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Commentaries

The Practice and Science Connection: Let's Not Obsess Over Minding the Gap

Bruce J. Avolio
University of Washington

Over the last 5 years, there has been a surge of interest and activity among large groups of practitioners and scientists in industrial and organizational (I-O) psychology, who have joined together with a broad range of agencies and organizations, in small to very large collaborative teams, to examine some of the grand challenges and problems facing our field. For example, a consortium of university professors and their counterparts in five *Fortune* 100 firms, two global human resources (HR) consultancies, and NASA have been working together to examine the practical and scientific challenges in determining how to optimize the selection and on-boarding of a new generation of workers charged with building the first colony on Mars. One I-O practitioner involved with this initiative said, "Our project represents one of the most seamless and productive integration efforts involving the practice and scientific community, perhaps in the history of our profession."

Another group of I-O professors from 10 universities around the U.S. are working with healthcare leaders from five university medical centers, along with two nationally based hospital chains, to test strategies to reduce the number of patients in our healthcare system that are harmed due to medical errors. In 2016, "medical errors in hospitals and other health-care related facilities … may now be the third-leading cause of death in the United States—claiming 251,000 lives every year, more than respiratory disease, accidents, stroke and Alzheimer's" (Cha, 2016). This collaborative effort has joined forces to research and eradicate medical errors that are caused by people, climate, culture, and unreliable processes and systems that result in the wrong choices being made when delivering patient care. One of the research physicians working on this initiative described the collaboration saying, "this is by far, the most rewarding, instructive and forward thinking endeavor I have ever participated in over my 30 year career."

Bruce J. Avolio, Center for Leadership & Strategic Thinking, Foster School of Business, University of Washington.

Correspondence concerning this article should be addressed to Bruce J. Avolio, University of Washington, Paccar Hall, 4925 E. Stevens Way NE, Room 514 Box 353226, Seattle, WA 98195-3226. E-mail: bavolio@uw.edu

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In a third, and equally audacious, collaboration, a consortium of I-O, strategy, HR, economics, and finance professors; consultants from 20 large global consultancies; senior executives from Unilever and Tata; doctoral students;, and senior researchers from the World Bank have partnered to reimagine what should constitute the future of global capitalism. This group strongly advocates that organizations in the private, public, and not for profit sectors should take a *long-termism* versus *short-termism* focus in how organizations are led. This consortium is challenging Milton Friedman's (1970) proposition, which stated that corporate executives must be "an agent serving the interests of his principal" and that the "social responsibility of business is to increase profits." Friedman's call led to what some now refer to as *quarterly capitalism*, which incentivizes leaders in organizations to focus on satisfying short-termism thinking and investment at the expense of long-termism organizational growth (Baron, Horvath, & Kipping, 2017).

With these exemplary collaborations in mind, the field of I-O psychology has now truly entered into the 21st century, where the practice and science connection is rapidly growing together. Perhaps, it is time to take stock of the diminishing gap that has separated the practice and scientific community in I-O psychology. Indeed, as we strive to reach a new level of integration within our discipline, it may be the right time to call for a new 21st century prime directive for our field: *to boldly go toward creating the next generation of teams of practitioners and scientists where each is respected, valued, and treated with the highest level of human dignity with the superordinate goal of advancing both the practice and science of understanding human engagement in organizations on this earth and soon other planets.*

Wait a minute … I must have drifted off—what a strange daydream. Actually, none of what I said is yet true. So, let me start over with the so-called gap between I-O science and practice that frequently inhibits scientists and practitioners from working together on common goals and grand challenges. This has led to many calls for I-O scientists to partner with practitioners, including one by Ones, Kaiser, Chamorro-Premuzic, and Svensson (2017, p. 5), who stated, "The science side of the I-O house must come to better appreciate real word issues and to learn to communicate better with and influence practitioners." Similarly, Aguinis et al. (2017) noted that the issues that are relevant to the practice side of our field are not having a demonstrable impact on what is being researched in I-O psychology. It is important to ask the following questions: Why this is the case, and is this unique to our field?

Getting Back to the "Real" World(s)

In terms of the concerns raised by Aguinis et al. (2017), I would like to suggest that rather than continuing to focus on the science and practice gap, which comprises many conversations and countless articles, including those

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just published in the most recent 2017 *The Industrial-Organizational Psychologist* (*TIP*) newsletter [54(4), pp. 67–74], we instead should turn our attention to bridge building and examining how each side of the so-called divide can and does contribute to advancing work in I-O psychology. Consequently, I would like to suggest redirecting our energies to building the connection(s) that need to be created to address the grand challenges in front of us today and into the future.

My reason for suggesting this alternative approach is that we will not create a seamless or even blended approach to science and practice in our field. Rather, we should simply *strive to balance rigor and relevance in our work together.* However, please keep in mind that the scales representing rigor and relevance are never equally balanced within any time period. In some situations, research and rigor will trump relevance, whereas in others the balance of the scale could be tipped toward relevance.

Part of the problem I see in the debates regarding the tradeoffs between science and practice is that many players on both sides are assuming that we should start on equal footing, when in fact that is hardly ever the case. A balance of the two can emerge in terms of the contribution that each side makes to examining and addressing a particular grand challenge, if we all are willing to suspend judgment on the so-called gap and use as our starting point the building of many bridges, if only one lane at a time.

I understand that we will eventually have to face this divide between what scientists and practitioners actually have to offer each other, as well as their stakeholders and clients. However, I recommend that we heed Kurt Vonnegut's words who once said, "I want to stay as close to the edge as I can without going over. Out on the edge you see all kinds of things you can't see from the center." We need to move to the edges of our divide to start building our single-lane bridge.

In fact, the beginnings of the new one-lane road has already been provided in the results presented by Aguinis et al. (2017), based on their examination of both academic (e.g., *Journal of Applied Psychology*) and applied articles (e.g., *Harvard Business Review*), and the degree to which each gets covered in I-O textbooks. The authors reported that nearly half of the frequently cited sources came from either academic or nonacademic outlets, demonstrating that there is more balance in the contribution of each side to advancing our field with respect to the entry point for students in our field.

Let me give an example of what I am referring to in terms of balancing rigor and relevance from several other disciplines, including gaming, which could represent a blueprint for bridge construction. Burak and Parker (2017), in their book entitled *Power Play: How Video Games Can Save the World*, described a game called "Peacemaker," which was designed so that Israelis and Palestinians could take on different roles, in order to understand

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how each side views their seemingly intractable problems. In this game, an Israeli can take on the role of a Palestinian shortly after a devastating bomb goes off on a bus in Tel Aviv, killing scores of Israelis. The game was designed to both research and help "bridge" the huge divide that exists between these two groups and each of their corresponding self-interests.

Extending this core concept guiding the development of the Peacemaker game, in terms of role reversals with players, perhaps, we should consider developing the "Integrator–Maker Game" for I-O scientists and practitioners to play together. In this game, the scenario includes an HR executive, who has decided to go with a leadership development program designed by a group of consultants because it seems more relevant versus working with an academic center that has done a great deal of validation research on this very same topic.

I suggest that it is time to chart a new course in this debate, which in our field has been going on for over a century. For example, Geissler (1917), one of the three founding editors of the *Journal of Applied Psychology* (along with G. Stanley Hall and John Wallace Baird), published in the inaugural issue an examination of concerns related to the science and practice gap. Geissler (1917) remarked,

> It is sometimes stated that "pure" science is interested in facts for their own sake or for the sake of merely knowing them, while applied science studies facts for utilitarian purposes. But it may be doubted whether the first of these two attitudes is ever realized in its extreme form, and if so, whether it is a truly scientific attitude. Nor is it any more reasonable to go to the other extreme and demand that each newly discovered fact should at once be assigned its utilitarian or practical value. (p. 46)

Geissler (1917) argued that the applied scientist's aim was to improve the conditions for human life by helping people to take on various challenges and succeed. A practical expert applies knowledge as part of his or her central function versus the scientist, who is focusing on the discovery of scientific or universal truths. Geissler (1917, p. 49) went on to say, "To be sure, sometimes both science and art are represented in the same individual, as when a psychologist interested in the problems of color-blindness engages in testing his subjects for the purpose of showing them how to best overcome their handicap." This notion for Geissler had some real potential, but reading his article suggests that this is clearly not the norm in our discipline, and perhaps we should not expect it to be, going back as far as 1917.

Geissler (1917) concluded that although scientists are meant to search for universal validation of their discoveries, represented by scientific laws, the opposite was actually the case for practitioners. For the practitioner, their goal is to address a specific challenge, and therefore he considers this focus as being a "single" science, one that is not focused on issues of generalizability. Indeed, the practitioner needs to determine from a range of

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responses which one will best address and resolve the specific challenge being addressed (Geissler, 1917).

Let me build on Geissler's arguments, and ask us all to consider playing the Integrator–Maker Game. In the narrative for this game, imagine a group of I-O scientists and practitioners marooned on a desert island, and the only way off the island is to solve a particular grand challenge facing these respective groups, for example, to convince senior CFO executives that there really is a return on investment (ROI) from investing in leadership development. The only way to solve this challenge is by *co-optition*, whereby each group must compete and collaborate with the other to come up with what might be an interesting range of "best solutions." Establishing that level of friendly competition and collaboration would ultimately place both the scientist and practitioner at the top of the game's leader board.

Have You Been to an Island Where This Works?

I want to share with you some interesting collaborations in other disciplines that have required a bridge to be built in order to achieve the best solution. The first example pertains to a horrible disease called triple negative breast cancer.

For any woman receiving a diagnosis of triple negative breast cancer, typically the oncologist's recommendation might be a less than sympathetic statement like, "You should probably get your affairs in order." Of course, one does not have to read between these lines to know that this is not a very optimistic recommendation, given that the survival rate for this form of cancer is extremely small.

A world-renowned scientist and practicing oncologist at the University of Washington named Dr. Tony Blau has been working on a way to bridge the so-called divide in oncology research and practice to better address diseases like triple negative breast cancer. To do so, Blau has worked with a cross-disciplinary team of computer scientists, gamers, practicing oncologists, patients with triple negative breast cancer, MBA students, investors, researchers, and an I-O psychologist to develop a Web-based platform for accelerating the offering and sharing of solutions to address this horrific disease.

When presenting his plan to interested audiences, Blau suggests that each and every day, many oncology practitioners will see 30–40 clients. These practices exist across the United States and around the globe, so imagine how many samples of patients actually walk through these physicians' doors every single day to be treated with what is hopefully some established, or at least promising, experimental treatment. Up until recently, most if not all of the data in each physician's practice stayed with the practicing oncologist. On the other side of this disciplinary divide, cancer researchers in

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academic and medical centers in the U.S. receive their NIH money and work very hard to build a sufficient sample size of specific cancer patients to enroll in their experimental trials.

Blau felt that he could bring the practice and research communities together by creating a very practical Web site that would make it easy for practitioners to upload data on their patients. Through this Web site, data are now being made available to panels of top cancer research experts around the globe, who then examine the patient data, as well as meet virtually, to offer ideas for treatments. The practicing oncologists place their patients' records out on the Web site, scrubbed for identity, to build larger samples of participants for researchers to investigate, and in doing so get incredibly valuable advice from the best experts in the world. This "virtual exchange" for cancer treatment also has allowed patients to review what others were suggesting in terms of recommendations for their particular cancer treatment so that they could triangulate with their physician's recommendations. I have asked myself over the last few years, how different is Blau's challenge from an I-O psychologist working at Akron University, a practitioner working for Boeing, and the employees interested in what is being developed and researched in terms of what predicts day-to-day happiness at work?

As Blau's project evolves, the Web site will be expanded to include other cancers, with a vision of this site becoming a global repository for samples, treatments, and collaborations on new therapies that could fundamentally change the arc of innovation in cancer research and practice. Having worked on this project over the last several years, I can say with confidence that every single issue we have in I-O psychology in terms of the science and practice divide exists in cancer research and practice. The biggest difference between our two fields is that I do not think anyone has died from not receiving their 360-feedback report in time for their leadership development coaching session.

Some Other "Markets" Working to Bridge Divides Across Disciplines

Marketing Science and Practice

Starbuck (2006, in Walsh, Tushman, Kimberly, Starbuck, & Ashford, 2007) tells how the Profit Impact of Market Strategy (PIMS) database was created by the Marketing Science Institute (MSI) to impact both the science *and* practice of marketing. To build this collaboration involved 60 firms working with academic researchers to create a data repository that could be mined by researchers and practitioners. According to Starbuck, "its influence in the field of marketing has been remarkable. During the 1990s, projects that MSI sponsored won every award for outstanding research in marketing, and they comprised 60% of the articles in *Journal of Marketing* and *Journal of Marketing Research*" (quoted in Walsh et al., 2007,

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p. 146). This sounds like an interesting bridge project spanning across what was once a huge divide.

The Built Environment Science and Practice

Pilkington, Powell, and Davis (2016) have focused on bringing the science of physical spaces to promoting greater activity among individuals with the goal of better understanding how the context and its design can help people stay healthy. Interestingly enough, public health is defined as, "The science and art of promoting and protecting health and well-being, preventing ill-health and prolonging life through the organized efforts of society" (Acheson, 1998).

The design thinking that has gone into addressing this grand challenge includes understanding what constitutes the built, physical, and psychosocial (social and cultural) environments that influence the level of physical activity that one observes over time in a community (Ogilvie et al., 2011). For example, in a case-controlled study completed in Belgium, the authors reported that residents in a neighborhood that had been designed with what was called *high walkability* were recorded as taking more steps per day than those individuals in neighborhoods with *low walkability*. In the *high walkability* neighborhoods, people also walked more for transport to and from places like work (Van Dyck, Deforche, Cardon, & De Bourdeaudhuij, 2009).

In a similar project called iConnect, a UK-wide infrastructure project created new routes for walking, cycling, and ultimately transforming the way people traveled in over 80 communities by creating new crossings or bridges to bypass roads, rivers, railways, and other obstacles. Researchers were interested in measuring and evaluating the changes in travel, physical activity, and carbon emissions related to this program (Tully et al., 2013). The 5-year iConnect research project (2008–2013) reported that these interventions had a significant impact on people's walking and biking habits by increasing physical activity and the health and well-being of these communities.

Evidence-Based Healthcare Practice

Over the last 25 years, there is a clear recognition that there is wide variation in how clinicians practice medicine and that we continue to use ineffective practices in our healthcare systems that uphold tradition, whereas more effective and evidence-based practices still enter the practice community at an excruciatingly slow pace. Lipman (2000, p. 560) concluded, "There is much historical evidence that valid research often takes years or decades to achieve general acceptance by the medical profession and that its implementation is frequently uneven."

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Melnyk (2016) examined the state of healthcare delivery 15-plus years later, and concluded that, "As you look at explanations for why 30 to 40 percent of these hospitals (in the United States) aren't meeting benchmarks on key quality indicators, one explanation is the low level of evidence-based practice happening in those hospitals." Their research team surveyed 276 chief nurse executives across the United States to gauge how evidence-based practice ranks as a priority in their institutions. Multiple studies have shown that evidence-based practice results in higher quality care, improved population health, better patient experiences, and lower costs, which in part motivated the Institute of Medicine to set a goal that 90% of healthcare decisions be evidence-based by 2020.

One then might ask, as opposed to the other cases above regarding the built environment or with cancer research and practice, why are these evidence-based practices not currently be implemented at the level they should be in our healthcare systems? Certainly it may be that healthcare practitioners do not know what are the best evidence-based practices. However, in many other healthcare centers, the rates of evidence-based practice are much higher.

We know that a central element of healthcare delivery is what is called the rounding process. This is a process that should take place every day in healthcare centers, where physicians, residents, and nurses go from patient to patient to discuss their cases in order to come up with the best solutions—including the patient in that discussion. In one experiment that I did in the Veterans Administration healthcare system, my team of I-O psychology researchers working with healthcare practitioners and researchers in that facility found that when all parties rounded together and were coached to discuss evidence-based practices, the patient recovery rates, patient satisfaction, physician satisfaction, and nurse satisfaction levels all improved, compared to other randomly chosen parts of the hospital where such an integrated rounding approach was not used.

Sports Coaches and Science

Reade, Rodgers, and Hall (2008) set out to examine how coaches perceive sport science research. There appears to be a strong consensus that sports science research offers an important contribution to promoting a high-performance athlete. Yet, similar to our field, sport scientists and their publications are ranked very low and are frequently seen as not being accessible to practitioners, in this case coaches. Williams and Kendall (2007, p. 1577) concluded that, "It is clear that transfer of sport science to coaches remains a vexing problem for both coaches and scientists."

A review of the sport science literature has revealed in many editorials and opinion pieces going back to 1980, when Burke (1980) published

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an article entitled, "Bridging the Gap in Sports Science," which concluding that, "Better communication is needed between sport scientists and coaches and athletes in order for the scientists' work to have any real value" (p. 24). Ironically, Burke reported that coaches certainly believe that sports science is contributing new ideas and knowledge, but in their opinion not necessarily in areas needed by those coaches. This particular challenge certainly sounds similar to the so-called divide with I-O psychology scientists and practitioners noted by Ones et al. (2017) and countless others in our field reviewed below.

The Damn Resilience of This Divide

Rynes (2012) recognized that for a long time now there has been a considerable gap between psychology-based management research findings and the practices used in organizations (e.g., Campbell, Daft, & Hulin, 1982; Dunnette & Brown, 1968). The sheer persistence of this gap between research and practice has led many of our colleagues to doubt whether this will ever change (e.g., Hakel, 1994; Oviatt & Miller, 1989) or if such change is actually desirable (e.g., Hulin, 2001).

We ask, are academics actually in the business of "knowledge building ... in the service of practitioners" with the very core of their focus being "responsible teachers and researchers" (Tushman & O' Reilly, 2007, p. 769)? This seems very out of balance to me, and I wonder if we would be better served by considering a more synergistic versus servant relationship on either side of the divide. We can perhaps circumvent this whole debate following what Shapiro, Kirkman, and Courtney (2007) suggested: that perhaps there are two streams in the domain of knowledge that should be brought together—one that is simply theoretical and one that is applied, and that each over time may be equally important even if it is not applicable to advancing practice.

Aguinis et al. (2017), referencing work by Benjamin and Baker (2000), suggested that if practitioners wanted to design and implement effective workplaces, it was incumbent upon them to look to the scientists in our profession for support, which they emphasize should come from both business school and I-O psychology programs. At the same time, Aguinis et al. also advocated that scientists should look to practitioners to determine the critical issues that are important and relevant to enhancing their workplace systems.

This level of synergy is not going to happen if academics do what Rynes (2012) referenced in her examination of the practice and science gap, specifically where researchers provide some brief implications of their research findings for practice in academic journals and then ask practitioners to be more aware of some issue versus explaining what they should do and why.

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Rynes (2012) citing Guest (2007) indicated that practitioners would be more motivated to act on these practical suggestions if they were couched in the contexts in which they operate.

Nevertheless, it might seem to the outside observer that our so-called scientist–practitioner model in I-O psychology signals that there should be a strong relationship between science and practice in our field that ultimately benefits all parties, not unlike some of the examples shared above. In fact, there is perhaps good evidence of some synergy and balance in what Aquinis et al. (2017) found in their examination of I-O psychology textbooks, which turned out was evenly split with respect to the reference citations associated with scientific and practice journals. These findings may someday be considered by archeologists as offering some evidence of the synergy that existed between scientists and practitioners in the field of I-O psychology.

My Conclusion: Some Lessons I Learned From the "Boys in the Boat" (Brown, 2013)

In the 1936 Summer Olympics, as Adolph Hitler observed the final crew race between the Germans and U.S. team, he witnessed something that most people that day believed would never be the outcome for that race. Placed at a complete disadvantage by the German judges, way out in the middle of the channel where the waves and wind were strongest, the Olympic crew team from the University of Washington won Olympic gold! For many around the globe, this group of so-called loggers did not have a chance to beat the best teams in the world, such as those coming from Cambridge or Germany. They did! This eight-man crew performed at an incredibly high level of accomplishment, producing 43–44 strokes per minute in absolute complete synchronicity, especially after one of its sick crew members, who had passed out prior to the race, finally woke up and started rowing! You see, this crew would not race unless all eight members were on board, ignoring the fact one was so sick he could not row at the start.

The members of the 1936 U.S. Olympic crew team rowed themselves into the annals of sports history. They took on the grand challenge together. They did so in a cedar scull designed by Mr. Pocock, whose design principles and science of boat building have become the standard in this sport. I have taken many groups to the Pocock Center in Seattle, Washington, just on the southern border of its campus. While there, we learn about those boys in the boat, we practice our stroke, we set off on South Lake Union, and, by the time we are done, we have hit seven, even eight, strokes at a level of synchronicity we thought unimaginable at the start of our morning. I ask participants to imagine each day, in their teams at work in school and beyond, what it is like to row exactly aligned with each other, to know what each other are doing, to

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support each other, and then to figure out how to somehow achieve swing! Swing is where the scull literally feels "as if" the boat has elevated above the water, with no resistance—total synchronicity.

I feel as though I am drifting off again, and I am in a boat, with four I-O psychology practitioners, four researchers, a few doctoral students, and a coxswain from the National Science Foundation (NSF) motivating us to stroke in synchronicity that for many today might seem totally unimaginable. Yet, some dreams do come true, and I can show you where they did at the old boat house at University of Washington, where our 1936 Olympic team's scull hangs from the ceiling to motivate yet another generation of crew members to cross their divides and stroke together.

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