

Relevance and Rigor: Executive Education as a Lever in Shaping Practice and Research

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As professional schools, business schools aspire to couple research rigor with managerial relevance. There has been, however, a concern that business schools are increasingly uncoupled from practice and that business school research lacks real-world relevance. This relevance–rigor gap affects the quality of our teaching as well as the institutional legitimacy of our business schools. We argue that executive education is an underutilized context that can enhance the quality of faculty research as well as our impact on managerial practice. Using evaluation data from variations of a single executive education program, we find that action-learning programs significantly enhance both individual and organizational outcomes compared to traditional executive education formats. Action-learning programs also enhance our teaching and research efforts. Building on these results and experiences, we suggest that executive education in general, and action learning in particular, are fertile contexts where business schools can bridge the relevance–rigor gap.

THE RELEVANCE–RIGOR GAP: ON BUILDING MANAGERIAL WALKING STICKS

Professional schools in general and business schools in particular were founded on the premise that there is a positive relationship between research and practice (Simon, 1976; Khurana, Nohria, & Penrice, 2005). The delicate balance between practice and scholarship, so important at the founding of business schools within universities in the late 19th and early 20th centuries, was anchored on the notion that systematic study could

inform practice and that practice could, in turn, inform systematic study (Cruikshank, 1987). This synergy between practice and research was well articulated by Fritz Roethlisberger (1977). Building on John Dewey's notions of learning-by-doing and Kurt Lewin's (1951) observation that there is nothing as practical as good theory, Roethlisberger suggested that theory was like a walking stick. Well-developed theory could help managers more effectively make their way in rough strategic and organizational terrain. Roethlisberger also observed that interaction with the phenomena helped in the development of better walking sticks. The potential synergies between research and practice have more recently been emphasized by

We thank our colleagues Rakesh Khurana, Wendy Smith, Michael Beer, Donald Hambrick, Andrew Van de Ven, Deborah Ancona, and David Garvin for their help with this manuscript.

Lawrence (1992), Lawler, Mohrman, Mohrman, Ledford, and Cummings (1985), Van de Ven and Johnson (2006), and Weick (2004).

Yet several scholars have voiced concern that there may be an ever-widening gap between our research and the world of practice (Pfeffer & Fong, 2002; Pettigrew, 2001; Bennis & O'Toole, 2005). In this view, business schools are becoming decoupled from practice and from the institutions that hire their MBA students and send their executives. Their concern is that the fundamental aspiration of a balance between practice and research has shifted to either research decoupled from practice or practice uninformed by research (Hoffman, 2004; Pfeffer & Sutton, 2005; Starkey & Madan, 2001). If true, this disjuncture hurts our students, our research, and perhaps most fundamentally, threatens the legitimacy of our schools and associated professional societies (Bazerman, 2005; Hambrick, 1994; Quelch, 2005).

Emphasizing the gap between business school education and the problems faced by practicing managers, Pfeffer and Fong (2002) argue that our teaching methods and research are not relevant to either MBAs or executives. They claim that there is little added value for MBA students or for executive education participants. Indeed, Pfeffer and Fong (2002) observe that with all the resources spent on executive education there is little evidence that this investment has added value to either the participants or to their sponsoring firms. Similarly, Mintzberg (2004) and Bennis and O'Toole (2005) argue that business schools are becoming more and more irrelevant. They claim that business schools are teaching the wrong content with the wrong methods to the wrong students. These authors note that while our research may be rigorous, it also has little relevance. While some business school faculty have been critical of this disjuncture between our research, teaching, and practice, the more general business press has often been scathing (e.g., Micklethwait & Wooldridge, 1996; *Economist*, 2004).

Consistent with the literature on professionals retreating from practical relevance (e.g., Abbott, 1981), Hoffman (2004) argues that this disjuncture is manifest in the nature of the academic settings within which young scholars operate. He argues that the incentive system of our academy rewards faculty for research that is narrow in scope, distant from the phenomena studied, and published in academic journals that are opaque to practitioners. This overly academic research orientation is further associated with a teaching model that emphasizes the one-way transmission of content by faculty who lecture to passive MBAs and executives. This teaching style further isolates faculty

from our students and the phenomena we purport to study (Boyatzis, Cowen, Kolb, & Associates, 1995). Similarly, Tushman (2003) and Rynes, Bartunek, and Daft (2001) observe that while our research may yield valuable insights into a number of important managerial domains, business school faculty too often have remained either unable or uninterested in linking this research to practice. Thus, both business schools and our Academy collude in driving a wedge between research and practice.

The concern about the linkages between research and practice is not new. In 1959, the Gordon and Howell (1959) report called for increased linkages between business school research and managerial practice. Since then, others have also called for greater attention to applied research within business schools. In 1978, Susman and Evered (1978) claimed that the gap between faculty research and the world of practice had become a crisis. Every Academy of Management president since Donald Hambrick has noted the loss of relevance of our academy (e.g., Hambrick, 1994; Bartunek, 2003). Instead of the synergies hoped for by Roethlisberger, the boundaries between research and practice have become larger and more opaque rather than smaller and more permeable. These boundaries are a double loss since they hurt the quality and relevance of faculty research and teaching as well as prevent practitioners from taking advantage of business school research (Starkey & Madan, 2001; Pfeffer & Sutton, 2005).

But is the crisis as bad as the critics claim? Can relevance and rigor coexist productively within business schools? We explore the role of executive education in creating contexts where research is linked to real managerial issues and where faculty relationships with firms, in turn, enhance the quality of our research and teaching. Based on our executive education experiences over the past 20 years, we explore the impact of alternative executive education designs in shaping individual and organizational outcomes and on improving the course and quality of our research. We suggest that while traditional executive education designs may have modest impacts on managerial practice, action-learning designs are a powerful way to forge the type of relationships that mutually benefit practice and faculty research.¹ We suggest that executive education is an underleveraged mecha-

¹ In contrast to traditional lecture-oriented and/or case-based executive education programs, action-learning designs treat teaching as a discovery process built on the participants' active involvement in linking faculty content to their own issues. This learning-by-doing process puts a premium on the participants'

nism for business schools to enhance their impact on practice as well as improve their research and teaching.

BUSINESS SCHOOLS: RIGOR AND RELEVANCE

In order to fairly evaluate the contribution of business schools' research and impact on practice, we must first be clear about the role of professional schools in general, and business schools in particular. What, if anything, differentiates a business school (or a school of medicine or law) from conventional academic departments? To understand these differences we draw on insights from the history of science where there has long been a tension between "basic" and "applied" research (Stokes, 1997).

Donald Stokes, in his book *Pasteur's Quadrant* (1997), argued that the distinctions between so-called basic research—research performed without thought of practical ends, whose purpose is to develop general knowledge and an understanding of nature and its laws—and "applied" research—research performed in the service of some immediately applicable end—are both inaccurate and pernicious. They are inaccurate in that a careful examination of how science proceeds reveals that innovation almost always reflects a combination of basic and applied research. The distinction between basic and applied science is pernicious in that it promotes an artificial status hierarchy in which basic research is seen as superior to applied research.²

Instead, Stokes proposed that research be characterized by the joint goals of understanding and use. Drawing upon the history of science in general and Louis Pasteur's contribution in particular, Stokes developed the taxonomy shown in Figure 1 as a way to classify research programs. In this framework, research is categorized as to whether it is conducted in a quest for fundamental understanding and whether it is motivated by considerations of use. Stokes showed how some research was simply driven by a quest for understanding with no thought of specific use (e.g., Neils Bohr and the discovery of the structure of the atom). Other

		Considerations of Use	
		No	Yes
Quest for Fundamental Understanding	Yes	Pure Basic Research (Bohr)	Use-inspired Basic Research (Pasteur)
	No		Pure Applied Research (Edison)

FIGURE 1

Stokes' Quadrant Model of Scientific Research. Reprinted with permission from Donald E. Stokes. 1997. *Pasteur's Quadrant: Basic Science and Technological Innovation*, p. 73. Brookings Institution Press, Washington, DC.

research was undertaken simply to develop applied uses (e.g., Thomas Edison and the invention of the phonograph), while still other research proceeded with both a quest for fundamental understanding and a desire to apply the findings (e.g., Pasteur and the development of microbiology).

Stokes' (1997) classification scheme can be used to inform the debate about the role of business school research (see Figure 2). While conventional academic disciplines are typically about a quest for understanding (*rigor*) with little thought of use (*relevance*), business schools, and professional schools more generally, are about both—operating in Pasteur's Quadrant.³ If Stokes' taxonomy has merit, business school research should be judged by two distinct criteria: its external validity (the extent to which the theory matches the phenomenon studied) and internal validity (the extent to which the data fit the research question). Such research is fundamental in that it can have an important impact on the scholarship and it can be applied in practice (e.g., research in finance on the Capital Asset Pricing Model, Michael Porter's work on competitive strategy, Max Bazerman's work on decision making and systematic deviations from rationality, or Robert Kaplan's work on activity-based accounting). The fact that research is applied does not mean that it is not also basic.

diagnosis, active reflection and dialog, and action planning (Revans, 1982; Kolb & Kolb, 2005; Kuhn & Marsick, 2005).

² Stokes observes while initially useful for securing research funding after WWII, the distinction between basic and applied does not reflect how research is actually done. In an extensive study of the contributions of government-funded research, Stokes observed that: "Of the several hundred critical events in the development of 20 weapon systems, fewer than 1 in 10 could be traced to research of any kind and fewer than 1 in 100 to basic research untargated on defense needs" (Stokes, 1997: 55).

³ Consulting firms, unlike business schools, are focused on meeting clients' needs (*relevance*) but are less concerned with general theory building or carefully controlled research (*rigor*).

		Relevance (Considerations of Use)	
		No	Yes
Rigor (Quest for Fundamental Understanding)	Yes	Basic Disciplinary Research	Professional Schools / Business Schools
	No		Consulting Firms

FIGURE 2

Business School Research. Adapted with permission from Donald E. Stokes. 1997. *Pasteur's Quadrant: Basic Science and Technological Innovation*, p. 73. Brookings Institution Press: Washington, DC.

The fact that research is applied does not mean that it is not also basic.

Consistent with Mintzberg (2004) and Bennis and O'Toole's (2005) call for relevance and rigor and with Ghoshal's (2005) plea for faculty research that respects discovery-driven research as well as application-oriented research, Stokes' framework imposes high standards on faculty in professional schools. While the evaluation of rigor is straightforward in traditional academic domains (does the research meet the standards of peer review), the evaluation of professional school research is more complicated in that this assessment must attend to both academic rigor and practical relevance. Unlike traditional academic departments (e.g., economics, sociology, psychology) where faculty may pursue research without considerations of use, business school faculty, because of their role in a professional school, need to meet the joint requirements of rigor and relevance.

Underscoring these more complex standards, James March and John Reed (then chairman at Citibank) suggested that business school faculty should aspire to both research excellence and managerial impact (see Huff, 2000). March observed that the role of research is not to solve short-term problems, but to create fundamental insights that might shape managerial thinking and action. Reed noted that the role of researchers is to

step back from a set of individual observations and induce patterns that hold across settings. These induced patterns are the root of new theory that enriches our field as well as helps practicing managers. Similarly, Weick (1989, 2004) argued that theory and practice are coincident and that the researcher's role is to create distinctive content that helps practitioners take informed action.

To promote rigor and relevance, Van de Ven and Johnson (2006: 5) suggest the need for *engaged scholarship*. This form of scholarship is a collective exercise where academics and practitioners leverage their divergent perspectives to co-produce knowledge. Such co-production of knowledge is rooted in the reciprocal relations between knowing and doing—in the role of research in shaping practice and in practice shaping research. This problem-centered research process helps build more robust theory as partnering with reflective practitioners deepens our understanding of organizational phenomena. Engaged relationships with practitioners also helps faculty acquire data unavailable in more distant relationships (see also Barley, Meyer, & Gash, 1988; Brown & Duguid, 2000).

Building Better Walking Sticks: Executive Education as a Lost Opportunity

If rigor and relevance are important criteria for business school research, then executive education, with its more experienced students, becomes a useful crucible within which business school faculty can test the relevance of their research. Do managers relate to our research and can they apply its lessons? Executive education is a setting where practitioners come to campus to make a connection between our field's research and their own managerial challenges. Further, in these settings there is an opportunity to forge collaborative research–practice relations. This potential to couple research and practice is heightened in an era in which firms ask for greater returns from their executive education investment (e.g., Anderson, 2003; Conger & Xin, 2000).

Too often, however, this is an opportunity lost. Rather than taking advantage of this natural opportunity to collaborate, executive education is often a one-way, faculty-driven offering enacted as an economic transaction—an opportunity for faculty to earn extra income based on folk wisdom (Pearce, 2004). Executive education programs are typically built as products with modular components. Faculty routinely teach their material with limited linkage to other faculty or to practice. This standardized offering, typically taught with faculty

in control, results in less participant learning, stunted organizational impact, and distancing of faculty research distant from executive education participants (Pearce, 2004; Kolb & Kolb, 2005). Indeed, in our first 15 years in executive education work (across six major business schools), our research was largely decoupled from our executive education teaching. Our interactions with executives did little to inform our research and certainly did not assist our doctoral students. Our executive education efforts were largely independent from our research efforts.

The lack of focus in business school research on Stokes' "considerations of use" dimension accentuates the rigor-relevance gap and renders business school executive education at risk of disruption from alternative providers such as consulting firms and corporate universities (Christensen, 1997). However, if executive education were more tightly coupled to managerial issues, it could provide more impact for managers as well as greater faculty insight into the phenomena they study (e.g., Chatman, O'Reilly, & Chang, 2005). To explore the impacts of this approach, we report an evaluation of one executive education program (Leading Change and Organizational Renewal or LCOR) offered in a variety of formats.⁴ Using data from interviews with 64 participants, we assess the extent to which alternative LCOR designs were associated with individual learning, behavioral change, organizational change, and organizational results. Although this evaluation is of a single program and, as such, cannot shed light on the broader impact of executive education, it does permit us to explore the effects of alternative program designs on individual and organizational outcomes. We also illustrate the impact of alternative LCOR program designs on our research and teaching and that of our doctoral students.

Differential Impacts of Executive Education on Rigor and Relevance: The "Leading Change and Organizational Renewal" Program

Over the past 20 years we have experimented with different variants of Leading Change and Organizational Renewal (LCOR). This 1-week executive program focuses on innovation, executive leadership, culture, and leading change. The program presents research from our field as well as a meth-

odology for participants to apply these ideas.⁵ We have experimented with different modes of presenting this content to managerial audiences. We have had individuals attend LCOR with specific innovation challenges and have organized small groups to discuss common innovation and change issues. We have also experimented with encouraging teams to attend our 1-week open programs. We have had both senior teams as well as more junior ones in these programs. We encouraged these teams to come to LCOR with a specific innovation challenge they face.

We have also experimented with customizing LCOR. In custom programs we focus on a particular firm's specific innovation or performance issues. These custom programs were either education- or action-oriented. In the former, we focused our content around the firm's specific issues. For example in a World Bank custom program, we tailored the program content to relevant Bank issues. In action-oriented custom programs, we not only tailor the content to the client's particular issues, we also build in substantial time for participants to link this content to their issues in facilitated breakout sessions. These action-oriented LCOR workshops are sponsored by senior leaders, are problem-centered, team-based,⁶ and led by managers who own the problem. The firm's senior leadership is involved with us in the design and execution of the workshop. Since these action-oriented workshops involve senior teams, they are typically shorter than our open enrollment programs (5 vs. 3 days).⁷ These custom workshops usually involved multiple groups per firm. The action-oriented custom programs are not seen by the firm as traditional executive education, but are employed as a tool to leverage university-based research and faculty involvement in service of managerial problem solving.

These multiple types of LCOR are associated with two program design variables: the degree of customization (open enrollment vs. custom) and target audience (individual vs. teams). The teams

⁴ Over the past seven years we have offered open-enrollment LCOR programs at least three times per year either at HBS or Stanford. We have also done a range of custom LCOR programs on both campuses.

⁵ We employ a problem-solving methodology where participants articulate either performance or opportunity gaps early in the program (or in advance). We then employ the congruence model to get at the system-wide roots of these gaps (see Nadler & Tushman, 1997; Tushman & O'Reilly, 2002). Then, building these diagnoses and on further in-class content, we move to work on change in teams and leadership styles as well as leading integrated interventions.

⁶ These teams are either intact management teams or cross-functional teams depending on the issue.

⁷ While a day in our education-oriented custom program is typically 8:30–4:30pm, a day in an action-oriented custom program may go from 7:30 am to 10:30 pm.

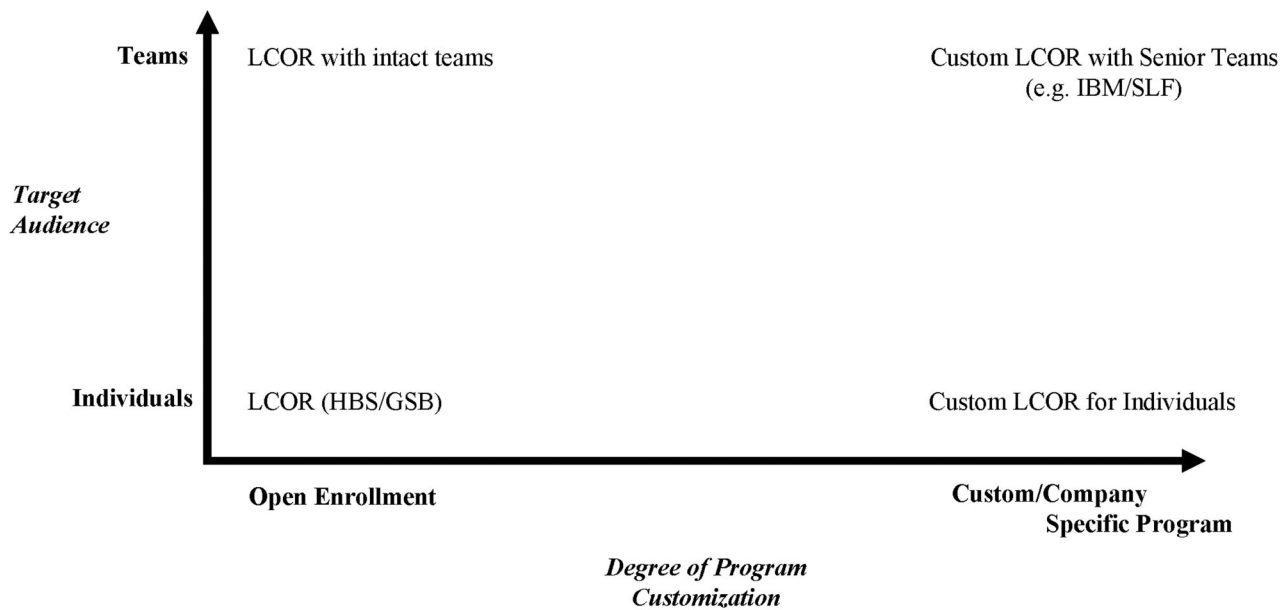


FIGURE 3
Alternative LCOR Designs

programs include both senior teams (the general manager and team) as well as teams without senior leaders. Where most traditional executive education is focused on open enrollment programs targeted to individuals, custom programs have a greater emphasis in linking program content to specific client issues. Action-learning LCOR designs are those where teams link program content to their own specific organizational issues (Revans, 1982). We have experimented with action-learning program designs in both our open enrollment and custom programs (see Figure 3).⁸

Our most accentuated action-learning program designs are custom programs for intact senior teams. For example, IBM has employed a custom version of LCOR as a tool to speed the linkage between business designs and execution. We collaborated with Bruce Harreld, IBM's senior vice president of Marketing and Strategy, and his colleagues to develop a 3.5 day workshop (called the Strategic Leadership Forums or SLF). During these workshops, faculty presented content on business design, organizational diagnosis, leadership, cul-

ture, innovation, and change for roughly half of each day. The rest of the workshop was spent in facilitated IBM teams. Harreld and his senior colleagues selected a set of firmwide issues and a corresponding set of teams to work on these issues. Senior IBM executives started each workshop, were present for the 3 days, and were involved in action planning and followup based on work done during the workshop (Harreld, O'Reilly, & Tushman, 2007).

These action-learning workshops at IBM were employed over a 4-year period. Each SLF workshop was designed to focus on either business unit problems or IBM's evolving corporate strategic agenda. These workshops helped IBM's senior leaders work on specific business challenges as well as identify common issues impeding innovation and execution across the corporation. As we learned about IBM and as IBM learned about this form of executive education, SLFs evolved from general management issues, to sector level issues, to more corporate level issues. In return for this long-term faculty involvement, IBM's senior leadership provided support and access for faculty and doctoral student research and case writing projects. While these research projects were distinct from our executive education work, the results of the research were reported back in subsequent SLFs. We have replicated these action-learning relationships with a range of firms including BOC, the United States Postal Service, DeLaRue, Siebel Systems, General Dynamics, BT, Irving Oil, and Agilent Technologies.

⁸ There is a large literature on action learning (Revans, 1982; Marsick and O'Neil, 1999). This learning mode couples traditional content driven learning with learning-by-doing. Action learning is rooted in real problem solving involving data gathering, active reflection, and action planning (Garvin, 2000; Kuhn and Marsick, 2005). The power of action-learning is that it engages the full range of participants' learning styles in service of individual learning as well as organizational problem solving (e.g., Kolb and Kolb, 2005; Boyatzis, Cowen, Kolb, and associates, 1995).

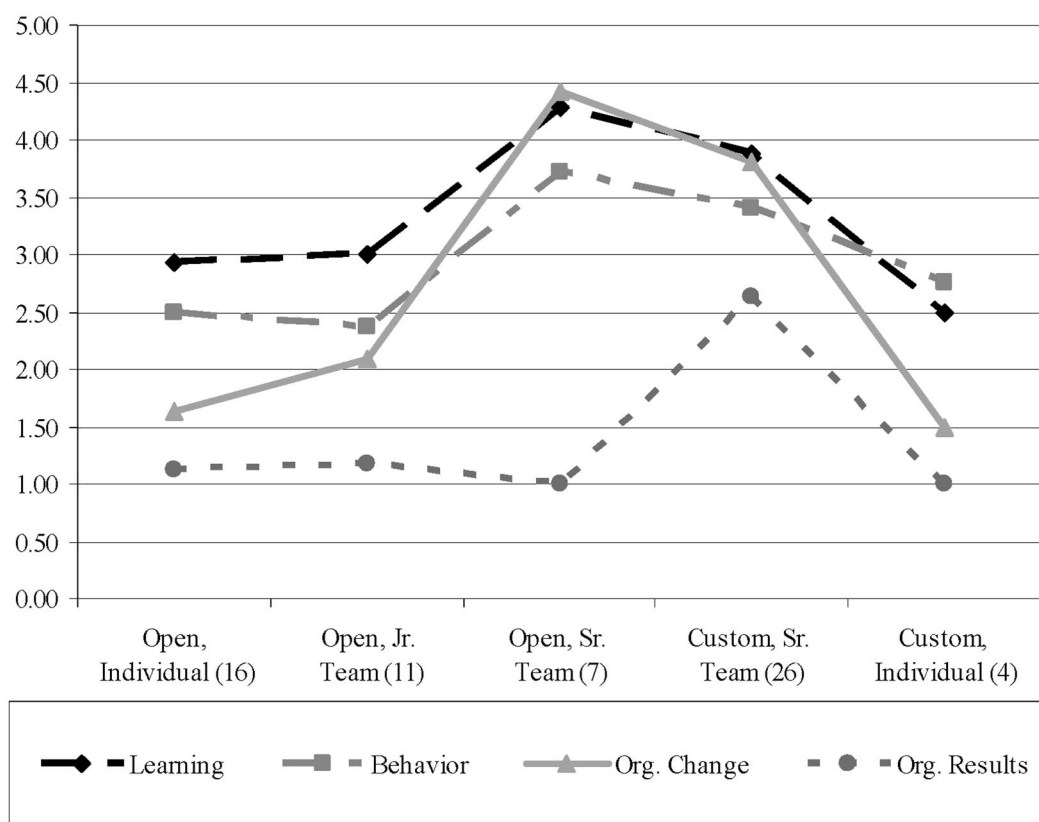


FIGURE 4
Mean Impact by Learning Context

LCOR's Impact on Individual and Organizational Outcomes

To explore the differential impacts of these LCOR variants, we gathered data on individual learning and individual behavior change as well as organizational outcomes. Holding the core content of our programs constant,⁹ we explored the extent to which customization or target audience affected individual and organizational outcomes. We explored the extent to which alternative LCOR designs affected outcomes over and above our traditional open-enrollment design. We interviewed 64 participants from our HBS and Stanford LCOR programs. These individuals were from 31 organizations ranging from for-profit to not-for-profit, from large, global firms to small, regional firms. In the patterns we report below, there are no differences in results by either type or size of firm. Forty eight interviewees attended LCOR as members of teams (from 15 orga-

nizations) while 16 attended as individuals.¹⁰

We built on Kirkpatrick's (1996) framework for evaluating training outcomes. In addition to gathering behavioral data on individual learning and individual behavioral changes at work, we also assessed the extent to which participants' LCOR experiences were associated with organizational changes or organizational results. In order to get as behavioral as possible, we asked respondents to give us concrete examples of individual learning, behavioral changes, organizational changes and organizational results associated with LCOR (see Appendix 1). All interviews were transcribed and coded on 1 to 5 scales (see Appendix 2 for more detail on our interview schedule). There was substantial variability on each scale (see descriptive statistics in Appendix 3).¹¹

⁹ All our LCOR programs included content on the congruence model, culture, strategic innovation and organization evolution, organization designs for exploitation and exploration, executive leadership, and leading change.

¹⁰ Amy Fenollosa, a masters student in education, conducted the interviews and Adam Kleinbaum, a DBA student, performed the data analysis. Respondents were selected based on faculty and staff recommendations of those participants who might be insightful on those factors that affect impact.

¹¹ Our interviews were conducted between 6 months and 1.5 years after attending an LCOR program.

We report the impact of different variants of LCOR on individual and organizational outcomes in Figure 4. Although traditional LCOR public programs (open enrollment with individual participants) did affect individual learning and behavioral change (2.96 and 2.44, respectively), this version of the program showed limited impact on both organizational change and organizational outcomes (1.81 and 1.14, respectively). Similarly, teams of lower level participants attending open-enrollment programs showed no significant impact on individual or organizational outcomes over and above our traditional open-enrollment program. It appears that teams working their own issues without senior leadership involvement are not associated with organizational impacts beyond that of individuals attending on their own. In neither of the open-enrollment formats was there any substantive impact on organizational outcomes. While these open-enrollment programs did affect individual learning and behavioral change, these individual outcomes did not, in turn, have any reported impact on organizational outcomes.

In contrast, in open-enrollment programs, senior teams working together on a relevant organizational issue was associated with significantly enhanced individual learning (4.29), individual behavior change (3.71), and organizational change (4.43) beyond levels found in our individual oriented open-enrollment programs. Working in senior teams significantly enhanced an individual's ability to learn and, in turn, try new behaviors back at work. Further, these senior teams were better able to transfer classroom learning to their firms than individuals or lower level teams. This transfer, however, did not result in measurably better organizational results beyond those found in our open enrollment programs (1.00).¹²

Of all the design variants, the one with the greatest impact on both individual and organizational outcomes was custom programs involving senior teams (e.g., IBM's SLF). Even though these LCOR designs were shorter in duration than our public programs (3.5 vs. 5 days), they had significantly higher individual learning (3.88) and behavioral changes (3.40) compared to individual-oriented open-enrollment programs. Further, these custom workshops had significantly higher organizational changes (3.81) and organizational results (2.64) compared to open-enrollment programs. Indeed, custom programs with senior teams had the same

levels of individual learning and organizational changes as the open-enrollment senior team programs, but also had significantly greater impacts on organizational results than our open-enrollment-senior team programs. In contrast, the LCOR design with the lowest impact was a custom program for individuals. This LCOR design was associated with significantly less organizational impact compared to senior team custom programs and was also associated with less individual learning compared to our public LCOR programs.¹³

The most effective form of action learning, where senior teams come to campus to work on their strategic issues with professional group facilitation (provided by the firm's staff or trained doctoral students), had the most significant impacts across all individual and organizational outcomes. Senior teams working their own issues, informed by faculty research, had important impacts on both managerial learning and practice. In sharp contrast, custom programs targeted to individuals had no differential impact over and above our individually oriented public programs. It appears that custom programs derive their increased value from senior teams actively working with intact teams on pressing strategic issues. In contrast, there may be mixed messages when firms sponsor custom programs that are either uncoupled from action or the firm's leadership team.

While these data are constrained by our limited sample, they do suggest that the degree of customization and the use of senior teams affect LCOR's impact on practice. Senior team participation had a significant positive impact on both organizational as well as individual outcomes. In settings where senior teams go offsite to work on their strategic issues supported by faculty content and professional facilitation, individual learning is enhanced and attention to executing change based on the workshop is increased. When senior teams participate and their senior leadership is involved in the design of the custom program, individual outcomes are maintained even as the organizational changes and organizational outcomes are significantly enhanced. In contrast, having senior leaders in a custom program fo-

¹² We also used multiple regressions to explore the effects of custom programs and junior or senior teams on individual and organizational outcomes. These regression results are the same as those discussed for Table 1.

¹³ While we have worked on several custom programs oriented to individuals, we were able to get data on only one of these LCOR designs. While these results may be idiosyncratic to this firm, our experience is that these designs are the most frustrating for participants in that their senior leaders, in delegating these programs to their subordinates, were often out of touch with the workshop and the associated discussions. Further, participants felt that as individuals their ability to initiate organization-wide changes were limited.

cused on individual education had the lowest impact on individual and organizational outcomes. It seems that it is the coupling of senior teams with an action-oriented format that is associated with enhanced individual learning as well as greater organizational change.^{14,15}

These results are consistent with the research on learning (e.g., Kolb & Kolb, 2005; Boyatzis et al., 1995; Ely & Thomas, 2001) and action learning (Kuhn & Marsick, 2005). Designs that are team-based, problem-focused, and informed by research-based content and dispassionate facilitation trigger a range of learning modes. These multiple learning modes, in turn, are associated with enhanced individual learning and team problem solving (Mainemelis, Boyatzis, & Kolb, 2002). In contrast to traditional lecture-oriented executive education programs, action-learning designs treat teaching as a process rooted in conversations between engaged faculty and participants on issues crucial to participants. These conversations link theory, concepts, and cases to those managerial issues through team-based problem definition, diagnosis, reflection, and action planning (Kolb, 1984). Individual learning and organizational outcomes are further accentuated in custom program settings when a firm's senior leadership is involved in the program's design and execution.

Factors That Affect LCOR's Impact

Of the various LCOR designs, the senior team-custom design had the greatest impact on both individual learning and organizational outcomes. But not all LCOR designs were equally effective.

¹⁴ Note that these data at the business unit level of analysis undervalue the impact of these action-learning workshops on corporate-level outcomes. As multiple business units do their diagnoses on impediments to innovation and/or change, themes emerge across business units. These themes provide data for the corporate leadership team to take organization-wide action.

¹⁵ We make no claim that any of the outcomes were caused by the different formats of the program. As we have argued, while senior team involvement in planning, executing, and following up is a critical determinant of the workshop's success, this senior team support may also be associated with a participant's choice of program format in the first place. For example, it would be reasonable to expect that when a firm's senior leaders work closely with faculty to design a customized action-learning program, as IBM's Harreld did for the SLF, they will be more strongly supportive of the learning agenda than in the case of an individual attending an open enrollment program. Because of the endogeneity of the underlying level of senior team support in self-selection into different program formats, we are careful to only claim that action learning is associated with individual and organizational outcomes.

Why were some designs more effective than others? To further explore the determinants of LCOR's impact on practice, we identified those senior team or custom programs that had a significant impact on organizational outcomes versus those that did not. We then returned to our interviews and induced those factors that helped or impeded the linkage between LCOR program designs and organizational outcomes.¹⁶ Five themes emerged from these interviews (see Figure 5).

Senior Team Involvement and Sustained Commitment. Participants reported that in high impact LCOR designs, the senior leader, along with the team, were involved in the program's design, the selection of the strategic issues, and the choice of teams to attend the program. These leaders used LCOR not as an executive education event but rather as a part of their larger change initiative. These executives were not only involved in the program's customization, but also they participated in the program's opening, feedback sessions, and closing. Such involvement sent clear signals that the issues were strategic and that LCOR was an important step in actively working the issue. For example, Brian Monkhouse, COO of Irving Oil, and Rick Horton, general manager of IBM Canada were actively involved in the design and execution of their LCOR workshops. In contrast, in all low impact workshops, the senior leaders delegated the program's design or delivery.

Team Selection, Composition, and Accountability. Action-oriented LCOR workshops are composed of teams, each of which works on a particular strategic challenge. Teams composed of relevant and knowledgeable stakeholders had, predictably, greater impact than teams that came with either unclear charters or than teams that had either missing expertise or individuals too junior to affect change. The best teams had a clear business owner—an individual responsible for taking action based on work done during the program. Less effective teams were those where the participants were given a strategic challenge by senior management but whose composition included individuals who either had no clear ownership or no direct knowledge of the issue.

Team Involvement and Commitment: Pre-Workshop. In the most successful LCOR workshops, teams made substantial investment in problem definition, data gathering, and fact finding prior to their arrival on campus. This prework often in-

¹⁶ We categorized 9 custom programs and/or senior team open enrollment programs into those that had substantial impact on practice versus those that had modest or low impact.

Team Involvement and Commitment: Pre-LCOR	Shared Interaction, Facilitated Application, & Physical Displacement: During LCOR		Follow up: Post LCOR
<ul style="list-style-type: none"> • Energy & commitment to pre-work and identifying gap • Level of involvement in determining organizational challenge • Team meetings prior to workshop 	Lecture and Breakouts <ul style="list-style-type: none"> • Attendance as an intact team • Action learning: the balance of content and application during class time • Academic environment establishes tone of course 	Facilitators <ul style="list-style-type: none"> • Knowledgeable about LCOR content, know gap, organizational issues and participants • Willing to tackle difficult issues • Keep on track, but allow the team to guide discussion 	<ul style="list-style-type: none"> • Speed of implementation • Assigned accountability • Structured follow-up • Shared learning

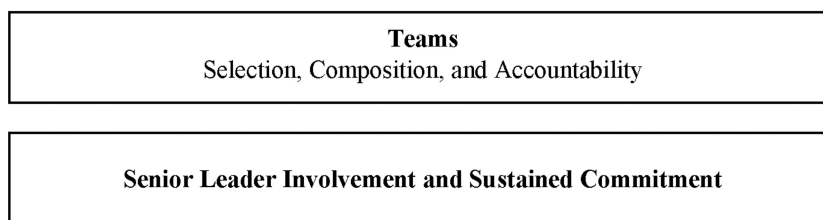


FIGURE 5
Factors Affecting Action Learning's Impact

volved interacting with their senior leadership. These prework efforts helped the teams ground their issues and better understand the nature of the strategic challenge posed by senior leadership. It also allowed the team to shape the nature of the issue. This prework increased the teams' ownership of the challenge and increased their motivation to work the issue. Not engaging in these activities prior to LCOR was associated with less prepared, less motivated, and in turn, less effective LCOR experiences.

Shared Interactions, Facilitated Application, and Physical Displacement: During Workshop. In these senior team or custom programs we tailored the content to a firm's particular issues, and substantially more time was devoted to direct application of faculty content to the participants' issues. For instance, in open-enrollment versions of LCOR 6 hours were devoted to group work applications over 5 days. In contrast, in the custom and senior team workshops there were roughly 17 hours in working groups and plenary sessions and 17 hours in content sessions over 3 days. Because so much learning occurs through interaction in the plenary sessions, in breakout groups, and informally over coffee and meals, the physical context of these

workshops had an important impact on workshop outcomes. The more successful action-learning workshops were held in settings where formal and informal interactions were helped by the context's physical design and architecture. The most effective sessions were held on campus. Less successful workshops were held in company or public conference centers.

With so much time spent in work groups, the impact of these LCOR workshops was contingent on the quality of the facilitators. Our interviewees observed that effective facilitators took an active interest in the group's work issue and helped the group internalize LCOR's content and process. Effective facilitators were willing to observe and work through difficult team issues, were able to engage and build credibility with the team and business owner, and were able to help the team reach closure in tightly scheduled workshops. It does not appear that facilitators needed to be intimately familiar with their team's substantive work issue to be effective.

These intense action-learning workshops involved both psychological and physical displacement. These displacements helped individuals and teams to be more dispassionate, more cre-

ative, and less constrained by parochial interests. The physical disruption involved leaving the work setting and going to a university campus. Campus settings help trigger an openness to learning not easily found in corporate settings. The psychological displacement occurred as faculty model a rigorous problem-solving methodology and present research on the difficulties of creating dynamic capabilities and leading change. These methodologies and data are experienced as jarring. By analogy, participants quickly make connections to their own settings. This unfreezing is bolstered as teams see their senior leaders focus and frame the issues at the workshop. These displacements create the openness and frame of mind for individuals and teams to actively engage in learning and problem solving. This real-time problem-solving approach treats learning not as a faculty-led process, but rather as a process facilitated by faculty and characterized by team-based conversations, thinking, feeling, and action (Kolb, 1984).

Campus settings help trigger an openness to learning not easily found in corporate settings.

Finally, in these workshops participants learn and practice a shared language and leadership model, develop a common diagnosis of their issue's roots, and commit to a set of next steps. Senior team support and active involvement during these workshops along with this common language, shared cognitions, and common intense experience provide the energy and shared commitments to take LCOR's content, process, and proposed next steps from campus to practice (see also Sull's, 2005, work on the power of shared commitments).

Follow Up: Post Workshop. An important discriminating factor between effective and less effective LCOR workshops were the set of follow-up activities. The most successful LCOR designs had a set of common actions both immediately after the workshop and then at regular intervals over time. First, an individual was assigned to follow up on decisions made during the program. This individual owned the change effort and reported to the leadership team. Second, the senior leader made LCOR follow up part of his or her strategic agenda. For example at Irving Oil, one general manager assigned his most influential high potential leader to the role of internal change executive. This executive gathered data on the progress of the several teams and reported regularly to general manager's

team. At Agilent, action plans were incorporated into the quarterly review process. Finally, the most successful workshops were those where the learning from the workshop was cascaded into the organization by executives who taught others what they had learned on campus. Consistent with Tichy and Sherman's (1993) work on leaders as teachers, this sharing of learning was a powerful way to leverage the work done at LCOR.

Our interviews made clear those design factors that discriminated between more versus less effective workshops. Those LCOR programs that had senior team involvement in the design and team selection, that had senior team involvement during the program itself, that had teams involved in data gathering prior to the workshop, that had active and engaged facilitators, that were conducted on campus and away from the normal work setting, and had structured follow up with leaders as teachers, had greater impact than those workshops with any one of these factors missing. One measure of the effectiveness of this action-learning design was that in many cases senior leaders came to multiple LCOR workshops, either with the same team dealing with new issues or with different teams. Indeed, one IBM executive came to seven workshops, either as a leader of a team or as a team member.

From these experiences with multiple variants of LCOR, it appears that it is possible to design executive education programs that directly couple research to practice. Under a clear and replicable set of conditions, LCOR workshops effectively link academic models and research findings to real managerial challenges. These programs help teams develop shared understandings and more complex cognitive models of their organizations. These more complex cognitive models help foster intense discussions as teams grapple with their own issues and, in turn, take data-driven, research-informed, integrated actions.

LCOR's Impact on Our Research and Teaching

If executive education, particularly in the form of action learning, does have an impact on practice, do these engagements have an impact on faculty research and teaching? Do faculty and business schools benefit from these relationships over and above teaching credits and executive education revenues? While the impact of executive education on faculty research and teaching is difficult to capture, we can speak directly to the impact of LCOR on our research and teaching and that of our doctoral students.

Our most productive executive education rela-

tionships have been based on cocreating contexts that facilitate action learning for firms as well as research opportunities for us and our doctoral students. For example our relationship with IBM was premised on the idea that in return for our commitment to the program, IBM would provide a setting for our research and that of our doctoral students. Our relationship was based, from the beginning, on respect for both practice and research. We needed to link our content to their issues, and they supported our need to conduct our own research, even if it did not have relevance for IBM. Establishing these long-term relationships helped us establish credibility and trust within the firm. These relationships, in turn, permitted more substantive conversations with participants. These conversations and associated managerial feedback helped shape our understanding of a set of research topics related to innovation, culture, organization design, leadership, and change.

These long-term relationships with thoughtful practitioners helped shape the nature of our evolving research agendas. As researchers, we continually were asked questions that either we could not answer or would not have asked on our own. For example, discussions with BOC executives revealed that while managing innovation is important, of greater concern was the leadership and organizational challenges required in leading streams of innovation. Similarly, executives at IBM and Agilent pushed us to think more deeply about the organizational designs needed to host both incremental and discontinuous innovation, including the cultural challenges associated with these efforts. Conversations at Agilent and IBM raised the hypothesis that working on TQM efforts might diminish the organization's ability to pursue more radical innovation. More recently, teams at IBM have asked us if it were possible for a single senior team to encourage exploration as well as exploitation and under what conditions might divisions of large, decentralized firms collaborate. These conversations fundamentally shaped our understanding of organizations and, in turn, shaped a set of research questions that reflected the reality of innovation in organizations that is not well articulated in the literature.

Long-term relationships with firms that respect faculty research are also associated with extraordinary access to data. We found that once managers trusted us and understood the nature of our research, they were often quite motivated to help arrange access to unique, hard to replicate databases. For example, Mary Benner got access to a range of IBM manufacturing facilities, Wendy Smith gained access to senior team meetings over

time, and Adam Kleinbaum has gained access to extraordinary data on social networks in service of interdivisional innovation (see Benner & Tushman, 2002; Smith & Tushman, 2005; and Kleinbaum & Tushman, 2006). This level of doctoral student access helped us to gather more reliable and valid data than we might have gathered without such executive research support (see also Amabile et al., 2001; Rynes, McNatt, & Bretz., 1999). Finally, as doctoral students attended workshops and worked as facilitators, they learned about the phenomena, received feedback from managers on their ideas, and built relationships for subsequent research access.

These long-term relationships have also permitted us to innovate in our MBA and executive education teaching. We have developed multiple case studies for our MBA courses and executive education programs that are either rooted in a teaching need (e.g., leading change) or are related to an emerging teaching topic (e.g., building ambidextrous designs). As we have developed these collaborative relations, we have been able to tie several of the cases to videos, class visits from executives, and access for student project teams. Finally, relations with these firms have helped other faculty colleagues gain access to research sites and data. While we do not know if we could have been more productive as scholars and teachers without these action-learning experiences, we do know that our research questions would have been less interesting, our insights less veridical, and our data-gathering efforts more challenging. As scholars and teachers, we would simply know less about the phenomena of innovation, culture, organization design, leadership, and change had it not been for these engaged relationships.

Finally, our work on action-learning workshops at HBS and Stanford are not unique either to us or to our universities. For example, at MIT, Deborah Ancona has been involved in a long-term collaborative relationship with BP. This MIT-BP program is codesigned by MIT faculty and BP executives. These multiweek workshops are targeted to real BP strategic challenges even as Ancona and her colleagues pursue their work on interdisciplinary innovation and sense-making processes. At the University of Minnesota, Andy Van de Ven has worked collaboratively with leaders from Minnesota's Office of Early Childhood Development and the Leonard Davis Health Care Center on their evaluation efforts even as he worked on his own research on evaluation processes and innovation dynamics. Maggie Neale, also at Stanford, has consistently leveraged her executive education work with her research. She described how in ob-

serving executives in negotiation exercises she was struck at how often they chose not to compromise in ways that the theory suggested. This led her to wonder if the theory, which was based on an assumption of linear payoffs, might be wrong and that some payoff functions could be nonlinear. This led her and her coauthors to confirm that in some circumstances where the payoff is nonlinear, a failure to compromise could be a rational response (Northcraft, Brodt, & Neale, 1995).

Similarly, Ranjay Gulati at Northwestern and Robert Burgelman at Stanford have actively leveraged their custom executive education in service of their work on organization boundaries, designs for innovation, and strategic change. At IMD and at INSEAD, Bala Chakravathy and Yves Doz have extended their research on strategy and competitive dynamics based on their work in custom executive education programs. More generally, this mode of action-oriented executive education is based on faculty taking practice seriously and a firm's commitment to host faculty research. Such synergistic relations help create engaged scholars as well as engaged scholarship (Van de Ven & Johnson, 2004).

Pasteur's Quadrant: Executive Education as a Lever in Shaping Practice and Research

As Stokes (1997) and others have suggested, rigor and relevance need not be separate. Just as re-

search can affect practice, so can the world of practice affect our research. As faculty in business schools, our research should be driven not only by a quest for fundamental understanding but also for considerations of use. Unlike our colleagues in disciplinary departments who have no requirement to consider the applications of their research, business school researchers operate in Pasteur's Quadrant and should be held to a higher standard. We believe that this form of engaged scholarship, where faculty and thoughtful practitioners co-produce knowledge and practice is both undervalued and underleveraged within business schools and in the larger academy (Van de Ven & Johnson, 2006). Our experience, and that of many of our colleagues, is that action-learning programs provide one concrete mechanism to help increase the rigor and relevance of business school research. Our experience has been that the relations between business schools and thoughtful firms have the potential to create virtuous cycles of knowing and doing.

Unlike our colleagues in disciplinary departments who have no requirement to consider the applications of their research, business school researchers operate in Pasteur's Quadrant and should be held to a higher standard.

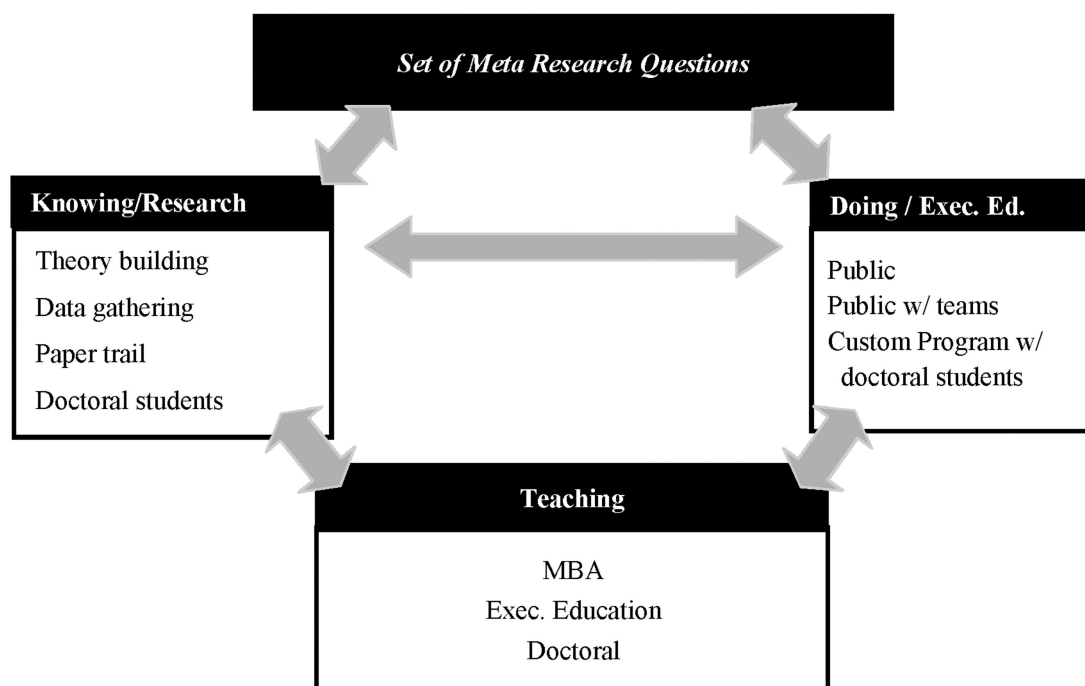


FIGURE 6
Knowing/Doing Cycles Affect Research, Practice, and Teaching

Figure 6 provides an illustration of this cycle. Our research has been characterized by a broad set of theoretical questions about how organizations evolve (e.g., the effects of technical change on organizations, culture as a source of competitive advantage or disadvantage, and how leaders promote streams of innovation). Specific research findings in these domains (knowing) have been incorporated into our executive teaching and subjected to criticism and refinement by executives wrestling with these issues (doing). This feedback has helped us refine our theories and research, conduct additional studies with the help of engaged practitioners, and has provided more veridical results—a virtuous cycle based on action learning (see also Kaplan, 1998). Both the enhanced quality of our research and our greater understanding of practice, in turn, increase our effectiveness in the classroom. We believe that we are better teachers as a consequence of being engaged researchers. Executive education, then, provides a setting where faculty can make the knowing–doing link (Pfeffer & Sutton, 2000). It is at this interface where Roethlisberger's walking sticks might be most fruitfully developed.

The use of action learning by business schools is not new. European business schools have a tradition of linking their teaching to practice (Antunes & Thomas, 2006). Further, similar approaches have been used by companies (e.g., GE's workout, the U.S. Army's after-action reviews, and IBM's ACT), and consulting firms (e.g., Argyris & Schon, 1996; Beer, 2001; Garvin, 2000; Tichy & Sherman, 1993; Ulrich, Kerr, & Asheknas, 2002). What is different about action-learning workshops hosted within business schools is the emphasis on generating fresh concepts and subjecting these concepts to rigorous research as well skeptical managers. While consulting firms generate ideas, they are less motivated to subject these ideas to rigorous testing. Action-learning workshops position business schools to operate in Pasteur's Quadrant; to be able to excel in research-based insight as well as practical impact.

While we believe that action-oriented executive education is an underleveraged opportunity for business schools, there are important boundary concerns that these designs raise. These engaged relationships threaten the boundary between impartial research and research biased by short-term managerial needs (Kaplan, 1998; McKelvey, 2006; Kimberly, *in press*). For unbiased research to flourish in action-oriented relationships, faculty must own the research questions as well as own the data to answer them. To the extent that the firm defines the problem and controls the data, or if the

research is a consulting assignment, the quality of the research is compromised. If faculty do not pay attention to this boundary, if they are co-opted by the sponsoring firm, the quality of the research will suffer (e.g., Hinings & Greenwood, 2002; Brief, 2000; Bok, 2003). In Bartunek's (2002) phrasing, faculty must be "in the firms, not of the firms." Action-learning workshops must not be confused with faculty consulting. Rather, action-learning workshops are managed by executive education staff in which faculty present and facilitate work groups. More applied work is either done by the firm, by other consulting firms, or by faculty engaged separately as independent consultants.

While these firm–university boundary issues are important to keep clear, there are also boundary issues within business schools in effectively executing traditional as well as action-learning executive education offerings. The collaborative and custom action-learning workshops should not be confounded with the more traditional executive education programs. Action-learning workshops cannot be managed or taught as if they were traditional executive education offerings. Action-learning workshops are by design intense, integrated programs that require extensive pre-work and flexible administration during the sessions and often afterward. Faculty must be willing to translate their research in a fashion that is helpful in problem solving, to make linkages across faculty content areas, and to get involved in facilitating the participants' use of their material. Faculty must teach for transfer (Perkins & Salomon, 1988; Lim & Johnson, 2002). Further, because the work in action-learning workshops occurs both in the content sessions as well as in breakouts, faculty must be willing to be fully engaged in both the classroom and in breakout settings. Finally, as these programs are likely to advantage more senior faculty members, it is important that senior faculty mentor junior colleagues in these content and process skills.

While action-oriented executive education designs are associated with a set of issues and concerns, they are a vehicle that promises to bridge the divide between our research and the world of practice—between rigor and relevance. This form of executive education complements traditional executive education formats. Firms want more customization, and our field has generated enormous knowledge that can shape managerial practice (e.g., Pfeffer & Sutton, 2005). Executive education program designs that emphasize teaching for use have particularly high leverage for firms and faculty. With this leverage also comes the opportunity for increased insight and better research. While

there are real boundary and administrative issues to be resolved, our experience suggests that executive education in general, and action-learning workshops in particular, have the potential to move business schools more firmly into Pasteur's Quadrant of rigor and relevance and in building Roethlisberger's managerial walking sticks—powerful theories and fundamental ideas that impact practice.

2. Minimal organizational impact (attributes some change to LCOR, but minimal quantifiable differences)
3. Some organizational impact attributable to LCOR (established new customers, new services, new revenue accounts, etc.)
4. Significant organizational impact attributable to LCOR (moderate growth)
5. Major organizational impact (e.g. specifically attributes revenue generated, with figures, to LCOR)

Appendix 1

ASSESSING IMPACT (KIRKPATRICK, 1996)

Individual Learning:

1. No evidence of learning
2. Can recall course terms, but little evidence of comprehension or application
3. Can recall course terms, describes some application
4. Fluently uses course terms in conversation; describes application clearly
5. Fluently uses course terms, describes application, and has taught the methodology to others

Individual Behavior Change:

1. No evidence of behavior change
2. Describes minimal changes in work style, reluctant to attribute them to LCOR
3. Describes a shift in overall strategic or problem-solving approach
4. Confidently discusses a new approach to work from LCOR learning
5. Describes (with examples) specifically how his/her behavior has changed as a result of this class

Organizational Change:

1. No change
2. Minimal organizational change (e.g.: using a common language)
3. Some organizational change attributable to LCOR (e.g.: collaboration among teams, improved communication, etc.)
4. Significant organizational change attributable to LCOR (e.g.: focus on execution, new accountability, working toward new strategy implementation)
5. Major organizational change (e.g.: implemented new strategy, new reporting structure, new metrics, etc.)

Organizational Results:

1. No impact

Appendix 2

INTERVIEW SCHEDULE

1. Motivation (why did you attend)

- a. Was it an organizational initiative or a personal decision?
- b. What were your expectations for the course?

2. Preparation (what did you do before attending)

- a. Pework? What did you get, what did you do?
- b. Did the work familiarize you with LCOR concepts before attending the course?
- c. Did you have a particular organizational dilemma in mind? A personal challenge to overcome?
- d. How did you arrive at the challenge?
- e. Were you involved in defining the challenge?
- f. Did you discuss the challenges with colleagues before you attended?

3. Application (what have you done since you attended the course)

- a. Have you used the LCOR methodology?
- b. Please describe how you've used it.
- c. If relevant, give an example of a change initiative that you're tackling.
- d. Have you shared the concepts with others?
- e. If so, in what way? (e.g., informal discussions, meetings, presentations).
- f. Have you used the CD-ROMS to share the LCOR methodology? How?

• Learning (assess their knowledge)

1. Can you describe the model as you apply it?
2. Have you considered the Congruence Model since you returned?
Have you tried to share the structure with others?
3. How do you use the framework? (meetings, strategy, change initiatives)

● Behavior Change/Transfer (have they applied knowledge)

1. Have you done anything differently since you completed LCOR?
2. Can you describe what/how?
3. Have you approached change initiatives differently? Can you describe an example?
4. Have you created a formal or informal team responsible for the implementation of Leading Change and Organizational Renewal? If so, details.
5. Do you have a structured follow-up system?

● Results (describe the individual, team, and organizational impact)

Appendix 3

DESCRIPTIVE STATISTICS

Data Results	Mean	Standard Deviation	Range
Individual Learning	3.44	0.96	2 through 5
Individual Behavior Change	2.98	1.08	1 through 5
Organizational Change	2.89	1.44	1 through 5
Organizational Results	1.71	1.14	1 through 5
N = 64			

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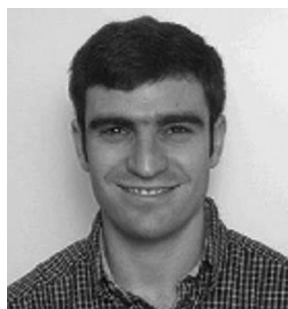
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