MANAGEMENT'S SCIENCE–PRACTICE GAP: A GRAND CHALLENGE FOR ALL STAKEHOLDERS

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Despite multiple high-profile calls—across decades and from multiple stakeholders—to address the widening gap between science and practice, the relevance of research conducted in the management domain remains in question. To once again highlight this issue and, more importantly, identify solutions, we explore the grand challenge of the science–practice gap by applying stakeholder theory. Using a grounded theory approach, we conducted a series of interviews ($n = 38$) and formed an interactive focus group with academics and practitioners (e.g., executives, entrepreneurs, government officials) in order to develop a set of theoretical models and propositions that extend stakeholder theory. We supplemented our inductive theory building approach with a survey of academics ($n = 828$) and practitioners ($n = 939$) and a qualitative content analysis to identify 22 grand challenges (i.e., eight shared, eight uniquely academic, and six uniquely practitioner). We discuss the theoretical and practical implications of our findings and illustrate multiple directions for future research to build permanent bonds—not just temporary links—between science and practice.

The central mission of management scholarship is to contribute to management practice (Van de Ven, 1989), and "knowledge building . . . in the service of practitioners" is at the core of our profession as "responsible teachers and researchers" (Tushman & O'Reilly, 2007: 769). Whether knowledge is disseminated in the classroom, through academic journals, by consultants, or in the popular press, there is a moral and professional imperative to

engage in rigorous study of phenomena that are relevant to those we serve. However, despite repeated calls for knowledge building over several decades across the management domain (e.g., Beyer, 1982; Daft & Lewin, 1990; Daft & Lewin, 2008; Hambrick, 1994; Miner, 1984), including those published in this journal (e.g., see the *Special Research Forum* edited by Rynes, Bartunek, & Daft, 2001; and Shapiro, Kirkman, & Courtney's, 2007, *From the Editors* column), there is growing concern about a science–practice gap, with some even suggesting that "most of what management researchers do utterly fails to resonate with management practice" (Bansal, Bertels, Ewart, MacConnachie, & O'Brien, 2012: 73). We contend that, more than any other issue, the greatest challenge facing management scholars is the presence, extent, and growth of the

gap between research and practice. To address this issue, we use a theory-driven approach to inductively examine the science–practice gap.

Elevating concerns about the science–practice gap even higher, changes within the domain of higher education are bringing increased scrutiny to academic research as well as demands for greater accountability. For example, in the latest version of the *Eligibility Procedures and Accreditation Standards for Business Accreditation*, the Association to Advance Collegiate Schools of Business (AACSB) notes, "In today's increasingly dynamic environment, business schools must respond to the business world's changing needs by providing relevant knowledge and skills to the communities they serve" (Association to Advance Collegiate Schools of Business, 2015: 2). Similarly, due to the changing composition of business schools and attempts to increase professionally oriented faculty (Trapnell & Showalter, 2015), the ability of academics to work with practitioners is of vital importance not only to management research, but also to the quality of management education.

We take the position that, currently, the lack of scholarship-related relevance hinders our field as well as the practice of management (Ghoshal, 2005). We also assert that more practice-engaged scholarship can (and should) enhance the relevance of our work *as well as* its rigor; that is, attaining a balance here need not come at the expense of one or the other (Van de Ven & Johnson, 2006). To date, the science–practice gap has had the limited benefit of only a few isolated attempts to apply a theoretical perspective to address the problem (e.g., Rasche & Behnam, 2009), and no large-scale collaborative effort has addressed the issue.

In response to these limitations and using a mixed-methods approach that incorporates in-depth interviews with key stakeholders in academia, the private sector, and government, as well as surveying more than 1,700 academics and professionals, we investigate the science–practice gap using stakeholder theory. Multiple contributions, both theoretical and practical, emerge from our work. As our first contribution, with regard to stakeholder theory, we investigate how the science–practice gap can be modeled using a qualitative, inductive approach in a novel context relative to extant work.

Our second contribution is that, using an inductive approach, we developed multiple models that represent the root causes of, and potential solutions to, the science–practice gap. Specifically, the models emerge from grounded theory analysis of interview data ($n = 38$) and an interactive focus group with academics, executives, entrepreneurs, as well as government officials, such as those from the *Office of Personnel Management* (OPM) and the *Equal Employment Opportunity Commission* (EEOC). Overall, our findings suggest—bolstering and extending stakeholder theory—that academics that best attend to the needs of all stakeholders may facilitate the greatest potential for increased knowledge creation. We develop theoretical propositions for future research based on the identified models.

Our third contribution is identifying 22 grand challenges in the management domain (i.e., eight shared, eight uniquely academic, and six uniquely practitioner derived from a qualitative content analysis of survey data from academics ($n = 828$) and practitioners ($n = 939$). We explore the extent to which management academics and practitioners identify similar target goals in the form of grand challenges in order to facilitate potential collaboration in closing the science–practice gap. As a result, our work represents one of the largest, most comprehensive efforts to involve practitioners in "our research conversations."

As our fourth and final contribution, we provide specific details about how collaboration among management stakeholders can advance the field and, importantly, we identify over 160 organizational signatories of this work.

THEORETICAL FRAMEWORK

The Science–Practice Gap

With regard to a gap between management research and practice, three important questions need to be considered before exploring the grand challenge of how to bridge such a gap. First, does a gap truly exist between science and practice in the management domain? At least some empirical support for this gap exists as indicated by surveyed members of the Academy of Management (AOM) who were asked whether they "perceive a gap between management research and practice" (Shapiro et al., 2007: 261). In fact, the science–practice gap has been a focus of several AOM presidential addresses by Donald Hambrick, Anne Huff, and Andrew Van de Ven (Kieser & Leiner, 2009). Another perspective suggests, "clearly, there's a general absence of healthy connections between organizational science and practices—that's bad news" (Rousseau, 2007: 1037).

In further support of such a gap, Deadrick and Gibson (2007) reviewed topics of interest among

human resource (HR) academics and professionals through a comparison of 4,300 published articles. Among the numerous topics, the largest interest gap was in the area of compensation and rewards. Other research has compared HR practitioner beliefs to research findings and found particularly large gaps in the area of staffing (Tenhiälä et al., 2014). Overall, there is at least some empirical evidence to support that a gap exists. We concur with our colleagues in HR and other domains in management, and in the current study we examine ways to lessen the gap by proactively engaging both practitioners and academics.

The second question is whether or not a gap represents an actual problem for scholars and practitioners. On one hand, we know that management stakeholders are "at least somewhat concerned about it" (Shapiro et al., 2007: 261). On the other hand, could it be the case that there are simply two streams of research in the domain of management—one theoretical and one applied—that are equally important regardless of the applicability to management practice? Here, it is useful to trace the progression of business schools as they have evolved. Like medical schools, business schools were originally conceived to provide knowledge to the profession of management. However, criticism of the perceived vocational focus of business schools prompted a concerted effort to make management research more scientific (Goodrick, 2002). Now, more than 50 years later, there are concerns that management research has become unusable for practitioners (Kieser, Nicolai, & Seidl, 2015; Nicolai & Seidl, 2010). We advocate for the position that a wide science–practice gap is undesirable for management researchers and is not consistent with tenets of research carried out in business school settings. Accordingly, we examine how the gap between management science and practice can be bridged, which could potentially lead to mutually beneficial collaborations between management science and practice resulting in gains for both.

Third, the final question we need to consider before attempting to bridge the gap is related to the reason(s) for the gap. The relationship between management research and practice is complex, (Ireland, 2012) but in its simplest form, the science–practice gap stems from one of three issues. The first perspective suggests that the gap is due to a knowledge transfer problem (Bartunek & Rynes, 2010; Van de Ven & Johnson, 2006). From this viewpoint, there is a problem translating and enabling research to be useful in practice. Concerns about knowledge transfer focus on the extent to which management research is disseminated through various outlets (i.e., communication channels). For example, management research may be taught to undergraduate business majors and MBA students as well as published in academic journals and mainstream outlets, such as newspapers, magazines, or books. Yet, managers may not read such materials, and graduating students may not retain knowledge gained during their studies.

A second perspective holds that knowledge of theory and practice are two distinct, yet complementary, types of knowledge (Kieser & Leiner, 2011; Van de Ven & Johnson, 2006). Ideally, development of theory should inform management practice, and practices developed in the field should provide context and feedback on the usefulness of theories. However, a gap emerges when knowledge of theory and practice are developed in isolation of each other; and, some have argued this is the current state of affairs—that there is little to no collaboration between academics and practitioners (Kieser & Leiner, 2011; Van de Ven & Johnson, 2006).

The third perspective suggests that the issue at the core of the science–practice gap is one of knowledge production (Van de Ven & Johnson, 2006). In other words, management academics develop knowledge and pursue topics that are of little use or interest to practitioners. Managers may find themselves developing solutions to their own problems on-the-job without considering academic findings. Further, some have suggested that academics and practitioners fundamentally disagree on critical topics, and that we all fail to sufficiently pool enough time, energy, and resources into team efforts (for a review, see Fang & Casadevall, 2015).

Each of these perspectives on the cause of the science–practice gap has merit, and the three are not mutually exclusive. In fact, Shapiro et al. (2007: 261) further described the problem as management research getting "lost before translation" and/or "lost in translation." Solutions to the science–practice gap need to consider how research topics are chosen (i.e., addressing the lost *before* translation issue) as well as how findings are communicated to different stakeholder groups (i.e., addressing the lost *in* translation issue). We explore potential solutions here.

The Challenge of Collaborating in Knowledge Creation

It is tempting to view the academic–practitioner relationship and argue that these parties do not work

together because their goals are misaligned. Remedying this would require the realignment of short- and long-term goals. Here, the potentially erroneous assumption pervasive across the literature and in practice is that academics pursuing research and practitioners seeking effective management techniques could be at odds in terms of overall goals. We reframe this conversation around what academics and practitioners pursue, and we identify multiple areas of overlap where the goals of both academics and practitioners converge. In doing so, we reconceptualize the construct of *faultlines*, defined as the tension that moves practice and science in opposing directions (Rousseau, 2007). Instead, we refer to a new construct—*collaboration costs*—that characterizes the challenges preventing partnerships among academics and practitioners in the creation of knowledge. Additionally, we explore how to mitigate these problematic collaboration costs. As a result, we asked the following research question (RQ):

> **RQ 1**: *How can management academics and practitioners work together to overcome collaboration challenges (i.e., knowledge creation and transfer) between science and practice?*

Information Asymmetries and Goal Incongruence

We contend that the mission of management academics is to help create knowledge that improves the welfare of management stakeholders (Shapiro et al., 2007), but this relationship is complicated by information asymmetries and goal incongruence. Information asymmetries are naturally occurring in relationships in which there is specialized knowledge. Management academics have unique training through doctoral programs, and research directives from their universities that task them with contributing to management knowledge, disseminating such knowledge through teaching, writing, and staying up-to-date on new management practices. Conversely, practitioners are on the frontlines of management application. Through trial and error, they are sometimes able to gain insight from applying past knowledge and creating new knowledge (Shapiro et al., 2007). Furthermore, practitioners have insider information about practices that are actually used in their firms, and academics on the outside would be unable to learn about such practices without also first developing an insider relationship. This is indicative of the current state of affairs, in which academic knowledge and practice-oriented knowledge evolve separately.

It has been argued that goal incongruence often occurs because of self-interest or an inability for stakeholders to act with consensus (Connelly, Tihanyi, Certo, & Hitt, 2010). Goal incongruence is also not uncommon in the science–practice gap. Differences with regard to which goals should be pursued naturally emerge in academia. And, goal incongruence can occur among practitioners themselves. Consequently, it is no surprise that goal incongruence may emerge between practitioners and academics.

Collaboration is an opportunity for multiple stakeholders with different views to combine their perspectives to search for solutions that extend beyond what one may accomplish in isolation. Overall, information asymmetries and goal incongruence result in high collaboration costs, making it difficult for both academics and practitioners to embrace one another in a working relationship. And, when collaboration costs are too high, the desire to collaborate may be diminished. Thus, we propose the following research questions:

> **RQ 2**: *How does information asymmetry play a role in contributing to higher collaboration costs when conducting joint research between academics and practitioners?*

> **RQ 3**: *How does goal incongruence play a role in contributing to higher collaboration costs when conducting joint research between academics and practitioners?*

The Role of Stakeholders

In our discussion of stakeholders of management research, we focus on those who are affected most immediately by such research. Even though the definition of a stakeholder can be interpreted broadly, for the sake of discussion, we begin with more proximal stakeholders. These include U.S. employees, supervisors/managers, entrepreneurs, executives, and government employees who work closely with HR departments, such as the OPM and EEOC. These stakeholders are typically the first consumers of management research as they are on the frontlines of practice.

Theory suggests that stakeholder groups who have greater knowledge regarding the goals and priorities of one another will have more effective relationships (Bosse, Phillips, & Harrison, 2009; Harrison, Bosse, & Phillips, 2010). Specifically, Harrison et al. (2010) put this in terms of "utility functions"—preferences with regards to different outcomes resulting from

work. Utility functions explain both what represents utility for stakeholders as well as an understanding of the weightings or importance of those functions for stakeholders. And, stakeholders who understand utility functions of others are in a better position to explore how to promote the welfare of their constituents.

With regard to academics and practitioners, the current state of affairs is one in which neither group is familiar with the others' utility functions (Rousseau, 2007). This has led to a situation in which neither side can envision the benefits of collaborating—i.e., collaboration costs are viewed as too high, as stakeholders anticipate that they would not receive sufficient enough benefits to collaborate.

However, we argue that academics and practitioners who have greater knowledge of one another's utility functions will be more likely to collaborate. For example, under conditions in which academics and practitioners develop mutually beneficial relationships, each side might exhibit an increased willingness to share more nuanced information regarding their utility functions (Harrison et al., 2010). Such nuanced information may spur greater knowledge creation to allow academics to better characterize changes within the environment of their stakeholders and the stakeholders themselves. Overall, we suggest that academics (practitioners) who better understand the utility functions of practitioners (academics), as well as the weightings of such functions, will have reduced collaboration costs in the form of increased two-way knowledge mobility (Dhanaraj & Parkhe, 2006).

Thus, we ask the following research questions:

RQ 4: How can academics benefit from understanding the utility functions of management practitioners?

RQ 5: How can practitioners benefit from understanding the utility functions of management academics?

When reciprocal exchanges are established, knowledge is created. This begs the question of how do we know that knowledge has been created and successfully translated into practice? We propose that the accomplishment of grand challenges would indicate that the welfare of management stakeholders has been improved. In the following section, we describe how management academics and practitioners might pursue grand challenges.

Engaged scholarship (Hughes, Bence, Grisoni, O'regan, & Wornham, 2011; Van de Ven & Johnson, 2006) begins with the identification of multiple areas

for collaborative research. Yet, large-scale collaborative research with practitioners is not an approach with which many academics are familiar (Markides, 2007; Markides, 2010). So how does the management field promote large-scale collaboration? One answer is that setting large-scale goals or identifying "grand challenges" capable of capturing the public's imagination can stimulate collaborative efforts. Grand challenges are ambitious but achievable objectives, and, as powerful goals, grand challenges energize, direct attention, and facilitate arousal and discovery of new strategies and knowledge (Locke & Latham, 2002).

The idea of identifying grand challenges to galvanize a field is not a new concept. In the early 1900s, David Hilbert identified unsolved problems in the field of mathematics that helped to direct the efforts of stakeholders in his field over the course of the next century (Varmus, Klausner, Zerhouni, & Acharya, 2003). Perhaps some of the most famous grand challenges of the twenty-first century include President Kennedy's declaration that the U.S. would land a man on the moon, the decoding and mapping of the human genome, and proof of the Higgs boson particle (Mertens & Barbian, 2015).

Other work attempting to identify grand challenges has occurred in a number of fields, such as archeology (Kintigh et al., 2014), energy (Manley, Anastas, & Cue, 2008), global health (Varmus et al., 2003), mental health (Collins et al., 2011), information systems engineering (Mertens & Barbian, 2015), and epidemiology (Daar et al., 2007). These efforts illustrate what is possible when multiple stakeholders are provided with clear goals for collaboration. We sought to conduct a similar initiative in the field of management and to identify grand challenges meant to benefit all stakeholder groups.

We recognize that prior to identifying grand challenges for the coming years, it was first important to identify what grand challenges had already been completed to determine lessons learned from these past accomplishments. By better understanding what challenges we had completed as a field, we could inform and guide others and ourselves in the pursuit of new grand challenges. Hence, we inductively examined this phenomenon in our study and asked:

RQ 6: What grand challenges do management academics perceive have been accomplished, if any?

RQ 7: What grand challenges do management academics perceive still exist?

RQ 8: What grand challenges do practitioners perceive still exist?

Finally, although past research has lamented the science–practice gap and has proposed potential causes, extant suggestions regarding means to address the issue are limited. Hence, we asked the following research question:

RQ 9: How can we leverage identified grand challenges to reduce collaboration costs and, subsequently, the science–practice gap?

METHODS

Research Approach

Before launching the current data collection efforts, we pre-registered our plan via the Open Science Framework (detailed study information can be found online at: https://osf.io/xyks3/?view_only=aaeaf62787f14b50a65410e9c424fc74). We expanded our data collection based on recommendations from journal reviewers, which led to a second wave of data collection detailed below.

In the current research, we focus on the most proximal stakeholders, or those who produce most of the management research published in academic journals (i.e., both U.S. and international academics) and those who are most likely to immediately consume management research (e.g., U.S.-based practitioners). We base this decision on stakeholder theory (Harrison et al., 2010), which supports the notion of beginning one's focus with the most proximal stakeholders and then expanding one's attention. Of course, this initial boundary condition could be expanded in future research.

Data Collection and Procedures for Interviews

We approached the task of modeling the science–practice gap by using a grounded theory approach. Accordingly, we conducted a series of interviews and formed an interactive focus group with academics and practitioners. Using a combination of purposive and convenience sampling, we interviewed a total of 22 practitioners (seven female) and 16 academics (six female). Of the 22 practitioners, four worked for a local city government, four were from the EEOC, and three were from the OPM.[1] We followed up the interviews with a focus group of four practitioners (including two

from the government) and three academics (from organizational behaviour and human resources (OB/HR), strategy/entrepreneurship). We used in-depth, semi-structured interviews to provide overall rigor and richness for our study and to allow participants the opportunity to detail their experiences in their own words, a benefit not often a part of survey research.

We would like to note that we used an approach from grounded theory called theoretical sampling (Eisenhardt & Graebner, 2007) for this portion of the study. Specifically, we did not determine "a priori" what constructs or themes might emerge from the data. Instead, we relied on information that was revealed during the data collection process to inform ideas about who could be interviewed and/or observed next. We began with academics and practitioners but then expanded our interviews to include EEOC and other government employees because participants mentioned different sectors as a potentially important aspect. In addition, we realized that a focus group with a sampling of participants from all of the different sectors could also prove fruitful to our data collection and analysis efforts. We then used these new data sets to explore whether additional relevant categories might emerge, how stable our categories were at that point, and whether or not relationships between categories were fully developed. Procedurally, we conducted the interviews over the phone due to geographic constraints, and they ranged in length from 20 to 60 minutes, with an average length of around 30 minutes.[2] We based the interview guides on expanded versions of the research questions listed in the introduction. All interviewees consented to being audiotaped. We transcribed the interviews resulting in 331 pages of single-spaced text. To identify participants for the interviews, we pursued multiple avenues to ensure a broad coverage of role, content area, and organizational tenure. These efforts are described next.

Recruitment of academic interviewees. To engage academics, we first asked whether individuals who posted responses to our multiple listserv queries wanted to participate. Three academics, who had engaged with us in conversations via the Business, Policy, and Strategy (BPS) as well as the Entrepreneurship (ENTREP) listservs via the AOM, agreed to participate. Second, we reached out directly to authors and associate editors at top academic journals who had expertise in the applicability of research to practice—of these individuals, four agreed

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[1] A detailed breakdown of the demographics of the interviewees is available from the authors upon request.

[2] Interview guides and focus group questions are available from the authors upon request.

to participate. We engaged five academics through connections via the Southern Management Association. We connected with the remaining four academics through an academic clinic focused on translating research into practice.

Recruitment of practitioner interviewees. To engage practitioners, we also pursued multiple avenues. To reach state government employees, we used a prominent local contact in state government who referred us to four individuals who agreed to participate. To reach federal government employees, we reached out to multiple individuals via the authors' LinkedIn contacts—and, of these, seven agreed to participate from the EEOC and OPM. To reach individuals who practice strategy, marketing, technology management, human resources, as well as entrepreneurship, we networked through a local Business Network International (BNI) region and a local academic clinic focused on translating research into practice. We engaged 11 individuals via networking in this manner.

Data Collection and Procedures for Surveys

To accomplish the task of identifying grand challenges in the management domain, we also obtained data from multiple sources (academics as well as practitioners) using direct emails, listserv posts, and an online survey. We drew on the work of researchers who have successfully crowd-sourced data collection in the organizational sciences (Behrend, Sharek, Meade, & Wiebe, 2011). This type of open source innovation has already been applied in the field of archeology to identify grand challenges (e.g., Kintigh et al., 2014). In this effort, we also sought out subject matter experts (SMEs) through direct emailing.

We asked all survey participants similar questions. Question 1 asked participants to specify if they were (1) an academic, (2) a consultant/practitioner, or (3) a working adult (not an academic or consultant/practitioner). We condensed both the consultant/practitioner and working adult options into one overarching practitioner category in order to simplify a comparison of those within and outside academia. We also asked academics to specify their primary field of research (i.e., organizational behavior/human resource, strategy, entrepreneurship, or "other") (Question 2a). We then gave all participants a definition of a "grand challenge" and presented them with two examples. The first example was The Bill and Melinda Gates Foundation's **grand challenge** *to prepare vaccines that do not*

require refrigeration. The second example was *how to reduce or eliminate the gender pay gap.*

Of academics, we asked what grand challenges they believe have successfully been addressed in their area of management and to provide a brief explanation of why they considered them to be a success and to outline the potential benefits to stakeholders (Question 3a). Last, we then asked what grand challenges should be a focus for the coming years in their area of management, and again to provide a brief explanation and to outline the potential benefits to stakeholders (Question 4a). We then asked participants in the second wave of data collection a series of demographic questions (i.e., age, gender, race, academic rank).

We asked practitioners about the issues or problems in the business world that management academics and practitioners should focus on in years to come. We also asked them to provide a brief explanation of their proposed grand challenge and its potential benefits to stakeholders (Question 2b). Finally, we asked these participants about their current job (Question 3b), and how many years they have held that position (Question 4b).

Participants included 828 academics and 939 practitioners ($N = 1,767$). We detail our recruitment efforts below.

Recruitment of academic participants for the survey. We recruited our sample of 828 academics via direct emails ($n = 584$), listservs ($n = 163$), and MTurk ($n = 81$). Below, we outline how each recruitment strategy worked. First, to generate a list of direct emails, we created a list of authors with available email addresses who had published in 28 journals between 2010 and 2014. We selected the journals based on a desire to survey authors who have published in the well-known management journals in recent years. It is unlikely that a consensus will ever be established regarding the well-known journals in the field. However, we selected journals based on two primary criteria including: (1) impact factors as reported in the *Journal Citation Reports* published by *Thomson Reuters*; and, (2) a stratified sample of journals that represent a primary focus on OB/HR, strategy, and entrepreneurship. Even though it is not possible to say with certainty that the journals selected are the best journals in management, they are a reasonable representation of the field. Additionally, we overcame any shortcomings in the journals selected by surveying management researchers through listservs (described below).

The journals included: *Academy of Management Review*, *Journal of Management*, *Academy of*

Management Journal, Journal of Applied Psychology, Administrative Science Quarterly, Personnel Psychology, Organizational Research Methods, Journal of Organizational Behavior, Strategic Management Journal, Organization Science, Organizational Behavior and Human Decision Processes, Leadership Quarterly, Group and Organization Management, Journal of Occupational and Organizational Psychology, Organization Studies, Human Resource Management Review, Human Resource Management Journal, Journal of Business Venturing, Entrepreneurship Theory and Practice, Strategic Entrepreneurship Journal, The Journal of International Business Studies, Management Science, Asian Business & Management, International Journal of Entrepreneurial Behavior and Research, International Entrepreneurship and Management Journal, European Management Journal, International Business Review, and Journal of Business Ethics. We excluded two journals that we intended to collect data from due to access issues. In total, we sent 9,783 individual emails. We received 584 (response rate of 6%) valid responses using direct emails. We provided no financial incentive for completing the survey.

Our second recruitment approach—listservs—worked as follows. We posted the same survey (described above) on a series of listservs through the AOM. We used only listservs that allowed the distribution of surveys. These listservs included: BPS-NET@aomlists.pace.edu, SIM@aomlists.pace.edu, ENTREP@aomlists.pace.edu, OMT@aomlists.pace.edu, hrdiv_net@listserv.neu.edu, rmnet@listserv.unc.edu, IMD-L@aomlists.pace.edu, and MG-ED-DV@aomlists.pace.edu. Again, we provided no financial incentives for completing the survey. According to AOM data, the number of subscribers to these listservs is 23,369 (as of June 2015). This number of listserv subscribers is artificially high, as members can be subscribers to multiple listservs, and they are not at all mutually exclusive. Nonetheless, we received 163 valid responses using listservs (response rate of 1.0%). Even though the overall response rate from the listservs was low, we likely captured some of the listserv subscribers via the direct emails which were sent first.

Our third source of academic participants was Amazon's Mechanical Turk Marketplace (MTurk; described below). Although our efforts on MTurk were primarily geared toward practitioners, we did receive 81 responses from academics via MTurk.

Overall, of the academics surveyed, 40% were from OB/HR, 19% were from strategy, 12% were from entrepreneurship, and 29% indicated other (e.g., supply chain management). Due to survey length concerns, we did not collect additional demographic information for the first survey wave in order to improve the response rate. For the second survey wave (composing 36% of the total sample), the demographic information was as follows: the average age of the academics was 49, and there was a range of 27 to 80 years old. Approximately 79% of the academics were White/Caucasian, and 29% were female. Of the participants, 1% identified as graduate students, 12% were assistant professors, 35% were associate professors, 48% were full professors, and the remaining were classified as other.

Recruitment of practitioner participants for the survey. Our sample of 939 practitioners was recruited via direct emails ($n = 8$), listservs ($n = 9$), and from MTurk ($n = 922$). A small number of the journal authors who responded to the direct emails (described above) identified as practitioners. And, similarly, some of the individuals who responded to the survey from the listserv queries (described above) also identified as practitioners. However, we focused our recruiting efforts for practitioners on MTurk. The use of MTurk is rapidly growing, and data from respondents via MTurk have been judged to be of high quality and appropriate in the management context (e.g., Bendersky & Shah, 2013; Buhrmester, Kwang, & Gosling, 2011). Even though the use of MTurk represents a convenience sample, one of the stakeholder groups we wished to survey was a typical working adult. Thus, the MTurk approach was an optimal choice of recruitment channel. We specified U.S.-based respondents only and limited those responses to individuals who had management and/or supervisory experience. We enabled the query posted on MTurk to collect a sample of 1,000 individuals (i.e., we limited the number of respondents to 1,000). After deleting respondents who did not submit complete responses, or unintelligible ones, our sample size from MTurk was 922. We compensated participants with $1.00 for their time, commensurate with the three-minute average completion time. Examples of the most common practitioner job titles included a variation of a "supervisor" or "manager." Participants had worked in their current position for an average of five years.

Data Coding and Analysis

Interviews. To address RQ1, RQ2, RQ3, RQ4, RQ5, and RQ9, we used a grounded theory approach to

analyzing interview and focus group data to identify themes or recurring patterns in the transcripts (Glaser & Strauss, 1968; Strauss & Corbin, 1990). Grounded theory typically involves collecting data from multiple sources using a variety of techniques as a way to analyze the data from several perspectives. This process creates a more holistic perspective of the phenomena under investigation (Glaser & Strauss, 1968). Grounded theory as an approach is concerned with discovering, rather than testing, theory and it is especially appropriate for this study as it seeks to explore phenomena about which little is known (Glaser & Strauss, 1968), such as the gap between science and practice. It is often referred to as the "constant comparative" method in which, throughout the data analysis phase, we constantly compare the data to emerging categories or themes as well as back to the extant literature on the topic (Strauss & Corbin, 1990). During the process, categories continue to get refined until the researchers can agree on the most stable categories that best represent the data. Data analysis in a grounded theory approach is a three-step process involving open, axial, and selective coding.

First, during open coding, data get broken down into key phrases or concepts. We reviewed the transcripts, line-by-line, labeling what was emerging inductively in each of the interviews. The goal with open coding is to take sentences apart, try to determine what the text represents, and then give that phenomenon a name (Cowan & Fox, 2015). Some sample open codes that emerged during our analysis included: audience adaptation, performance vs. people, elitism, information asymmetry, differing priorities, collaboration incentives, ivory-tower thinking, knowledge transfer, and evidence-based teaching.

Next, during axial coding, we grouped together the codes that were identified during open coding in order to represent larger categories. During axial coding, we "made connections between a category and its sub-category" (Strauss & Corbin, 1990: 97). In order to create these larger categories, we asked questions such as: "How are these codes similar to one another?," "How are these codes different?," "If they are different, in what way?" (Cowan & Fox, 2015). This process resulted in the development of eight over-arching categories (see the appendix for our categorization framework, which includes all of the categories created during axial coding as well as sample exemplars from the transcripts). Additionally, during this phase of the project, we used the technique of triangulation in which we discussed

any areas where we had agreement and discrepancies among the data sources. Then, we examined and discussed different types of data to see whether they led to the same categories. For example, a common theme that emerged through our interview data were with regard to the effectiveness of academics at "speaking the language" of business or the "real-world." In order to further probe this potential category, we focused on this as a specific talking point during the focus group that we conducted after the interview data had been collected. We wanted to ensure the themes that we were finding from the interviews were stable. Axial coding was complete when the research team was satisfied with the categories and theoretical saturation had been achieved (i.e., the category structure is stable and no new, novel interpretations emerge), and each category could be supported with exemplars from the transcripts.

Last, in the selective coding phase, we established a relationship across and among the overarching categories, which then informs the model or theory created through the analysis. We diagrammed the relationships among the data, which helped ensure visual and conceptual clarity. We discuss our theory/model that emerged from these processes in the results and discussion sections.

To ensure the trustworthiness of our findings, we used member checks (Lincoln & Guba, 1985), in which seven of our participants (i.e., four practitioners and three academics) engaged in a one hour focus group (noted earlier) to determine if the findings resonated for them. We then made adjustments to the categorization framework and overall interpretation of the data.

Survey data. To address RQ6, RQ7, and RQ8 (i.e., questions on understanding which grand challenges have been fulfilled versus those remaining unaddressed), we used qualitative content analysis (QCA). QCA is a well-established method for the systematic classification and interpretation of data (Hsieh & Shannon, 2005). Due to the large amount of data, we used ATLAS.ti to organize and code responses. ATLAS.ti is a qualitative software analysis tool that allows for large amounts of text, photos, videos, or other forms of data to be organized and grouped in one place, making the coding process more efficient and reliable.

Once we loaded the responses into ATLAS.ti, we developed a coding frame (Schreier, 2012) (i.e., QCA coding framework). We established the coding frame by reviewing a small sample of the data ($n = 100$) in order to create the codes used for analysis. When

conducting a QCA and creating a code framework, research supports taking anywhere from 5% to 10% of the sample to inform the codes (Schreier, 2012). For the three primary categories, we included codes for: (1) field of research, (2) grand challenges that have already been addressed, and 3) grand challenges that still need to be addressed.

Next, we took a summative approach to the data using the established coding framework (Hsieh & Shannon, 2005). Researchers conduct a summative approach by searching and counting word occurrences using the coding framework (Hsieh & Shannon, 2005). Each coder (i.e., three of the authors coded) reviewed the datasets independently and assigned codes from the QCA coding framework to the data based on the framework and their interpretation of what was being said in the response. This interpretation is known as a latent content analysis (LCA), which refers to the technique of interpreting the underlying meanings of the responses and reporting the contexts in which the words are used via the selection of codes[3] from the framework (Hsieh & Shannon, 2005).

Consistent with best practices, to ensure the trustworthiness and dependability of our findings for this particular dataset (Lincoln & Guba, 1985), we examined the inter-rater reliability of the three trained, independent, coders using the Fleiss method to estimate Cohen's κ (Cohen, 1960). The Cohen's κ estimate in this study was 0.91, indicative of a strong coding framework (Schreier, 2012), and well above the threshold of 0.75 (or higher), which is thought to indicate excellent reliability (Fleiss, 1981).

RESULTS

We begin our results section by describing the results of our grounded theory analysis. We organize our results into a categorization framework (see the appendix). Drawing upon stakeholder theory, we illustrate our findings in a set of theoretical models. We conclude our results section with a discussion of past and future grand challenges for the field of management that was derived from our QCA approach.

Grounded Theory Analysis

Knowledge creation. First, we discuss a theoretical model that emerged from our data analysis of the

[3] Detailed information is available on this coding framework from the authors upon request.
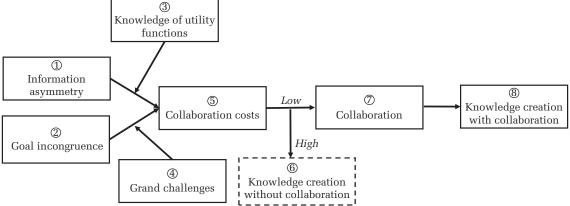
science–practice gap with regard to knowledge creation. We begin with the notion that *information asymmetry* (Figure 1: Box 1) and *goal incongruence* (Figure 1: Box 2) contribute to *collaboration costs* for stakeholders (Figure 1: Box 5). Information asymmetries naturally occur given the different systems in which academics and practitioners operate. As one example of how information asymmetries occur, academics receive specialized training through graduate programs, enabling them to concentrate on research. Practitioners typically receive different training through formal education and continue their learning in specialized areas in their unique fields. The combined effect is that information asymmetries occur in this context.

Further, there is a potential for goal incongruence to emerge for a variety of reasons. For instance, differences in short- and long-term goal orientations may exist. Highlighting this notion, one practitioner in the current study commented, "Academics don't help me hustle and grind at work. I need to take action now, not just talk about it in abstract terms." An academic shared similar sentiments "Practitioners are busy, overwhelmed, and under stress. So, they are not slowing down to think, and I don't know that academics are speeding up to get out information to organizations and find practical solutions. Our goals are differently aligned." Additionally, academics and practitioners in our study both commented on how each group has different means of measuring success, which can create a barrier to collaboration.

Consequently, both information asymmetry and goal incongruence can lead to higher levels of collaboration costs. Yet, there are contingency factors that may reduce concerns about collaboration costs. First, knowledge of utility functions (Figure 1: Box 3) can be used to reduce information asymmetries. The sharing of utility functions between stakeholder groups again can require that at least a certain level of trust be formed (Harrison et al., 2010). Yet, when trust is gained and knowledge of utility functions is shared, the effect can serve to mitigate naturally occurring information asymmetries. Further, the alignment of goals, perhaps through the establishment of grand challenges (Figure 1: Box 4), may lead to reduced goal incongruence. For example, one academic stated, "Practitioners are interested and held accountable for business performance. They want to know what they can learn on Friday to take back to the office on Monday. What academics think is important are hypotheses testing, such as are people happier. This isn't the kind of thing that is relevant to managers." Thus, there is a potential for

FIGURE 1
A theoretical model of the science and practice gap with regards to knowledge creation

misalignment that could be resolved through establishing mutual goals for grand challenges.

Information asymmetries and goal incongruence may thus be reduced with knowledge of utility functions and establishment of mutual goals in the form of grand challenges. The result is reduced collaboration costs between practitioners and academics. However, if knowledge of utility functions and grand challenges are not established or even understood, collaboration costs may be too high to create buy-in for collaboration, which likely leads to knowledge creation without collaboration (Figure 1: Box 6). In the event that collaboration costs are low, buy-in for collaboration occurs. One entrepreneur summed up this theme when he said, "We need to create value for collaborating. How can academics help practitioners and vice versa?"
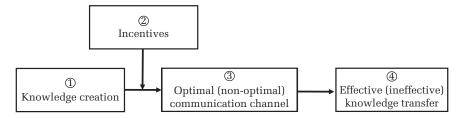
Numerous benefits to collaboration emerged from the data (Figure 1: Box 7). For instance, through collaboration management stakeholders are able to capitalize on differing perspectives. One practitioner commented, "Everyone is going to approach this differently, and that's a good thing. I think if it's done collectively, which I know is not always easy since we have different opinions and ideas but I think, ultimately, it results in a better solution." Collaboration also has the advantage that it can be cross-functional. Most participants believed that collaboration is possible and necessary. Cross-functional collaboration might look like internships, large project collaboration, publishing together, to name a few examples. The result is knowledge creation with collaboration (Figure 1: Box 8). We argue that there is a great potential for knowledge creation with collaboration to reduce the science–practice gap and, therefore, create value for management stakeholders compared to

knowledge creation without collaboration (Figure 1: Box 6).

Knowledge transfer. We next present an additional model, which emerged from our data analysis, with regards to knowledge transfer in the science–practice gap context. While Figure 1 provided emphasis on *knowledge creation*, Figure 2 presents the theoretical model of the science–practice gap with regards to *knowledge transfer* (Shapiro et al., 2007). The model starts with knowledge creation (Figure 2: Box 1). Here our participants focused on challenges that emerge in transferring knowledge to management stakeholders in order to create value. One major theme that emerged from the data were the need to incentivize knowledge transfer. One academic stated, "What do we all want? Data and money. Those are the two things that motivate the masses to work together." Even though another academic suggested that intrinsic rewards should dominate as he suggested, "I don't necessarily think we need to be incentivized monetarily because frankly, I make enough money. Part of my life decision to become an academic is to do interesting things. That's incentive enough." In the event that knowledge transfer is not incentivized (Figure 2: Box 2), ineffective knowledge transfer may occur. Conversely, if knowledge transfer is incentivized, optimal communication can occur in several different ways.

For example, one means to improving optimal communication might include adapting the language of management to that of the "real world." By customizing our language to that of our audience, we may better relate new knowledge to stakeholders. Part of this process may include learning the needs of the other parties. Both academics and practitioners may play a role, as academics must avoid being

FIGURE 2
A theoretical model of the science and practice gap with regards to knowledge transfer

trapped in "ivory tower" thinking, and practitioners must also avoid "tunnel vision." In addition to language concerns, participants also focused extensively on the importance of teaching. One government official commented, "The professor needs to teach a slightly different content to make it more practical which will also make it beneficial for the student, which will give them a taste of what's it like to be an architect, or an accountant, or an engineer." One academic stated, "It's no coincidence that one of their main criticisms of recently graduated new hires was that their professors had trained them into a 'ready, aim . . . aim . . . aim.'" Finally, many participants commented on the need to develop better tools for information sharing. For instance, one idea was to use conferences more effectively to get practitioners and academics in conversation with one another.

In sum, it seems that academics and practitioners are not in conversation with one another nor do they have adequate and accurate information about the other party. By improving our language, teaching, and tools for sharing information, we can promote more effective knowledge transfer (Figure 2: Box 4), which can be accomplished through better choices of communication channel (Figures 2: Box 3).

Overall, the models illustrated in Figures 1 and Figure 2 represent the conceptualizations we derived from our grounded theory analysis. These novel models both draw on, as well as advance, extant theory in presenting a way to view the causes as well as potential solutions to the grand challenge of the science–practice gap. In the following sections, we delve into the areas of potential collaboration (i.e., the identification of "grand challenges") that can be created between academics and practitioners.

Qualitative Content Analysis (QCA)

Past grand challenges. In order to examine specific grand challenges that academics and practitioners identified, we conducted a QCA. We would like to note that we were not able to fit every single response into one of our categories, but the ones presented here were the most salient across the datasets (i.e., interviews and surveys). In the following section, we highlight the top five grand challenges identified by academics, which have already been addressed. Then, we turn to the future grand challenges that both academics and practitioners identified.

First, in the opinion of many of the academics, tending to the day-to-day functioning of employees has largely been accomplished. As one respondent said, "We seem to have figured out the importance of organizational culture and the importance of the 'happy worker.'" Additionally, academics also asserted that many organizations have figured out different ways of motivating employees at work: "We now know that individuals are motivated by things other than money, and this has resulted in the better design of work, organizations, and incentives to give people what they want." Second, academics also pointed to advances in knowledge over the past 10 or 20 years that pertained to how firm strategy leads to advantages over competitors. One academic wrote, "The field has done a great job understanding the factors impacting firm performance—particularly at multiple levels of impact (e.g., the impact of industry and firm characteristics on firm performance)." Another researcher wrote, "In the past 30 years of research in Strategy and related fields (e.g., Economics), we developed a broad evidentiary basis for concluding that we gain most insight on why there are persistent differences in business performance by studying variance in business-level factors such as business-level resources and capabilities."

Third, academics discussed accomplished grand challenges in the area of entrepreneurship. One academic wrote, "Although not completely done, the challenge that is very close to being accepted (in my view) is that entrepreneurship is distinct to management and plays a different role and function in the development of both society and, at a more micro

level, businesses." Others agreed that a clear definition of entrepreneurship, in terms of both the individual's psychological makeup and the environment in which they operate, was an accomplished grand challenge. Academics also suggested that reductions in poverty in the world reflected the implementation of entrepreneurial activities in the open market.

Fourth, academics mentioned leadership as a grand challenge that has largely been addressed. Several of the respondents discussed the advancement and prevalence of leadership theories that have allowed for the transition from authoritative to transformational leadership. As one respondent said: "We have a much better idea of what makes an effective leader that goes beyond personality. We have theories that explain situational leadership, transformational leadership, and even servant leadership." We note that despite the fact that this was the fourth most discussed accomplished grand challenge, there was disagreement that this challenge was actually addressed, as many academics pointed to the area of measuring and developing leaders as a topic in need of future research.

Finally, recognizing the importance of diversity was a topic that came up often in the academic data. Academics named appreciation for diversity as a grand challenge that has been addressed. This category was divided into two general types of responses: (1) recognizing that diversity increases one's competitive advantage, and (2) having a diverse workforce reduces the likelihood of a lawsuit or accusations of discrimination. As one respondent said: "The value of diversity in organizations has been recognized as a key competitive advantage. Diversity provides equitable opportunities to all human resources and provides access to top tier human capital to drive value creation." And, as another respondent mentioned: "I think we are more cognizant of the ramifications of dealing with a discrimination lawsuit. Organizations are doing a better job hiring and retaining diverse employees, which will allow them to avoid the headaches of a lawsuit. Whether or not that is the right reason for diversity initiatives in the workplace, it is nonetheless, reducing our reliance on Affirmative Action programs." Based on this comment, as well as other similar responses, recognizing the importance of diversity has been a grand challenge that has largely been addressed. Yet, more work is needed in this area as the importance of reducing or eliminating discrimination emerged as a future grand challenge for both academics and practitioners.

Grand challenges for future research. We now transition to briefly discussing grand challenges that need to be addressed through future empirical investigation. Across the 1,767 participants, 35 subcategories were coded for the academics and 32 were coded for the practitioners. For the sake of parsimony, we focus our discussion here on the categories that were coded at least ten times based on the QCA coding framework. We further distilled the categories into an overarching framework to write summary descriptions of the categories. For example, pay equality categories from the academic and practitioner responses related to demographic differences, employee rank, and social class were summarized into a descriptive statement meant to serve as an exemplar of the combined participant statements. Table 1 provides a summary of the future grand challenges to be pursued. As an illustrative example, we proceed to discuss the most highlighted grand challenge among both academics and practitioners.

By far and away the most common grand challenge that respondents reported was with regard to pay equality. Interestingly, the focus on pay equality was equally distributed across areas such as demographic variables (e.g., gender), employee rank, and social class. For example, one respondent said, "Academics need to focus on reducing or eliminating the gender pay gap. By allowing gender equality in pay, it helps stabilize the American economy and grows profits for companies by retaining and attracting important members of the workforce." Another respondent mentions the importance in equalizing the pay structure across job: "We need to decrease the wage gaps between professions. The income inequality is crippling our nation and only the business world can change that. Some of it is obvious like don't pay your CEO 300 times your least paid worker but it's far more complicated than that and will require a lot of effort to do the research and see what makes the most sense."

Several practitioners discussed the need to focus on pay inequality across rank: "The large gap between manager pay and regular worker pay is too large. It creates a natural barrier to normal communication by creating a caste system in the workplace." Additionally, practitioners made mention of better justification for pay decisions. As one respondent said, "We need to provide more precise guidance on developing HRM systems that will lead to mutual gains between employees and employers. We need better transparency regarding the reasons why certain pay structures are in place. More evidence is vital to help with income inequality."

TABLE 1
Academics and practitioners – grand challenges for future research

#	Grand challenges (number of responses)	Description
Academic and practitioner		
1	Reduce or eliminate pay inequality (280)	Reduce or eliminate pay inequality due to (a) demographic differences, (b) employee rank, and (c) social class
2	Reduce or eliminate discrimination (180)	Reduce or eliminate discrimination (a) on the basis of demographic differences, and (b) increase diversity in the workplace of businesses to better reflect the pool of qualified candidates
3	Reduce or eliminate unethical business practices (180)	Reduce or eliminate occurrences of violations (both corporate and in small- and medium-sized businesses) of U.S. and international laws
4	Expand opportunities for continuing education (145)	(a) Reduce the magnitude of student loan debt; (b) increase the applicability of higher education to create opportunities for students of all ages to pursue life-long learning (college, corporate training, continuing education)
5	Leverage technological innovations	Leverage technological innovations to improve (a) the measured quality of, and (b) the number of available jobs
6	Increase employee morale (119)	Increase measured levels of employee workplace satisfaction and engagement
7	Reduce carbon footprint (76)	Reduce carbon footprint of (a) corporations, and (b) consumers of their products and services through the development of sustainability initiatives
8	Enhance customer service quality (26)	Link marketing metrics (attitudinal, behavioral) to financial and other strategic outcomes to improve measured quality of customer satisfaction
Academic only		
9	Implementation of HRM best practices (115)	Facilitate the implementation of current HRM best practices to positively influence employees' measured perceptions, attitudes, and behaviors
10	Reduce or eliminate the management science–practice gap (86)	Facilitate an improvement in: (a) knowledge creation, and (b) knowledge transfer to increase measured value for all management stakeholder groups
11	Increase economic growth and stability internationally (72)	Increase economic growth (i.e., GDP) with the goal of increasing the measured (a) health, (b) nutrition, and (c) income per capita of the world's developing populations
12	Increase the effectiveness of entrepreneurial innovation (55)	Increase entrepreneurial innovation in terms of the (a) percentage of successful start-ups, and (b) the measured social as well as environmental impacts of these ventures, particularly in developing countries
13	Increase firm value creation for society (54)	Increase measured firm value creation for stakeholders through an understanding of the determinants of financial and other strategic outcomes; facilitate a measured awareness and appreciation for the importance of metrics beyond financial outcomes (e.g., social, environmental)
14	Increase (reduce) positive (negative) strategic HRM synergies (33)	Increase (reduce) positive (negative) synergies among strategic HRM activities in order to improve measured employee welfare (e.g., employee satisfaction and engagement) and organizational functioning (e.g., firm financial performance)
15	Optimize the measurement and development of leaders (24)	(a) Foster an integrative understanding of how leaders and followers, taking into consideration context, can work together more effectively and more efficiently, and (b) leverage this knowledge by implementing training programs that enable leaders to better lead in ways that create value
16	Optimize the measurement and development of creative/innovative employees (20)	Establish an understanding of those circumstances under which employee creativity and innovation are desired characteristics, and (b) leverage this knowledge to implement training programs that promote employee creativity and innovation across all organizational-levels

TABLE 1
(Continued)

#	Grand challenges (number of responses)	Description
Practitioner only		
17	Promote employee well-being (68)	Increase measured employee well-being, in part, by (a) reducing the average number of hours worked per week, (b) increasing the average amount of paid time off, (c) increasing flexible scheduling, and (d) increasing the measured effectiveness of employee well-being programs
18	Reduce costs for companies and consumers (32)	Reduce (a) average operating costs for companies and subsequently, (b) costs of consumer goods and services
19	Reduce or eliminate global health concerns (25)	(a) Establish a list of global illnesses in order of severity, and (b) identify from this list the illnesses that are most important to target with research, to (c) increase measured quality of life for individuals affected by these illnesses (e.g., life expectancies, overall health)
20	Reduce employee turnover rates (24)	Reduce turnover rates among employees, particularly among (a) young employees, and (b) working parents
21	Facilitate the measurement and development of communication in the workplace (16)	(a) Identify the jobs and roles where oral and written communication skills are paramount, and (b) leverage this knowledge to implement training programs to help these employees improve the measured quality of their communication skills
22	Provide affordable healthcare (14)	Provide affordable healthcare insurance to all employees

In sum, we illustrated via our analysis that (a) there are grand challenges that have been accomplished, (b) that there are more grand challenges to pursue, and (c) there is overlap between academics and practitioners in their identification of grand challenges to pursue. Below we discuss the implications of these findings.

DISCUSSION

We applied a stakeholder theory perspective to the grand challenge of the science–practice gap and provide valuable insights that address the "lost before translation" as well as "lost in translation" issues that Shapiro et al. (2007) described. Interviews (*n* = 38) and a focus group (*n* = 7), as well a survey of 1,767 academics and practitioners, revealed insights that (a) led to a set of theoretical models (described above) and propositions (described below) that serve to extend stakeholder theory, as well as (b) to bridge the science–practice gap.

What Do We Now *Know* About the Science–Practice Gap that is New?

Our work extends on prior research (e.g., Shapiro et al., 2007) on the science–practice gap that has noted problems related to knowledge creation (i.e., lost before translation) and knowledge transfer (i.e., lost in translation). Here, our research uniquely informs the conversation about knowledge creation and knowledge transfer in that we identify the root causes of the science–practice gap. However, not only does our research identify the main mechanisms through which the science–practice gap is created (described above), we identify novel solutions to actually bridge the gap (described below).

Regarding knowledge creation, we find evidence consistent with the inference that one of the main causes of greater collaboration costs—information asymmetry—can be alleviated with greater knowledge of utility functions. In particular, our data relating to research questions 1, 4, 5, and 9 show that we can build awareness between academics and practitioners of one another's roles through (a) fostering collaborations that capitalize on different perspectives, (b) initiating cross-functional approaches, and (c) creating buy-in to collaborations through mutual value creation. For the other main cause of greater collaboration cost—goal incongruence—we find evidence consistent with the inference that this can be alleviated by identifying grand challenges that appeal to both academics and practitioners. In particular, our findings (for research question 3) show that we can indeed generate areas of mutual interest by aligning priorities.

Regarding solutions to the knowledge transfer problem, we illustrate that greater incentives can enable a choice in communication channel that increases the likelihood that knowledge transfer will

be effective. In particular, data related to research questions 1, 2, 4, 5, and 9 show that we can (a) incentivize collaborations and effective knowledge transfer through monetary awards and recognition, and (b) develop opportunities (e.g., conferences, executive education) for mutual sharing of ideas.

Building new theory. We illustrate the new theoretical insights we develop in two figures. First, as illustrated in Figure 1, information asymmetries and goal incongruence may be primary contributors to one root cause of the science–practice gap—the "lost before translation" issue (Shapiro et al., 2007). Here, a better understanding of utility functions may reduce the negative effects of information asymmetries. Furthermore, the negative effects of goal incongruence, potentially due to differences in goal orientations (e.g., short- and long-term) as well as competing views of measuring success, might be mitigated when mutual goals are clearly established and agreed upon between stakeholder groups. Greater alignment could make it more likely that scientists and practitioners will collaborate. Thus, we posit the following propositions:

> *Proposition 1: Mutual knowledge of utility functions can mitigate the negative effects of information asymmetry.*

> *Proposition 2: Identifying and establishing mutual goals (i.e., grand challenges that interest both academics and practitioners) can mitigate the negative effects of goal incongruence.*

Overall, extending stakeholder theory, we suggest that knowledge creation can be more effective when stakeholders are involved as a result of increased two-way knowledge mobility (Dhanaraj & Parkhe, 2006). It is likely that the firms that involve their stakeholders to a greater extent will be better able to meet their stakeholders' needs (Bosse et al., 2009). Similarly, academics that involve practitioners, and practitioners that involve academics, should be better able to meet stakeholder (i.e., one another's) needs. Overall, when reciprocal exchanges are established, knowledge is created. We argue that the knowledge created through collaboration capitalizes on the benefits of two-way knowledge exchanges, disparate perspectives, and cooperative execution of research. Thus, we propose the following:

> *Proposition 3: Greater collaboration between academics and practitioners leads to knowledge creation that is more valuable to stakeholders as a result of (a) capitalizing on different perspectives, and (b) jointly working together.*

It is not enough to provide a benefit; rather, one must also communicate how that knowledge is beneficial to create value. We model how this can occur in Figure 2. This is a theoretical respecification that enables stakeholder theory to be more applicable—in particular, although stakeholder theory encourages an inclusion of all relevant stakeholders, there is little guidance as to what types of communication may be effective. Accordingly, our final theoretical insight pertains to the importance of effective communication in the knowledge transfer process.

> *Proposition 4: The extent to which created knowledge is effectively communicated to stakeholders (i.e., transferred) is contingent upon the (a) extent to which incentives (i.e., lower vs. higher) are provided to the knowledge holder(s), and occurs through (b) optimal (vs. non-optimal) communication channels.*

Goal congruence among academics and practitioners. Consistent with our newly developed models, specifically related to the knowledge creation issue, our work identified 22 grand challenges that could be the target of large-scale, collaborative research efforts between academics and practitioners. Our effort represents the first large-scale work in management research to involve both academics and practitioners in the conversation regarding the establishment of mutual goals. The most discussed grand challenge was to reduce or eliminate pay inequality due to (a) demographic differences, (b) employee rank, and (c) social class. We do acknowledge the caveat that one of the examples of a grand challenge used in the survey provided the gender–wage gap as example. Overall, though, employee compensation is one of the largest expenses for organizations and is a critical component in attracting, motivating, and retaining employees. And, compensation is a largely underresearched area (Deadrick & Gibson, 2007). Thus, it is not surprising that pay equality across demographic groups, employee rank, and social classes emerged as the most important grand challenge.

Perhaps most encouraging from the list of identified grand challenges is the amount of overlap between those challenges put forth by both academics and practitioners. Of the 22 grand challenges, more than a third were mutually acknowledged goals. Such an overlap could provide a helpful road map to begin to narrow the science–practice gap. Of course, this means that two-thirds of the grand challenges

did not overlap, and there did appear to be qualitative differences between those challenges derived from academics and practitioners. For instance, practitioners seemed to focus on more day-to-day concerns, such as the number of hours or days worked, as well as other specific concerns, such as turnover rates. Academics focused on more abstract and long-term concerns, such as issues related to corporate sustainability and clearly defining and measuring leadership and creativity constructs. Given that academics and practitioners may have overlapping, but distinct, mandates from their employers, the lack of overlap in grand challenges is no surprise. Still, we are very encouraged about the extant overlap and hope that this list of grand challenges can be successfully leveraged to galvanize large-scale collaborative efforts among teams of academics and practitioners in future research.

What Can We Now *Do* About the Science–Practice Gap that is New?

"I live daily with Science gaps and that is largely the problem solving I do as a business…My colleagues from around the country and I have been trying to address this in Universities…That gap ultimately gives me and others an ever expanded workload."

-One Organizational Signatory, Grand Challenges Project in Management, 2015

We found that there are many topics that academics and practitioners mutually deem interesting and these can serve as relevant avenues of future research. In turn, our findings here help to reconceptualize the idea of "relevance." As noted by Vermeulen (2007: 755), "Relevance is found in generating insight practitioners find useful for understanding their own organizations and situations better than before." In our view, this means that the pursuit of shared value is not only a question of topics, because academics and practitioners understand data differently, even when they talk about the same topics—knowing-how, and knowing-why, are distinct and complementary competencies that have, for too long, been separated (Garud, 1997). Overall, our findings emphasize that academics need practitioners (and vice versa). The question that remains is: What do we do now that is different than the past, which has brought us to a situation in which a science–practice gap exists?

Our research informs the conversation about how to move forward and bridge the science–practice gap in three ways. First, based on the extant findings, and in line with Kieser et al. (2015) as well as Van de Ven and Johnson (2006: 811), we advocate that, in collaboration, stakeholders in management (a) design projects "to address a big question that is grounded in reality" (2006: 810) as well as (b) design projects to be "a collaborative research community" (2006: 811) in teams that are both large as well as, potentially, small.

Second, our work identifies grand challenges, topics that *matter*, which can draw attention to big questions for stakeholders in the field of management (Rynes & Shapiro, 2005). The issues identified in this work are of course big challenges, and it will take quite a large amount of resources, time, and energy to accomplish them. One participant in our study wrote that grand challenges are, "big enough that adequately addressing any of them would require (a) large, multidisciplinary teams, (b) substantial time and funding, (c) extraordinary access to companies and/or executives, and (d) replication."

Third, we began the process of identifying organizations and other stakeholders that might be able and willing to assist in conducting research to address the grand challenges. Organizational signatories are expressing: (1) their support of the idea of evidence-based management; and, (2) interest in the grand challenges project. Signatories also committed to reviewing a research proposal within the year 2016 that would target addressing one or more of the grand challenges identified.

We recruited signatories primarily by approaching participating members of the Chamber of Commerce in the cities where the universities of the author team are located. As of July 1, 2016, we identified a total of 165 organizations, and this list will be increased throughout the remainder of 2016.[4] This effort will ultimately lead to the distribution of a research proposal in 2016. Further, we will undertake an effort to involve teams of academics that are members of the AOM. These signatories represent small as well as large organizations and a diversity of geographic locations (including international—one signatory has more than 300,000 consultants across 46 countries). Bono and McNamara stated that "access to organizations, the people in them, and rich data about them present a significant challenge for management scholars" (2011: 657). Thus, even though the list of organizational signatories is certainly not a guarantee of a collaborative effort, it is a beginning list of organizations willing to consider a research

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[4] Detailed information is available on this coding framework from the authors upon request.

proposal, which serves to address Bono and McNamara's (2011) concerns.

In sum, and consistent with Aguinis and Lawal (2013) as well as Stewart and Aldrich (2015), we concur that conducting research in applied settings can lead to collaborative research findings that advance the field of management. We believe that (1) identifying the root causes and solutions to the science–practice gap, (2) generating a list of grand challenges on which to focus attention, and then (3) growing a list of signatories who express support for addressing grand challenges and are willing to collaborate in research are important steps that advance evidence-based management and can help reduce the science–practice gap.

How Should Business Schools Change to Encourage Closing the Science–Practice Gap?

Accomplishing the aforementioned actions above can only take us so far in closing the science–practice gap. If we do not take the next step to make meaningful institutional changes in our business schools, which is definitely a grand challenge in itself, our efforts to reduce the science–practice gap will fail. From AOM presidential addresses to commentaries and articles in our journals, many scholars and even some practitioners have made repeated calls for scholarly management research to be more useful and applicable to managers. Despite these calls, many scholars and practitioners remain frustrated with the pace of change in most of our business schools with regard to increasing practical impact. This must change.

We move beyond making another call to close the gap here by offering some concrete actions we can take in our business schools to help to start to resolve the science–practice gap. For example, we all know that top tier refereed journal publications remain the primary currency by which academics in management are evaluated and rewarded. And, we also know that these publications are not written for, nor consumed by, practitioners. As mentioned, Shapiro et al. (2007: 249) characterized one type of problem in the science–practice gap as a "lost in translation" issue, or one that involves the lack of "effective translation of management research into publications, frameworks, and tools that managers can use in their work."

A primary driver of the lost in translation problem is the continuing culture in many business schools that views translating academic research for practitioners as an unnecessary and unworthy endeavor.

Despite a few exceptions to this cultural problem (e.g., witness the production of both refereed academic journal articles and popular press books at such business schools as Harvard, Stanford, and Wharton; and, the study by Aguinis, Gottfredson, & Joo, 2012, showing that almost half of the scholars who have had the most influence on both academia *and* practice came from only three schools— Harvard, Stanford, and Cal-Berkeley), many business schools still strongly urge their faculty to "focus on what's important"—that is, publishing in journals. Indeed, many of the authors of this article have been strongly discouraged—both in their training in Ph.D. programs and in their early socialization in their first or second (i.e., pre-tenure) positions—from publishing books or even refereed practitioner journal articles. These outlets are often considered second-class publications, a waste of time, or worse, a sign that one is not "serious" about a real research career (of course, we cannot sacrifice rigor for practical impact to be sure). Very few of us are willing to endure accusations of "selling out," especially early in our careers, when trying to earn promotions, salary increases, and a scholarly reputation.

In the face of such strong cultural and institutional norms, how can business school faculty attempt to solve the science–practice gap while at the same time attaining the external rewards and intrinsic satisfaction of an active scholarly research career? Part of the answer lies in faculty spending some of their own time focusing on the lost in translation problem, despite the preoccupation with top-tier journal publications. One avenue that should be available is using a university- or school-level communications office to craft press releases when articles reach the "on-line first" designation that most journals now offer (i.e., it is customary to do a press release only when an article first appears on-line, and not too long after or it is yesterday's news). Communications staff will likely conduct a short interview with authors and write the press release themselves based on their read of the article and the interview, so this constitutes about 30 minutes of faculty investment. In our own experience, such press releases have led to radio and television interviews, reprints in a variety of on-line publications, articles by writers at outlets such as *Inc. Magazine*, and short summaries in *Harvard Business Review* on-line. Such outlets are very widely read by practitioners all over the world and can serve as a low-cost, time-friendly way to disseminate key research findings to a very large audience.

Of course, the above strategy only relates to individual scholars carving out time on their own (and having the interest) to focus on the lost in translation problem. If the AOM is serious about solving this problem as well (and the many presidential addresses, workshops, and commentaries attest to this fact), a more formal vehicle needs to be created that systematically serves as disseminator of scholarly knowledge for practitioners. Many readers will recall the *Academy of Management Executive* (AME) publication, which was specifically designed for scholars to share their knowledge derived from academic research with practitioners. Over a decade ago, it was decided that due to a lack of practitioner readership (i.e., beyond MBAs and executive education audiences who were assigned these articles by faculty), *AME* was re-formulated as the *Academy of Management Perspectives* (AMP). Even though many have found *AMP* to be a value-added publication, it was not designed nor intended to be a practitioner-focused outlet and, as a result, the AOM lost its one publication outlet targeted at managers.

We believe that a great opportunity exists right now for the AOM to bring back a practitioner-focused outlet and do much more to promote this publication to managerial audiences. We envision an outlet similar to *McKinsey Quarterly* or *Insights* that focuses largely on on-line articles featuring specific and actionable recommendations for improving all aspects of management (borrowing from the relatively new *Journal of Business Venturing Insights*, we recommend a title such as *Academy of Management Insights* or *Evidence-Based Management Insights*). Importantly, these articles cannot be more than 20–30 pages in length, as attention spans have decreased, managers are incredibly busy, and there are so many other competitors for their on-line attention. Because faculty at most business schools are not rewarded for writing such articles (something we argue below that should be changed), we also recommend that a small team of writers be hired to help faculty translate their academic work for managers for an *Insights*-type publication. Certainly, we understand that among practitioners' brands such as McKinsey and Harvard Business School are much stronger and more recognizable than the AOM, but that is no reason to avoid trying to make a stronger impact on practitioners using the knowledge and wisdom of the AOM's over 20,000 members. Related, special issue calls for papers in *Academy of Management Journal* and *Academy of Management Review* that are predicated on

academic–practitioner collaborations would be motivating.

In addition to an official on-line publication sponsored by the AOM, we also recognize that in today's world, there is an endless array of next generation communication tools that are available to promote practical insights from our academic work. And, even though some of us have started to use tools such as Twitter and LinkedIn, many of us remain stuck in twentieth century formats. As a result, the AOM could sponsor seminars and workshops at our annual meetings featuring early adopters who could teach others how to effectively harness this new set of tools to help them disseminate their research ideas and insights to practitioners. We have noticed a few of our colleagues participating in regional TEDx talks that are then made available through outlets such as YouTube. Of course, the problem with an endless amount of information is the difficulty of breaking through all of the noise in order to actually be "heard" by practicing managers. However, when you are seeking "followers" or "connections" or whatever term is used, you have to start somewhere. For those of us that teach MBAs and executive education classes, you have captive audiences that are connected to many other managers that could be interested in provocative and ground breaking ideas. Let us work on embracing these new forms of communication and knowledge dissemination tools that allow us to dramatically scale up our impact. Let us strive to enact some change that can decrease collaboration costs by (a) facilitating engagement and awareness of utility functions, and (b) focusing attention on grand challenges.

We acknowledge at this point that none of the ideas expressed above includes any suggestions about changes in institutional reward and evaluation systems in our business schools for increasing practical impact. Indeed, as management scholars, we all recognize that people typically do things for which they are rewarded and evaluated. As a result, we also suggest, perhaps more provocatively, that we start serious conversations with our university and college/school leaders about the need to alter the way in which we account for, and reward, practical impact. For example, most tenured and tenure-track faculty are assessed on some combination of research, teaching, and service, often broken down into percentages, such as 40–40–20, respectively. To incentivize faculty to begin to take their practical impact responsibilities far more seriously—and send a strong signal that our schools will no longer take a "business-as-usual" approach—a concrete step

would be to add a fourth category to the traditional three-pronged evaluation criteria noted above (and, of course, another option is to simply broaden existing research and teaching evaluation criteria to include practical impact, but we would argue that the former makes a stronger statement about how much practical impact is valued).

For example, we could envision a new breakdown of 30–30–20–20, with the latter 20% being devoted specifically to practical impact. Each business school, of course, would have to decide what belongs in that category, which could include things like practitioner books and articles, executive education courses, being quoted in the popular press, writing short research translations for outlets widely read by managers, writing and maintaining practitioner-oriented websites or blogs, etc. Interestingly, Aguinis, Shapiro, Antonacopoulou, and Cummings (2014) recently provided a roadmap for a pluralist conceptualization of scholarly impact that includes both internal (i.e., academics) and external (i.e., executives, media) stakeholders, and Aguinis et al.'s Table 2 (p. 635) provides a comprehensive list of potential indicators of impact that schools could use to alter their reward and evaluation systems.

In summary, we have all talked ad nauseam for the past few decades about the need to increase our practical impact (none of us can actually believe it has been over 20 years since Don Hambrick's presidential address at the AOM meeting that provocatively asked, "What if the Academy actually mattered?"). Yet we have not, as a field, made much progress at all in this regard. We strongly believe that nothing will happen unless reward and evaluation systems are modified to increase the motivation to pursue practical impact activities. Start the conversations now with your university stakeholders. Let's really do it this time.

Limitations and Future Directions

Our largest area for improvement is related to how the nature of the samples we recruited affects our ability to draw generalizable conclusions. One aim of this study was to explore the science–practice gap by comparing responses between academics and practitioners. For academics, as we surveyed management researchers who are members of the AOM listservs and those who have published in top management journals, it is not clear the extent to which those who responded to our survey are completely representative of the entire population of active management researchers. And, for the survey-based

data we collected, the majority of practitioners surveyed were mid-level U.S. managers. Accordingly, this represents the only sample to which we can extrapolate in the current findings. This constitutes a limitation because management stakeholders include practitioners internationally, stakeholders internal to an organization at all levels (e.g., entry-level employees to executives), as well as external stakeholders, such as shareholders and customers.

Another limitation is that it is difficult to establish a clear response rate for the survey-based studies we conducted. As we used MTurk, it is not possible to obtain an estimate of a response rate for that surveying effort—Mturk requires that we request a certain number of respondents. And, in the context of the academics and some practitioners, we delivered the survey to multiple stakeholders through listservs as well as direct emails—accordingly, it is likely that due to such overlap in cross-posting, many academics and some practitioners received the invitation to participate multiple times. Although there are no obvious reasons we can identify as to how our sampling strategy would have introduced a systematic bias, future research is needed that allays all possible concerns here.

A further area for improvement is that, for the qualitative interviews we conducted, there were a greater number of practitioners involved (also true for the focus group). Although our samples did enable us to improve upon extant work both in terms of quantity of respondents as well as quality (i.e., depth, interviews), we acknowledge that we need additional data from future studies. Specifically, these sample-based limitations could be addressed by conducting stratified, random samples of all key stakeholder groups (i.e., academics and practitioners across OB/HR, entrepreneurship, strategy), balanced in terms of occupational tenure as well as role as academic versus practitioner. An additional limitation needs mention here. In particular, we encourage future work to expand beyond the broad management-oriented framework we used—specifically, exploring the issues of the science–practice gap could be examined in much more targeted ways such as in social entrepreneurship and sustainability. Our work primarily involved the typical for profit perspective and, in the future, this can be expanded.

Finally, not all grand challenges were included on the final list of grand challenges. This in no way means that some the grand challenges suggested by participants were unimportant. However, as a field, we must begin somewhere, and the current work has taken an important first step by identifying some

initial grand challenges to focus on and provided a clear roadmap for beginning to galvanize action.

CONCLUSION

Our findings extend stakeholder theory, discovered areas of overlap among key stakeholders with regards to 22 grand challenges, and identified organizations and representatives willing to take further action to begin to conduct research needed to address these grand challenges. We hope that this research drives further efforts to reduce the science–practice gap, promotes evidence-based management, and galvanizes the focus of our field on salient topics.

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APPENDIX
TABLE A1
Grounded theory categorization framework

Theme/Which RQ it Answers	Sub-themes	Definition	Exemplars (A = academic, P = Practitioner)
RQ1 Academic–practitioner communication issues: academics need to be better at speaking the language of management in the "real world"	-Audience adaptation -Publish in trade Journals -Learn the needs of the other party -Find a practitioner-role model early on in career -Practitioners have tunnel vision -Academics are trapped in "ivory tower" thinking	A major issue is the lack of effective communication between academics and practitioners. Practitioners often perceive the work of academics to be not very useful in an applied/practical context. They have a hard time seeing beyond the theory and more importantly, the usefulness of the theory. Academics need to be better at communicating their ideas, theories, and best practices using language practitioners can and want to hear. Academics need to use more tangible, concrete examples and language that speaks directly to performance, compensation, or control.	**Mathias (A):** "I think academics do a bad job of packaging their knowledge in a way that explains the theory and says, here's how it's widely applicable." **Kevin (A):** "Practitioners buy trade books written by consultants and celebrity executives, as well as business magazines, but they simply don't read research journals of any prestige level. From my experience, they're mostly looking for corroboration of their existing intentions among 'credible' authorities, not for newly discovered ideas. But, nonetheless, academics should aim for trade journals if they want to reach the practitioner audience." **Ryan (P):** "Practitioners don't read scholarly articles. They just don't. For a practitioner to benefit from what an academic says or researches, it needs to boiled down to language we can understand and that is immediately transferable to a real-world context. Practitioners hustle. We are pure grit. We need the information to be concise and relatable to what we do."
RQ9 Knowledge transfer should be incentivized	-Rewarded with money -Interesting work is the reward -Offer a competition or grant for faculty to reach out to practitioners -Faculty need to be rewarded for working with practitioners	While there is disagreement about how faculty should be incentivized, the consensus was that working with practitioners should not only be encouraged in academia but that it should be combined with a reward. It could be either extrinsic or intrinsic rewards.	**Ben (A):** "Competitions, papers, special editions . . . these are the kinds of things we should give to faculty to encourage working with practitioners." **Joelle (A):** "What do we all want? Data and money. Those are the two things that motivate the masses to work together." **Beatriz (A):** "I have funding that allows me to spend 20% of my time working with a practitioner-based organization. The incentive structure my university offers has freed up my time to participate in collaborative efforts with practitioners."
RQ4 and RQ9 Knowledge transfer through teaching effectiveness	-Using evidence-based models in MBA programs -Have peers, supervisors, and even practitioner friends of the department or college evaluate faculty not students	One way to generate knowledge creation is through teaching effectiveness and capitalizing on access to practitioners via the classroom. Several participants echoed the notion that students are the largest group of stakeholders in bridging the gap between science and practice. Having constant contact	**Alan (A):** "If you think about it, all of our students are practitioners." **Anne (A):** "I am blessed to teach two Executive MBA classes and so I feel like my connection to the business world is through a class full of practitioners."

TABLE A1
(Continued)

Theme/Which RQ it Answers	Sub-themes	Definition	Exemplars (A = academic, P = Practitioner)
	-Capitalize on executive education programs	between students and practitioners in MBA/Exec MBA courses is vital to knowledge transfer.	**Gabe (P):** "The professor needs to teach a slightly different content to make it more practical which will also make it beneficial for the student which will give them a taste of what's it like to be an architect, or an accountant, or an engineer." **Brian (A/P):** "We need to break out of the way faculty members get promoted and get tenured and focus on a faster drumbeat in our teaching." **Ryan (P):** "Rather than teaching this is how it's done and getting from point A to point B, we need to teach students to learn that there are different ways to get to the same outcome. Teachers need to remember everything and everyone they have met during their years of teaching and use that experience and apply it to the day-to-day. Less theory and more application. Look at it differently not the same."
RQ2, RQ4, and RQ5	-Higher ranking academics need to become the "translators of the research"	It seems that academics and practitioners are not in conversation with one another nor do they have adequate and accurate information about the other party.	**Beatriz (A):** "I don't think that the strategy folks have done a great job of communicating with practice, the value of what they learn."
Need a better tool for information sharing	-Use conferences more effectively to get practitioners and academics in conversation		**Peter (A):** "We need to better understand the larger issues practitioners are facing. What are the entrepreneurs actually facing out there? I don't know." **Anne (A):** "Maybe it's a case where this integration occurs at a different level. Maybe this is one path that associate or full professors take; they become the translators of the research." **Woody (P):** "I think there are a lot of opportunities at events and conferences where areas can touch. We need to bring the groups together more often."
RQ3	-Management focused on cost, command, control; academics focused on theory and changing the system	There is a stark difference in goal orientation between academics and practitioners. Practitioners reported being more focused on the short-term and "hustling" in the now, while academics are more focused on the "big picture."	**Alan (A):** "How do we solve their problems? I don't know that they are slowing down. Practitioners are busy, overwhelmed, and under stress. So, they are not slowing down to think and I don't know that academics are speeding up to get out information to organizations and find practical solutions. Our goals are differently aligned."
Goal incongruence: Short- vs. long-term goal orientation	-Performance vs. people -Differing priorities		**Ryan (P):** "Academics don't help me hustle and grind at work. I need to take action now, not just talk about it in abstract terms." **Susan (P):** "So the end goal for my employment – law professor or my human rights professor – was likely the same goal I work with every day now. But the disconnect is in how each group approaches the goal."

TABLE A1
(Continued)

Theme/Which RQ it Answers	Sub-themes	Definition	Exemplars (A = academic, P = Practitioner)
	-Outcomes/goals are the same, but approach is different		**Anne (A):** "Each manager is tasked with looking at KPIs. They are given goals and targets to hit and that's what they are focused on. Academics are focused on theories and publishing those theories that might help practice in the long-term. Things like motivational theories or leadership theories." **Kevin (A):** "It's no coincidence that one of their main criticisms of recently graduated new hires was that their professors had trained them into a "ready, aim . . . aim . . . aim" approach. Practitioners just don't have the time for extensive analysis, contemplation, or introspection about how they do what they do."
RQ1, RQ4, RQ5, and RQ9	-Each party needs to get over their "egos"	Both practitioners and academics bring different strengths to the conversation in terms of possible collaboration. We also need to consider that academics create our knowledge infrastructure, while practitioners develop our economic infrastructure.	**Woody (P):** "No one can work effectively by themselves. I think its better if you have 18 or 20 people working on a project, which would include researchers, practitioners, and those that can help tackle a problem. Everyone is going to approach this differently and that's a good thing. I think if it's done collectively, which I know is not always easy since we have different opinions and ideas, but I think ultimately it would result in a better solution."
Foster collaboration through capitalizing on differing perspectives	-Academics help uncover key information		**Ryan (P):** "I think the new model needs to how we can take on the world together. You shouldn't have to do this by yourself as either a practitioner or an academic. Let's invest in that relationship. Let's have people invest into colleges because of that idea and collaborative relationship with practice, not because of a return on their investment."
	-Each group brings different strengths to the table		**Susan (P):** "It's been really interesting to work with academics on emerging issues like co-pay and disparate impact. These are trends in employment that staffing agencies are dealing with. We are working with academics to help us collect data on emerging trends so we can get ahead. It's been very helpful to get that other perspective."
	-"Life of the mind" versus "real-world" scenarios		**Brian (A/P):** "'Life of the mind' has value in and of itself. The practitioner needs to understand how much work is really involved in being a good to great academic. What could appear to be a cushy life is in fact very arduous if the academic wants to be a good one in all of the dimensions for which academics are "graded." This parallels the hard work the practitioner does."
	-Academics create our knowledge infrastructure, while practitioners develop our economic infrastructure		**Kevin (A):** "Academics and practitioners exist to make different contributions to our civilization. In both domains, some do what they do really well, and others not so much."
RQ1 and RQ9			

TABLE A1
(Continued)

Theme/Which RQ it Answers	Sub-themes	Definition	Exemplars (A = academic, P = Practitioner)
Creating buy-in for collaboration through value creation	-Creating value through teaching -Creating value through research	In order for collaboration to occur, there needs to be value-added and value creation to ensure academics and practitioners' roles do not become obsolete.	**Saul (A)**: "Universities may say we add value to practitioner's lives but we really don't at the end of the day." **Saul (A)**: "You have to look past yourself and be intrinsically motivated to add value for students. How do we create value? I do it because I find it interesting, I care less about the extrinsic side of things." **Brian (A/P)**: "Academics have a hard time admitting that our biggest value added is in teaching. But if we look at scholarly publication, that's a problem." **Ryan (P)**: "We need to create value for collaborating. How can academics help practitioners and vice versa? Otherwise, academics will eventually become obsolete, as will the MBAs from Harvard when software replaces those jobs. We need to ask ourselves what we can do differently to bridge this gap and create value."
RQ3	-Competing ways of measuring success	Because practitioners and academics measure success in different ways, this can cause a barrier to collaboration.	**Brian (P)**: "For the practitioner, the world is a very serious condition. Business is not "a social experiment." The academic can get by though in somewhat of a cocoon if they "hit" their numbers. I have heard some colleagues say this is like playing a game, at least with respect to publication."
Goal incongruence: competing ways of measuring success	-"Psychic income"		**Kevin (A)**: "We base success on number of publications in A-journals and how fast we can get tenure and promoted. Younger faculty, especially, don't have the time and are not encouraged to reach out and collaborate with practitioners or write in trade journals because that is not how success is measured in academia."
RQ1 Cross-functional approach to collaboration		Most participants believe that collaboration is possible and necessary. Practical solutions for collaboration were offered including: internships, large project collaboration, publishing together, reward faculty with both intrinsic and extrinsic rewards for collaboration, inviting in practitioner guest speakers on a regular basis to MBA courses, use evidence-based teaching methods in our MBA and Exec MBA courses	