

## CHAPTER 3

*Following the Second  
Legacy of Aristotle**The Scholar-Practitioner as an Epistemic Technician*

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## ABSTRACT

In our Western scientific tradition, Aristotle's first legacy has conventionally been invoked to justify the separation of theory and practice. In contrast, we draw attention to a second, less recognized legacy of Aristotle, one where he argues for the integration of universals (theory), with the particulars (experience and practice) of a situation as the basis of true knowledge and understanding. Scholar-practitioners, we suggest, are the contemporary carriers of the Aristotelian second vision, who skillfully integrate theory, experience, and practice to create actionable scientific knowledge, or knowledge that advances the causes of both the organization and the larger scientific discourse. Our study of 11 scholar-practitioners and their efforts in organizational projects to generate actionable scientific knowledge suggests that they employ six strategies for interrelating theory and practice: framing, influencing and legitimizing, sensemaking, demonstrating, turns, and scaffolding. We discuss implications from our findings for the design of collaborative management systems that strive to produce knowledge outcomes with such dual relevance.

*The true "technê" [practice] implies not merely the possession of this or that ability, but also the "epistêmê" [theory] of why this particular "technê" works and yields the desired results.*

Aristotle (*Metaphysics*, 1961, p. 981b)

**M**uch akin to the Greek god Janus and his two opposing heads, theory and practice have frequently been at loggerheads, evoking the image of incommensurable opposites (Astley & Zammuto, 1993). These oppositional images have been and continue to be part of mainstream management discourse in the oft-repeated separations between theory and practice, scholar and practitioner, or knowledge and action—a legacy that can be traced back to the Aristotelian separation between *epistêmê* and *technê*, where we “find the basis for the modern opposition between *epistêmê* as pure theory, and *technê* as practice” (Parry, 2003). Less acknowledged is that there is another legacy of Aristotle, one where Aristotle advocates the importance of integrating theory and practice by blending the universals with the particulars as the basis for true knowledge and understanding. In following this second legacy of Aristotle, we can not only understand the importance of integrating theory and practice but also derive some insights on the kinds of practice and theoretical elements that have to come together to produce fruitful, relevant knowledge of events and situations, a principal aim of collaborative management research systems.

A primary focus of this chapter is to highlight this less-traveled second image of Aristotle that stands in contrast to his widely held first image of knowledge creation, and speak to his legacy and contributions as an early enthusiast of theory-practice integration. In furthering the Aristotelian second legacy and relating it to current times, we focus on scholar-practitioners as contemporary carriers of Aristotle’s second vision. Scholar-practitioners are defined as actors who have one foot each in the worlds of academia and practice and are pointedly interested in advancing the causes of both theory and practice (Huff & Huff, 2001; Tenkasi & Hay, 2004). Much akin to the

implications of studying insider/outsider research teams (Bartunek, Chapter 4 in this volume) for collaborative management research, following the efforts of scholar-practitioners in organizational projects to create actionable scientific knowledge, or knowledge that strives both to meet the practical demands of the organization and advance the causes of the scientific community (Adler, Shani, & Styhre, 2003), can provide us a deeper understanding of the hows of theory-practice integration. In sketching out implications from our study of individual scholar-practitioners to collaborative management systems, we will highlight the processes and strategies of scholar-practitioners in creating actionable scientific knowledge as they strive to move back and forth between the local and the general, or in Aristotelian terms, the universals and the particulars, in interrelating theory and practice. An insight into these dynamics can help inform the design of collaborative management systems that strive to produce outcomes relevant for practice while concomitantly advancing the causes of theory.

#### THE FIRST LEGACY OF ARISTOTLE AND THE THEORY-PRACTICE DIVIDE

Aristotle initially distinguished the spheres of scientific knowledge and craft as two separate and different domains in his writings in Book VI of the *Nicomachean Ethics* (Parry, 2003). His reasoning was that scientific knowledge, or *epistêmê*, concerns itself with the world of universal truths or judgments, which stands apart from the world of everyday contingencies, which is the province of experience, or *empeiria*, and craft, or *technê*. And thus the initial basis of separation between theory and practice, scholar and practitioner was created. Aristotle’s logic in

creating this separation was informed by his quest for how best to establish enduring truths or universal judgments that can form the basis of true knowledge of events. Aristotle contrasted experiences and the practice of craft with inquiry, or the acquisition of knowledge, as representing fundamentally different domains. Experience, or *empeiria*, and the practice of craft, or *technê*, are ends in themselves, such as playing the flute, or making something such as a physical object, be it a flute or a ship. These he distinguished from *epistêmê*, which is an understanding of the underlying rules and principles governing why something happens and how it happens beyond a single event or instance. For example, how does the playing of a flute make beautiful music happen (i.e., what are the underlying laws of creating beautiful music)? Or how does a ship come to be (i.e., what are the principles of construction of a strong, floatable ship)? Answers to these questions, he felt, fell within the province of *epistêmê theoretike*, or scientific knowledge, which he defined as the ability to know the real as it is.

*Epistêmê* is translated as “true and scientific knowledge as opposed to opinion, an organized body of knowledge, and as theoretical knowledge” (Peters, 1967, p. 59). In Aristotle’s view, *epistêmê* is concerned with first causes, which are “*knowledge of the factors that are primary*” (Aristotle, 1961, p. 983a). First causes are the ultimate explanation for phenomena. All other causes flow from first causes; no other causes explain first causes. Because of this, *epistêmê* is different from other forms of knowledge like *empeiria* and *technê* that are focused on (immediate) useful outcomes. *Technê* is knowledge of that which can be changed, which is what makes *technê* useful. What makes *epistêmê* unique is that it concerns knowledge of that “which cannot be other than it is” and is, consequently, “eternal” and

therefore “real (Aristotle, 1962, p. 1139b). This was a process that required scholars who, through their careful and systematic inquiry, produce universal truths about underlying laws of nature by considering data beyond a single instance or experience, to unearth the causal laws that are universally applicable to events and situations. As Aristotle (1961) eloquently clarifies in the following passage,

That this science [*epistêmê*], moreover, is not one of production is clearly illustrated in those who first began to philosophize. For it was their curiosity that first led men to philosophize and that still leads them. In the beginning, they were curious about the difficulties close at hand. Then they progressed little by little in this respect and raised difficulties about matters of greater consequence; for example, about the behavior of the moon and the sun and the stars and of all becoming. . . . Therefore, inasmuch as men philosophized in order to escape ignorance, it is evident that they learned in the pursuit of knowledge, and not for some useful [immediate] end. (p. 982b)

This classical division between the purely theoretical and the purely practical was such a powerful image that a thought that originated in roughly 347 B.C.E. has been carried through as the dominant and unquestioned view of knowledge till the latter half of the 20th century. This early distinction between theory and practice not only influenced subsequent Greek philosophers such as Plotinus, who found little use for *technê* or craft “because it is so far from reality” (Parry, 2003, p. 1), but also had an impact on important later figures of our Western scientific legacy: John Locke, David Hume, Auguste Comte, and more recently Karl Popper,<sup>2</sup> who, in questioning the value of experience as a reliable source of knowledge, upheld the

preeminence of theory and, by inference, the scientist-scholar as the objective producer of knowledge of the physical and the social worlds. This point of view further perpetuated the separations between *epistêmê* on the one hand, and *empeiria* and *technê* on the other hand, in turn deepening the chasm between the scholar and the practitioner.

It has taken 2000-odd years for this influential image of Aristotle to be forcefully challenged. Such was the dominance of Aristotle's first image that the early management literature questioning the separation between theory and practice (such as Astley & Zammuto, 1993; Lawler et al., 1985; and Rynes, Bartunek, & Daft, 2001) focused on pointing out the "great divide" between theory and practice in academic knowledge production and on actively building the case for theory-practice integration. It is only recently that the field of organizational studies has moved to systematic investigations of what it means to link theory and practice, particularly inspired by the seminal work of Gibbons et al. (1994) and their distinction between Type 1 and Type 2 knowledge production models. Of special import are the writings of Adler and Shani (2001) and Adler et al. (2003) to the current call for collaborative management research that seeks to integrate theory and practice in the production of actionable scientific knowledge and to further understand the underlying knowledge-creation processes involved.

### THE SECOND LEGACY OF ARISTOTLE AND THEORY-PRACTICE INTEGRATION

Ironically, in recovering a place for the integration of theory and practice in knowledge production, we need look no further than Aristotle himself. One of the first thinkers to question the separation of practice and theory and challenge the scholar, and by implication

the practitioner, as the unilateral producer of knowledge was none other than Aristotle in his later reflections on the nature of knowledge in the classic work *Metaphysics*. Here inspired by ideas of his mentors Socrates and Plato, Aristotle presents a radically different image of what it means to create true knowledge of events and situations. And in this second, less renowned "image" presented by Aristotle, we find compelling claims that the bedrock of true understanding emanates from the creative integration of knowledge based on theory, practice, and experience. Aristotle's latter position about ascertaining the true nature of knowledge involved merging the worldviews of the scholar and the practitioner. His striving was in understanding how the experience of the practitioner in doing things, or the *empeiria* or experience of playing a flute, and the practical knowledge and craft or *technê* of how a flute is played or made, are merged with the theoretical knowledge of the scholar who inquires into how things come to be, which is *epistêmê*. In other words, either one or the other form of knowledge is not sufficient. True knowledge and understanding, according to Aristotle, have a basis in experience (*empeiria*), craft (*technê*), and theory (*epistêmê*). As Aristotle explains in *Metaphysics* (1961),

The master craftsman (*technitês*) is wiser than the person only of experience, or only of technique, because he knows the cause, the reasons (*epistêmê*) why things are to be done or why things happen the way they happen. The mere artisan (*cheirotechnês*) or practitioner acts without this knowledge. (pp. 981b–982a)

He also contrasts the *technitês* (the ones with *empeiria*, *technê*, and *epistêmê*) with the inexperienced scholar who has only *epistêmê*, and relies on the rational accounting of why things happen the way they happen without a basis in experience (*empeiria*)

or craft (*technê*). According to Aristotle, this is equally ineffective in producing true knowledge (Parry, 2003). Aristotle (1961) goes on to explain why this is so:

On the contrary, we see [sometimes] experienced men succeeding even better than those who know the reasons, but who lack experience. The reason is that experience, like action or production, deals with things severally as concrete individuals, whereas art deals with them generally. Thus, a physician does not cure “man” but he cures Callias, Socrates or some other individual. . . . If then someone lacking experience, but knowing the general principles of the art, sizes up a situation as a whole, he will often, because he is ignorant of the individuals within that whole, miss the mark and fail to cure; for it is the individuals who must be cured. (p. 981b)

In these two statements of the second Aristotelian legacy, we clearly see the necessity and importance of inquiry designs such as collaborative management research that seek to blend theory and practice and, by implication, the scholar and the practitioner.

According to Aristotle, both these sets of competencies are necessary to realize true knowledge that can inform a situation. If either one is separately applied without support from the other, true knowledge will not be realized. The scholar’s forte is in appealing to scientific knowledge. Her strength is in uncovering the generalizable principles and explanatory reasons that may underlie a situation derived from the larger scientific discourse that incorporates multiple contexts and experiences. In contrast, the practitioner derives knowledge from her experience with the particulars of the situation. Her strength is drawn from *empeiria*, which is grounded in the experience of humans who populate a particular system and the craft, or *technê*, derived from those experiences. *Empeiria*

and *technê* deal with the specifics, the individuals, and particular contexts of those experiences. It is as significant a form of knowledge that informs understanding and action as the theoretical knowledge of *epistêmê* that deals with underlying causes. This kind of integrated knowledge is the practical wisdom of *phronesis*.

For Aristotle, *phronesis* represents the ideal integration of experience, craft, and theory. The ancient Greek word *phronesis* is defined as wisdom, practical wisdom, and prudence (Peters, 1967, p. 157). A major theme throughout *phronesis* is its concern with morals and ethics (Adler, 1978). But, for Aristotle, *phronesis* also involved knowledge of the particulars, or *empeiria*, the *technê* or craft derived from those experiences, and the invocation of universals, or *epistêmê theoretike* (Dunne, 1993), the generalizable knowledge that may apply to those particulars. And it is here we find his most compelling claim for the creative integration of theory and practice as the basis for true understanding and action. Aristotle (1962) writes: “Practical wisdom does not deal only with universals. It must also be familiar with particulars, since it is concerned with action, and action has to do with particulars [while not missing the general]” (p. 1141b).

Aristotle (1962) explains his logic with the following contrast between a man of scientific, universal knowledge about health and a man with practical knowledge about foods:

This explains why some men who have no scientific knowledge are [sometimes] more adept in practical matters, especially if they have experience, than those who do have scientific knowledge. For if a person were to know that light meat is easily digested, and hence wholesome, but did not know what sort of meat is light, he will not produce health, whereas someone who knows that poultry is light and wholesome is more likely to produce health. (p. 1141b)

Clearly the optimal solution for health, opines Aristotle, is to have knowledge of both the universal, or the scientific knowledge that light meat is easily digested, and the particulars, arising from the experience that poultry is light. According to Dunne (1993), the ability to blend the universal with the particulars (or theory with experience) is the stunning achievement of *phronesis*: “*Phronesis* does not ascend to a level of abstraction or generality that leaves experience behind. It arises from experience and returns into experience” (p. 293).

Another important consideration that *phronesis* speaks to is action that is based not merely on an integrative understanding but also on ethical and moral dimensions. While *phronesis* or “practical wisdom issues commands, its end is to tell us what we ought to do and what we ought not to do,” which is the hallmark of virtue, or *arete* (Aristotle, 1962, p. 1143a). Those who are deemed the most knowledgeable in *phronesis*, Aristotle states, are also “good at deliberating. . . . They can, by reasoning, aim and hit the best thing attainable to man by action, [and] have the capacity for seeing what is good for themselves and for mankind” (p. 1141b).

And in this statement we see the ethical responsibilities Aristotle places on scholar-practitioners and collaborative management research communities. In invoking the particular and the general in their knowledge-creation activities, they should be equally concerned about contributing to the local good and about advancing the causes of theory, which is the larger good.

In many ways, Aristotle and his mentors Socrates and Plato are often believed to have loved knowledge for the sake of knowledge, not caring about its practical applications (Dunne, 1993; Parry, 2003). However, in exploring the second image of Aristotle, it is clear that he considered the highest result in every concern to be the achievement of true practice, a practice that draws on wisdom

(*phronesis*) that arises from an integral complex of experience (*empeiria*), craft (*technê*), and theory (*epistêmê*), because in his opinion it is only “this kind of knowledge that enables a conscious choice possible between true and false, good and bad, benefit and hurt, and, generally, between ‘good’ and ‘evil’” (Parry, 2003, p. 12).

### THE SCHOLAR-PRACTITIONER AS AN EPISTEMIC TECHNICIAN

Beyond highlighting this second image of Aristotle and speaking to his legacy and contributions as an early advocate of theory-practice integration, another goal of this chapter is to relate the Aristotelian second legacy to current times and its application to organizational research. We regard scholar-practitioners to be ideal contemporary carriers of Aristotle’s second vision. As individuals who have a foot each in the worlds of academia and practice and who are familiar with the universal and particulars, these actors view as equally important the advancement of organizational causes and the scientific profession. They strive to create actionable scientific knowledge through useful research (Lawler et al., 1985) that enhances the theoretical understanding of the phenomena as well as provides for a better resolution of business problems (Tenkasi & Hay, 2004). Astley and Zammuto (1993) describe them as an intermediate cadre of professionals, who by virtue of membership in both the academic and practice worlds can act as effective bridges between the otherwise incommensurate communities of scholars and practitioners. Graduates of executive doctoral programs who continue working in organizations during and after education are one example of this intermediate cadre of “boundary spanners,” those “who have the potential to close the relevance gap from both ends of science and business” (Huff & Huff, 2001, p. S50).

In following the efforts of scholar-practitioners in organizational projects to create actionable scientific knowledge, we can further the Aristotelian vision by extending our understanding from the need to integrate theory and practice to comprehending the processes involved in blending the universals with the particulars in which *phronesis* or theory-practice integration is realized. For this, we turn to an inductive study reported in some detail in earlier publications (Hay, 2003; Tenkasi & Hay, 2004) that sought not only to understand the elements of theory and practice that the scholar-practitioner brings to the table but also to grasp how the scholar-practitioner goes about linking them in organizational projects to create actionable scientific knowledge that meets scientific criteria and influences business results.

## STUDY METHODOLOGY

Interviews were completed with 11 scholar-practitioners, who were asked to recount successful organizational projects that had effective theory and business outcomes and that applied their knowledge of theory and practice. These project experiences related to 11 organizations located in the East Coast and Midwest regions of the United States. All interviews were taped and transcribed. All the scholar-practitioners were Ph.D.'s; two were members of consulting organizations, two were academics with extensive consulting interaction with industry, and seven were graduates of an executive doctoral program in organizational development who continued their employment as internal organizational change agents. All of the 11 projects selected had tangible business outcomes such as a customized business model, a new technique or process that was implemented and used as a result of the project, or, in some cases, evidence of material impacts of these interventions on financial indices such as return on investment

(ROI), profitability, and other metrics of effectiveness such as reduction in product development cycle time. Theoretical outcomes from these projects were academic presentations, journal publications, books, and, in some cases, dissertations that advanced the state of knowledge in arenas such as self-managing teams, leadership assessment and development, mergers and acquisitions, and sociotechnical systems design for knowledge work. Six contrast interviews were also completed, four with business researchers who had no scholarly affiliations and two with academics who had minimal experience with organizations (see Table 3.1).

Our analytical strategy employed an iterative approach of traveling back and forth between the data and emerging theory to develop our model. The cornerstones of our analyses were (1) to develop a narrative sequence of events for each case (Elsbach & Sutton, 1992; Silverman, 2001); (2) to employ a within-and-across case analysis of all cases to identify similarities and differences across events (Eisenhardt, 1989); and (3) to systematically develop and employ an emergent coding system to methodically discern and elaborate on the common dynamics of theory-practice integration observed across the cases based on the logic of replication (Yin, 1994). The logic of replication treats a series of cases as a series of experiments with each case serving to confirm or disconfirm an emergent relationship, where the emphasis is on retaining the common relationships found across all the cases (Eisenhardt, 1989; Yin, 1994).

In following the sequence of these 11 successful projects, we found that scholar-practitioners, in order to successfully realize project outcomes, employed a set of actions motivated by their knowledge of theory and a set of actions motivated by their experiences and knowledge of practice conventions endemic to the system. Instead of the traditional views of practice as involving action and theory as involving abstract thinking, much in line with activity theory<sup>3</sup> (Vygotsky,

**Table 3.1** A Description of Scholar-Practitioner Projects and Outcomes of Dual Relevance

<i>Purpose of Project</i>	<i>Practical Outcomes</i>	<i>Theoretical Outcomes</i>
1. Increasing the innovation effectiveness of the R&D center of a high technology firm	<p>A practical model of the critical deliberations that new product development projects should undertake based on the project life stage and the essential knowledge domains required at each stage</p> <p>Key impact: reduction in product development cycle time</p>	Several presentations at forums such the Academy of Management, and journal publications
2. Leadership alignment across a multidivisional global consumer products firm	<p>A training program and a model that could be used to assess and develop transformational leadership behaviors among the many managers/supervisors of each division/unit</p> <p>Key impacts: observed uniformity in transformational leadership behaviors across the different business units</p>	Presentations at academic and practitioner conferences, journal publications, and working papers that assess the relationship between transformational leadership and emotional intelligence
3. Establishing a Center for Manufacturing Excellence in a heavy engineering firm	<p>An internal organizational model of the stages involved in realizing self-managing team effectiveness and training interventions that will accelerate movement to each stage</p> <p>Key impacts: improvements in cost and quality indices</p>	Paper presentations at practitioner and academic conferences on self-managing teams, a book chapter, and a dissertation
4. Creating effective practices and processes for mergers and acquisitions (M&A) in an electrical products firm	<p>An internal workbook highlighting procedures, processes, and training interventions for post-M&amp;A integration drawing on social constructionist principles. A major aspect of the model was achieving strategy or vision consensus about the merged organization.</p> <p>Key impacts: quicker and more effective cultural integration as indicated in postsurvey measures</p>	Presentations at Academy of Management, a journal article, and a dissertation
5. Transitioning four brownfield manufacturing units into high performance work systems of a global equipment manufacturing firm	<p>An internal process model based on Appreciative Inquiry and incorporating best practices and training interventions drawn from a study of four pilot sites, to help evolve other brownfield manufacturing sites into high performance work systems</p> <p>Key impacts: improvements in cost, quality, and productivity indices</p>	Presentations, conference proceedings, and a dissertation



<i>Purpose of Project</i>	<i>Practical Outcomes</i>	<i>Theoretical Outcomes</i>
6. Piloting a whole-systems design model for radical organizational change in one region of a multiregional wireless company	A process model for whole systems design developed from learnings of the pilot region for use in other regions  Key impact: increased market share based on restructuring of business operations, particularly the customer service function	Presentations, journal articles, and a book on large group interventions
7. Assessing differential implementation success rates among four business units/regions of a corporate-driven global organizational change program in a worldwide food services firm	An internal model of change communication that takes into account interpretive differences among the multiple constituents who are parties to the change  Key impact: a revised change communication protocol from the corporate office for tailoring change messages by taking into account the cultural/interpretive background of regions/units	Presentations, publication in several conference proceedings, and a dissertation
8. Designing optimal organizational structures for new product development effectiveness and efficiency in a global communications firm	An internal organization design model for structuring new product development units largely derived from a meta-analysis of existing new product development research literature	Presentations, journal publications, working papers, and a dissertation
9. Improving restaurant effectiveness and efficiency in the midwestern region of a worldwide food services firm	An internal process model based on Appreciative Inquiry and a template that can be implemented in other regions for improving restaurant effectiveness and efficiency  Key impacts: improvement in restaurant service effectiveness	Presentations, publication in conference proceedings, and a dissertation
10. Transitioning a centralized global IT company into decentralized customer-focused business teams	Successful reorganization of a company, with buy-in of key stakeholders	Working papers, presentations at practitioner conferences, and a dissertation
11. An assessment of the impact of peer mentoring on effective sharing of organizational knowledge in a global communications firm	Evaluation of a peer mentoring program and identification of best practices in knowledge sharing	Conference presentations, journal article, and a dissertation

1962, 1978), we found scholar-practitioners using knowledge drawn from theory, experience, and technique as different kinds of tools and resources to inform different kinds of action as the projects progressed. There were actions that were informed by theoretical

precepts represented in the form of formal domains of knowledge available in books, articles, expert opinion, and principles of research. Scholar-practitioners regularly invoked their broad knowledge of the scholarly and practical literature on how people

and organizations work, and also accessed specific publications within academic or practitioner outlets that pertained to the topic of interest, such as designing team-based organizations or creating a leadership assessment process. And there were other actions arising out of the scholar-practitioners' awareness of and experience with organizational conventions, history, norms, and power relationships and their mastery of the techniques of getting things done in the organization. These practice-mediated streams of actions frequently invoked organizational, political, and rational conventions to influence key decision makers controlling resources for the project, to secure cooperation of employees responsible for implementation of the project, and to ensure that projects were framed to conform to local project management conventions (see Tenkasi & Hay, 2004, for a comprehensive description).

### STRATEGIES FOR INTERRELATING THEORY AND PRACTICE

Of more interest is how these practitioner-scholars linked their understanding of theory and practice to produce actionable scientific knowledge or, in Aristotelian terms, the achievement of *phronesis* (Dunne, 1993). Our analysis of the 11 cases revealed that scholar-practitioners tended to interrelate theory and practice as strategies for (1) framing, (2) influencing and legitimizing, (3) sense-making, and (4) demonstrating. We elaborate on each of these dynamics.

#### *Framing*

Framing effects were most commonly observed in defining the nature and scope of the project. Framing was typically employed to bound and structure an otherwise equivocal phenomenon in more concrete and precise

terms (Weick, 1979). In several cases, we noticed the use of theory and research findings to frame and give direction to a broadly expressed change mandate from the leadership as a possible solution to an organizational crisis or toward achieving a desired future state. The scholar-practitioners relied on several knowledge elements, such as social science knowledge and current literature on theories of organizational effectiveness, as informing forces to frame a general organizational mandate in more bounded and specific terms. In one case the scholar-practitioner took the vision of the CEO to move a manufacturing plant into a center of excellence and helped define the project as one of reorganizing the workforce into self-managing teams. Another scholar-practitioner took the broad mandate of leadership alignment and helped "frame" and "define" the project as one of implementing a leadership assessment and development process for the organization. Infrequently, we also found instances where the scholar-practitioner used a practically mediated opening to frame a theoretical niche. In these cases, the practical opportunity provided the right conditions to test a theoretical model and/or develop new theory to answer a practical question. In one of the cases, the CEO's desire to make the R&D organization more effective at knowledge management opened up the opportunity for the scholar-practitioner to pilot test a new process that took the principles of sociotechnical theory and applied them to knowledge work. In addition to practical ramifications, the project had theoretical ramifications in terms of charting new ground for sociotechnical theory by extending its application from routine work to nonroutine work.

#### *Influencing and Legitimizing*

Influencing and legitimizing were used to justify a concept, idea, model, or course of action as the most appropriate for a situation.

Legitimizing was typically exercised by the scholar-practitioner in convincing and informing key stakeholders of the need for change, the model and attributes of change, and the process involved in the change. We found that legitimization actions involved cases both where theory informed practice and, conversely, where practice informed theory. Theory was used as a tool to legitimize the need for a certain kind of practical action. In addition to the practical justification for change driven by the leadership mandate, or organizational crisis, this frequently took the shape of using as a tool the theoretical knowledge that the scholar-practitioner garnered from a review of current literature around the topic of interest. In one case, the scholar-practitioner, in his quest to understand leadership alignment, read the current literature and determined that the most appropriate way to achieve alignment was through a "leadership assessment and development" process and convinced the stakeholders of the rationality of this approach based on his knowledge of the current literature. In contrast to using theory as a tool to legitimize practice, we also found the practical demands of a situation/context as an opportunity to legitimize a certain kind of theoretically informed action. This was evident in a case where the scholar-practitioner, after a review of several models of knowledge management, indicated that the sociotechnical systems (STS) approach applied to knowledge work might be most suitable, because it not only considered the interface of knowledge elements pertaining to the social, technical, and environmental systems but also engaged the workforce in designing such a system, a most appropriate strategy given the CEO's interest in involving a large population of the R&D workforce in the change process. The scholar-practitioner was able to skillfully match the practical requirements of the CEO that called for broad employee engagement with a theoretical model that allowed the same. The

justification behind asking managers from the several research functions to be part of the central design team was attributed to the CEO's mandate, although it was also clearly a requirement of the STS design model.

In both framing and legitimizing, scholar-practitioners are engaging in the search for appropriate causal mechanisms or pathways that will enable realization of the outcomes desired by the CEO in light of the contextual constraints and opportunities afforded by the organization. Top management, at least in the cases we studied, expressed the desire or mandate for a future state based on a vision or organizational crisis, but not a clear sense of how to get there. We frequently noticed that this is where the scholar-practitioner steps in and uses her expansive knowledge of theory, experience, and craft in analyzing the situation and conjecturing the pathways that may help realize the desired outcomes. Scholar-practitioners are aware that the fit between mechanisms or pathways and their functional outcomes is not necessarily concrete, and that their relationship as expressed in theory is inherently ambivalent (Bunge, 2004). It is through a review of several potential pathways that they choose what they believe might be the most appropriate mechanism, after giving due consideration to the situational context. This is where theory, experience, and understanding of organizational conventions (rational and political) are useful. While theory and research findings are often used to frame and assess the potential pathways through which the desired outcomes can be realized, it is frequently the particulars of the local environment that dictate the choice of the pathway. For example, the CEO's quest for the firm to become a center for manufacturing excellence could have been addressed through various mechanisms such as improved manufacturing processes or better materials management, all scientifically validated pathways to realize manufacturing excellence (*Best Manufacturing Practices*

*Report*, 1998). However, the scholar-practitioner chose self-managing teams as the most viable mechanism based on several local considerations. These included the high levels of camaraderie and collective identity as a distinct group among an older workforce that contrasted itself with the supervisors, and a recognition that potentially the best way to infuse a sense for quality, cost, and schedule would be by making the employee group take ownership for these issues through self-governing work teams rather than relying on supervisory mandates, which had proven ineffectual in the past. Other factors were the multiskilling and job rotation that come with a team-based design, which would allow team members variety and challenge in their jobs in an otherwise routine manufacturing environment. Alternative pathways such as technological enhancements to the old assembly line format or improved material management techniques would not have decreased the boredom or reduced the quality problems, because these designs would have failed to take into account the social dynamics of the situation.

Conjecturing the pathways and thinking through why one mechanism might be more appropriate than others also helps in subsequently legitimizing the pathway since it is based on both theoretical and practical considerations. This stance of reflection and pondering about appropriate causal mechanisms that considers the general and the local was a defining quality of scholar-practitioners that enabled them both to produce outcomes of consequence for the organization and to advance the larger state of knowledge. This quality essentially distinguished the scholar-practitioner from practitioners who would mimic the latest technique or fad and apply it indiscriminately to the local environment with which they were familiar without really understanding the underlying theory or conducting research to direct their efforts. This

approach was also in contrast with the scholar who, familiar with theories of organization, applies her theoretical understanding of how organizations work and conducts research on an abstract problem without due consideration of the local dynamics or a reflection of how useful the findings may be to improving the causes of the organization (Tenkasi & Hay, 2004).

### *Sensemaking*

Once the causal pathway is established, the third strong function of interrelating theory and practice was its role in mutual sensemaking. The scholar-practitioner relies on theory as a tool to make sense of practice, and practice elements as instruments in making sense of theory. This mutual dynamic often took the form of co-informing, reciprocal cycles of invoking theory to inform practice and invoking practice to inform theory, which were evident in all project stages. While framing was a unique type of sensemaking activity often related to the project definition stage, sensemaking patterns pertaining to project execution and project realization were also frequently observed. A clear instance of theory informing practice was the application of systematic research principles in the assessment/diagnosis and sensemaking preceding the implementation of the intervention. This was a common pattern across all the cases, where scholar-practitioners used a combination of survey instrumentation, interviews, systematic observations, and, in one case, personal diary recordings of the participants for data collection. The leadership assessment and development project used a pretest-posttest design, while the self-managing team project involved a constant-comparison qualitative design where the scholar-practitioner compared and contrasted the evolutionary journey of six natural workgroups as they transitioned into effective self-managing

teams at different speeds. The use of systematic approaches enabled more accurate diagnosis and sensemaking prior to implementation. In many respects, scholar-practitioners were engaging in fact-based decision making (Pfeffer & Sutton, 2006) using evidence-based approaches (Leslie, Loch, & Schaninger, 2006). Realizing that their observations might be contaminated by what they expected to see, they relied on data collected through systematic and scientific approaches. They were aware that it is easy to be trapped by ideologies, beliefs, and conventional wisdom instead of paying attention to the data (Pfeffer & Sutton, 2006).

Practice informing theory followed a similar rigor and was most evident in the process of implementing the change. Respondents mentioned that they learned from the process of doing, or implementing the change. Making sense of the implementation experience frequently drew on a background of theoretical knowledge, including literature reviews and the use of research data acquired through scientific research methods. Coexistent with this approach was the inductive dynamics of practice reinforcing theoretical knowledge, particularly when there were anomalous experiences provided by the data from implementing the model that could not be explained by current theoretical precepts. These variations in practice were mediational tools that frequently reinforced the current dominant theoretical conceptualization. A salient case is the scholar-practitioner who initially applied a traditional sociotechnical system framework to analyze knowledge work. In applying the model to a pilot sample, he found that the linear transformation processes of routine work and their variances were not applicable to nonroutine knowledge work and that the best way to understand transformation processes in knowledge work required a focus on the deliberations or sensemaking conversations of the scientists. He realized that these conversations were the

principal transformational activities in knowledge work and that variances arose from factors such as not having the right members who had relevant knowledge involved in the conversations, or the lack of an appropriate process to hear everyone's opinion in the deliberations. These revised understandings helped him design an effective knowledge management model for nonroutine work.

### *Demonstrating*

The final commingling of theory and practice was in demonstrating impact. Theory informing practice was most evident in providing empirical evidence and demonstrating proof that the organizational project was successful in terms of achieving practical results—that there was a change in mindsets, in behavior, and in profitability or other metrics. Providing proof of business impacts relied on data collected and analyzed through systematic research designs. Scholar-practitioners frequently used quantitative evidence to indicate behavior and/or attitude change in survey scales pre- to postintervention, or indicated shifts in financial measures pre- to post-change. Qualitative data, particularly context-sensitive quotes or verbatim comments, were employed to demonstrate changes in perspective or new behaviors. For example, the scholar-practitioner involved with the implementation of self-managing teams made use of extensive quotes from team members to demonstrate that the teams were engaging in self-managing behaviors and highlight the kinds of new behaviors that were involved in team self-management. Practice informing theory was typically in the form of using the practical business impacts to provide proof of the theoretical model. A reduction in new product development cycle time was conclusive evidence for the scholar-practitioner to demonstrate in subsequent academic publications that the knowledge management model based on sociotechnical systems was clearly valid.

### URNS AND SCAFFOLDING AS UNIQUE DEVICES IN INTERRELATING THEORY AND PRACTICE

Of the 11 projects we studied, in only a few cases did the scholar-practitioner explicitly inform the organization that he was seeking to advance his theoretical interests alongside business outcomes. One case involved a project that was seeking to determine why the research efforts of an R&D organization were not producing consequential results. In this context, research on why research was not producing intended outcomes was seen as a legitimate enterprise. However, in the majority of cases, it was clearly the business problem that was most salient in the minds of management and that had to be addressed. In this situation, the scholar-practitioners, whether external consultants or internal change agents employed by the firm, were aware that addressing business issues was most important for personal legitimacy in the corporate world and approached these projects as consulting assignments rather than research endeavors. Our interviews with these scholar-practitioners suggest that, at least in the corporate environments they worked in, consulting is seen as adding value to the organization, while research is viewed as an abstract act that is not of practical relevance. Approaching the assignments from a consulting angle helped them gain access since they were viewed as practical problem solvers. Furthermore, the word *research* for many of these scholar-practitioners was a term they would prefer not to use but would rather build in as part of the background. In their view, research and principles of research entail considerable background education that corporate executives do not have the time or patience for, although they are tolerant of research and publications as long as they do not come in the way of achieving practical results. In some cases, the publications

have to be cleared by the appropriate legal departments.

As aptly summarized by one scholar-practitioner, “My CEO wants us to become a center of manufacturing excellence. . . . I have convinced him that the best way to achieve it is to create self-managing teams. He wants them to happen, and if I tell him I want to conduct a research project on testing a theory of self-managing team effectiveness, I will probably be out of the door tomorrow. . . . We don’t have the luxury of presenting a research proposal but have to build research principles into the way we consult. But if I do write a few articles or get my dissertation from this project he is OK with it as long as I show practical results—that is what is most important to him. If I gain research knowledge that is fine as long as it does not come in the way of organizational needs” (author interview).

Despite the lack of explicit emphasis on research, intriguingly all 11 projects managed to produce outcomes that were of relevance to the organization and the scientific community. Our interest was in understanding how these scholar-practitioners were able to create theory-practice linkages to realize dual outcomes of relevance to both practice and research. In Aristotelian terms this is another aspect of *phronesis*, being able to deliberate about the situation and aim for creating knowledge that not only is good for the particulars but also considers the universals, or the larger good of humankind. We found that it was in this spirit that many scholar-practitioners approached their organizational projects. They wanted to create knowledge through these projects that could be communicated to the larger professional community in addition to helping the organization practically.

Across all 11 cases we found evidence for two dominant types of strategies through which theory-practice linkages were created, enabling the embedding of systematic

research. These dual strategies were the use of *turns* and *scaffolding*. These two moves enabled the scholar-practitioners to set the conditions favorable for theory-practice linkages and enact these linkages to produce both practical and research outcomes.

### Turns

Turns are reframing moves and tools that help make an element more familiar, more legitimate, and potentially more palatable to the concerned audience by locating it within a respective community's "systems of meaning" (Fleck, 1935/1979). In our observations, successful scholar-practitioners skillfully employed "theory to practice" turns to make the unfamiliar familiar to the practitioner community. We found several instances of theory-to-practice turns that facilitated the acceptance of theoretically informed activities, including principles of research, and enabled their linkage with practically informed activities. Some self-evident examples of theory to practice turns were (1) turning the knowledge of current literature into information from best practices in the industry and other organizations; (2) turning representative sampling that called for sampling across levels, functions, and gender into a strategy for broader involvement of employees; (3) turning action research processes of implementation into learning from experience; and (4) turning principles of valid and reliable research (including systematic data collection, comparative research designs, and rigorous analytical strategy) into a foolproof strategy to assess bottom-line impact. The goals of these turns were to influence an audience—a business rather than an academic audience. Reframing for the business rather than the academic audience has more of a pragmatic goal to it. The goal is not to change the academic import of the theoretical action but rather to present it in such a way that the

business audience does not misunderstand it and is motivated to construe and continue with the research as having practical relevance.

The dynamic of turns may be best understood by invoking the concept of "thought worlds" (Fleck, 1935/1979). Thought worlds appeal to the social basis of cognition and meaning making in any community. The organizational participant community can be construed as a unique thought world and the academic/research community as another. A community's thought world is characterized by two aspects: their "fund of knowledge," or what they know, and their "systems of meaning," or how they know. Complex ideas cannot be shared easily across thought worlds, and different thought worlds will attempt to interpret each other's ideas based on their unique funds of knowledge. If such interpretation fails, then they may view the other's central issues as esoteric, if not meaningless (Dougherty, 1992). For a community of knowing to adopt an idea, information, or knowledge from a different community of knowing, the information or knowledge has to be reconfigured or adapted to fit in with the recipient community's meaning systems (Boland & Tenkasi, 1995; Tenkasi & Mohrman, 1999). Acceptance of new knowledge or an innovation by a local community would vary depending upon the innovation's location in a knowledge space consisting of "local cultural objects of knowledge" of varying degrees of similarity to the proposed innovation. Actors in a community would behave toward new objects or received knowledge in ways similar to how they behave toward existing cultural objects that have been judged to be similar to the new objects (Stefflere, 1972). And this process of locating research activities in terms similar to familiar corporate activities informs the underlying logic of turns that the scholar-practitioner uses to legitimate activities informed by theory and/or principles of research. These forms of translation

facilitate acceptance among the organizational community.

### *Scaffolding*

*Scaffolding*, a term most commonly associated with construction, typically denotes “a platform made for workers to stand on when they want to reach higher parts of a building to add on to or modify the structure of the building” (Cambridge Dictionaries Online, 2003). This notion of a platform that helps in subsequent building activities probably best conveys the image of scaffolding as a mediational tool employed by scholar-practitioners to enable theory-practice linkages. Scaffolding, which typically involved the creation and use of a theory-based or a practice-based platform at an earlier stage to influence its complement at a subsequent stage, formed a critical linking mechanism between theory and practice.

A role particularly served by practice-to-theory scaffolding was in ensuring knowledge outcomes of the organizational project. The scholar-practitioner may enact the current event to meet practice needs but does so in anticipation of a future use on the theoretical side. Sometimes, these activities may exceed what is required to meet practice needs, but in building them in, the scholar-practitioner increases the odds of subsequent theoretical outcomes. For example, a scholar-practitioner involved in a leadership assessment and development process used several validated leadership instruments, such as the Multifactor Leadership Questionnaire MLQ; Bass & Avolio, 1995), to evaluate transformational leadership behaviors in order to assess existing leadership behavior and styles within the organization. The practical agenda was to create an aligned leadership model across the organization and train managers in transformational leadership behaviors. The program and process employed

a well-established leadership development program and would not have realized any research outcomes beyond stating that the leadership training intervention worked and there was an increase in self-reports of transformational leadership behaviors by the managers and in their assessments by subordinates. However, the scholar-practitioner also had a long-standing research interest in understanding the links between emotional intelligence and leadership behaviors, particularly in whether there was an overlap between the two constructs, and if levels of emotional intelligence moderated the practice of transformational leadership. Although this was not part of the leadership alignment program or process, he used the opportunity to collect data on emotional intelligence, and while incorporating it as part of the feedback to managers, he subsequently used the data to write papers suggesting that transformational leadership and emotional intelligence are independent constructs, and that transformational leadership behaviors of managers are moderated by their levels of emotional intelligence.

The common pattern with scaffolding from theory to practice was the inclusion of a theory-based platform at an earlier stage of a project that, while helping guide practice, also ensured subsequent theoretical outcomes in seeking to answer new research questions. This was typically the case when theory was used to frame the nature and scope of the project. An illustrative case is the scholar-practitioner who was able to frame the CEO's vision to move the manufacturing plant into a center of excellence as one of reorganizing the workforce into self-managing teams. The theory-based platform of self-managing teams enabled the practitioner not only to direct action but also to do systematic research on what she identified as a gap in the self-managing teams research and literature, i.e., that is, to discover the evolutionary



pathway to becoming a self-managing team; why some teams are able to more successfully transition into self-management than are others; and further, why some are faster at it.

Scaffolding is an important mechanism that scholar-practitioners use to realize theory-practice linkages. Theory-based platforms not only engender practice patterns that help generate practical outcomes but also ensure the embedding of theoretical elements to generate scientific outcomes. Likewise, practice-based platforms are skillfully appropriated or enacted by the scholar-practitioner such that they not only meet the practice requirements of the current situation but also enable future use on the theoretical side (see Table 3.2).

#### IMPLICATIONS FOR COLLABORATIVE MANAGEMENT RESEARCH

In both Aristotle's notion of *phronesis* and the scholar-practitioner's role as the contemporary carrier of the Aristotelian second vision, we see single individuals holding the knowledge and responsibilities for integrating theory and practice to produce actionable scientific knowledge. On the other hand, collaborative management research seeks to produce actionable scientific knowledge through partnerships between researchers and members of a living system (Shani, Wilson, & David, 2003). Nevertheless, we believe there are some lessons to be gleaned from the actions of these single actors that could apply to collaborative management research projects involving multiple actors.

First, producing actionable scientific knowledge requires the commingling of experience, practice, and theory-mediated streams of actions. Although these are embodied in a single individual in the case of the scholar-practitioner, what clearly came out in our analysis was that these are different

sets of competencies based on different kinds of "know-that" and know-how. Gilbert Ryle (1949) distinguished between "know-that" (knowing about something) and know-how (knowing how to do something), both essential components of knowledge. In the case of the scholar-practitioner, theory-informed actions involve certain kinds of "know-that" (current literature, social science theory, principles of research design) and certain kinds of know-how (framing, designing, and analyzing a survey). Practice-mediated actions similarly invoke other kinds of "know-that" (contextual conventions, norms, rules, power relationships, routines, established procedures) and know-how (influencing, legitimizing, project management) that allow the scholar-practitioner to use these contextual conventions as enabling forces or, when required, to work around them. It is in this creative intersection of the two different types of competencies that the scholar-practitioner realizes theory-practice linkages and further uses them to make possible the dual outcomes associated with actionable scientific knowledge.

In designing collaborative research systems it is crucial that these different sets of know-how and "know-that" are well represented in the community of collaborative researchers. We see at least four different roles in collaborative research communities that invoke these different sets of competencies. First, there is a need for actors familiar with the particulars of the organization, specifically local theories of action including knowledge of organizational history, social dynamics, interpretive conventions, norms, and power relationships. Second, there is a need for a set of actors familiar with the universals or the larger scientific discourse pertaining to both theory and research who can bring forth an awareness of what is known and what needs to be known to advance knowledge from a research/knowledge point

Table 3.2 Strategies for Interrelating Theory and Practice

<i>Strategy</i>	<i>Relating Theory to Practice</i>	<i>Relating Practice to Theory</i>
<b>Framing:</b> A strategy employed to bound and structure an otherwise equivocal phenomenon in more concrete and precise terms	Using theory and research findings to frame and give direction to a broadly expressed change mandate from leadership as a potential solution to an organization crisis or a desired future state	Using a practically mediated opening to frame a theoretical niche, where a practical opportunity provides ideal conditions to test a theoretical model and/or develop new theory to answer a practical question
<b>Influencing and Legitimizing:</b> A strategy used to justify and convince relevant stakeholders that a concept, idea, model, or course of action was most appropriate for a situation	Using theory as a tool to influence and legitimize the need for a certain kind of practical action often garnered from a review of current literature around the topic of interest	Using the practical demands of a situation/context as a mediating tool to legitimize a certain kind of theoretically based action
<b>Sensemaking:</b> A reciprocal dynamic where theory is used as a tool to make sense of practice, and practice to make sense of theory	Using theory as a tool to make sense of practice, applying systematic principles in the assessment, diagnosis, and sensemaking preceding the implementation of interventions, and making sense of implementation experiences by drawing on a background of theoretical and research knowledge	Using practice experiences to re-inform theory, particularly recognizing anomalous experiences provided by the data that could not be explained by the current dominant theoretical framework and using them as opportunities to revise theory
<b>Demonstrating:</b> A strategy that commingles theory and practice elements to demonstrate impact and results	Using research-based quantitative and qualitative evidence to demonstrate that the organization project was successful in terms of achieving practical results—that there was a change in mindsets, behavior, or metrics of effectiveness such as ROI or profitability	Using practical business impacts to provide supporting evidence and legitimate the veracity of the theoretical model
<b>Turns:</b> A strategy of reframing that helps make a theoretical element more familiar, legitimate, and palatable to a practitioner audience by locating it within the community's systems of meaning	Turning the knowledge of current literature into information from best practices in the industry and other organizations, or turning representative sampling into a broader strategy for involvement of employees	
<b>Scaffolding:</b> A strategy that can be likened to a platform that helps in subsequent building activities	Including a theory-based platform at an earlier stage of a project that, while helping in guiding practice, also ensures subsequent theoretical outcomes in seeking to answer new research questions	Adding practical elements to a project that may exceed current practice needs but that will increase the subsequent odds of theoretical outcomes

of view. In the union of these two sets of actors, collaborative research communities can arrive at appropriate causal mechanisms that can move the system to its desired state enabling practical outcomes, while also elaborating scientific theory. Third, to put these causal pathways into motion, we need actors who enjoy credibility, legitimacy, and influence in the organizational system, particularly with top management and other relevant stakeholders. We see these actors as having deep practical knowledge of how to move these projects within the organization. A fourth and critical role involves actors who are adept at translating theory with respect to its practice implications and can frame practice contingencies in terms of their theoretical potentials, a role that we elaborate in the next section.

Our second implication is motivated by the observation that the majority of the cases began without a clear mandate to integrate theory and practice and yet each of them resulted in the delivery of actionable scientific knowledge. Thus, what transpired between the beginning and end is of significance given that it points to the active involvement of the scholar-practitioner in the creation and use of theory-practice linkages, a form of “expert practice” in and of itself. The scholar-practitioners were able to seamlessly integrate theory and practice, revealing a fair amount of dexterity in being able to sense opportunities for interrelating and act on them right away. The scholar-practitioners were able to turn potential theory mediators such as current literature into practice mediators by reframing them as best practices in order to legitimate them. The scholar-practitioners also engaged in scaffolding by creating a theoretical platform and using this tool to make sure that there would be a realization of future theory elements out of practice mediators, while also ensuring that the reframed theory mediators would lead to practice elements. The goal is

to create an agenda for pursuing theory and practice aims and to secure the organizational resources required to realize those aims, which in turn comes from an intimate familiarity with both the practical and theoretical contexts of the project. We believe collaborative research communities can benefit by including at least a few such members, who in addition to their valuable skills of integration can play the role of “semiotic brokers” and thus act as effective bridges between the research and practice contingents of the community. The particular skills of this role lie in translating between communities and locating concepts within the respective communities’ systems of meaning. In essence the role involves the ability to take theoretical elements and express them in terms that would be more familiar and legitimate to a practice-based community, while also taking practical contingencies and framing them for their theoretical and research possibilities to a research community.

Third, we found that one of the strongest functions of interrelating theory and practice was their role in mutual sensemaking. Theory was frequently used as a tool to make sense of practice, and practice elements mediated in making sense of theory. It was through this important reciprocal dynamic that outcomes of relevance to practice and theory were realized, and it is in facilitating these dynamics that we see the critical contribution of collaborative research systems. Further, we believe that collaborative research communities should deliberately structure such sensemaking forums to optimally draw on the strengths of the different sets of know-how and “know-that” represented in the community.

An excellent example of one such structure is provided by Mohrman, Gibson, and Mohrman (2001) in their depiction of joint interpretive forums that bring together scholars and practitioners in mutual pursuit of

useful research and practical outcomes. Set as forums to facilitate mutual perspective taking (Boland & Tenkasi, 1995), they are intended to bring together members of different communities to jointly reflect and interpret information. By enabling the surfacing of different knowledge structures, the parties can self-reflect on their own views of a situation, collectively reexamine it, and come away with altered and enhanced interpretations and perspectives. This mutual perspective-taking process that takes each other's viewpoints into account should facilitate each community to translate between, and at least partially

integrate, their own and the other's frameworks. In the context of a research project, sessions to craft the research effort to ensure that both a focal organization's and the researchers' issues are taken into account, sessions to jointly examine and interpret data patterns, and sessions in which the possible action implications of research findings are collectively drawn and discussed could be topics for deliberations (see Table 3.3).

A final and related implication is that in almost all of the cases we studied, the practice/business contingencies were the primary mediators of the project. The project would

**Table 3.3** Potential Roles for Collaborative Management Research Communities Seeking to Produce Actionable Scientific Knowledge by Interrelating Theory and Practice

<i>Roles</i>	<i>Knowledge and Skills</i>
Actors familiar with the <i>particulars</i> of the organization	Knowledge of local theories of action, including awareness of organizational history, insights into social dynamics, interpretive conventions, norms, and power relationships within the organization
Actors familiar with the <i>universals</i> or the larger scientific discourse pertaining to both theory and research	Knowledge of generalizable theories of action derived from mastery of theory and research in domains such as organizational behavior, organization theory, strategy, organizational development and change, and research methods, including qualitative, quantitative, and mixed
Actors who have <i>influence</i> in the organizational system to move projects within the organization	Understanding of how to build credibility and legitimacy with top management and relevant stakeholders and the skills to influence them; practical knowledge and skills to move projects toward completion within organizations
Actors who can play the role of <i>semiotic brokers</i> and act as effective bridges between the research and practice contingents of the collaborative management research community.	Skills in translating between communities and locating concepts and ideas from one community within the meaning systems of another; includes the ability to take elements of theory and express them in terms that would be more familiar and legitimate to a practice-based community, while also taking practical contingencies and framing them for their theoretical and research possibilities to a research community

have gone on without the inclusion of theory-based mediators had it not been for the agential involvement of the scholar-practitioner. Linkages were actively created, often inconspicuously, and nurtured and leveraged by the scholar-practitioner as the sole instigator. Aside from the fact that inclusion of theory-based elements advanced the practical aims of the organization, it also rose from their desire to create knowledge that could advance the causes of the larger scientific community. However, worthy of note is that the scholar-practitioners' primary access to the project and organization was as internal or external consultants. At least in the organizational contexts we pursued, consulting was seen as adding value to the organizations, because consulting was associated with solving practical problems faced by the organization, while research was construed as an abstract act far removed from practical realities. This observation holds a few implications for collaborative research communities that bring together practitioners from the inside and researchers/academics from the outside to create actionable scientific knowledge. Depending on the receptiveness of the organization to research, such collaborative research communities can propose an overt process of negotiation between scholars and practitioners to develop a shared agenda of investigating organizationally hot theoretical and practical issues such as exemplified in the table-tennis model of collaborative research of Adler and Shani (2001). In some contexts this may require targeted education of key managers in advance on the benefits of systematic research in creating desired organizational outcomes (while also advancing scientific outcomes) as well as on the unique strengths provided by a collaborative community of practitioners and academics in enabling these outcomes. In organizations with low receptivity to research, an alternative is to frame the collaborative enterprise between practitioners and researchers as predominantly a consulting

project and skillfully build in elements of theory and research in that background in a manner that does not compromise the practical needs of the organization (see Werr & Greiner, Chapter 5 in this volume). A caveat is that the organization should see these research by-products as legitimate, and the collaborative team should seek appropriate permissions for publications from the data. Of course the viability of this strategy will also depend on the organization's willingness to include academics as part of the project.

## CONCLUSION

Although our 2000-year-old legacy of separating theory from experience and knowledge from action has been traditionally associated with Aristotle (Parry, 2003), we have drawn attention to a second, albeit underrecognized, legacy of Aristotle, one that argues for the integration of the universals and particulars as the basis of true understanding and knowledge. We regard scholar-practitioners, another important focus of this chapter, as contemporary carriers of the Aristotelian second vision. Being familiar with the universals and the particulars, they are able to integrate this knowledge to produce consequential results for the organization and the larger scientific discourse by relying on six predominant strategies of integration. Had this second Aristotelian legacy received even some attention compared to the popularity of his first pronouncements, we would have potentially inherited an additional model of doing science, one that celebrates the union of theory, experience, and practice as the bedrock of useful knowledge. Nonetheless, we are increasingly evolving as a field in ways consistent with Aristotle's second legacy through research designs such as collaborative management research systems and roles such as scholar-practitioners and insider/outsider researchers. We look forward

to a future that delivers on the promise of theory-practice integration as we now knowingly

embrace and continue to refine the Aristotelian second legacy.

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## NOTES

1. Our gratitude to Kala Visvanathan for insightful and valuable comments on earlier versions of this chapter.

2. Sir Karl Popper, a world-renowned 20th-century philosopher of science, wrote an influential book, *The Logic of Scientific Discovery* (1972), which had considerable impact on the practice of both the natural and the social sciences. In this seminal work, Popper decries the value of learning from experiences because, in his view, experiences are inherently fallible as a source of true knowledge. He illustrates with a now-classic, much-quoted example why this is the case: Even a simple statement drawn from experience, such as “all swans are white, or all ravens are black, can be logically refuted by the observation of one swan that is black, or one raven that is white” (Chalmers, 1999, p. 60). Popper’s notion that experience is immaterial in deriving immanent knowledge about events and situations is aptly summarized in the following statement: “Because of the logical situation that renders the derivation of universal laws and theories from observations impossible, but the deduction of their falsity possible, falsifications [of theory] become the important landmarks, the striking achievements, the major growing points in science” (Chalmers, 1999, p. 61). Popper, instead of using experience as a basis of knowledge, suggests in its place the construction of theories and testing whether the theories hold or are falsified by experience. True to the Aristotelian first legacy, he believes that it is only carefully constructed theories derived from prior theories that can generate true scientific knowledge and, by implication, holds the scholar-scientist as the objective producer of knowledge.

3. Lev Vygotsky, an influential Soviet developmental psychologist, formulated *activity theory* as an antidualist solution to the crisis of psychology during the first decades of the 20th century. The cognitivists studied cognition as the activity of an autonomous agent independent of observed behavior. On the other hand, the behaviorist program was not as much concerned about mental processes; instead, behavior as manifested in action was the object of interest. Vygotsky formulated a new solution to transcend these two opposing but equally unsatisfactory explanations through his concept of mediated action (Vygotsky, 1978, p. 40). The concept of mediated action was based on the principle of unity and inseparability of consciousness and activity (Vygotsky, 1962, 1978). In its simplest terms, an *activity* is defined as the engagement of a subject toward a certain goal or objective, which is in turn determined by some kind of knowledge that serves as a tool to enable the activity. Tools can be *psychological*, such as language and symbol systems that include models, theories, frameworks, cognitive norms, standards, and object-hypotheses; *physical*, such as technical artifacts; and *social*, such as norms, contingencies, conventions, rules, routines, and established procedures. In a previous paper (Tenkasi & Hay, 2004), we point out that theory has often been equated with abstract ideas, laws, and principles that are removed from the realm of action, and in contrast, practice has been seen as the execution of actions with the goal of achieving something concrete. Drawing from activity theory, we suggest that instead of the traditional views in which practice is equated with action and theory with abstract thinking, we view them as different kinds of tools and resources that mediate different kinds of action. There are actions that are mediated by theoretical precepts and other actions that are mediated by contextual contingencies and conventions.

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