Students sit alongside faculty members on program committees that design curriculum or determine policies. Finally, they may become student members

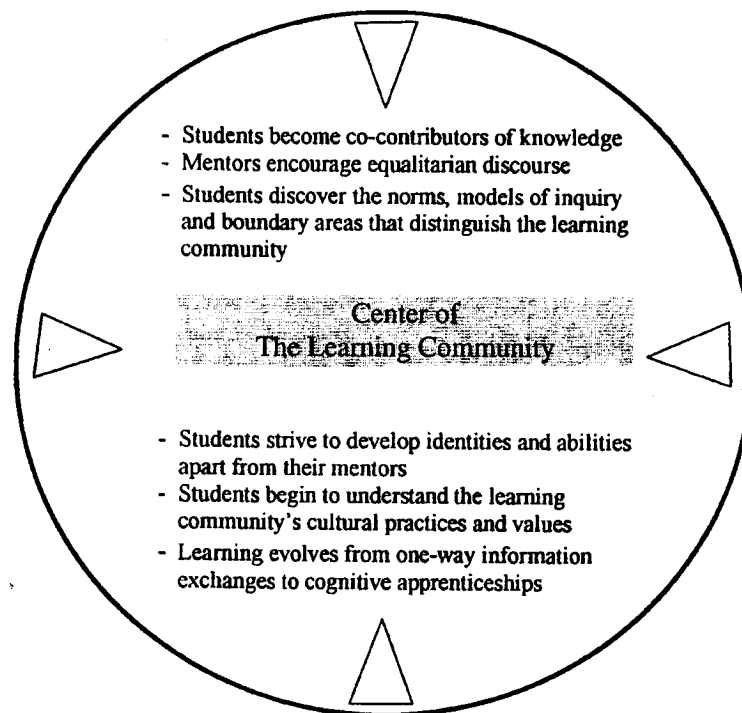


FIGURE 20.1 Moving to the center of the learning community.

of dissertation committees as well as co-authors of various faculty publications. The variety and timing of these experiences can be critical to one's development as a member of the learning community. They help transfer those tacit knowledge sets that are, by definition, implicit in the experience.

The development of tacit knowledge is a critical aspect of postgraduate study. Tacit knowledge may be defined as "knowledge that is not typically learned through formal instruction and is often not explicitly expressed" (Berg & Sternberg, 2002, p. 114). Tacit knowledge implies higher order thinking processes rather than the acquisition of facts. It involves the ability to formulate and solve problems within highly complex and unstructured settings (Dixon & Baltes, 1986; Ehrlich & Soloway, 1979; Polanyi, 1966; Sternberg et al., 2000). Tacit knowledge enables experts to identify new data quickly, as when an expert radiologist spots an abnormality in an x-ray. The schema that permit one to see nonroutine, highly meaningful information are often difficult to convey verbally (Myles-Worsley, Johnston, & Simons, 1988; Schmidt, Norman, & Boshuizen, 1990).

The critical role that tacit knowledge plays in professional expertise has been demonstrated in fields as

diverse as computer programming and business management. At least one study has demonstrated regular increases in tacit knowledge from undergraduate through graduate education and again among graduate students and faculty in psychology (Wagner & Sternberg, 1986). Cognitive apprenticeships support the growth of expertise when they present students with ill-defined problems that arise from authentic activity. At Fielding, we are currently considering whether several predissertation students might be allowed to attend dissertation committee meetings (with the permission of the committee and dissertation) as many of the best interchanges between faculty members occur in this context and there are few chances to model such scholarly dialogue.

**THE THIRD PATHWAY: GAINING A
MORE COMPLETE UNDERSTANDING
OF THE USE OF SELF IN THE
LEARNING PROCESS**

Table 20.3 outlines the changes in understanding typical of those who continue their educations past the undergraduate years.

TABLE 20.3. Membership in the Learning Community

<i>From Peripheral Membership as Novice</i>	<i>To a Central Role as Contributing Expert</i>
The learner begins as a novice and a peripheral member of the learning community.	The learner becomes a central contributing member of the community, progressing from journeyman, to expert and mentor.
Learning is regarded as solely an individualized and internalized experience.	Learning is experienced as the <i>iterative movement</i> between self-directed learning, personal reflection, and the dialogue/exchange within the community.
Learning is experienced as a largely one-way, at-arm's-length, instructor-directed, transfer of information.	Learning is seen as an <i>exchange</i> between the expert and the journeyman (with each growing from the exchange). The instructor becomes a guide; the learner assumes greater responsibility for socializing new members of the community.
The learning process is implicitly encased within a given mode of inquiry that is largely unexamined by the learner.	Learners are able to situate themselves within the larger <i>community of practice</i> by articulating the epistemological assumptions embedded in modes of inquiry (Stein, 1988).
The learner functions as a compliant follower.	Learners become aware of the boundary that constrains the community. As good community citizens, they learn when and how to engage in productive creative dissent.

An entry-level college student seldom reflects on his or her assumptions about self, the social construction of knowledge, or the impact of the dominant culture and ideology on the self and knowledge. Reflection, when it is undertaken, would appear to reside at the surface of the individual's phenomenological landscape, focusing on the content or method used in the analysis. Learners do not see the hidden power dynamics and problems that follow from hegemonic assumptions. In other words, during the early undergraduate years, learners tend to view learning as learning about things that lie "out there," or which are external to the self. In addition, the learner's reflective process tends to occur piece-meal; that is, the learner fails to make important connections between insights drawn about the self and how the individual participates in a given learning experience.

Part of the reason for this disconnection from the self is the largely cerebral and abstract nature offered by much of undergraduate education. Specifically, at this level, students often assume that academic learning requires a detached and dispassionate treatment of issues. The result is that learning within the academic setting is viewed as something completely separate from self-discovery, with emotive experiences seldom incorporated into the learning process. As students enter postgraduate study and engage in more intense dialogue, involvement in the community, and

personal discovery, they enter into a learning environment and developmental phase that together support the integration of emotion and logic. Baxter Magolda (1995) wrote that over the course of undergraduate studies "participants recognized that connecting to their emotions was essential in deciding what to believe, yet they were aware that this had to be balanced with rational reflection" (p. 66).

This integration of emotion and intellect has been called a key characteristic of maturity (Cornelius, Kenny, & Caspi, 1987; Labouvie-Vief & Diehl, 2000; Pascual-Leone, 1990; Sinnott, 1984) and is regarded as fundamental to wisdom (Dixon & Baltes, 1986; Polanyi, 1966; Sternberg et al., 2000). Sternberg and associates write that a common feature of all of these models of wisdom is the balancing of different aspects of the mind, or what Baltes called the "orchestration of mind."

At the postgraduate level, self-reflection assists students in translating insights about the self into a revised view of how they operate as members of their learning communities. In one work (Stevens-Long & McClintock, 2003), the authors proposed to code the statements of alumni from Fielding Graduate University about the changes in cognition and personal and professional development that they attribute to their graduate education. In many instances, it was difficult to determine whether a statement should be coded as

cognition, emotion, or behavior. For instance, one participant spoke of feeling more confident and theoretically grounded in doing consulting, more aware of the conditionality of relationships, and increasingly able to suspend judgment. In another, a participant talked about feeling more integrated as a practitioner, encouraged to analyze the effects of one's presence in research and action settings. A third respondent described an experience of becoming more of a "human being rather than a human do-ing." All of these statements suggest an integration of thinking, feeling, and acting that echoes the literature on wisdom.

Another kind of example comes from Baxter Magolda's (2001) longitudinal study of postgraduate workers and students. One of the respondents spoke of an education in clinical pastoral work as: "Doing a lot of what was being taught and starting to define identity along with what you were learning . . . And also seeing that when you do put it into action, what part of yourself is that unique part that you bring to the role" (p. 208).

When we speak of reflection, we are talking not only of the ability to maintain an active state of learning or reflection within the experience itself. This ability has been called "reflection-in-action" (Schon, 1983) or "mindfulness" (Langer, 1997; Tremmel, 1993). Baxter Magolda's example illustrates how students can also come to reflect on the limits of their knowing and how they enter into the development of knowledge. The awareness of how self and knowledge intersect corresponds to what Kitchener and King (1990) called *epistemic cognition*, the highest level of reflective judgment. Alumni at Fielding talk about becoming more conscious of their own thought processes and being able to deploy different cognitive abilities, such as systems thinking or an understanding of social constructionism to analyze situations—becoming, perhaps, the orchestrators of their own minds.

Similarly, when graduate students express and defend their positions as thinkers, they are presented with opportunities to deconstruct the logic behind their arguments. One Fielding alumnus (Stevens-Long & McClintock, 2003) talked about moving from personal knowledge to the public defense of an interpretation of data. In Baxter Magolda's (2001) group, one participant described an experience in his graduate-level economics course as follows:

We had to pick a topic and kind of take a position—we had to use economic tools, supply

and demand charts, and explain why we thought it was correct or incorrect. Which was something I had *never* done in economics. . . . Someone had to explain why supply side economics would reduce the federal deficit or would not. You had to argue it. . . . You had to have a reason why you did something. Every time I do something, I think through it a little more. (pp. 197–198)

To reach this level of reflection, however, students must often tolerate much self-uncertainty and accompanying anxiety. Quite often the reflective journey is a lonely one that forces the individual into an intense and sometimes painful confrontation with the self. Stephen Brookfield (1994) referred to "tales from the dark side" in describing the feelings of self-doubt and impostership that can accompany graduate education. Entering postgraduate students often report high levels of uncertainty regarding their capability for performance. In describing her own initial experience as a doctoral student, Frances Hughes (2001) wrote:

I felt like a fake; I felt like an imposter. I felt like I was constantly under the microscope. Everyone was watching me and evaluating me. I felt like I had to succeed no matter what. I felt inadequate and stupid at times. . . . I felt scared and confused. . . . somewhere along the way these feelings changed. (p. 20)

Feelings of doubt or insecurity are part and parcel of adult intellectual development. The graduate student experiences we have described parallel the type of intense and highly valued learning experiences that have been described by top-performing leaders. The executives profiled in *The Lessons of Experience* (McCall, Lombardo, & Morrison, 1998) all shared the characteristics of being "wise enough not to believe there is nothing more to learn, and courageous enough to look inside themselves and grapple with their frailties" (p. 127). Kerry Bunker (1989; Bunker & Webb, 1992) calls this ability the "willingness to grow against the grain." One Fielding alumnus describes how he learned to accept ideas he had personally resisted but that had been validated by the research (Stevens-Long & McClintock, 2003).

A critical factor in growing against the grain appears to be what Bunker (1989) has called developmental surrender, the willingness to accept temporary

performance setbacks that plague a voluntary shift from expert to novice within a completely new learning situation. As Mezirow (2000) cautioned, "Transformative learning, especially when it involves subjective reframing, is often an intensely threatening emotional experience, in which we have to become aware of both the assumptions under-girding our ideas and those supporting our emotional responses to the need to change" (p. 6).

The competitive environment of most postgraduate education seems unlikely to promote developmental surrender. In fact, it seems likely to make surrender more painful. There is little encouragement to share one's personal journey or emotional difficulties. This is certainly an arena in which stronger developmental support might be provided.

**THE FOURTH PATHWAY:
DEVELOPING AN INCREASED
AWARENESS OF SOCIAL AND
CULTURAL PERSPECTIVES**

How awareness of the social and cultural context influences development during post-graduate education is described in table 20.4.

All learning communities exist in the context of larger social arenas, and a final path in graduate development runs through that larger world. For many individuals, the learning enclave itself provides some exposure to diverse learners from across the world. As a result, over the course of a college education, students tend to develop greater tolerance for different religious and political views (Pascarella & Terenzini, 1991). These changes accompany the transition from an absolute, either-or value structure to one that is more accepting of alternative viewpoints (Perry, 1970).

Later in their education, students become aware of culturally based assumptions regarding learning approaches and the joint management of knowledge (Pratt, 1991) as well as of cultural and ideological bias in assumptions about that which fosters learning (Brockett & Hiemstra, 1991; Brookfield, 1994, 2000b; Candy, 1991). Learners become sensitized to the ways that learning experiences are influenced by power relationships. They become more aware of how they learn and how the context shapes learners, instructors, and the learning transaction itself (Caffarella & Merriam, 2000).

Although inclusiveness is certainly served by experiences that broaden the perspectives of individual students, the educational setting itself may or may not

TABLE 20.4. Cultural Perspective

<i>From Hegemonic and Insular</i>	<i>To Inclusive and Global</i>
The learner's cultural bias and personal ideology are implicit and unexamined. Learners assume that it is possible to take a "pure and objective" stance to learning.	Learners come to acknowledge cultural biases and ideological perspectives that can shape the learning experience. As members of the learning community, they become sensitive to disagreements that may be reflective of underlying discrepancies in ideological viewpoints.
Learners accept hegemonic assumptions (Brookfield, 2000a, 2000b), they assume that their own beliefs, and epistemological assumptions either are or should be shared by all participants within the learning community. Learners may assume that those who hold minority perspectives should accommodate to the culturally dominant approach to learning.	Learners become more sensitized to culturally based assumptions regarding learning approaches and the joint management of knowledge (Pratt, 1991; Caffarella & Merriam, 2000).
Learners treat distance learning as traditional instructor-driven pedagogy; existing power inequities are merely amplified through technology.	Learners discover how to use distance learning to serve as an inclusive web for providing balanced access/power among community members. Learners become more aware of how their own learning and those of others in the learning community are influenced by power relationships.

serve inclusiveness and encourage multiple perspectives. Rosemary Caffarella and Sharan Merriam (2000) related a story in which one of the authors attempted to recognize the outstanding efforts of a Taiwanese graduate student by reading the student's paper aloud to the class as an example of exceptional work, a decision that proved most embarrassing for the student. It also appeared to have a negative impact on the student's subsequent performance. For some Asian students, to be singled out is to be marginalized.

In its most innocuous form, marginalization occurs as a failure to understand. More insidiously, a community of practice may develop an exclusionary culture that ignores the needs of marginalized groups. In this respect, Scott Kerlin (1995) argued that one of the reasons why men complete doctoral programs more often than women (Lomperis, 1990) is that women are exposed to a high percentage of male faculty as mentors and guides. Kerlin related this finding to the fact that many women graduate students have experienced poor working relationships with male faculty advisors in environments that emphasize competitiveness, individualism, and a win-lose mentality.

When marginalized groups are excluded from participation, it not only affects those individuals confined to the edge of the community but also works against those who reside in the center of cultural power. The environment lacks the strength of the diverse viewpoints that fuel dialectical discourse. Furthermore, such an educational setting is likely to be constrained by cultural bias and hegemonic assumptions that remain implicit and unexamined. Hegemony implies many subtle assumptions that can become deeply incorporated into our day-to-day thinking. Brookfield (2000b) wrote,

One cannot peel back the layers of oppression and point the finger at an identifiable group or groups of people whom we accuse as the instigators of a conscious conspiracy to keep people silent and disenfranchised. Instead, the ideas and practices of hegemony become part and parcel of everyday life—the stock opinions, conventional wisdom, or common sense ways of seeing and ordering the world that people take for granted. If there is a conspiracy here, it is the conspiracy of the normal. (p. 41)

Postgraduate study can set the stage for a more inclusive perspective by increasing open dialogue and

broader exposure to a wider range of viewpoints. It can provide an opportunity to uncover hegemonic assumptions, to challenge the cultural bias and implicit agreements that shape our discourse. It can raise new possibilities for what to believe and how to put those beliefs into action. Or not.

Transformational learning can follow from a consideration of how positionality (differences in race, gender, and sexual orientation) shape interaction. One African American, Mary Handley (Tisdell, Handley, & Taylor, 2000) described her effort to bring positionality into perspective:

I approach the idea of positionality by attempting to create an education environment that allows difference to flourish. This means taking an active role in addressing the power discrepancies that exist between and among students and faculty by establishing ground rules early on, including often marginalized voices about the topic under discussion through readings, outside speakers, and setting conditions and a tone necessary for all voices to be included in critical discourse. (p. 134)

Building an environment in which optimal critical discourse can flourish is no mean task. It requires that students and faculty make a concerted effort to listen without dismissing or attacking. The ethics of inclusiveness may be seen as incompatible with the critical, competitive atmosphere of much academic discourse. As Mary Belenky, Blythe Clinchy, Nancy Goldberger, and Jill Tarule (1986) suggest, students and supervisors must engage in discourse that centers on understanding and negotiating outcomes. It is essential that we give students equal play and permit them to share implicit risks.

Such egalitarian discourse can generate a new dialogic space in which cultural differences and positionality can be located. In this space, graduate education becomes less a means of self-replication for the supervisor and more an instrument of change for both the student and the community (Belenky et al., 1986).

SUMMARY AND CONCLUSIONS

Returning a final time to the issues described by Nyquist and Woodford (2000), we might ask, "What would it take to support developmental maturity in graduate education?" Whereas the evidence clearly

suggests that intellectual function changes over the postdoctoral years, we have little information on the development of either emotional life or behavior. Yet the integration of emotion and intellect is considered a key characteristic of maturity and is fundamental to wisdom. Furthermore, we contend that mature people probably behave differently from less mature individuals, although evidence for this proposition is fairly slim.

Pulling together the various strands of this chapter and its review, we begin with four recommendations. First, a graduate education must be more self-directed than is often the case. Students should be allowed, even expected, to take greater responsibility for their educational curricula and the methods they choose for demonstrating their competencies. Furthermore, students should be encouraged to identify innovative learning projects and work with ill-defined problems.

Second, it seems sensible to try to move graduate students toward the center of the learning community as quickly as possible. This means that students and faculty are supported in the acknowledgment and negotiation of power relationships. When the environment resists hierarchical power relationships, the supervisor's role may evolve toward that of a guide instead of an authority. This means that what the student brings in terms of life experience is honored along with his or her ability to take a fresh look at the problems the learning community intends to address.

Third, faculty and students must understand and support learners' emotional journey from the periphery to the center of the learning community. Changes in the way people define the self and the ways they understand the construction of knowledge are often accompanied by intense self-doubt and anxiety. Opportunities to explore these feelings and to support self-discovery might become a regular feature of postgraduate education if we hope to encourage a growth in maturity and wisdom along with progress toward dialectical, reflective thinking.

Fourth, diversity and inclusiveness should be deliberately encouraged, for these broaden the perspectives of both the students and the faculty. This can fuel dialectical discourse and encourage people to explore the cultural bias and hegemonic assumptions that constrain their own thinking and the development of their field of study. Egalitarian discourse can generate a new dialogic space in which cultural differences and positionality can be located.

This chapter suggests a wide variety of experiments that might be conducted in conventional

doctoral programs, as well as a range of measures that might be undertaken in many less conventional institutions. There is currently little work of any kind on the development of emotional and behavioral maturity among doctoral students, although some literature exists relative to what such terms might imply. Postgraduate education seems to offer a perfect opportunity to capture both the process and the product in the study of adult development and learning.

In sum, then, this chapter presents evidence that graduate education has great developmental potential. There is little doubt but that graduate students become more dialectical thinkers, moving toward a metasystematic level of thought in which they are able to compare, contrast, transform, and synthesize systems of relationships. They understand the uncertainty of knowledge and the distinction between problems that can be resolved with certainty and those that have no single solution, and they learn to evaluate the worth of differing explanations through the comparison of evidence and opinion. In addition, graduate educational experience is associated with perspective transformation, causing students to challenge the assumptions that constrain the ways they perceive, understand, and feel about the world.

These cognitive changes are intertwined with evidence of profound personal change, including increased patience, empathy, and self-confidence. Students may begin to experience the self as less a stable, unified entity and as more of a self that is in continual dialogue between and among perspectives. They may become more aware that reality is socially constructed and that the self, within that construction, is more fluid, full of ambiguity and paradox.

Finally, there is reason to believe that the emotional and cognitive changes people experience during their graduate educations may be associated with behavioral changes, perhaps even with wise behavior. Wisdom may be defined as behavior that communicates understanding and caring. Wisdom may allow one to integrate the inner self and internal, affective concerns, with outer, conventional reality. We argue here that the best graduate education, especially graduate education aimed at training the scholar-practitioner, should lead to wisdom. The capacity for reflection in the midst of action and the acceptance of paradox and ambiguity might allow one to cope with the unique, uncertain, and conflicting situations of practice. We might well expect this capacity to

accompany the intellectual stretching, cognitive development, perspective transformation, and greater fluidity in the sense of self. Indeed, these gains have been suggested by the research literature on adult development and by its compatriot, adult learning.

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