

ACADEMIC-PRACTITIONER COLLABORATION IN MANAGEMENT RESEARCH: A CASE OF CROSS-PROFESSION COLLABORATION

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We present a case of academic-practitioner research collaboration to illuminate three potential determinants of the success of such cross-profession collaborations: collaborative team characteristics, collaboration environment characteristics, and collaboration processes. The case study, drawing on both qualitative and quantitative data, illustrates the possible influences of these determinants on research progress, research team functioning, and benefits to individual team members. We identify directions for further work and implications for effective academic-practitioner collaborations in management research.

The premise of this article, and indeed of this special issue of the *Academy of Management Journal*, is that management research will be substantially strengthened by effective collaboration between researchers and practicing managers. As the complexity of management issues and the velocity of change in business increase, such collaboration may well become essential if research projects are to make any real difference in academics' understanding of or impact on management practice.

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Moreover, management research entails significant challenges at the interface between the world of the academic researcher and the world of the business practitioner, challenges that may best be met by academic-practitioner collaboration. These include framing research questions in a way that will be meaningful to practitioners, gaining access to sites for field research, designing data collection instruments and methods appropriate for today's workforce, and interpreting results accurately within the business context. Given the potential benefit of academic-practitioner collaborations as well as the potential difficulties involved in joint work between individuals who may have very different perspectives and priorities (Bartunek & Louis, 1996; Nyden & Wiewel, 1992), it is important to understand such collaborations and the factors that influence their success.

Unfortunately, academic-practitioner research

collaborations are rare. Between January 1994 and June 1999, only 4 percent of the articles published in the *Academy of Management Journal* and less than 1 percent of the articles published in *Administrative Science Quarterly* listed academics and practitioners as coauthors. Given the dearth of successful academic-practitioner collaborations, it is not surprising that systematic examination of such collaborations is even more rare. Our aim in this article is to begin to fill that gap, by reviewing relevant theory and empirical evidence from the general collaboration literature, using the themes that emerge from that literature as a guide to examining a case study of a particular academic-practitioner collaboration, and drawing on the literature and the case study to articulate a foundation for a conceptual model of this type of collaboration.

We borrow our definition of collaboration from Jassawalla and Sashittal, who described it as "the coming together of diverse interests and people to achieve a common purpose via interactions, information sharing, and coordination of activities" (1998: 239). The basic elements of this definition—individuals who differ in notable ways sharing information and working toward a particular purpose—have been echoed by many other theorists (e.g., Bartunek & Louis, 1996; Galegher & Kraut, 1990). Although there is little distinction between types of collaboration in the literature, it may be useful to consider some potentially important features. Three such distinctions seem to characterize academic-practitioner collaborations: they involve people who are members of different professions (academia and business); they are collaborations between individuals or teams, not between firms; and the collaborators are not all members of the same organization. For simplicity, we refer to this type of collaboration as *cross-profession*.

Although there are many models of collaborative alliances between firms (e.g., Dyer & Singh, 1998; Gray & Wood, 1991; Simonin, 1997) and some models of collaboration between individual members of a single organization (e.g., McGrath, 1990; Tjosvold, 1986) or between teams within an organization (e.g., Jassawalla & Sashittal, 1998), there are no models of cross-profession collaboration. Similarly, little empirical research on this type of collaboration has been published, aside from a small body of literature on collaborative insider-outsider research, in which the insiders are both researchers and subjects of study (see Bartunek & Louis, 1996). Given the dearth of directly applicable literature, it is important to keep in mind that some observations and propositions drawn from the general collaboration literature may not be relevant to crossprofession collaboration.

In this article, we will articulate some building blocks for a theory of cross-profession collaboration. We begin with a brief review of the existing collaboration literature, which yields insight into three determinants of the success of collaboration—collaborative team characteristics, collaboration environment characteristics, and collaboration processes—as well as collaborative outcomes. In discussing each, we will note areas in which crossprofession collaboration might be different.

THEORETICAL BACKGROUND

Collaborative Team Characteristics

Three categories of team and team member characteristics appear to predict collaborative success: (1) project-relevant skill and knowledge, (2) collaboration skill, and (3) attitudes and motivation. The most important features of project-relevant skills and knowledge appear to be diversity and complementarity in the skills, perspectives, and knowledge of team members, paired with a common core of understanding about the problem domain; the existence of this constellation presumably depends on appropriate selection of collaborators (Bartunek & Louis, 1996; Bickel & Hattrup, 1995; Northcraft & Neale, 1993). Collaboration skill (the ability to collaborate effectively with others) appears to stem from experience with collaborative relationships (Simonin, 1997). Regarding attitudes and motivation, the most important appears to be trust (Easterby-Smith & Malina, 1999; Jassawalla & Sashittal, 1998), which can be characterized as the absence of hidden agendas (Jassawalla & Sashittal, 1998) and the presence of mutual respect in the collaborative group (Clark et al., 1996). Trust has been found to stem in part from an expectation of longevity of collaboration (Jassawalla & Sashittal, 1998). Other attitudinal-motivational aspects that have received some mention in the literature include practitioners' intrinsic interest in the research in which they are participating (Bartunek & Louis, 1996); team members' openness to change, to different people, and to new ideas (Jassawalla & Sashittal, 1998); team members' sense that they have equal stakes in outcomes (Jassawalla & Sashittal, 1998); and members' understanding of possible cultural differences among them (Bickel & Hattrup, 1995; Easterby-Smith & Malina, 1999; Nyden & Wiewel, 1992).

Of all collaborative team characteristics, the aspects that have received the most attention in the literature are trust and skill complementarity. Interestingly, apart from some recent work illuminating cross-cultural barriers in transnational aca-

demic research teams (Easterby-Smith & Malina, 1999), within-team understanding of possible cultural differences has received relatively little attention. Perhaps the lack of attention to cultural issues should not be surprising, given that most of the literature on individual or team collaboration focuses on individuals in a single organization. Professionals who collaborate within an organization are likely to all be members of the same profession (all scholars, for instance), and thus, they would share many cultural features. However, cultural differences might be particularly important in cross-profession collaborations, because here, they are likely to be highlighted. Unfortunately, of the few empirical reports addressing cross-profession collaboration, most do not deal with collaborations between academics and management practitioners, but instead concern collaborations between such parties as academics and community activists (Nyden & Wiewel, 1992) or academics and teachers (Bickel & Hattrup, 1995). We hope that the present study will begin to fill that gap.

Collaboration Environment Characteristics

Some evidence suggests that interindividual collaborations are more likely to succeed in organizations that strongly value people (as is evidenced when a company cares for its employees) and productivity (evidenced when knowledge is used to be productive) (Tjosvold & Tsao, 1989). But few researchers have considered the effects of the institutional contexts surrounding collaborators from different organizations, despite the potential importance of context in determining collaborative success. For example, in the specific case of academic-practitioner collaboration, the degree of support that each individual receives from his or her home institution could influence the time and resources available to a project.

Collaboration Processes

Considerable attention has been given to the processes that can determine collaborative success. For example, some researchers and theorists have examined the related processes of tension and conflict resolution. Generally, benefits have been ascribed to the positive tension that arises from "crossing experientially and cognitively different standpoints" (Bartunek & Louis, 1996: 61; Nyden & Wiewel, 1992; Tjosvold, 1986). This finding is consistent with Jehn's conflict theory and with related research, which suggests that teams perform more effectively when they experience task-related conflict stemming from their having different perspec-

tives on a problem (Jehn, 1995, 1997). It is also consistent with work in the creativity/innovation literature suggesting that useful new ideas can arise from the combination of very different viewpoints into a creative tension (Kirton, 1976; Koestler, 1964; Senge, 1990). However, differences between collaborative team members can also cause negative process conflict (disagreements over group processes, roles, and responsibilities) or relationship conflict (interpersonal hostility) (Jehn, 1995, 1997). For this reason, conflict resolution processes in collaborative groups may be extremely important (Tjosvold, 1986). Although there is some suggestion in the collaboration literature that conflict resolution may be an integral part of successful group work (McGrath, 1990), little attention has been paid to the issue. Given that academics and practitioners may be particularly likely to have very different perspectives on research issues, conflict resolution may be especially important in that arena.

Many scholars have considered the interrelated processes of communication, coordination, and cooperation in collaborative groups. Collaborative success appears to increase when groups have high levels of cooperative interaction and information sharing, strong processes for coordination of activities, and mechanisms for developing a shared vision for their group project (Jassawalla & Sashittal, 1998; Tjosvold, 1986; Tjosvold & Tsao, 1989). Finally, collaboration is more successful when the collaborators share a clear understanding about their roles and responsibilities (Bartunek & Louis, 1996; Bickel & Hattrup, 1995; Lane & Beamish, 1990).

Collaboration Outcomes

Scholars who focus on collaboration between firms have proposed that the most important outcomes are firm-level increases in productivity (such as new product development) and financial profitability (e.g., Dyer & Singh, 1998). In the literature on collaboration among individuals and teams (e.g., Hackman, 1991; McGrath, 1984), three indicators of success have been noted: progress toward achieving the goals of the collaboration, effective team functioning, and benefits for the individual members of the collaboration. Given the match in level of analysis, these three are the outcomes we consider to be most important for cross-profession collaborations such as academic-practitioner research teams.

The general literature on collaboration, as reviewed here, served as a guide in our close examination of a collaborative academic-practitioner re-

search team in which we participated. We consider this case as a way to begin discovering the applicability of insights from that literature to the cross-profession form of collaboration, and also as a way to begin uncovering success determinants that may be unique to this form. Thus, we take an exploratory approach to this previously underresearched question: To what extent, and in what ways, is the success of cross-profession collaboration influenced by collaborative team characteristics, collaboration environment characteristics, and collaboration processes?

METHODS

To examine the applicability of insights from the general collaboration literature to cross-profession collaboration, we present the case of an academic-practitioner research group—IRG, the Innovation Research Group—in which we were collaborators from April 1995 through June 1998. Our joint project was called the T.E.A.M. Study (the Team Events and Motivation Study; however, we do not present T.E.A.M. Study results here). The case description was developed from the experiences in this research group of both the seven authors of this paper and our seven (nonauthor) colleagues in the group. This information was collected throughout the 38-month collaboration period through participant observation, surveys and interviews with the research group's members, informal discussions, and records of group meetings. The case description and interpretation that we present here were modified and refined through an iterative process in which all the members of the collaborative team engaged.

Research Context, Participants, and Data Sources

The T.E.A.M. Study was conceived by the principal investigator (called A1 in this report) to investigate in detail the events and patterns of events that influence the work environment, motivation, and creativity of teams engaged in long-term corporate projects requiring creativity. The T.E.A.M. Study design called for an e-mailed questionnaire to be completed daily and independently by all members of each project team being studied during the entire course of their projects. Because the plan included data collection from all members of four or five teams in each of six companies, the study presented several significant challenges. First, a number of companies and teams meeting the study's inclusion criteria would have to be identified and then convinced that the study was worthy of the investment of employee time required (five

to ten minutes per day, every day, from every participating team member, for up to nine months). Second, a new, user-friendly data collection methodology and set of instruments would have to be designed, tested, and refined. Third, significant time would have to be spent monitoring and facilitating the progress of data collection across multiple sites and teams. Fourth, given the T.E.A.M. Study's ultimate potential to identify many particular behaviors in managers and in teams that facilitate or hinder creative work, it was imperative to interpret the results appropriately and translate them effectively for practitioners.

The IRG team, consisting of seven academic researchers and seven practitioners, was formed by A1 to help meet these challenges. Aside from A1, who was a faculty member in the institution that sponsored the study, and one colleague, the academic members of the IRG were hired research associates. Practitioners were invited to join the group on the basis of their acquaintance with one or more IRG members, connections to potential T.E.A.M. Study participants, expressed interest in creativity and innovation, belief in the value of rigorous research, and willingness to help recruit teams, refine instruments, and generally advise on the study.

The 14 members of IRG were the participants in the case study reported here. Background information on the IRG members appears in Table 1. The authors of this article include three academics and four practitioners, with the first two authors bearing primary responsibility for drafting most of this report and incorporating subsections written by all the other authors. All the authors examined and commented on several drafts. The first two authors carried out the revision requested by this journal. There were few disagreements over presentation of material in this article, and those that arose were settled by discussion to consensus between the first two authors.

The IRG team met approximately monthly (either in person or by telephone conference) during the most active period of the T.E.A.M. Study's pilot testing and data collection. During those meetings, members would report on their study tasks, receiving feedback and suggestions from other team members on problems they had encountered. In addition, the project's overall status and near-term goals would be reviewed, new tasks would be allocated, and future meetings would be planned. Some meetings included discussion of the effectiveness of the group's functioning. Each meeting began with a brief personal update from each team member, and several social activities (such as dinners and visits to local attractions) were planned

TABLE 1
Background of Participants and Data Sources^a

Member	Sex and Age	Type of Institution	Location ^b	Highest Degree and Field	Work Experience, Business ^d	Work Experience, Academia ^d	Percentage of Work Time on the Team Study	Months on IRG	Data Sources
A1	Female, 48	University	Boston	Ph.D., psychology	0	20	50%	38	1. Four IRG member surveys, with quantitative and qualitative items. Dates were October 1996, February 1997, April 1998, and February 1999.
A2	Male, 31	University	Boston	B.A., psychology	2	3	100	26	2. Telephone interviews of IRG members conducted by one practitioner member in April 1998.
A3	Male, 48	University	Boston	Ph.D., psychology	0	8	10	38	3. A1's notes on all conversations and e-mails with IRG members, plus her notes on decisions and plans for the study and the IRG team.
A4	Female, 22	University	Boston	B.A., psychology	0	.5	50	5	4. Meeting notes (for both phone and in-person meetings), taken by one IRG member assigned on a rotating basis.
A5	Male, 24	University	Boston	B.A., psychology	0	1	100	20	5. Individual difference instruments completed by all members in May 1998. (See footnotes e and f in Table 3 for a description.)
A6	Female, 26	University	Boston	M.A., psychology	0	2	30	12	6. Participant observation, with the authors drawing on their own experience as members of the IRG team.
A7	Female, 23	University	Boston	B.A., psychology	0	.5	100	11	
P1	Female, 48	High-tech firm	Atlanta	Ed.D., education	9	2	1-5	38	
P2	Female, 38	High-tech firm	Atlanta/London	Ph.D., organization behavior	10	2	1-5	38	
P3	Male, 44	High-tech firm	Atlanta	M.A., mathematics	20	0	1-5	32	
P4	Female, 44	High-tech firm	Dayton, OH	B.A., languages	20	0	1-5	38	
P5	Male, 52	High-tech firm	Atlanta	M.A., management	8	1	1-5	13	
P6	Female, 55	High-tech firm	Dayton, OH/ Cambridge, MA	B.A., psychology	30	0	1-5	38	
P7	Male, 50	Chemicals firm	Charlotte, NC	B.A., engineering	28	0	1-5	30	

^a A = academic, P = practitioner. A1 is the principal investigator of the T.E.A.M. Study, the research project undertaken by the IRG team. A2 and A4-A7 were paid research associates; all others were unpaid. The type of institution refers to the member's affiliation at the start of the T.E.A.M. Study in 1995; since then, several members have changed jobs.

^b All IRG members were U.S. citizens. Six in-person IRG meetings were held between July 1995 and June 1998; two in Boston, two in Atlanta, one in Cambridge, MA, and one in Charlotte, NC. During that time, 24 telephone-conference-call meetings were held.

^c Doctoral student.

^d In years, at the start of the T.E.A.M. Study in 1995.

around each in-person meeting. The academic members of the IRG were involved in all aspects of the T.E.A.M. Study. The practitioners' contributions focused primarily on recruiting companies and teams; providing feedback on and pilot-testing study instruments; advising on problems that arose with participating individuals, teams, and companies; assisting in communication with participating teams and companies; advising on the development of the coding scheme; and discussing possible interpretations of preliminary results.

Table 1 summarizes the six primary data sources on the IRG team used for this article.

Data Examination

Descriptive statistics on the IRG team and its work were computed on quantitative measures obtained from the surveys and the individual difference instruments. The latter were subjected to within-team comparisons and comparisons with national norms. The qualitative data were examined through an iterative process carried out by the first two authors, both of whom hold doctorates. That process involved (1) repeatedly studying the meeting notes, participant observation notes, interview notes, and open-ended survey questions for recurrent themes and apparent causal links and discussing disagreements until consensus was reached, (2) subjecting tentative interpretations to the independent scrutiny of each member of the IRG team, and (3) continuing modification and refinement of descriptions and interpretations until all members of the IRG team were satisfied that their experiences were accurately captured. The first step of this process is similar to that used by Jassawalla and Sashittal (1998) in their study of collaborating groups within an organization. The entire process bears similarity to the documentation techniques described by Bickel and Hattrup (1995) in their study of a collaborating group of academics and mathematics teachers and by Easterby-Smith and Malina (1999) in their study of a transnational collaboration between academics.

RESULTS

Collaboration Outcomes

The T.E.A.M. Study is still going on, with data coding and analysis being carried out by the IRG academics. However, several process indicators of the success of the academic-practitioner collaboration can be examined. These process indicators are summarized in Table 2. They are organized according to the three collaboration outcomes described

earlier: progress toward achieving collaboration goals, effective team functioning, and benefits for individual team members. As can be seen, objective measures of the study's progress, interviews with IRG members, surveys of IRG members, and meeting notes revealed primarily positive outcomes in all three categories. At the most basic level, the T.E.A.M. Study would most likely not have been possible, in the form in which it was conducted, without the involvement of the practitioners. Not only did they play crucial roles in recruitment, instrument design, pilot testing, and data collection, but their involvement signaled a real-world credibility to the companies and teams that were asked to make significant contributions of time to the study. At a more detailed level, T.E.A.M. Study progress was somewhat slower than desired but was positive in all other respects, particularly in the development of data collection instruments and methods, the completion of the study design (with collection of even more data than had originally been planned), and the excellent daily questionnaire response rate of 75 percent. This latter outcome is particularly impressive, given that few questionnaire studies in organizations achieve response rates above 50 percent. Team functioning suffered to some extent early in the life of the IRG, when there was confusion over which specific roles the practitioners would play in the T.E.A.M. Study, but these roles evolved more clearly over time. Finally, all IRG members reported that they did benefit from their involvement in the team, although several reported occasional frustration or annoyance with other IRG members, and some practitioners were disappointed with their relatively low level of involvement in the T.E.A.M. Study. In general, the IRG members felt that they had learned from their involvement in the team, that their careers had benefited, and that they had gained some important new professional and personal relationships.

Determinants of Collaboration Outcomes as Illustrated by Three Vignettes

To begin to understand how these outcomes might have arisen, we examined each of 26 specific vignettes provided by the IRG team members in response to survey or interview questions about important events and experiences within the IRG. Using evidence in the vignettes themselves and in other data sources, we attempted to identify specific determinants of each vignette's outcomes. To illustrate our approach, we have chosen three actual vignettes appearing in the IRG team's qualitative data. These particular vignettes were chosen

TABLE 2
Overall Inventory of Innovation Research Group (IRG) Outcomes

Outcome	Specific IRG Aspects Assessed ^a	Overall Assessment ^b
T.E.A.M. Study progress	Study judged a success by IRG members (4.23) ^c Slower study progress than desired Satisfactory recruitment of participating companies and teams Satisfactory development of data collection instruments and methods Excellent T.E.A.M. Study participant response rates (75%) Completion of all training and feedback meetings with companies and teams; satisfied T.E.A.M. Study participants ^d Successful development of event-coding scheme; earlier validity testing of scheme than originally planned Completion of study methodology as originally planned; more data collected than originally planned	+ - + ++ ++ + ++ ++ ++
IRG team functioning	IRG judged a success by IRG members (3.54) ^c Practitioner contributions to study activities Distribution of tasks among IRG members IRG team communication Conflict management in IRG Continuing practitioner involvement in IRG Evolution of team roles and processes in IRG	+ + + + + + + -/+
Benefits for individual IRG members	IRG member ratings and lists of what they learned about research ^e IRG member ratings and lists of what they learned about business ^e IRG member ratings and lists of what they learned about teams ^e Frustration, confusion, annoyance with IRG team Practitioner disappointment with low level of study involvement and lack of tangible outcomes Status and credibility from association with the study Career advice and support among IRG members Increased comfort in business/academic settings Pride of accomplishment in the study Personal warmth and respect within the IRG team	+ + + - - + + + + ++

^a Except as indicated in footnotes, data sources were T.E.A.M. Study records, surveys and interviews with the IRG members, and IRG meeting notes. (See Table 1 for details.)

^b The overall assessment is based on the first and second authors' examination of all quantitative and qualitative data; these assessments were approved by members of the IRG team. The symbols signify the positivity/negativity of the assessment: ++ for strongly positive, + for primarily positive, - for primarily negative, and -/+ for mixed.

^c This is the mean of a scale-rated item on the February 1999 IRG survey, where 1 signified "much less than expected," and 5 signified "much more than expected."

^d Follow-up questionnaires completed by a subset ($n = 79$) of participants in the T.E.A.M. Study indicated that they were generally satisfied with the impact that the study had on their project and their work on the project. On a seven-point scale, with responses ranging from 1 = "very negative," through 4 = "neutral or no impact," to 7 = "very positive," participants responded to the question, "Please rate the impact of participating in the study on each of the following, in your view." Mean ratings for all items were above the midpoint of the scale: "your feelings about the project" ($\bar{x} = 4.31$, s.d. = 1.19); "your work on the project" ($\bar{x} = 4.49$, s.d. = 0.92); "other team members' work on the project" ($\bar{x} = 4.43$, s.d. = 1.03); "the project overall" ($\bar{x} = 4.51$, s.d. = 1.02).

^e IRG members' mean ratings of learning were all above the midpoint of the five-point scale, where 1 signified "much less than expected" and 5 signified "much more than expected." This held true for learning about research (academics, $\bar{x} = 4.25$, s.d. = 0.89; practitioners, $\bar{x} = 3.50$, s.d. = 0.55), learning about business (academics, $\bar{x} = 3.50$, s.d. = 1.07; practitioners, $\bar{x} = 3.17$, s.d. = 0.41), and learning about team processes (academics, $\bar{x} = 4.00$, s.d. = 0.53; practitioners, $\bar{x} = 3.83$, s.d. = 1.17). As of June 1999, one practitioner was using the T.E.A.M. Study data collection methodology in his own work.

because they represent a range of outcomes, because they include the major findings that emerged from the other 23 vignettes, and because each vignette was mentioned by multiple IRG members. For each vignette, we present a brief description and focus only on the primary features of the relevant determinants and outcomes. Table 2 summa-

rizes the outcomes mentioned in these vignettes. Table 3 summarizes our observations about the determinants of collaborative team success (or lack thereof) described in the vignettes, according to the basic elements we identified earlier in the collaboration literature. Note that Table 3 lists the elements as desirable features. As described in the

TABLE 3
Observations of the IRG Team^a

Determinants of Collaborative Success	Vignette(s)
Collaborative team characteristics	
Project-relevant skill and knowledge Diverse, complementary backgrounds and skills; common core of knowledge	2 ^b , 3 ^b
Collaboration skill	
Member experience with collaboration	2 ^c
Leader skill	1 ^d , 2 ^d
Compatibility of problem-solving styles ^e	1 ^c
Attitudes and motivation	
Understanding of cultural differences	1 ^c , 2 ^c , 3 ^c
Compatibility of values	1 ^d
Intrinsic motivation toward research project ^f	1 ^d , 3 ^d
Interpersonal familiarity, respect, and trust	1 ^d , 3 ^d
Expectation of collaboration longevity	1 ^d
Collaboration environment characteristics	
Institutional support for each member	2 ^c , 3 ^c
Collaboration processes	
Initial clarity on commitments, roles, responsibilities, expectations, and resource needs	2 ^c , 3 ^c
Effective use of member capabilities	1 ^d , 2 ^b , 3 ^d
Communication	
Regular, facilitated meetings with agendas; information exchange before meetings	1 ^d , 2 ^d , 3 ^d
Conflict resolution processes	
Periodic examination of collaborative team effectiveness	1 ^d
Facilitated discussions of conflicts	2 ^d , 3 ^d

^a This table lists elements noted in one or more of the vignettes presented in the text. As described in the vignettes, the IRG team was strong on some of these elements, but lacking in others. The broad categories of success determinants are derived from the collaboration literature.

^b Mixed influence in this vignette (both positive and negative).

^c Primarily negative influence in this vignette.

^d Primarily positive influence in this vignette.

^e The Kirton Adaption Innovation Inventory (KAI; Kirton, 1976) was used to assess problem-solving styles. Scores below the KAI mean of 96 (s.d. = 17) are considered indicative of an "adaptive" style (a preference for solving problems within established paradigms). Scores above 96 are considered indicative of an "innovative" style (a preference for solving problems by breaking out of established paradigms). Although there was a fairly wide range in the IRG scores (93 to 126), the team mean was skewed toward the innovative style ($\bar{x} = 115.30$, s.d. = 11.10).

^f Intrinsic motivation scores on the Work Performance Inventory (Amabile, Hill, Hennessey, & Tighe, 1994) were above the national average for both the academics (A) and the practitioners (P); challenge (intrinsic scale): A = 90th percentile, P = 81st percentile; enjoyment (intrinsic scale): A = 77th percentile, P = 63rd percentile. Intrinsic motivation for involvement in the study is also revealed by IRG members' scores on the openness scale of the NEO (Costa & McCrae, 1985), which assesses intellectual curiosity and a desire to engage in creative work. On that scale, both the academics and the practitioners scored at the 95th percentile.

vignettes, the IRG team was strong on some of these features, mixed on others, and lacking in a few. Note also that, although the major headings in Table 3 were derived from the collaboration literature reviewed earlier (collaborative team characteristics, collaboration environment characteristics, and collaboration processes), the specific elements

within those headings derive from our study of the IRG team.

Vignette 1: Frustration with initial meetings. Several members of IRG, both academics (A2, A3, and A5) and practitioners (P2, P3, P5, and P6), expressed frustration with the initial meetings of the team, which occurred in the second half of

1995. They complained that the meetings were too dominated by A1, P1, and P7, as well as too focused on information presentation to the exclusion of active discussion and decision making. These problems appeared to stem from two primary sources. First, there was a wide diversity of problem-solving styles in the team, if style is defined broadly as an approach to solving problems in any domain (see Table 3, footnote e). Most notably, the IRG leader (A1) was oriented toward solving problems by working within established paradigms, in contrast to many of the other members (particularly A3, P1, P4, P5, and P6), who were strongly oriented toward paradigm-breaking problem solving. Although such style differences can be useful in generating positive task conflict, they can also cause process conflict because they lead team members to have different comfort levels with different types of group discussion. Second, lack of understanding of cultural differences appeared to contribute to this process conflict. Academics are accustomed to presenting information, but many business practitioners are more accustomed to open discussion of issues.

Several determinants were involved in resolving this process conflict. The practitioner members of the Innovation Research Group (IRG) were willing to work through these frustrations in part because of their high intrinsic interest in the work and in part because they shared a strong value with the academics, a high regard for the importance of research. For these reasons, they expected that the IRG team would have longevity, at least throughout the life of the multiyear T.E.A.M. Study. Moreover, the IRG leader (A1) was able to recognize that the complaints about the early meetings were justified and that the team would work more effectively if those meetings could be improved. She asked several practitioner members of the team who had experience in meeting facilitation (P3, P4, and P6) to help out in this regard. Beginning in December 1995, they rotated the role of meeting facilitator (although it generally fell to P4, who attended virtually all IRG meetings). This appeared to be an effective use of IRG member capabilities; the facilitators used their special skills to ensure that the flow of conversation in meetings included all IRG members. A mechanism was set up for ensuring that each meeting would be preceded by circulation of an agenda to the IRG team that provided them with necessary background information, to avoid having members present that information during the meeting. Each agenda was initially drafted by A1, who solicited additions and modifications from all IRG members before the agenda was finalized. Moreover, the team instituted regu-

lar mechanisms for assessing its own effectiveness on a continuing basis through inclusion of "How are we doing?" items on many meeting agendas and conducting occasional member surveys addressing this question.

Interestingly, the style differences in the IRG team did not lead to interpersonal conflict, perhaps because of the warm personal relationships that were developing through the social activities and growing familiarity within the IRG team. This warmth was evident in interview and survey comments made by several members of the team (for instance, "My most positive outcome has been the friendships and relationships that were built within IRG."). Overall, there was a very low level of interpersonal conflict in the IRG.

Table 3 summarizes the above observations and those in the following two vignettes, according to the main categories of determinants of collaborative team success derived from the collaboration literature. As noted earlier, these observations were all supported by other vignettes and other sources of data.

Vignette 2: Disappointment over study involvement. Although certain practitioners were deeply involved in the study's activities at certain times (and happy to be so involved), most practitioners (particularly P1, P4, P6, and P7) expressed the desire to be more involved on an ongoing basis with the "real work" of the study. This process conflict began early in the team's life and continued to surface throughout the 38-month collaboration period, in IRG meetings and in private communications with A1. It arose in part from the lack of a common core of research knowledge in the IRG; few of the practitioners had a knowledge of scholarly research that approached the academics' level of knowledge. The issue also arose in part from the team's cultural differences; the academic culture holds that research is the province of properly trained researchers, and several of the IRG practitioners did not fit that narrow description. In addition, the academics had had to promise complete confidentiality of the data to participating companies and teams, which precluded sharing raw data with any practitioners. Finally, because most of their home institutions did not officially sanction their involvement in the IRG, the practitioners' available time was severely limited; this was especially true for P1, P2, P6, and P7. Although they realized that this particular constraint was not due to IRG dynamics, they expressed considerable frustration about it in meetings.

The outcomes of this conflict were mixed. At the most basic level, one practitioner's push for study involvement led to a new, evolved purpose for the

IRG team. A1 had initially planned to work with only one practitioner (P1) and to confine that work primarily to participant recruitment. However, drawing on her experience in large, complex projects within organizations, P1 insisted on broader practitioner involvement. As a result, several others joined the IRG, with tasks ranging from participant recruitment, instrument development, and pilot testing to communication with participants, data collection, and coding scheme testing. Moreover, as a result of practitioner discontent with involvement, the team leader (A1) instituted more frequent, regular meetings to keep all abreast of study developments and to give all the chance to volunteer for research tasks that met their skills and availability. In addition, the academics agreed to give more elaborate feedback to the T.E.A.M. Study participants than they had originally planned, which addressed both the practitioners' concerns that the study yield immediate benefit for organizations and the practitioners' desire to be more involved. That detailed participant feedback, designed with considerable involvement of the practitioners (in particular, P1, P2, and P4), appeared to contribute to participants' satisfaction with the study. These actions led to a temporary increase in practitioner involvement, which decreased once the study entered the more technical phases of data coding and analysis.

Although it ebbed and flowed, the conflict over practitioner involvement was never truly resolved. The primary negative outcome was the ongoing disappointment of some practitioner members of IRG. Although it is difficult to account for the absence of something, we believe that certain process conflict mechanisms that might have aided this situation were not fully in place. Had the IRG members been more experienced in collaborating with each other, they might have been able to recognize these role disagreements and discuss them as they were emerging. Had they had a facilitator from outside the team assisting in their meetings, they might have been able to work through the conflict more effectively. Moreover, as noted earlier, initial clarity about roles, decision processes, and time requirements could have been stronger in the IRG team. Members' roles evolved in a relatively haphazard way, particularly in the beginning of the project, and the practitioners frequently seemed uncertain about how much time they had to commit to the IRG to be considered "good" members.

Vignette 3: The push for results. During an IRG meeting in October 1996 (close to the beginning of data collection in the T.E.A.M. Study), several practitioners (most notably, P3, P6, and P7) argued forcefully that we should begin examining the data. They stated that one goal of the study should be the dem-

onstration of value at every stage of the research process. One practitioner in particular, P7, whose career involved "stage-gate" (milestone-driven) new business development processes at his company, insisted on milestones by which we could measure what we were learning from the T.E.A.M. Study. The academics (most notably, A1 and A3) countered that examining data when less than 25 percent of it had been collected was likely to be misleading and biasing. Moreover, coding of the narrative event descriptions had not even begun; the coding scheme would still be in development for many more months. Overlaid on this disagreement about short-term goals was a disagreement about whether the practitioners should be involved at all in making decisions about these goals.

This situation appeared to involve both task conflict and process conflict (see Jehn, 1995, 1997). The task conflict, the disagreement over goals for the early stage of the study, appeared to arise from the different backgrounds represented on the team. The practitioners focused on the importance, for their own business institutions and for the participating companies and teams in the study, of being able to point to measurable progress; the academics focused on the importance of avoiding errors by not drawing any conclusions until after data collection, data coding, and analysis had been completed. Moreover, because involvement in the IRG was not supported by some of the practitioners' institutions, they felt pressured to produce applicable results from the T.E.A.M. Study. The process conflict, the disagreement over who should make decisions in the study, appeared to arise primarily from a lack of understanding of cultural differences between the practitioners and the academics. Specifically, the practitioners expected the sort of collaborative team process they experienced in their companies, while the academics held a top-down "principal investigator" model of research projects. In addition, the process conflict appeared to arise because clarity about roles was somewhat lacking at the IRG team's inception; it wasn't entirely clear who was to have control over the pace of the study.

As noted in vignette 1, early in its life, the IRG team had instituted a system of having one practitioner member facilitate each meeting. This recognition and effective use of IRG member capabilities, along with the relatively high baseline level of trust among IRG members, seemed instrumental in resolving the process conflict. During the October 1996 meeting, P4 served as the facilitator and led the group in a discussion of practitioner expectations for involvement in study decisions, the forms that involvement might take, and the value to the study of such involvement. The result was some degree of progress in defining roles for the practi-

tions. This resolution led to two positive outcomes: improved IRG team functioning and higher levels of satisfaction for the practitioner members of the IRG.

In addition, the task conflict in the October 1996 discussion led to the generation of an important new idea. As the practitioners insisted on some examination of how well the study was progressing and how likely it was to yield useful information, A1 realized that she could and should begin to examine the validity of the preliminary coding scheme that the academics had been developing. Gaining such information at a relatively early stage could help them to take corrective action to adjust a development process that was likely to take many more months—and might take much longer if it proceeded on a mistaken path. Moreover, A2 realized that they could directly involve P7 in the validation. P7 had recruited his company to participate in the T.E.A.M. Study, and he had ended up participating himself when his own team was chosen. Because he was highly motivated to contribute to the study, he agreed to the academics' request to spend two or three days learning the coding scheme and helping them determine the accuracy of their coding of the event narratives he had written as a study participant. In this way, this task conflict led to increased contributions to the project by this particular practitioner and to his increased satisfaction with his involvement in the study.

More importantly, this creative tension led to significant progress in the study itself, through the validity testing of the coding scheme. The additional data and feedback that P7 provided during his sessions with the academics were instrumental both in validating the basic approach of the developing coding scheme and in guiding the academics in their refinement of the scheme. In all, approximately 41 percent of the categories were revised in some substantial way as a result of this preliminary validity testing.

Judging from all of the vignettes, the comments of IRG team members, and the rest of the information we examined, the greatest strengths of the IRG team appeared to be as follows: the wide diversity in the backgrounds and experiences of its members, effective use of member capabilities, the frequency of facilitated interaction, the trust and personal warmth evident in most of its interactions, the ability to share information effectively, and effective leadership. The greatest liabilities of the IRG team (many of which decreased over time, as described in the vignettes) appeared to be: lack of understanding of cultural differences between the academics and the practitioners, lack of a clear understanding

of commitments, roles, responsibilities, expectations, and resource needs (especially time requirements) at the outset, lack of institutional support for the practitioners, and lack of a common (overlapping) knowledge base about research. Despite these shortcomings, however, the IRG team and its project, the T.E.A.M. Study, succeeded on most objective and subjective outcome dimensions.

DISCUSSION

Our examination of the IRG team reveals the utility of the general literature on collaboration for understanding academic-practitioner collaboration; the categories that we identified there were useful in capturing our findings about the IRG team. More importantly, however, we discovered that several specific elements that are either absent from or have received little attention in that literature may be especially important for this particular type of collaboration. These new elements appear in each category of determinants (see Table 3). Among *collaborative team characteristics*, we found that incompatibility of problem-solving styles appeared to lead to unproductive process conflict in the IRG, that leader skill in managing team communications appeared to strongly influence the team's functioning, and that cultural differences between the academics and the practitioners in the IRG were frequently mentioned as the culprits behind process conflict. Among *collaboration environment characteristics*, the question of institutional support for each collaborator—which is essentially absent from the collaboration literature—figured prominently in the IRG. Among *collaboration processes*, effective use of member capabilities and frequent meetings, well planned in advance, appeared to facilitate the functioning of the IRG and the success of its project. Indeed, we suspect that frequent, well-planned meetings may be particularly important for any collaborating team that is geographically dispersed.

Of all the new insights generated by our examination of the IRG team, however, perhaps the most striking was the important role of conflict resolution processes—another element that has received scant attention in the collaboration literature. Our findings are consistent with assertions in the conflict literature (Jehn, 1995, 1997) that task conflict over ideas (which stemmed, in the IRG case, from members' differing skills and backgrounds) can lead to progress in a project (as evidenced in vignette 3) and that process conflict over roles and responsibilities (stemming from lack of initial clarity and lack of understanding of cultural differences) can lead to negative outcomes (as evidenced in all three vignettes). The members of the Innovation Research

Group (IRG) reported that, repeatedly, the facilitation of team meetings by practitioners experienced in such processes was extremely instrumental in channelling the productive conflicts over ideas and controlling the negative conflicts over processes. Process conflicts were also managed more effectively once the team instituted regular self-examinations of team effectiveness.

Although it is unclear which of these elements, if any, may be particular to the success of academic-practitioner collaboration, some may be. For example, conflicts—both the negative form and the positive form—may be especially likely to arise when individuals from such different backgrounds and cultures (academia and business) attempt to work closely together. Thus, conflict resolution processes may be particularly important. Frequent, formal, well-planned communication may also play a special role, given that the members of such teams are seldom co-located. Finally, given that the collaboration's members come from at least two different organizations, institutional support may be particularly relevant to its success.

We suggest that cross-profession collaboration, of which academic-practitioner collaboration is one form, is a fruitful arena for future research. Broadly defined, such research would encompass collaborations between individuals from different professions and different organizations who come together primarily as individuals (not formally representing their organizations) to accomplish a particular work project, such as an academic-practitioner research project. To date, most theory and research on collaboration has focused on interfirm alliances and, to a more limited extent, collaboration among individuals within an organization. However, in a world where the members of most professions change jobs frequently, where virtual organizations and virtual teams are increasingly used to accomplish goals, and where much of the work that gets done happens outside organizational boundaries, cross-profession collaboration is likely to become increasingly important.

A conceptual model of this form of collaboration would be applicable not only to academic-practitioner collaborations, but also to other significant collaborations, such as those among volunteers who come together for specific projects (for example, citizen groups planning a new city park or hiring a school superintendent) and boards of directors for nonprofit organizations. Drawing on our summary of the collaboration literature and our examination of the IRG case, we have the beginnings of such a model. The elements of the model should include both determinants of collaborative success, as presented in Table 3, and outcomes indicating collaborative success, as presented in

Table 2. The determinants should include three broad categories: collaborative team characteristics (project-relevant skill and knowledge, collaboration skill, and attitudes and motivation), collaborative environment characteristics, and collaboration processes. The outcomes should include project progress, team functioning, and benefits to individual team members. The features that we have identified as prominent for the IRG, but missing from the collaboration literature, should receive special consideration for inclusion in the model. Moreover, because most of the collaboration literature deals with collaboration types that are different in some significant ways from cross-profession collaboration, future work should focus on which aspects from that literature are relevant to this type and which might require modification. In addition, in future work researchers should attempt to identify which outcomes are most likely to be affected by each determinant and should consider possible interactions between the determinants. For example, vignette 1 suggested that leadership behaviors can positively affect the effective use of member capabilities, and vignette 2 suggested that lack of collaboration experience can impede the development of conflict resolution processes.

Perhaps the most notable limitation of this study is that we relied on a single case to examine cross-profession collaboration. Given the exploratory nature of the study, and given that we could not comprehensively present every observation about the IRG team and its operations, we tried to present a clear, accurate, overall picture of the team. Nonetheless, to the extent that the collaboration we examined is substantively different from others, our insights about cross-profession collaboration may not hold. For this reason, future research should contain attempts to replicate or extend our study using alternative cases and noncase methods that will allow for data collection across a large number of cross-profession teams with different characteristics and structures. A second potential weakness in our study was its reliance on participant observation for much of the data. Though there are clear benefits of using self-reports for studying groups and many precedents for doing so (e.g., Bartunek, Foster-Fishman, & Keys, 1996; Easterby-Smith & Malina, 1999), this approach can introduce bias at the level of the individual and the group. Such potential bias is further justification for using alternative methodologies in future research. Third, only process indicators of the IRG team's success are available at this time. Although one practitioner-oriented article (Amabile, 1998) has briefly reported some preliminary T.E.A.M. Study results, ultimate measures of success will not be available

until the entire T.E.A.M. Study has been published. Finally, in future work, researchers should attempt to test hypotheses by simultaneously examining collaborative teams that systematically vary in identifiable ways that should, according to our observations, make a difference.

Despite these limitations, we believe that our study has several strengths. First, the analysis was based on broad, detailed, real-time data collection from a collaborative research team existing over a long (three-year) span. Data included repeated surveys, interviews, meeting notes, and observations, all collected as part of the IRG team's ongoing effort to improve its effectiveness. This exploratory approach may be particularly appropriate in an underresearched area where, rather than testing a model, it is most useful to begin identifying potential elements of such a model. Second, the study examined multiple kinds of outcomes. Third, we carried out detailed examination of important events reported by IRG members, attempting to identify how various determinants might have resulted in the particular outcomes of each event and receiving confirmation from team members. This detailed analysis of team dynamics is largely absent from the collaboration literature.

In addition to serving as a starting point for a model of cross-profession collaboration, this study also makes a practical contribution. At the most fundamental level, it demonstrates that academic-practitioner collaborations bear considerable promise for management research. Indeed, for some complex research projects such as the T.E.A.M. Study, academic-practitioner collaboration may be the only way to achieve success. Nonetheless, we have learned that creating a successful collaboration is likely to be difficult. Drawing on our experiences and the analyses we have presented, we make several recommendations to others contemplating formation of an academic-practitioner research team: (1) To the extent practicable, carefully select academics and practitioners for diverse, complementary skills and backgrounds with a common core of research knowledge, intrinsic motivation toward the project, similar views on the value of research, and a willingness to work with people of different cognitive styles and different professional cultures. (2) Clarify commitments, roles, responsibilities, and expectations at the outset; continually update them as they evolve. One clearly established role should be that of team leader. (3) Establish regular, facilitated communication, especially if team members are not located in the same place. (4) Find ways for the academics and practitioners to get to know and trust each other as people and to understand their possible cultural differ-

ences. (5) As a group, occasionally examine the effectiveness of the team's functioning; set aside specific time for the team to reflect on itself and explicitly discuss task, process, and relationship conflict. Use facilitators to help the team productively manage the conflicts that arise. (6) Ensure that academics' and practitioners' institutions will be supportive or at least tolerant of their involvement.

Like others (e.g., Easterby-Smith & Malina, 1999), we have become proponents of reflexivity in research, a process in which research collaborators reflect upon their experiences and perceptions and discuss their group's process to make sense of their own assumptions and motives. As members of the IRG, we set out to conduct the T.E.A.M. Study with the hope that it would make important discoveries about the workings of teams. In the process, and before we even analyzed the T.E.A.M. Study data, we discovered a great deal about teams by simply working together. We hope that our work will advance understanding of collaboration in general, stimulate research on cross-profession collaboration, and lead management scholars and practitioners to consider researching important management problems together.

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