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Toward an Epistemology of Practice

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Higher and postexperience education in many parts of the world have unfortunately overlooked what practice can contribute to our knowledge base interactively with and distinctly from classroom education. Ultimately, we need a synthesis of theory and practice if we are to prepare thoughtful practitioners. Using conceptual and practical approaches from constructionist thought borrowing such tools as tacit knowledge, critical reflection, and mastery, I propose a means to effect such a synthesis. Needed is a new epistemology of practice that adds praxis to classroom education in order to help learners deconstruct the structures and systems that embed their social environments. I also examine the outcomes and particular competencies that emanate from a practice-based learning. Implications for teaching by learning from this practice epistemology are discussed.

In this paper I attempt to demonstrate how in merging theory and practice we will end up with better theory, better practice, and better learning that will prepare us for both. Still ensconced in a Cartesian world, we tend to think of theory and practice as separate. We may not see that the coupling of our knowledge of the world and the world can lead to continuous learning. We may not realize that one of theory's main purposes is to inform practice, nor may we be aware that theory loses much of its vitality if uninformed by reflection on practice.

Consider an example of how separation can get us into trouble in our instruction. I once was involved in a promotion and tenure review during which one of the candidates was referred to as being very rigorous in his teaching and, thus, deserving of a meritorious appraisal. Yet, his student evaluations were poor and indicative of students not only being unable to reproduce his lecture material on their exams but also not being able to find much utility in his subject matter. The faculty member's defenders protested that his poor student evaluations resulted from his seriousness of purpose and method and that his teaching, rather than being derivative or watered down, attempted to expose students to the full array of knowledge of the subject. In other words, he covered everything. His knowledge of subject matter was transferred fully so that students would "know" all they would ever need to know about it, once in practice.

Although some on the promotion and tenure committee applauded this instructor's motives, they suggested that he engaged in too much lecture and that his instruction should loosen up some by adopting the case method and other forms of discussion learning. That way his students would see the connection between the theory he was presenting and its practical value.

Although the instructor in question did not loosen up as was recommended and was eventually denied tenure, had he chosen to make his classes more active and applied, would he have accomplished one of the goals of higher education: to transcend purely scientific concerns to enable learners to make informed choices about important practical problems and to implement solutions to them effectively?[1]

Furthermore, what should a teacher's role be in relation to learning? Is teaching a question of transferring the vessel of knowledge from one mind to another? Does this transference improve when instruction is made more active? What is

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[1] This goal statement is a paraphrase of the conference theme of the Academy of Management's Annual Meeting of 2004, "Creating Actionable Knowledge."

theory's role in improving subsequent practice, and recursively, does practice have anything to contribute to theory?

The dominant empiricist epistemology governing our educational enterprises in higher education as well as in corporate training and development leads us to separate theory and practice in an aspiration to define the best conceptual models to map external reality. But this brand of, call it "academic" epistemology, often cannot prepare us for engagement any better than classic trial-and-error. In this paper, I wish to explore how the concept of knowledge can be broadened to incorporate practice, paying special attention not so much to the content of our knowledge but to the processes that encourage more knowing-in-action and their outcomes.

I would like to start by first explaining the derivation of the split between theory and practice, showing how the modernist tradition in epistemology reasoned that separation would advance learning and, in turn, civilization itself. I then consider the constructionist critique of theoretical foundations, a critique that highlights the contribution of practice to knowledge. In the next section the example of management education is used to demonstrate how the modernist treatment of educational provision can result in an inflated sense of control over practice. I then turn to both a conceptual and practical depiction of a characterization of a new epistemology of practice, initially featuring three building blocks: tacit knowledge, critical reflection, and mastery, followed by two principles: mediated action and tentativeness. Next I consider the value of measuring outcomes in practice-based learning and how such assessment can be conducted. I finish with a consideration of several applications that may demonstrate the practical value of the dynamic process of teaching by learning.

THE DERIVATION OF THE SPLIT BETWEEN THEORY AND PRACTICE

Let's start by considering the conception of knowledge espoused by the modernist tradition in epistemology (R. J. Bernstein, 1976; Hanfling, 1981; Rosenau, 1992). Although modernism has itself branched into multiple forms, its essence is that through the use of reason, the course of civilization can be tamed and progress, through the regulation of innovation and change, controlled (Bell, 1974). It also holds that human beings can reach consensus, through the common sense of ordinary discourse, on a reality that exists outside of human thought (Cooper & Burrell, 1988). In probing reality, modernists need to separate themselves from their viewpoints so that they can decipher or "know" an objective world.[2]

Among the many branches of modernism, positivism (or logical empiricism, as it was later referred to) is the one most associated with the view that facts are based on the "positive" data of experience and that reality can be described and explained through the manipulation of theoretical propositions using the rules of formal logic (Lee, 1991). Knowledge is thereby objectified in such a way that (a) it becomes truer or more valid as it undergoes the rigorous methods of theory testing, (b) it becomes expressed as a series of logical relationships defined often using mathematical language, and (c) it invites reformulation and retesting as its precepts and procedures are subjected to public scrutiny (Hoshmand & Polkinghorne, 1992). As new theories are introduced and current ones subjected to greater scrutiny and revision, scientists are able to more accurately map and predict reality and thus sustain progress in human endeavors (Popper, 1959).

Positivists were generally of the view that knowledge revealed through science was superior to that produced from values, feelings, or untested experience because of its adherence to scrupulously objective and unbiased methods. Consequently, theory, which affords testable propositions, was deemed best separated from practice. Occupying the domain of thought that establishes connections or causal relationships among phenomena (Sutton & Staw, 1995), theory was thought to be an advance over primitive myths and beliefs (Rajagopalan, 1998). Yet, its detractors, among other things, have seen it evolve as a framework that has distanced us even more from practice than its progenitors (Van Maanen, 1989; G. Thomas, 1997).

In concert with the theory–practice divide, teaching was also separated from learning as it became seen as the process of transferring information from teacher to student. Learning would occur when that information was received, stored, and recapitulated. Faculty were encouraged to develop their research at the expense of more time-consuming teaching strategies that would require greater intersection with the practice world. The scholarship chosen by faculty would rarely examine their own practice; rather, it would be dedicated to the content of their discipline (Bledstein,

[2] For more detail on the philosophical traditions just selectively treated here and in the next two sections, see such historical narratives as those of Bernstein (1983), Polkinghorne (1983), and Gergen (2001), among others.

1978; Braxton, 2005). Thus, the faculty role became theory-based without necessarily taking context into consideration. So students, once in practice, would have to make the link between the previously learned theory and their current workplace problems. On their own, they might also discover the reasoning behind their practice.

The "Practice Turn" in Epistemology

Knowledge thus assumed a connotation of tangibility and permanence (Letiche & Van Hattem, 2000). It would be accessed through reason and intellect, not through day-to-day experience and emotion (Dewey, 1938; Damasio, 1994). It was also thought to be fixed rather than fluid and ever-evolving through practice (Styhre, 2003). It was not until the "practice turn" in social theory that knowledge production became decentered. Using language as an ends not as just a means of transference from one mind to another, such schools as hermeneutics and discourse theory were able to show that concurrent reflection on experience could not only expand knowledge but could also improve practice (Bergson, 1968; Lyotard, 1997).

In particular, Henri Bergson, Antonio Gramsci, and Pierre Bourdieu through their respective concepts of *durée*, common sense, and *habitus* were able to demonstrate the recursive relationship between structure and agency—that people could shape the world at the same time that it was shaping them. In *durée*—Bergson's notion of lived time that depicts people as being in a constant state of becoming—the case was made for knowledge as not just based on past cognitive learning but as phenomenologically composed of actual experiences in the present as well as future anticipations (Bergson, 2001). Gramsci's philosophy of *praxis* (Gramsci, 1973) attempted to confront objectivist common sense by removing the uncritical elements of the human experience—uncritical because of a lack of historicist understanding. Yet, Gramsci made us aware that even our current praxis may be subject to historical limitations because it will inevitably inherit some of the contradictions that it seeks to amend (Nemeth, 1980). Meanwhile, through *habitus*—Bourdieu's way of referring to how people internalize social structures—we came to understand that though we are historically conditioned, as social agents we can change our way of both perceiving and acting using such tools as consciousness and socioanalysis (Bourdieu, 1990). Our practices can reinforce current structures or change over time and then, in turn, can serve as supports or constraints of future actions (Bernstein, 1990; Archer, 1995; Lawson, 1997; Mutch, 1999).

Yet, to access our conscious knowing-in-action, we need to pause to identify the rules and norms governing our collective understanding in the moment (Tsoukas & Vladimirou, 2001). This is where language can make its entrance as a bridge between theory and practice to enhance our self-understanding. It can contribute to understanding not just as a tool for self-insight or for communicating knowledge a priori but as a means to create knowledge in the first instance. Such practices as grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1990) and action research (Carr & Kemmis, 1986; McNiff & Whitehead, 2006) have provided tools along these lines to inductively develop theory from the data of experience or from practice interventions. These practices are epistemologically emic in their privileging of the perceptions and world views of the members of the culture under study.

Constructionist Epistemology

Consistent with the practice turn in social theory, the constructionist response to empiricism was to question the value of empirical data, a priori processes, or even cognitive structures independent of human perception and social experience. We build knowledge from scratch as new information becomes available and create our own reality through social interactions (Berger & Luckmann, 1966; Daft & Weick, 1984). Social constructs are chosen and are attached in time and space to particular cultures, thus are not intrinsic to nature or divine will. Constructionism as a source of the postmodern movement poses a challenge to the modernist project, particularly its implied correspondence theory of truth. Correspondence theory holds that our theories of the world can not only be known outside of reality but also can approximate the very reality on which they are constructed. Postmodernists simply do not accept that there is an unconditioned, objective foundation for knowledge. Rather, our theories are organically embedded in our culture and hence conditioned by our point of view. As there is no transcendental approach to ultimate reality, knowledge is perspectival. We can't compare our views of the world to the world as if it exists independently of our views (Clark, 1993). Lash (1990: 13) offers the now well-known aphorism that while modernism conceives of representations as being problematic, postmodernism problematizes reality itself.

When it comes to epistemology, the postmodern view has become more commonplace in thinking

about the value of knowledge to the practitioner. Not concerned so much with generalized applications, practical knowledge applies to the specific situation and to the subjective experience of the actor. It is frequently through conversations with other local practitioners, using detailed language specific to a trade or function, that practitioners develop their understanding of how to engage with the task. Their knowledge is thus inherently social as well as transactional, open-ended, and, of course, prospectively useful (Schön, 1983; Aram & Salipante, 2003; Van de Ven & Johnson, 2006).

A CRITICAL VIEW OF MANAGEMENT EDUCATION

The field of management education has arguably incorporated the modernist tradition in its epistemology and thus might be examined critically from a constructionist perspective. Though not a fully established profession—there being, among a number of professionalizing criteria, no central institution apart from one's employer to which practitioners might profess allegiance nor any professional association that can speak on behalf of all managers—management has nevertheless developed a disciplinary course of study that is thought to apply as preparation for the field (Raelin, 1994). Further, for our purposes, there is no doubt that management is certainly a field that operates almost exclusively in the rough-and-tumble world of practice.

As we have seen, the positivist proclivity is to attempt to codify objective knowledge, essentially breaking it up into component parts, and then teach the parts individually to students in a classroom setting. Indeed, in management education, this approach, which has been referred to as the "professional education model," was conceived in the United States in the 1960s after two landmark foundation reports in 1959 (Gordon & Howell, 1959; Pierson, 1959). The professional education model was seen as a major advance over premodern conditions (Cunningham, 1990). Premodern management education consisted of craftlike methods such as trial-and-error, on-the-job learning, and the passing on of accumulated skills and abilities from one generation to another. Management in this sense was atheoretical, had no established research base, and relied as much on homilies as on scientific inquiry.

Professionalization was seen as a way to change all this. By assuming the trappings of a real profession, for example by ensuring that management teachers engage in full-scale research programs and by immersing management students in a protracted period of study prior to entering the profession, management would be in a better position to assert its legitimacy. The field as a profession could avail itself of scientific tools to gradually organize its knowledge into a universal abstract theory that would place control of management knowledge into the hands of the producers of that knowledge. A core curriculum would be derived that, sanctioned by an accreditation body, would be able to ward off the commercialization and commodification of professional knowledge and rampant vocationalism (Donaldson, 2002; Trank & Rynes, 2003).

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What this meant in terms of day-to-day practice was that there were now hundreds of university programs in North America offering both undergraduate and graduate theory-based, classroom studies in management. The masters in business administration degree (MBA) even gained a foothold in Britain, although at a much slower pace. Although British managers have been inveterately suspicious of managerial training separated from practice, the national reports of the late 1980s by Constable and McCormick (1987) and by Handy et al. (1988), followed by the Management Charter Initiative (MCI), produced some sympathy in support of the American movement for management professionalization.

Among the trappings of professionalization is the need to compartmentalize subject matter into appropriate categories. Management education was thus categorized into departments, which developed separate conceptual bases presuming to reflect the separate functions (marketing, finance, and so on) already identified as constituting the field. Further, following a pattern laid out by one of the field's founders, Frederick Taylor (1911), management scientists sought to divide up the very elements of the manager's job. This undertaking took many forms, from classical functional analysis (Fayol, 1949) to behavioral objectives (Drucker, 1954), through managerial roles (Mintzberg, 1973),

to managerial competencies (Boyatzis, 1982), and more recently to 7 habits (Covey, 1989), 5 disciplines (Senge, 1990), and Level 5 Leadership (Collins, 2001). The essence of each approach was that by compiling in advance the field of management into lists, one could learn the lists, know management, and thus be more prepared to do it. The underlying assumption about the "doing" was that through formal knowledge, one could become effective.

Pedagogically, teachers of the profession would need to specify what students would need to know about their discipline. The knowledge transferred into students' minds would be disembodied and objective. Syllabi and lecture notes would be prepared. However, since management was considered to be an applied field, lectures would need to be supplemented with case studies, simulations, experiential activities, and field projects to expose students, still sheltered from daily practice, to the practical elements of the subject.

The result of professionalization from an academic viewpoint has been disappointing according to a steady stream of criticism especially leveled against the products (students) of graduate management programs. Initially triggered by Hayes and Abernathy (1980), the critique has contended that professionalized management students tend to be overly analytical, narrow, short-term–oriented, hyper-technical, and uninterested in life-long learning (Porter, Muller, & Rehder, 1989; Raelin, 1990; Nodoushani & Nodoushani, 1996; Mintzberg, 2004; Bennis & O'Toole, 2005).

From the practitioner's perspective, professionalization via the practice of distinctive principles of management got a boost through the publication of the "excellence" studies, especially Peters and Waterman's (1982). The excellence literature represented for some practitioners the peak of modernist management education. It replaced dry classroom routines with prescriptions and dynamic examples derived from the exploits of heroes associated with notable companies. Although categories of success were now as much based on experience as conceptual distinctions, they essentially represented reconceptualizations. The recipe for effective management nevertheless seemed complete.

The eventual demise of many "excellent" companies and even some relatively more recent controversy regarding the authors' methods of data collection (Byrne, 2001) have caused an uproar in the field, leading to as much introspection as has been observed since the initial professionalization. The most positivist of the critics asserted that Peters and Waterman were little more than advocates who, by leaving out important data in their report, produced inaccurate and overgeneralized results (Hitt & Ireland, 1987). Broader skeptics were concerned that the principles outlined by Peters and Waterman were not sufficiently flexible to adapt to the unique situations and conditions that modern corporations confront (Carroll, 1983). Finally, humanists from the left saw Peters and Waterman's excellent manager, being a creator of myths and values, as nothing more than a manipulator who controls and homogenizes employees through sentiment and emotion (Aktouf, 1992).

Several questions were raised by the critique of "excellence." What if we really don't know what makes an effective manager? What if management is not a profession? What if there are no prescribed formulae for success? What if a priori knowledge does not connect to real problems inside an organization? Can managers learn as they work? Should they take time to reflect? Might theory and practice be concurrently enacted? Indeed, can management be as much an imagination of what we want it to become as what we are prescribed to do (Clegg & Ross-Smith, 2003)?

BUILDING BLOCKS

In order to create mutuality between theorists and practitioners, the two need to become partners in both the production and the dissemination of knowledge, with the ability to make modifications as knowledge is applied in practice or as new knowledge or theory is produced from the field. Theory in this sense is not generated for its own sake but as a way to gain new insight into the fundamental assumptions behind our actions. We have also seen that practice, with the aid of reflection, might shape or alter existing theory or create new theory. Yet, practice's contribution to theory has been downplayed. I contend that one reason for its underemphasis stems from our not recognizing and deploying the available tools. Thus, to assist in the process of deconstructing the breakdown separating theory and practice and then reconstructing their integration, I begin by citing three building blocks that can contribute to an epistemology of practice, namely: tacit knowledge, critical reflection, and mastery.

Tacit Knowledge

A new epistemology of practice might seek to explore the tacit processes invoked personally by practitioners as they work through the problems of daily practice. Tacit knowledge is the component of knowledge that is not typically reportable, since

it is deeply rooted in action and involvement in a specific context (Polanyi, 1966). In other words, although individuals may be knowledgeable in what they do, they may not have the facility to say what it is they know (Pleasants, 1996). Ryle (1945) made the distinction between "knowing how" and "knowing that." "Knowing how" represents the tacit dimension, which often eludes our capacity to abstractly frame our action.

Tacit knowledge is thus not necessarily mediated by conscious knowledge, but it may serve as the base for conscious operations. It is perhaps at its most accessible point when we think of our actions as intuitive (Shirley & Langan-Fox, 1996). This is when we have a sense of the correct action or response but are often incapable of explaining why we behaved the way we did (Gregory, 2000). Yet, we seem able to quickly and effectively use this knowledge to handle ill-structured tasks, especially when we have contextualized knowledge (Reber, 1989; Dane & Pratt, 2007). Cognitive research in the domains of automaticity, creativity, and intuition (Logan, 1988; Burke & Miller, 1999; Hogarth, 2001; Kaufmann, 2001; Klein, 2003) has contradicted the view that our tacit processing is purely implicit and thus unanalyzable. Rather, individuals obtain their intuitive knowledge through the storage and accumulation of episodes or instances acquired over years of experience. When we rely upon these instances, we develop the ability to retrieve information and respond rapidly through recognition (Simon, 1989). Our responses may seem overly automatic, but in reality they are based on the availability of well-organized schemas and a commensurate array of complex discrimination rules (Burke & Sadler-Smith, 2006). Further, our information processing can be social as we and others in our environment mutually build a knowledge base from the sharing of prior and current episodes or simply from our unique human awareness of our social and collective environment (Collins, 2007). At times in the "heat" of practice, often through dialogue with others, we improvise to maintain the flow of activity and, in so doing, refine and improve our practice (Gold, Thorpe, Woodall, & Sadler-Smith, 2007).

When it comes to learning, we may prefer to keep our practice unanalyzed or in, what Polanyi (1962) refers to as, "subsidiary awareness." This may occur when we attempt to demonstrate but not state our practice (Arnal & Burwood, 2003) or when we are in the middle of a performance. We wouldn't expect musicians in concert, for example, to call attention to their fingers since it might disrupt their playing. It is after the experience that one might attempt to bring the inherent tacit knowledge to the surface. In so doing, we might not only improve but even permanently alter our understanding of the situation and, as a result, our actual performance (Polanyi, 1966; Reber, 1976). In fact, Hager (2000) has suggested that there are distinguishing features of tacit knowledge, in the form of practical judgment, that can bridge the false dichotomies of theory/practice and generic/specific, making such knowledge more accessible. For example, practical judgment takes account of the diversity and changeability in the workplace, is interactive with salient social forces, draws on technical knowledge, and can be refined by real-time experience.

There are nevertheless moments when our reliable habits, even our expertise, fail us; when we are caught in the middle of our practice and don't know what to do (Cohen, 2007). Yet, we plod along, often in the company of talented peers, searching for a way to learn ourselves out. We may even find that our reliance on rationality may bog us down even more by overloading us with information or inflicting on us an "analysis paralysis" (Sadler-Smith & Shefy, 2007). Then, as Cunliffe (2002) reminds us in recalling Goethe, we at times experience an "aperçu," a momentary insight that helps us make connections between our tacit and explicit knowing in such a way that we entertain new possibilities. From this point, we can invoke our prior schemas and lessons and, using recursive processes of trial-and-error combined with our emergent learning or what Langer (1997) calls "soft vigilance," formulate new responses. Intuition can also come to our aid in the form of patterned activation, resulting in hunches that can be consciously tested (Bowers, Regehr, Balthazard, & Parker, 1990). In unpacking Schön's notion of "surprise" (1983), Yanow and Tsoukas (2007) demonstrate phenomenologically that practitioners actually display a range of responses when they encounter disturbances at work, from absorbed coping to analytic reflection (in the instance of a sheer breakdown).

The critical issue for an epistemology of practice seems to be not whether but *when* to introduce explicit instructions and reflection into the field to yield optimal performance (Howard & Ballas, 1980; Lewicki, 1986). The construction of theory in this setting might be more apt *during* or *after* rather than before the experience. Hence, theory is not preordained but constituted as a living construction to capture the useful ingredients of the performance. In this sense, knowledge claims are often reserved to the context from which they spring (Fish, 1989). Depending upon the severity of the practice event, the theory brought to bear may nev-

ertheless at times be decontextualized in order for the practitioner to entertain patterns, connections, or reasoning not heretofore considered.

Critical Reflection

Practitioners thus need to develop their cognitive ability to help make sense of their own practice (Kuhn, Amsel, & O'Loughlin, 1988). Donald Schön (1983) coined the term, "reflection-in-action," to characterize the rethinking process that attempts to discover how what one did contributed to an unexpected or expected outcome, taking into account factors unique to the interplay between the individual practitioner and his or her local operating context as well as the interplay between theory and practice. In this way a real-time learning environment would be created, which permits and encourages practitioners to test their mental models. Mental models constitute the images, assumptions, and stories that we carry in our minds of ourselves and of others. An epistemology of practice would bring these mental models, which are often untested and unexamined and, consequently, often erroneous, into consciousness in such a way that new models would be formed to serve us better (Burgoyne, 1994; Senge et al., 1994). In this way we might come to understand the embedded cultural myths that underlie our felt needs and wants expressed in relations with others.

Critical reflection is often associated with praxis since, derived from the Greek word for "action," it connotes not only what one does but also what one thinks about what one and others do. As an interdependent process that links the human mind with the external world through activity with others, it can also take an emancipatory stance if it results in eliciting the contradictions in the current power structure (Markovic, 1979; Heydebrand, 1980; Kihl, 1995; Braaten, 1992). The critical analyst would thus be interested in knowing who was not included in a particular conversation, since some discourses may privilege particular stakeholders at the expense of others.

Yet, critical reflective practice need not take a political or ideological stance other than its insistence on an inquiry that is genuine and that actually seeks out disconfirmation of immanent mindsets. What may be strange or contradictory can produce zeal in the actions of reflective practitioners because of its potential to disclose new knowledge. Reflective practitioners thus are known to (a) question why things are done in a certain way; (b) accredit local and informal knowledge that has been acquired on the subject at hand; (c) consider the historical and social processes that affect their decision making; (d) admit nontraditional forms of knowledge, such as emotions, sensory perception, and aesthetics, into the inquiry; (e) question the questions that they tend to resort to; (f) look for discrepancies between what they and others say they do and what they actually do; and (g) try to become aware of how their reasoning may at times become self-referential and self-confirming (Bright, 1996; Raelin, 1997; Merleau-Ponty, 2002; Ewenstein & Whyte, 2007; Strati, 2007).

The ultimate aim of a practice epistemology, then, is emancipation, not so much of our social order, but of the order of our social consciousness. Such an emancipation requires a critical self-reflection of our taken-for-granted assumptions and feelings (Habermas, 1971). In order to achieve this level of scrutiny, a special type of learning is required, referred to as "third-order" by Bateson (1972). In *first-order learning*, we move from using preexisting habitual responses (zero-order learning) to learning about them. In *second-order learning*, we learn about contexts sufficiently to challenge the standard meanings underlying our habitual responses. Using second-order learning, we find ourselves capable of transferring our learning from one context to the other. By *third-order learning*, we become aware that our whole way of perceiving the world has been based on questionable premises. It is learning about the "context of contexts" such that our entire assumptive frame of reference can be challenged. Indeed, it is conceivable that without third-order learning, the potential for transfer of learning characterized by second-order learning may be limited as practitioner actions become habitual and unwittingly inflexible (Freire, 1970; Burgoyne & Hodgson, 1983).

Although reflective practice can technically occur as a solitary process, it is frequently interactive since most work or practice entails contact with others. Further, though learners may reflect privately to compare phenomena against their cognitive frames, they often bring out their internal conversations with others once they become absorbed in practice (Archer, 2003). Their internal dialogue is enhanced by external dialogue that induces and then refines it (Wertsch, 1979). In other words, our experience with others informs us, pulls us, and even transforms us. Our collective framing of events infuses these events with meaning, allowing us to negotiate a shared understanding with other adherents (Goffman, 1974; Benford & Snow, 2000; Musson, Cohen, & Tietze, 2007). As Wenger (1998) suggests, we create ways of learning in practice in the very process of contributing to making that practice what it is.

Reflective practice's interactive property reso-

nated with Socrates, who had the idea of relationships in mind when he remarked that "the unexamined life isn't worth living." This phrase has often been misinterpreted as a call for additional introspection by people. Although introspection can be useful, the actual meaning is that we need to include trusted others in the examination of experience in our life. It is through conversation in which we present our life experiences fearlessly to one another that we build sufficient trust to help each other learn (Nouwen, 1975; Baker, Jensen, & Kolb, 2002). Moving from the local to the global, Jürgen Habermas (1984) saw the reconciliation between individual and society through intersubjective recognition based on mutual understanding and free cognition about disputed claims. It is through communicative action that we are able to realize ourselves within a civic community. We subject our entire experience to criticism, even our tacit understanding.

Learning in interaction occurs within specific historical, cultural, and local contexts (Nicolini, Gherardi, & Yanow, 2003). Engaged practitioners learn to perform not through an analytically detached process, but through their understanding of and practical reasoning about personal conditions derived from lived experience (Yanow, 2004). Often forming informal communities of practice, they engage in personalized reflections to mobilize their learning (Drath & Palus, 1994; Wenger, 1998). They learn to observe and experiment with their own collective tacit processes in action. Together, members can build a participatory structure that is inclusive of their respective backgrounds and perspectives. Bohm (1985) suggests that reflective communities of this nature can become more trusting and collaborative through a dialogic process in which participants learn to reason together. Just like orchestras, work groups need to rehearse or work on their performance through conscious thought and action (Howard & Ballas, 1980; Lewicki, 1986).

Consider the use of manuals as a vehicle to transfer knowledge from practitioner to practitioner. Documentation of this nature assumes that the problems a practitioner is likely to confront can be predicted and, consequently, managed. Unfortunately, such maps and manuals as abstractions often fall short in comprehending the complexity of field practices (Brown & Duguid, 1991). It is often necessary for field workers, through informal interactions or stories, which themselves represent repositories of accumulated wisdom, to bring coherence to an otherwise random set of conditions. Orr (1990) depicted the case of photocopier technicians who must work around training manuals as idiosyncratic workplace problems are encountered. Meanwhile, the designers who produce the manuals can never fully predict the social context of the user. Hence, the latter learn to rely upon the technicians to report on the user environment, for example, how equipment is used or misused. The knowledge that is acquired is thus social, as routines are developed that transcend the sum of individual actions and capabilities.

The collective nature of reflective practice exposed here has begun the task of integrating learning co-configurations. Empiricist science's preoccupation has been to find ways to pass down applications of its deductively derived formulations. Critical and emancipatory theorists demonstrate how local knowledge and practice theories can be valuable when allowed to move upward and, thus, how otherwise dispersed actors can be brought together to practice and learn as part of a social network (Callon, 1986; Engestrom, 2000; Yanow, 2004; Latour, 2005). These approaches decenter learning to disassociate it from a fixed site and allow its emergence within the context of practice itself.

Mastery

We can learn much about how to establish learning from practice by examining the processes of experts in action. We know, for example, that they are able to revise their cognitive patterns or frames quite flexibly in response to changes in environmental cues (Schön, 1983; Dreyfus & Dreyfus, 1986). This is because they develop their expertise not only by repeated practice in a single domain but by acquiring skills across multiple contexts. They can exhibit fluidity in performance, calling forth their ability to rely upon a large repertoire of complex cognitive maps to reframe problems and to discriminate from one pattern into another (Blattberg & Hoch, 1990; Simon, 1996; Burke & Miller, 1999; Baylor, 2001). Slavish adherence to particular theories, modes of thought, or preconceived criteria for appropriate action, would most likely block this level of reasoning in action. Indeed, the expert does not as much stop and think about which theory and procedure should be used next as keep alive, in the midst of action, a multiplicity of views of the situation (Hoshmand & Polkinghorne, 1992). For the master, the consideration of the rules of inquiry itself becomes sufficiently tacit so as to allow improvisation, and in so doing build heuristic knowledge (Orlikowski, 1986; Tsoukas, 2005).

Expert practitioners are thus able to enrich their inquiry by examining competing frames of reference of particular situations in order not to reduce

their perception to a single, all-inclusive perspective (Morgan & Ramirez, 1983). A priori frameworks can lead to errors in judgment, as practitioners become shortsighted in interpreting patterns based more on past judgment than current being-in-situation developments. This is why critical reflective practices are so vital to practitioners, in particular, those capacities that free them from routinized, habitual ways of viewing phenomena in favor of creative or imaginative consideration that is nevertheless bounded by seasoned experience (Weick, 1989). Critical thinking of this nature, recalling our exposition of tacit knowledge, does not seek to replace intuition; it seeks to improve it (Dreyfus & Dreyfus, 2005).

Expert knowledge can also be viewed as wisdom in action. Cunningham (1990) talks about wisdom as valued knowledge, that is, knowledge developed in conjunction with one's values. In this way, wisdom is far more than knowledge, for it characterizes what you are rather than what you have. Wise people go far beyond rational explanations of puzzling phenomena, for they also consider what needs to be explained. It is not enough to know what has been empirically observed; one must also know what it intersubjectively means (Wilber, 1997). As theories are themselves value-laden, they become susceptible to ethical as well as empirical criticism (Keeley, 1983). Thus, rather than purposely take the subject out of explanations of reality, wisdom incorporates it; indeed, wisdom encourages the opinion of the subject. This view of wisdom suggests a possible integration of subject and object and, indeed, a unification of self and mind.

The journeyman and even the apprentice typically know in advance the job that needs to be done. Using a Wittgensteinian metaphor reintroduced by Rorty (1989), their task is akin to completing a jigsaw puzzle; they must merely put the pieces together in an organized manner. The master, or what in Anglo-American societies is often referred to as the wise "professional," does not view the task as a jigsaw puzzle, for he or she recognizes that the task is not set in advance. Hence, the master must develop new "tools," new ways of thinking about the job, before being able to complete it satisfactorily. Invented on the spot, these new tools are designed to fit the requirements of the job at hand. Using wisdom, the master is thus able from time to time to make something that was never dreamed of rather than solving something that was already there. Masters do not see truth as "out there" but for their temporary incapacity. Rather, they perceive the need to develop new tools, or new language, to solve new problems. To recall Nietzsche, their ability is founded on self-knowledge, or self-overcoming, rather than on discovering the truth (Nehamas, 1985).

The acquisition of mastery requires a workplace learning process and reflection that improves upon classroom education. As in apprenticeship, it seeks to induct novices into a community of practice. What makes it distinctive from classroom education is that the master's practices constitute the standards of performance for the apprentice (Berryman, 1992). In addition, it offers a number of advantages (Jordan, 1987):

- The activities to which the apprentice is a witness are organized around work to be done; hence, the mastering of tasks is appreciated for its immediate use value.
- There is a temporal ordering of skill acquisition from the easy to the more complex.
- Skill acquisition derives from the "ability to do" combined with "reflection on" what has been done
- Standards of performance are built right into the work environment in which the novice participates.
- Teachers and teaching are largely invisible; to a large extent, the person who judges the apprentice's performance is the apprentice.

Yet, apprenticeship cannot be a proper metaphor for a practice epistemology unless it is modified in two critical ways: First, technical work in the 21st century entails as much cognitive or implicit knowledge as physical or observable knowledge. Therefore, apprenticeship requires the talent of "externalizing" processes symbolically. Second, traditional apprenticeship presumed relative constancy in the activities being learned. However, knowledge activities often hold few constants or routines. We need learning processes that can entertain volatility in the work environment.

Consequently, to be occupationally successful, apprentices will need to replace the idea of skill or competence with the "meta-competence" of learning. Meta-competence refers to competence that transcends itself. Hence, it is not any particular skill that is critical but the change of that skill to adapt to the environment. So, rather than learning job-specific skills, apprentices will be asked more and more to learn situation-specific principles attending to a given work domain. By mastering these principles, they can be expected to handle ongoing variability in work demands.

How, then, might apprentices learn in such a way that they can accelerate the pathway to mastery? In addition to considering the locus of learning as including the workplace itself, they can begin to view learning as being available in the

very work that they do. In this way, it can be delivered just-in-time to be of use to their work, to their thinking, and to their feelings. Note that the role of master-teacher must also be reconceptualized. Teachers are not necessarily instructors who provide information to captive audiences. In the learning described here, teachers are just as likely to be mentors, group project leaders, learning team facilitators, and designers of learning experiences (Twigg, 1994), and notice that it is important to have not one but several masters to avoid becoming transfixed to any one world view.

TOWARD AN EPISTEMOLOGY OF PRACTICE

How might theory and practice be united in an epistemology of practice, both as a basis of learning as well as a basis for performance? Given that this article is an initial quest that invites the contributions and criticisms of other practitioners and scholars, any model that we construct will necessarily be incomplete. Using our building blocks from the last section, we might begin by considering the critical nexus between work-based and classroom-based learning. Through explication of tacit knowledge and exploration of the craftsmanship of masters in the field, we may discern how learning may occur from our practice improvisations. We have also expanded upon the value of critical reflective practice as a middle ground, especially in its concurrent and collective forms, occurring as practitioners become thoughtful in their attempts to improve practice in the making.

Our model, then, will hold that learning often arises from an interactive contention among a community of inquirers. Indeed, students as co-inquirers with their teachers have the capacity to construct knowledge if given both the learning resources and encouragement to do so. Constructivist[3] knowing of this nature is social because learners seek to know in conjunction with others who, too, are inquiring about the problem at hand (Raelin, 1997). They search for clues and principles in relation to the problem, recalling the intuitive hunches of masters that may apply across contexts. Learning in this sense is not decontextualized but at first contextualized and later recontextualized. Our learning from practice is also purposeful; it can assist in the discovery of helpful solutions to the problems we face as practitioners (Dewey, 1938; Brown, Collins, & Duguid, 1989; Lave & Wenger, 1991). As Dehler and Edmonds (2006) aptly put it: What do we want our students to achieve from their lessons—a passing grade or knowledge that can be useful to them in the course of practice?

In addition to our building blocks, I would like to propose two additional principles that can be consulted as we scholars and practitioners build an epistemology of practice: mediated action and tentativeness.

Mediated Action

Drawing insight from Vygotsky's sociocultural theory, we can begin to appreciate the unification of human consciousness with the material environment (Vygotsky 1962, 1978). As we learn with others in our social environment, our learning is often mediated, that is, it is facilitated through the use of tools and artifacts, such as through conceptual models from the world of theory and through norms and conventions from the world of practice (Leont'ev, 1978; Miettinen, 1999). Among the conventions might be the need for a space for dialogue outside normal operating procedures and structures so that new learning arising from the field can bubble up (Pedler, 2002). Such a space often needs to be created spontaneously, loosely, and provisionally to support the constitution of emerging knowledge.

We also rely on agents to mobilize our mediated actions (Coghlan & Brannick, 2005). Initially, it may be just a question of scholars and practitioners learning how to collaborate with one another to support each other's enterprise; the scientific community in the instance of the scholar and the worksite in the instance of the practitioner (Boyer, 1996; Pettigrew, 2001). However, changes in mind-sets need to occur to support ongoing collaboration. The scholar needs to view the practice field as not just a site for data collection but as a storehouse of knowledge that can be applied in the local context but also generalized for third party users. The practitioner, meanwhile, might learn to view academic scholarship as not out of reach or farfetched, but as potentially applicable to help those in the field see their practices in a new light.

Agency can also be found in single individuals

[3] I introduce here the word "constructivist," suggesting a distinction between the prior "constructionism." Drawing on the work of Piaget (1954), Vygotsky (1962), Bruner (1966), von Glasersfeld (1995) and others, constructivism argues that knowledge is not received from outside but is constructed by our own understanding of the world we live in. Learning occurs when we adjust our mental models to accommodate new experiences. Although social constructivism adds the dimension of social processes as instructive in informing students' learning (Palincsar, 1998), social constructionism more radically argues that social interactions among meaning-making communities form the basis for claims to knowledge (see Berger & Luckmann, 1966; Gergen, 1995).

who take on the role of forming theory–practice linkages for purposes of framing, legitimizing, and sensemaking. Tenkasi and Hay (2004) refer to such agents as scholar-practitioners. These agents, intimately connected to both theory and practice worlds, are capable of importing tools from both worlds to inform the other (Adler, Shani, & Styhre, 2004). Using action research, they may argue that the only way to understand a social system is to attempt to change it through an intervention that itself can become the subject of study (Lewin, 1946; Peters & Robinson, 1984; Schein, 1987; Beer, 2001). In some instances, the scholar-practitioner's inquiries will interpenetrate in the form of a scaffolding in which learning at an initial stage from the world of theory will inform practice, which in turn, may lead to further edification of theory. This interpenetration can also represent a transference from subjective interpretations at the first-person level of awareness, through interpersonal understanding at the second-person level, to third-person objective or intersubjective communications (Torbert, 2004).

Consider an organization attempting to introduce self-managing teams at the factory level. Early reports from the field point to discrepancies among the teams in both performance and satisfaction, provoking an on-site inquiry from the managerial planners who had introduced the practice on the basis of both a review of the literature and from observation of comparable practices in plants from other industries. The variations in the teams were studied at length using focus groups and individual interviews. The data gathered were shared with members from the teams as a basis for both validity checking but also as a basis for possible improvements and improvisation. Some of the discoveries that diverged from the literature were written up in an industry publication that received further scrutiny from both industry practitioners and scholars of operations and human resource management.

What is noteworthy about this example is that the transitions across theory and practice are seamless and occur as if they do not exist in separate domains of consciousness. Their usage is also explicit and tacit at the same time such that each type of knowing informs the other without equating the tacit only with practice or the explicit only with theory. A pervasive spirit of inquiry prevails, leading to real-time collective and critical reflection to discover the source of any variations. Practitioners are not only included but are solicited in the search for understanding, and in the community of inquiry formed, all forms of knowledge are scrutinized from the local to the intersubjective.

Tentativeness

There is a limit to how much we can rationalize and control our environment. In spite of rational processes, there are contradictions and ambivalences that often lie at the heart of organizational life (Derrida, 1973). Cooper and Burrell (1988) explained that managers, rather than direct organizations, are also as readily captive or reactive to them. We need to conceive of managers as being observers of experience, who construct interpretations of actions as they occur, rather than as controllers. For example, in contrast to conceptions of planning and strategy as a basis for routines constructed in advance and a priori, planning may as easily operate at the level of practice. Wittgenstein (1977) was especially concerned about the reflexive reliance on rules in advance of activity since he believed that actors under observation would be inclined "to say more than they know," or as Dreyfus and Dreyfus (2005) point out, "to remember rules they no longer use." Wittgenstein believed that theory construction would be better off as a retrospective analysis of what has already occurred.

Similarly, Bourdieu (1977) accounted for the complexity of practice in his distinction between the *modus operandi* and the *opus operatum*. The latter depicts the task as an overview provided through design or plan derived from the cognitive understanding of the theorist or perhaps from a reconstitution of a series of reports from prior practitioners on the job itself. Although it might come close to the actual conditions, in fact the modus operandi is the only basis for truly understanding the task itself for it represents a here-and-now encapsulation of all the conditions inherent in the actual circumstance. Bourdieu's example of the map is compelling along these lines. Even a detailed map tends to smooth over the multiple conditions that might suddenly occur in travel: wrong turns, unexpected traffic, personal fatigue, parades, an unexpected thunderstorm, and, of course, arguments about directions.

Bergson (1912) would have us consider the possibility that the only way of knowing is by steeping ourselves in the object or experience that we are encountering. In this way, we can come to know it as fully as possible. Although we may have the urge to express it using familiar symbols or language, Bergson would have us face the ultimate incapacity of our expression, the recognition that any representation that we produce must always

be incomplete. Further, the knowing in question, rather than an individual process that can be disembodied through mental reasoning, can be phenomenological and social. It may arise from the social interactions occurring as people engage in their practice. Learning occurs as practitioners share their narratives in their own ways. This form of knowing, though often reported in a local idiom, can be apprehended for subsequent use in other settings through more conventional recordings of practice.

An epistemology of practice would thus not so much augment the store of knowledge as it might adapt the knowledge that we have to lend insight to our own ways of configuring the world. It might also shed light on our so-called regimes of signification, the abstractions that make knowledge appear coherent to a community of inquirers (Lash, 1990). In fact, as Chia and Morgan (1996) advise, it is often preferable in practice to invoke—quoting Keats—"negative capability," that quality which allows one to resist conceptual closure. In this way we stay with an experience, even with its indeterminacy, soaking up its presence, rather than needing to codify it for fear that the embedded knowledge will otherwise be lost (Lyotard, 1984; Arnal & Burwood, 2003).

Academic epistemology, interpreted as knowing in advance of practice, can lead to "haste in wanting to know." An epistemology of practice espouses as much intellectual quietness as the staccato of questions and answers. Practitioners take in experience and reflect on the lessons available in front of their eyes. They compare their experience to existing theory and determine its applicability. If experience is not conjunctive with theory, ongoing reflection with others can produce new theory. The reflective stance suggested above can apply just as readily within the practice setting as the classroom. Take the case of the typical "problem-solving group." The barrage of advocacy statements observed in group meetings may represent political posturing rather than a search for some core meaning. At the same time, questioning often comes off more like interrogation, a fending off of a prior statement which may have challenged one's already formulated position. General probing and even random thinking interspersed with silence might do more to advance the agenda of a community of inquirers than conventional discussion and debate.

The distinction drawn here between questions as interrogations and questions as pure inquiry is often referred to as constituting problem-posing rather than problem-solving education. In the problem-posing format, attributed to Paulo Freire (1970), students become critical co-investigators in problems that not only matter and are in need of attention, but also are not fully understood. No one expert has a monopoly on the answer, thus students as critical thinkers need to engage in an authentic dialogue to try to understand and address the current reality. In order to engage in problem posing, students are often encouraged to probe deeply into relationships among properties to determine not just their cause and effect, but also their patterns and underlying principles. The probing needs to be so genuine that the teacher or probing student suspends his/her prior beliefs in order to focus exclusive attention on the speaker (Isaacs, 1999). In this way, the questions posed are not designed to lead the speaker to the questioner's point of view nor are they interrogations; rather, they are designed to create a mutual dialogue in which everyone's perspectives may be considered as no more than hypotheses to be examined. Once engaged in critical discourse of this nature, even the teacher's statements and interventions are themselves subject to validity testing. The teacher's open inquiry can in turn model critical probing for the group.

OUTCOMES OF PRACTICE-BASED LEARNING

Stopping to reflect for a moment on the ground covered, we see that an emerging practice epistemology will view learning as a dialectical mediated process that intermingles practice with theory. The knowing characterizing this epistemology may not be readily reportable as it will entail a deep immersion in lived experience that is often tacit. Yet, this tacit knowing can be captured through collective and critical reflective practice that, consistent with mastery, allows for reframing of problems in response to environmental conditions. Through this process, new theory can be constructed. Yet any model of practice epistemology would be incomplete without a consideration of our interventions in the field. Although our epistemology may highlight learning's recursive nature, there are momentary outcomes from program interventions that would benefit from assessment and reconsideration. It's the orientation toward assessment that tends to diverge from academic epistemology.

In particular, practice epistemology will likely resist our Western inclination, our near obsession, with measuring items so as to believe we know them. Recalling the principle of tentativeness, we know that there are phenomena to be observed and experienced that may resist closure in time. Instead of submitting to the "analytics of finitude,"

we may prefer to stay with indeterminacy and learn from our real-time inquiries (Roy, 2005). It is thus at times limiting to prescribe operating criteria or even offer theoretical solutions in advance to solve practitioners' problems. Organizational decisions are often reactions or remedial moves in response to new conditions or to disorder (Mayntz, 1976). Further, organizational problems are as likely to be particular as general, so it might be trivial to specify criteria that might not fit the instant case. In fact, objectifying interpretations might even be self-defeating for practitioners if they attempt to fit their special conditions into pre-established categories. How often have we found that what was deemed a revered model in management or in strategy appears, as much as we try to force it, not to fit the market conditions on the ground (Knights, 1992)?

On the other hand, as long as we retain our tentativeness, it is important that the outcomes of interventions in the practice world be documented so as to know not only *what* is being learned, but also *how, how much,* and *why* it is being learned. It should be noted that the learning documented will not just be academic in character. Since an epistemology of practice not only sustains but encourages learning in the practice world, it is reasonable that improvements in project effectiveness, and also in organizational or community effectiveness, be included. Hence, learning outcomes are noteworthy, be they at the individual, group, project, organizational, civic, or institutional levels of experience.

Before detailing some of these outcomes, we need a way to refer to the pedagogy that epitomizes a practice epistemology. There are many terms in use, but for the purpose of this paper, let's consider the explicit use of work and project experiences in conjunction with our classroom or training activities as "practice-based learning." Although this form of learning may not require conventional examination, it is enhanced through both individual and collective reflective practice, for instance in the form of individual and team coaching or mentoring. The intent of the reflective component is to help learners capture their tacit knowledge sometimes in conjunction with conceptualizations that can periodically help them decontextualize the lessons of experience in order to recognize patterns and make improvements.

There have been calls for practice-based learning in its many forms to become more critical in its outcomes, especially that it assume more of an emancipatory, even a liberationist, agenda that would take into consideration power dynamics across and within hierarchical levels of an organization and that would also address the social, political, cultural, economic, ethnic, and gender structures that constrain and exploit people (Willmott, 1997; Fournier & Grey, 2000; Garrick & Clegg, 2001; Fenwick, 2003). Yet, especially in its endorsement of praxis, I see the focus of practice-based learning remaining with what Reynolds (1997) refers to as a "process" or dialectical dynamic that can review and alter misconstrued meanings found in conventional wisdom or in power relationships. The degree of its emancipatory potential arises from learners' interest in understanding how knowledge is constructed and managed. Through this process, they may derive a passion for justice, mutual respect for each other's learning, and mindfulness about hegemonic relations without feeling personally on-the-line for changing our world (Allman, 2001; Fenwick, 2005). As Craig Johnson and David Spicer (2006) further suggest in their review of the action learning-based Engineering Management MBA program at Bradford University in the U.K., "workplace-centered learning produces *learning* managers as opposed to *learned* managers" [italics added]. As learners of this nature develop both heightened consciousness and critical mass, they may be able to produce organizational and institutional democratic reform (Rigg & Trehan, 2004).

Performativity at the corporate level becomes deformed when corporate agents forget the value of honoring the individual and his/her dignity in their need to grasp for efficiency and predictability (Ingersoll & Adams, 1986; Deetz, 1992). When learning occupies the center stage of program interventions, performativity tends to emerge as an indirect benefit. For example, various research accounts have placed the businesswide return on investment from action learning as anywhere from 5 to 25 times its cost (Alder, 1992; Fulmer & Vicere, 1996; Brenneman, Keys, & Fulmer, 1998; Raelin, 2000). These ratios are largely calculated on the basis of costs removed or savings generated from project work. Nevertheless, most action learning programs, starting with the words of its founder, Reg Revans, sincerely promote the value of individual and team learning over project outcomes (Revans, 1998).

Within the world of management education, individual and team learning become particularly important because corporate clients are ultimately interested in the neophyte's preparation to assume critical roles in organizational management. Unfortunately, as was noted earlier, our professionalized form of education has emphasized the technical over the interpersonal skills, the accumulation of facts over wisdom, and a focus on individual

accomplishment over intersubjective appreciation. Practice-based learning can address some of these shortcomings by focusing on four benefits: academic development, personal development, career development, and professional/work skills development (Parks, Onwuegbuzie, & Cash, 2001).

Although some studies have found a connection between practice-based learning and academic performance, the real academic benefit derives from the participants' increased motivation to substantively learn (perhaps to learn about a new culture) and their heightened interest in learning itself (Blair, Millea, & Hammer, 2004; Dressler & Keeling, 2004). Other benefits include the ability to put classroom theories into practice as well as crafting a major that aligns well with one's talent and then persisting in that major until graduation (Somers, 1986). *Personal development* refers to participants' personal and social growth and covers a range of individual and interpersonal benefits. Among these are increased empathetic listening, relationship building, and ethical orientation; enhanced ability to formulate more informed actions; higher readiness to take responsibility and initiative; and capacity to recognize multiple perspectives (Wilson, 1989; Johnson, 1998; Dressler & Keeling, 2004; Eyler & Giles, 1999).

Career development refers to the evolution of life roles that people assume throughout their lives, though in the instance of graduating students, it tends to refer to their vocational choices upon the completion of full-time schooling. Career benefits have incorporated such dimensions as career identity/clarification, career decision making, job search duration, quality of position after graduation, and career progress (Pittenger, 1993; Gardner, Nixon, & Motschenbacker, 1992). *Work skills* are often ability-based and relate to the technical knowledge pertaining to the field or profession in question (Nemire & Meyer, 2006). In the discipline of management, reported outcomes have included the abilities to better organize teams; to relate well to staff, especially to listen and take criticism; to be more open with coworkers; to take more responsibility in one's role; and to understand and effect culture change more effectively within one's organization (Lewis & March; 1987; Weinstein, 1995; Raelin, 2000). These competencies point to learners who tend to be more reflective, more interdependent, and more divergent and innovative in their thinking and action (Dunlap, 1998; Kuhn & Marsick, 2005).

Drilling down a level, let's consider two constructs that have great potential to reveal some deeper benefits embedded in practice-based learning. One possible outcome variable to consider is work self-efficacy, though self-efficacy can also be thought of as an intervening variable affecting the ultimate outcomes of practice-based learning. For years, researchers of work experience programs, such as cooperative education and internships, have been puzzled to know what is in the "black box of co-op" that seems to give its participants intrinsic career advantages (Ricks et al., 1993). The secret sauce might well be *work* self-efficacy.

The concept of self-efficacy has been widely established in the literature as a critical construct within Albert Bandura's (1986) social learning theory. It constitutes a judgment about one's ability to perform a particular behavior pattern. Self-efficacy expectations are considered the primary cognitive determinant of whether an individual will attempt a given behavior. Self-efficacy is known to have considerable explanatory power over such behaviors as self-regulation, achievement strivings, academic persistence and success, coping, choice of career opportunities, and career competency (Bandura, 1982; Lent & Hackett, 1987). Perhaps its most noteworthy contribution is its empirical relationship to subsequent performance (Gist & Mitchell, 1992).

While self-efficacy, in general, refers to one's confidence in executing courses of action in managing a wide array of situations, work self-efficacy assesses workers' confidence in managing workplace experiences. A new work self-efficacy inventory under development at the Center for Work and Learning at Northeastern University, for example, measures a range of behaviors and practices—for example, exhibiting teamwork, expressing sensitivity, managing politics, handling pressure—attending to one's beliefs in his/her command of the social requirements necessary for success in the workplace. Since efficacy is a malleable property, there are methods by which employees may achieve relative success in their jobs as well as learning within the workplace by increasing their confidence in performing many of these work-related behaviors. Ultimately, a practice epistemology should be able to target learning outcomes that are specifically practice-based, in other words, that derive from learning within the practice world rather than from the classroom (Raelin, 2006). An outcome variable of this nature is proposed to entail three dimensions:

Ultimately, a practice epistemology should be able to target learning outcomes that are specifically practice-based, in other words, that derive from learning within the practice world rather than from the classroom (Raelin, 2006).

Engaging Knowledge From Experience. Engagement posits a precondition within the participant because it characterizes a readiness to learn from experience. Accordingly, engagement precedes understanding by its mere call for participants to see their own views as tentative and to be open to the views of others (Shulman, 2002). Practice-based learning should accelerate the engagement process by helping participants become more critically aware of their own assumptions and defenses and inconsistencies between their espoused beliefs and their actions.

Extending Knowledge From Experience. The extending stage characterizes participants using the knowledge they currently have and sharing it with others to manage new or unknown situations. As in Piaget's assimilation concept (Piaget, 1969), they attempt to use and also extend an existing cognitive structure to make sense of, systematize, and potentially improve workplace conditions. They may also draw on knowledge from alternative sources, such as the institutional memory of the institution, to help them work through problem dilemmas and challenges and to recognize patterns from one situation to another (Mezirow, 1981; Boud, Keogh, & Walker, 1985; Billett, 2001).

Originating Knowledge From Experience. In originating, participants develop the confidence to construct new knowledge, often in conjunction with fellow learners, if their command of current theory or if existing cognitive structures are inadequate within new contexts (Piaget, 1969). They thus make contextually relevant judgments while continuing to learn about themselves in practice (Teekman, 2000; Leonard & Swap, 2004). They can extract principles that may apply in different cultural settings while continuing to improvise and reframe problems as they go.

IMPLICATIONS FOR TEACHING/LEARNING

The use of the slash in the heading of this final section is suggestive of the constructionist distrust of the teacher if viewed as the *sole* expert, if considered the purveyor of objective truth introduced from some source external to the present context. Learning connotes a dislocation of meaning derived as much from self-referential and transpersonal inquiry as from external input.

Let's consider, then, some of the implications for teaching *by* learning derived from our prospective epistemology of practice. I have suggested that postmodern reasoning may be helpful because of its questioning of meaning systems, its challenge of self-conceptions, and its openness to alternative political agendas (Alvesson & Willmott, 1992; Martin, 1992; Linstead, 1993). Hence, to the extent that there could be a postmodern method, acknowledging the movement's abhorrence of preconceptualizations, it would embrace introspection of self, public reflection of interpersonal phenomena, and the creation of learning environments that facilitate discovery.

A practice epistemology would likely change our standard conception of the role of the teacher, from the transmitter to the facilitator of learning, consistent with an inquiry-based democratic pedagogy (Goodlad, 1992; Brookfield & Preskill, 1999; Sarasin, 1999). This form of constructivism brings to mind a distinction that adult educator Malcolm Knowles (1980) made between andragogy and pedagogy. In andragogy, students are encouraged to be more autonomous in their actions, more reliable in their assessment of their own capacities and developmental needs, and more capable of accepting greater levels of responsibility for their own and others' actions. In andragogical practice, then, teachers would model such behaviors as tolerance of ambiguity, openness and frankness, patience and suspension of judgment, empathy and unconditional positive regard, and commitment to learning. Clearly, the opportunity to demonstrate these behaviors calls for settings that are less hierarchical than the standard classroom.

The creation of learning cells or learning teams is appropriate along these lines because such structures, along with sensitive facilitation, provide the student with a safe environment in which to experiment with others to accomplish diverse learning goals (Michaelsen, Knight, & Fink, 2002). In particular, the learning team can become a human laboratory in which students can become more aware of their actual behaviors in their group, such as exercising influence, establishing meaning, or effecting meaningful change. Moreover, learning team methodology can be applied across a range of activities, such as group writing, web-based discussions, log exchanges, simulations and role-plays, in-class problem solving, and off-campus projects (Vega & Tayler, 2005). Our role as a teacher then becomes much more encompassing than merely delivering content, since we are either explicitly or implicitly modeling inquiry. This is not to say that there is no value in delivering content or introducing students to declarative knowledge, namely, the set of facts relevant to the skill or subject in question (Anderson, 1983). Just as a master is not expected to hold back his or her expertise, teachers are not required to tuck away their knowledge for fear that it would interrupt the students' learning process. In a review of the literature on the *pure* discovery model of education

over a 30-year time span, Richard Mayer (2004) found that unguided discovery methods only exceeded lecture methods when supplemented by trained facilitation. The reason for this conclusion was that students needed facilitation because their cognition activated by experience required integration of new information into a taught knowledge base.

Instruction takes place within the workplace and can be front-loaded, back-loaded, or just-in-time. Instruction can also constitute mutual learning with one's peers (Hughes & Moore, 1999). Much can be learned from observing and modeling those who have a higher level of competence, as has been documented by social learning theorists. The modality of instruction can vary, from exacting demonstration of how to do things to casual storytelling.

It's more a question of *when* to introduce scheduled answers in favor of unscheduled inquiry. A balance needs to be sought, contingent on such factors as individual learning styles, complexity of subject matter, or time available, between rote acquisition of subject matter versus meta-cognitive processes of inquiry. The latter help students develop their thinking skills to become more self-reliant, flexible, and productive in their learning endeavors (Flavel, 1979; Scheid, 1993). In particular, meta-cognition can be especially valuable to help students learn how to construct new knowledge when faced with problems for which there is no known solution or even for which there is no known conceptual lens. Under such unpredictable circumstances, we may encourage our students to engage in reflection-in-action, incorporating such behaviors as on-the-spot reframing, reevaluation of past experiences or precedents, or spontaneous testing of available knowledge to arrive at a solution to the immediate problem (Schön, 1983).

It may be thought that facilitating teachers appear dull or detached because they choose not to hold center stage in the classroom. On the contrary, they can be just as animated about the subject matter and learning process as the most charismatic of teachers; what distinguishes them is their orientation toward learning. Is it their job to fill the cup of knowledge on behalf of their students or is it their job to help create conditions when their students do it for themselves?

The following are some learning behaviors that tend to differentiate teachers adopting a facilitating rather than a centrist approach to teaching:

- Instead of asking questions that have a preconceived correct answer, they may probe, while suspending some of their presuppositions about the answer, so as to concentrate their full attention on the student's reasoning.
- Instead of first jumping in to provide their expertise to solve an individual or team problem, they may let students offer their solutions to each other and acknowledge that their ideas can be mutually enriching.
- Instead of masking their lack of knowledge with an obfuscated answer, they may acknowledge their ignorance often along with a view on how all might approach the problem at hand.
- Instead of allowing their students to downplay their experience as compared to their own wealth of academic study, they may reinforce the deep value of their practice-knowledge while looking for ways to make it more accessible to them.
- Instead of overpreparing their lecture presentations to demonstrate their clarity of thought, they may concentrate on how to introduce new material using multiple methods and entry points (Gardner, 1999) to appeal to the students' diversity of learning styles.
- Instead of requiring students to write concept-based reports from their experiences in the field, they may encourage them to journal on these experiences using their own style and idiom but prompted by questions that might induce deeper reflection.
- Instead of encouraging students to offer opinions to one another, they may invite them to ask good genuine questions to bring out the collective knowledge of everyone.
- Instead of seeking consensus on a controversial topic, they may express tolerance for a resolution of indeterminacy in order to promote ongoing reflection on the topic.

Practice epistemology is in line with recent work on facilitating student success in higher education through such practices as student engagement (Chickering & Gamson, 1987), teaching and social presence (Gunawardena & Zittle, 1997; Rourke, Anderson, Garrison, & Archer, 2001; Shea, Pickett, & Pelz, 2003), and teacher immediacy (Gorham, 1988; Sanders & Wiseman, 1990). These practices speak to the need for teachers to maintain close contact with their students; provide sensitive feedback on their work; encourage and reinforce their contributions; and create a warm, open, and trusting environment. Note too that some facilitating conditions can be assumed as much by the student as the teacher. For example, it is not necessary for just the teacher to provide feedback on learning. Yet, it is also unlikely that students will immediately or without provocation assume responsibility for the learning environment, given their often conventional socialization as empty vessels.

Consistent with contextualized learning theory, teachers can adapt the hands-on apprenticeship system of skill acquisition to a model that builds

upon the complex cognitive skills that are required to organize our thinking processes. Known as the cognitive apprenticeship model, it takes advantage of two precepts: that learning occurs most readily when it is tied to authentic activity and culture (Lave, 1988; McLellan, 1995) and that as a social process, learning can be acquired by learners in discursive interactions with their teachers and among themselves. To set up a cognitive apprenticeship, the teacher or expert first maps the inherent expert strategies entailed in a task and breaks them down into developmental tasks, or scaffolds, that assist the student in applying them to a real situation with a real outcome. While being coached by the teacher, learners are also encouraged to articulate their reasoning and reflect with each other on their approaches. In time the teacher's support fades as students begin to apply their learning to emerging and personally relevant problems (Collins, Brown, & Newman, 1990).

Pedagogical Methods

In considering pedagogical strategies that place learners directly in their practice worlds, action learning stands out. As a contextualized learning approach, it seeks to generate learning from human interaction arising from engagement in the solution of real-world work problems (Pedler, 1996; Marquardt, 1999; Yorks, O'Neil, & Marsick, 1999; Raelin, 2000; Boshyk, 2002). Typically, participants work on a project of significant strategic importance to the organization to which they are attached. Project experiences are often designed to be novel to provoke learning, so, for example, familiar problems could be examined in different settings, or new problems could be confronted in familiar settings. Throughout the program, the participants continue to work on the projects with assistance from other participants (who are either working on the same project as part of a team or on an individual project in their own organization) as well as from qualified facilitators or coaches who help them make sense of their project experiences in light of relevant theory. This feedback feature principally occurs in learning teams or "sets" typically composed of 5–7 participants that hold intermittent meetings over a fixed program cycle (Smith & O'Neil, 2003). During the learning team sessions, the participants discuss not only the practical dilemmas arising from actions in their work settings, but also the application or misapplication of concepts and theories to these actions.

An alternative method that features deeper probing into learners' mental models is action science, which, in its conception of "double-loop learning," subjects long-established practices of individuals and social systems to critical reflection (Argyris, 1982; Argyris, Putnam, & Smith, 1985). It exposes inconsistencies between individuals' espoused theories—what they say they will do, and their theories-in-use—what they actually do. It probes into the defensive routines used by practitioners to be rational and stay in control over others or over organizational events that, if examined publicly, could make them vulnerable. In this way, it promotes the exploration of hidden resistances and conflicts in human discourse. For example, in a technique known as the "ladder of inference," learners begin to understand how they and others select data from experience and draw immediate conclusions from these data without examining their embedded attributions and inferences.

The method known as cooperative inquiry invites participants to engage in self-critical examination in the presence of a group which, itself, invites spontaneous inquiry into its own dynamics (Reason, 1994; Heron, 1996). Rather than accept preordained content and methods, cooperative inquirers search for their own patterns of knowing while continually examining their practices, asking such questions as: "Who am I that is engaged in this knowing?" Thus, participants become decentered from a narcissism that characterizes human agency. They learn to view themselves as self-referents and as observers of each other in a community that persistently constructs and shares its own interpretations of the world.

It is important to note at this point that distinctions between formal and informal learning loosen under a practice epistemology (Watkins & Marsick, 1992). Although formal learning, such as lecturettes, reading, or assignments are endorsed, our epistemology would add conversation and concurrent reflection to these experiences. During these moments, practitioners and students would learn to surface in the safe presence of trusting peers, any social, political, and even emotional reactions that might be blocking their operating effectiveness (Vince & Martin, 1993).

What is particularly distinctive about service learning, among the many experiential educational approaches available to students enrolled in formal university programs, is its focus on ongoing reflection (Eyler, 2002; Kenworthy-U'Ren & Peterson, 2005). In service learning, students participate in organized service activities that meet needs identified by the community, but they are also encouraged to reflect on their community-based assignments in order to provide them with a grounded apprehension of their discipline as well as a sense of civic responsibility. Using a variety of

methods to help students distill lessons from their off-campus activities, some of the other experiential variants, such as cooperative education, internships, clinical practice, international experiences, undergraduate research, and fine arts studio, are making increasing use of reflective practices to help students surface their learning from experience. These reflective methods are not only applied at the level of individual learning, but can be deployed on behalf of team learning and even at macro levels to encourage open dialogues regarding an organization's operating assumptions. Some of the methods noted in the literature include critical incidents, learning biographies, personal journals, portfolios—written and electronic, literature, repertory grids, concept mapping, and metaphor analysis (Kelly, 1955; Mezirow & Associates, 1990; Novak, 1990; Brookfield, 1992; Gathercoal, Love, Bryde, & McKean, 2002; Zubizaretta, 2004).[4]

Exemplars

Although it would be premature to suggest that there's been a paradigmatic shift to the more engaged pedagogies averred by an epistemology of practice, there is growing appreciation of the need to infuse theory with practice and to develop educational approaches that map the dynamic requirements of our real-world environment. There are, consequently, numerous exemplary programs that have adopted the principles and practices of this epistemology in whole or in part. To pick just a few, the MA programme in Human Systems Intervention in the Department of Applied Human Science at Concordia University in Montreal, Canada, has built its graduate leadership education around six principles: learning as process, leadership as partnership, systems perspective, reflexive understanding, primacy of practice, and focus on learning rather than knowledge (Taylor et al., 2002). Among its innovations consistent with an epistemology of practice are that faculty members are considered scholar-practitioners. They serve as coaches for participants' learning but at the same time collaborate with them to assure the coherence of the program as a whole. They are joined by outside practitioners who supervise participants as they conduct their major "thesis-equivalent" project. Participants map their own learning over time, relying on peers in their cohort group to help them identify recurrent blocks. They are encouraged to surface their tacit assumptions to help them change how they learn. Faculty members also strive to make their own assumptions regarding program design and interventions as transparent as possible.

Boston College's Leadership for Change graduate management certificate program has adopted an action learning methodology while focusing in particular on the personal and professional dilemmas of engaging in ethical and responsible leadership. In an 11-month program featuring six on-campus modules, participants launch a work-based project that is practical, applied, and linked to the triple bottom line of their organizations. Participants are supported by coaches and by learning teams that meet monthly throughout the program. Each learning team is facilitated by a faculty member or business partner affiliated with the program. Assessment is unique because the grading of papers produced in conjunction with each of the modules and with the final project is based not only on standard criteria, such as intellectual and methodological rigor and intervention impact, but on participants' use of theory in practice, their reflective practices, and their contribution to the common good.

The Master of New Professional Studies: Organization Development and Knowledge Management at George Mason University, since its start over 10 years ago, has purported to prepare working professionals to become reflective practitioners (Thatchenkery, 1997). In particular, it commits to enabling participants to "know-in-action," such that they constantly reflect on the explicit and tacit understandings that they acquire as they become more competent professionally. The program equips participants with the tools necessary to understand the organizations in which they work as social learning systems and entails their acquiring three interlaced clusters of competencies: analytic competence, action competence, and interpersonal competence. Using adult and action learning methods, the program has been highly successful not only on the basis of standard indices, such as graduation rates, but as an incubator for comparable programs throughout the university. Its assessed outcomes reflect a holistic perspective of learning consistent with our emerging epistemology of practice. They are expressed best in the words of one of their alumnae:

[4] Although not a pedagogical method per se, ethnography and, in particular, critical ethnography represents a mode of inquiry that attempts to capture the dialectical relationship between social structure and human agency. When the researcher's observations are fed back to the speaker, the latter's social and political agendas that are often hidden from view can be uncovered and subjected to open discourse. See, e.g., Anderson (1989), Forester (1992), Thomas (1993), and Carspecken (1996).

> The program created an extraordinary foundation for me in the behavioral dynamics of people as they come together. It prepared me to incorporate into my learning additional studies, philosophies, and tools, and made me hungry for continual learning and growth. I find I can speak with confidence as I facilitate sessions for groups and as I speak with people in daily life. I am able to facilitate others' learning by bringing ideas together and into focus for them.

CONCLUSION

As I conclude, it is not hyperbolic to suggest posting a warning sign on the methods described here. Although universities are often depicted as centers of creativity, like most institutions, they develop their own orthodoxies and conventions that often resist innovative methodologies, including practice-based learning (Sankaran et al., 2006). The approaches described challenge fundamental and long-established canons of academic life, such as the meaning of scholarship and research or the seclusion of the individual professor within his/her classroom. Participants in practice-based programs partake in unconventional activities such as participating in structuring and even evaluating their own learning. Faculty members' contact time inevitably increases due to their added responsibilities to work collectively on real-time program design as well as to serve in coaching and facilitating roles. As a result, there is less time for individual research.

These methods also do not tend to produce submissive learners. Students and their families, socialized to consider education as a commodity service, cannot be expected to react passively to a pedagogical approach that in its emphasis on reflection endorses uncertainty. In this age of the "student as customer," wherein education might be viewed as a production experience, there could be extreme resistance to methods that do not give students the answers that they are paying for. In addition, this form of epistemology holds risks since its focus on inquiry may lead to changes in the self as well as to both the academic institution and organizations sponsoring student-practitioners (Antonacopoulou, 2004).

On the other hand, the exponential changes in organizational life produced by an environment of few constants demand corresponding changes in how we prepare people to assume productive roles in society. We need to ask our universities and allied learning institutions to make good on their commitment to be responsive and innovative even in their own pedagogical processes. Further, many faculty might find value in participating in projects that intersect with real-world conditions while contributing to practical scholarship.

What is being called for is an epistemology that transforms learning from the acquisition of the objective rules of wisdom to one that appreciates the wisdom of learning in the midst of action itself. We need to move beyond the acquisition of formal logic to reasoning and sensemaking that is concurrent with ongoing practice. In this way the conventional task of teaching as that of imparting knowledge can make room for the more dynamic process of facilitating learning. Imbued with learning, practitioners need not rely on old formulas as much as invent new tools with the help of their peers and teachers to find and work with current problems.

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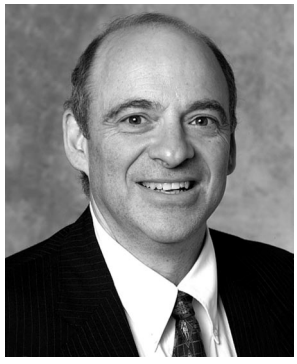

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