A PLURALIST CONCEPTUALIZATION OF SCHOLARLY IMPACT IN MANAGEMENT EDUCATION: STUDENTS AS STAKEHOLDERS

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Scholarly impact is typically conceptualized and measured as an internal exchange that occurs among researchers in the form of citations in journal articles. We offer an expanded conceptualization and measurement of scholarly impact by investigating knowledge transfer to a critical management education constituency: students. To do so, we investigated which sources (e.g., peer-reviewed journals, business periodicals); individual items (e.g., journal articles, book chapters); and authors are most frequently cited in 38 widely used organizational behavior, human resource management, strategic management, and general management undergraduate-level textbooks. By extracting all endnotes and references, we created a database including 7,445 sources, 33,719 articles and book chapters, and 32,981 authors (and their affiliations) cited at least once. Results showed a weak relationship between journals, articles, and authors cited most frequently in journals and those most frequently cited in textbooks. We also found that students are exposed to knowledge and content originating both in academic and non-academic outlets. Results have implications for theory and practice regarding the science–practice gap and a consideration of students as stakeholders, the conceptualization and measurement of scholarly impact and the design of academic performance management and reward systems, and choices regarding what knowledge academics create and disseminate.

For management professors, a clear way to have scholarly impact is through knowledge transfer (i.e., KT; Doh, 2009). KT refers to the dissemination of valuable information to relevant stakeholders (e.g., Argote & Ingram, 2000). Moreover, academics'

ability to create and disseminate relevant knowledge that addresses important questions concerns not only management professors, but also business school deans, department chairs, and the general public (Adler & Harzing, 2009; Doh, 2009). As an indicator of scholarly impact, KT has traditionally and most commonly been operationalized as the number of times a given journal, paper, or author is cited in academic journals (Adler & Harzing, 2009; Aguinis, Shapiro, Antonacopoulou, & Cummings, 2014; Aguinis, Suárez-González, Lannelongue, & Joo, 2012).

Although clearly informative, useful, and certainly necessary, traditional measures of scholarly impact have been applied almost exclusively to internal KT; that is, transfer between academics via scholarly journals. As stated by Aguinis et al.

(2014: 624), "[t]he majority of inquiry on scholarly impact has focused almost exclusively on one particular stakeholder and one type of measure: academics and citations." In other words, the operationalization of KT as citations in scholarly journals does not necessarily consider the scholarly impact of research on other critical stakeholders such as students (Aguinis et al., 2012; Aguinis et al., 2014; Birkinshaw, Lecouna, & Barwise, 2016; Frost & Taylor, 1996).

Our article embraces a pluralistic approach to defining and assessing scholarly impact by examining KT as an external in addition to internal exchange. In doing so, we ask: "Is internal scholarly impact similar to external scholarly impact?" To answer this question, we build upon but move beyond traditionally used conceptualizations, measures, and implications of KT by investigating what sources (e.g., scholarly journals, edited books, popular-press publications); individual items (i.e., articles, book chapters); and authors and their universities are impactful in some of the most widely used introductory management textbooks. This novel approach to KT asks whether the knowledge that researchers produce reaches management students—stakeholders who are end-users of scholarly knowledge.

Unlike journal articles, which are primarily exchanged within specialized research communities, textbooks influence the knowledge base of large numbers of students who are future practitioners. Also, because most business school students, and particularly management majors, enroll in an introductory organizational behavior (OB), human resource management (HRM), strategic management (SM), or general management (GM) course during their undergraduate studies, textbooks are their first in-depth exposure to the field of management and its micro (i.e., OB and HRM) and macro (SM) perspectives. As noted by Cummings and Bridgman (2016: 252), "textbooks play an essential role in codifying and disseminating the foundations and limits of a field." Moreover, an examination of textbooks in the context of external scholarly impact is particularly relevant because practitioners rarely read academic journal articles. For example, Rynes, Colbert, and Brown (2002) found that fewer than 1% of human resource management practitioners reported that they usually read articles published in *Journal of Applied Psychology* or *Personnel Psychology*.

Our article is structured as follows: We first provide a brief review of the KT literature and trace the introduction and application of scholarly impact conceptualizations and measures. We attest that because KT is typically evaluated via internal exchange, scholarly impact on other stakeholders, particularly in management education, remains largely unknown. We then offer a novel perspective and broader assessment on the state of KT and scholarly impact by analyzing citations in 38 introductory management textbooks. We emphasize that our approach is not a zero-sum game in which external scholarly impact is achieved at the expense of internal scholarly impact or vice versa. On the contrary, our goal is to broaden the conceptualization and assessment of KT while improving our understanding of scholarly impact. Specifically, by analyzing citations extracted from introductory textbooks, we draw implications for theory and practice regarding the science–practice gap and a consideration of students as stakeholders, the conceptualization and measurement of scholarly impact and the design of academic performance management and reward systems, and choices regarding what knowledge academics create and disseminate.

SCHOLARLY IMPACT AND KNOWLEDGE TRANSFER

Within the field of management, KT is most commonly studied in the form of scholarly impact, which is typically operationalized as the number of citations in subsequently published academic journals (Aguinis et al., 2012, Aguinis et al., 2014). Scholarly impact can be applied at many levels of analysis to understand the influence of a given article, the contribution of a given scholar, the prestige of a given journal, and the reputation of a given university— all through citation counts in academic journals (Ryazanova, McNamara, & Aguinis, 2017). Indeed, this metric is particularly appropriate when measuring internal KT (i.e., impact on the academic community). However, as noted by Aguinis et al. (2012) and Shapiro (2017), this metric does not adequately capture external KT—scholarly impact on stakeholders other than researchers. So, there is a need to expand the conceptual definition and measurement of scholarly impact so that KT can be more broadly understood and placed into policies and practices such as faculty performance management and reward systems (Bailey, 2006).

The Science–Practice Gap

An issue directly related to the conceptualization of scholarly impact is the science–practice gap,

which is a disconnect between the knowledge that researchers are producing and the knowledge that practitioners are consuming (Cascio & Aguinis, 2008; Jackson, Schuler, & Jiang, 2014; Rynes, 2007). Concern regarding the science–practice gap is not new and has been a matter of discomfort in the academy for some time (e.g., Anderson, 2007; Bartunek & Rynes, 2014; Hambrick, 1994; Pettigrew, 2011; Pfeffer & Fong, 2002). In fact, several former Academy of Management presidents have referred to this gap in their presidential addresses (e.g., DeNisi, 2010; Hambrick, 1994; Hitt, 1998; Mowday, 1997).

The causes for the science–practice gap can be understood from the dual perspective of (a) the type of knowledge that is created (Kelemen & Bansal, 2002); and (b) the ability to translate that knowledge for different stakeholders (Rousseau & McCarthy, 2007; Shapiro, Kirkman, & Courtney, 2007; van de Ven & Johnson, 2006). The issue of knowledge creation is a relevance problem (i.e., management scholarship may not be producing relevant content for practitioners; Kelemen & Bansal, 2002). On the other hand, the issue of knowledge translation is a communication problem (i.e., management scholarship may not be translated into a useful format for external stakeholders). Thus, the science–practice gap is a dual issue related to both knowledge production and knowledge translation, and these problems are certainly not mutually exclusive (Rynes, Bartunek, & Daft, 2001).

In academic contexts, journal articles are the primary means of knowledge creation (Phelps, Heidl, & Wadhwa, 2012; Seibert, Kacmar, Kraimer, Downes, & Noble, 2017). Also, citations of those articles in academic articles provide useful information about internal KT (Seibert et al., 2017). In contrast, introductory OB, HRM, SM, and GM textbooks are an external KT and translation mechanism used to communicate knowledge created by scholars (senders) to students (receivers; Birkinshaw et al., 2016). Textbooks seek to organize and disseminate the knowledge that is created to non-experts, and are the primary means through which academic research is transferred to students. By integrating a discipline using relevant academic research (Stambaugh & Quinn Trank, 2010), textbooks play a key role in bridging the science–practice gap by translating and transferring relevant knowledge to future practitioners (Peng & Dess, 2010; Rousseau & McCarthy, 2007; Stambaugh & Quinn Trank, 2010). In short, citations in textbooks provide information about the knowledge that is being transferred to students (Clegg & Ross-Smith, 2003).

The Science–Practice Gap and Students as Key External Stakeholders

Concerns regarding the science–practice gap have mostly been conceptualized as a breakdown in KT between the academic and practitioner (i.e., managerial and executive) communities. But, there is one key stakeholder community that has not been widely recognized as being affected by KT: Students. Students are clearly a critical subject of KT because, upon launching a professional career, they carry with them the ideas and practices they have learned, and this knowledge has real-world application to their work. Thus, students are critical end-users of the knowledge generated by scholars. Expanding the concept of scholarly impact to consider students as stakeholders allows for a broader understanding of KT to practitioners because students are, effectively, "practitioners in training."

Rewarding Scholarly Impact

Arguably one of the most important applications of the traditional measures of scholarly impact is in designing performance management and reward systems for researchers. The performance management systems of many universities—especially research-oriented ones—have increasingly relied on citation metrics based on articles published in scholarly journals when conducting performance evaluations and distributing rewards such as tenure, promotion, teaching reductions, and financial rewards (e.g., summer funding, titled professorships, research accounts; see Ashkanasy, 2010; Butler, Delaney, & Spoelstra, 2017; Byington & Felps, 2017; Gomez-Mejia & Balkin, 1992; Nosek, Spies, & Motyl, 2012). In addition, citations can also help people receive job offers at other universities, and help universities identify and recruit professors who meet specific staffing needs for grants, research centers, and other initiatives. Moreover, this measurement of scholarly impact influences the rankings of academic programs and even entire universities (Adler & Harzing, 2009; Morgeson & Nahrgang, 2008; Ryazanova et al., 2017).

In addition to university reward systems, many types of profession-wide rewards (e.g., best paper awards, scholar of the year awards, granting of fellow designations in the Academy of Management and other academic associations) are also usually based on internal KT. Clearly, there are some exceptions such as the Academy of Management Practice

Impact Award, which recognizes outstanding scholars who have had an impact on managerial and organizational practices. In addition, many researchers receive additional rewards in the form of compensation based on their successful practitioner-oriented activities such as royalties, compensated speaking engagements, and consulting opportunities. Again, we emphasize that internal scholarly impact is important and necessary. But to the extent that university performance management systems limit the assessment of scholarly impact exclusively to internal stakeholders and under-recognize external impact, there may be a series of unintended consequences for knowledge creation and dissemination.

Choices of What Knowledge to Create and Disseminate

One consequence of the exclusive reliance on traditional measures of scholarly impact is that it can detrimentally affect knowledge creation and dissemination, which are the two drivers of the science–practice gap. If scholars are rewarded exclusively based on their scholarly impact on other researchers, they have less incentive to create and disseminate knowledge that is of interest to stakeholders other than academics. In general, relying solely on a single-source measure of scholarly impact, whichever that may be, to allocate rewards for faculty is a powerful force that can lead to tunnel vision and the classic "rewarding-A-while-hoping-for-B" effect (Kerr, 1975). Thus, the practice of measuring KT exclusively through traditional measures of scholarly impact has many critics who bemoan its effect on the elevation of the profession, the strategic direction of the field and business schools, and professors' choice of intellectual paths (Bedeian, Taylor, & Miller, 2010; Muller, 2018; Shapiro, 2017; Shapiro & Kirkman, 2018).

PRESENT STUDY AND RESEARCH QUESTIONS

Our study empirically assesses knowledge transfer by offering a pluralist and broader conceptualization and assessment of scholarly impact in management education. Overall, our study sought to answer the following overarching question: *"Is internal impact similar to external impact?"* More specifically, we sought to answer the following questions about knowledge transfer and the relative impact of sources, individual articles and book chapters, and authors in management education:

Research Question 1 (sources): Are the most impactful sources in textbooks also the most impactful academic journals as indicated by traditional measures of impact? In other words, what is the relationship between a journal's influence on management education as indicated by citations in textbooks and a journal's influence on other research as indicated by citations in journals?

Research Question 2 (items): Which are the most impactful individual articles and book chapters in management education (i.e., textbooks)? What proportion of these items are reviews and how does this compare to the published academic literature?

Research Question 3 (items): Among the most impactful published items in management education, what is the proportion of scholarly journal articles compared to book chapters and other types of articles? What is the relationship between an article's influence on management education as indicated by citations in textbooks and its influence on other research as indicated by citations received by these individual articles in journals?

Research Question 4 (authors): Are the most impactful authors in textbooks also the most impactful researchers as indicated by internal measures of scholarly impact? In other words, what is the relationship between authors' influence on management education as indicated by the number of citations in textbooks and their influence on other research as indicated by their citations in academic journals?

Research Question 5 (universities): What is the university affiliation of the most impactful authors in management education in OB, HRM, SM, and GM?

To answer the aforementioned questions, we adopted a bibliometric methodological approach (Zupic & Čater, 2015). Specifically, we measured which sources (e.g., journals, popular-press periodicals), published items (e.g., articles, book chapters), and authors and their affiliations are most frequently cited in widely used OB, HRM, SM, and GM textbooks. We chose OB (about 5,900 members) and HRM (about 3,100 members) because they are the largest and fourth-largest divisions of the Academy of Management (AOM). Also, OB and HRM represent the microfocus of management research. In addition, we chose SM because it represents the second-largest AOM division (Strategy, about 5,200 members) and its interests include macrotopics by emphasizing the

organization, industry, and state/country levels of analysis. Finally, we chose GM because of its focus on a broad variety of topics including organizations, management and processes, and the interaction of an organization with other organizations, the environment, and society. Examining GM textbooks thus provides a view of KT that takes into account both micro- and macrodomains.

Results from our study have implications for understanding KT using a more pluralist lens. For example, to address concerns regarding the science–practice gap in management (Banks, Pollack, Bochantin, Kirkman, Whelpley, & O'Boyle, 2016; Jackson et al., 2014; Rynes, 2007), we assessed the degree to which textbooks cite academic and non-academic sources. Regarding different KT channels, we assessed whether the sources and authors who are influential on other researchers have a similarly high impact on the knowledge received by students. Specifically, we compared the most frequently cited academic journals in textbooks to their influence on other peer-reviewed articles as indicated by their corresponding journal impact factor (i.e., average number of citations received by articles in a given journal). We also compared the most frequently cited authors in textbooks to their Web of Science (WoS) citations (i.e., number of citations authors receive in academic sources). If the most frequently cited academic sources and scholars in textbooks are not similar to those cited most often by other journals, this would provide evidence that measures of KT used to determine academic rewards, such as a journal's impact factor or an academic's WoS citation count, may be psychometrically deficient (i.e., a measure does not cover the entire impact construct in a comprehensive manner; Aguinis, Henle, & Ostroff, 2001). In other words, using citations in academic journals to reward KT is informative and needed regarding internal scholarly impact, but may not provide information regarding scholarly impact on student stakeholders. Finally, we also examined the affiliation of the most cited authors in textbooks because by grouping authors based on affiliation, we are able to learn which universities are more or less impactful, collectively, on external stakeholders. This is useful information in relationship to the strategic goals and direction of various institutions.

METHOD

Textbook Selection Criteria

We identified the most popular and widely used undergraduate-level textbooks in OB, HRM, SM, and GM by using four steps adapted from Aguinis, Ramani, Campbell, Bernal-Turnes, Drewry, and Edgerton's (2017) methodology in their examination of industrial-organizational psychology textbooks. First, we searched the "Textbook" section of Amazon.com, the world's largest retailer (Li, 2015), and one of the largest retailers of textbooks (Mosendz, 2014). We conducted individual searches using the subject area as a keyword (e.g., "organizational behavior textbook," "strategic management textbook"). We excluded any results that were not specifically formulated as textbooks. In addition, keeping in mind our focus on management education and *Academy of Management Learning & Education*'s (*AMLE*) mission and primary readership, we excluded results from other fields such as finance, accounting, or marketing, as well as those that focused on narrower subfields such as business law, ethics, and leadership. Because the number of editions published is a measure of accumulated influence of a textbook, initially we only included books that were in at least their second edition. This process generated 32 textbooks. As a second step, we queried 25 faculty members at a large private Mid-Atlantic U.S. university for the textbook they use in their introductory undergraduate OB, HRM, SM, and GM classes. We cross-referenced responses with the list we had compiled through Amazon.com, and found that all the textbooks mentioned were already on our list. As a third step, we examined the recommended OB, HRM, SM, and GM undergraduate textbook lists at a different large Mid-Atlantic university (public), a large Mid-Western university (private), and a large Southwestern university (public) (based on the Carnegie classification system, all three schools are in the group labeled "Doctoral Universities: Highest Research Activity"). After examining the information for the first two universities, we found that most of the recommended textbooks were already included on our list. However, we uncovered four additional textbooks, two of which were in their first edition. We added these, taking our total to 36 textbooks. Upon examining the listings for the third university (located in the Southwest region of the US), we reached saturation (Aguinis, H., & Solarino, A. M. In press; Glaser & Strauss, 1967), and found no additional recommended textbooks not already included on our list.

As a fourth and final step, we conducted a search of the listserv archives from the year 2010 through 2016 of the OB, HRM, SM (formerly BPS), and Organizational and Management Theory (OMT) divisions of AOM. These listservs are often used to share information and seek advice from fellow instructors

and represent a rich source of peer recommendations. For each listserv, we searched the archives using the keywords "textbook," "textbooks," and "book." Although most entries listed textbooks that were already on our list, we found two new textbooks that received endorsements from listserv members, which were both in their first edition. Because these books received multiple endorsements, we added them to our list, bringing the number of textbooks included in our study to a total of 38 as follows: 9 in GM, 8 in HRM, 13 in OB, and 8 in SM (Appendix A in the online supplement includes the list of 38 textbooks). In short, based on these procedures, we are confident that the 38 textbooks included in our study are the most popular and have the broadest reach across different types of universities.

Measure of Scholarly Impact in Management Education (i.e., External Impact)

Textbook citations. Our first step was to scan the endnotes and references for each of the 38 textbooks into pdf files using a high-resolution scanner. To make the data searchable, we conducted an optical character recognition operation using Adobe Acrobat Pro software. Next, we created a transcription template in Excel to capture the data from each pdf file, and a detailed guide on how to transcribe different entries (e.g., book chapters vs. journal articles). For each entry in endnotes or references, we extracted the following information: last name(s) of author(s); first and middle initial(s) of author(s); year of publication; title of article/book chapter/publication (as applicable); and journal/book/source. We counted multiple entries of the same item (e.g., journal article) in the same textbook only once.

Next, we used 21 coders to create our database. The coders were the second, third, fourth, and fifth authors, as well as 17 freelancers whom we recruited from the Internet freelancing website Upwork.com (see Aguinis & Lawal, 2013, for a review of Internet freelancing). To select Upwork coders, we provided potential freelancers with an abbreviated list of references from one of the textbooks and asked them to submit a sample transcription. We reviewed this sample and clarified questions and errors. We hired the freelancers who successfully completed the sample transcription on an hourly basis. All coders received a copy of the transcription guide that provided examples of how to code different entries, the references for one of the textbooks, and an Excel file template in which to enter the transcribed data.

During transcription, we corrected obvious errors in the textbooks' references sections (e.g., De Dreu, Carsten K. W. listed as De Drew, Carsten K. W.).

Once the coders completed transcription of their assigned textbook, they submitted an Excel file with the transcribed data. The second author then conducted a preliminary accuracy and quality-control check by randomly inspecting the transcription of 10% of all entries. If a discrepancy was found in the submitted data file compared to the textbook's references list, the coder was asked to recheck the Excel file and correct discrepancies. Most of these errors were due to the inability of the optical character recognition software to distinguish between letters (e.g., Yukl, G. scanned as Yuki, G.). In total, the coders invested approximately 3,000 hours to transcribe the data from the pdf files into Excel.

The second, third, and fifth authors (who had each coded some of the textbooks) independently coded a common sample of entries from OB, HRM, GM, and SM textbooks. We compared the coding using a simple matching function in Excel to determine intercoder reliability. In all, we coded 870 entries and found two discrepancies, for an error rate of 0.23%. Next, after the data for each of the 38 textbooks were quality-checked, we concatenated the individual Excel files into a single, master database. Once we had a single file including all data, we conducted yet another round of quality checks by inspecting randomly selected entries from each textbook coded by the freelancers. In all, we inspected 300 entries during this process, and found 7 errors, for an error rate of 2.33%.

Although we conducted extensive checks, as described above, given the size of our database, it is possible that some spelling errors may exist in some author names (i.e., last names and first and middle initials). However, given our accuracy-check procedures, these errors are likely to be minimal and therefore unlikely to change our substantive conclusions.

Our final database of the endnotes and references for all 38 textbooks contains 49,742 rows of information, including individual items with multiple citations each. The database contains 33,719 unique published items (e.g., articles, book chapters), drawn from 7,445 unique sources (e.g., journals, books), and authored by 32,981 unique individuals with at least one citation each. Obviously, many of the items have multiple coauthors. So, cumulatively, these 32,981 unique authors are cited a total of 89,044 times when counting all the coauthors for each item in the database.

Measure of Scholarly Impact on Research (i.e., Internal Impact)

Web of Science (WoS) citations. We used the WoS database to gather information on citations regarding internal scholarly impact. For journals, we used their 5-year impact factor scores (i.e., the average number of times articles published in the past 5 years have been cited in the most recent Journal Citation Report [JCR] year). For individual articles, we used the actual number of WoS citations accrued by each item. For authors, we used the total number of WoS citations accrued by each author.

The use of WoS to conduct author searches poses some challenges (Aguinis et al., 2012; Podsakoff, MacKenzie, Podsakoff, & Bachrach, 2008). One challenge is that the WoS search is limited to last name and first and middle initials. This challenge may lead to false positives whereby citations may incorrectly be attributed to an author when the WoS search refers to another one with the same last name and first and middle initials. We addressed this challenge by confirming the match between the intended author's affiliation (i.e., department and university) and field (e.g., business vs. physics). When possible, we considered authors who have changed affiliations by examining their CVs (if available online) or their personal and faculty websites. A second challenge is that some authors used different names in different articles (e.g., one initial vs. two, different last name). We addressed this challenge by using different variations of authors' names (e.g., search based on one initial only, two initials together). Despite these efforts, we were unable to clearly distinguish one of the most cited authors (out of 352 unique authors). To avoid possible bias in our results, we eliminated the author (Robert J. Grossman) from relevant calculations.

Another issue to consider is that different citation indices such as WoS, Google Scholar, and Scopus vary in terms of the scope and nature of the content indexed (Ball & Tunger, 2006; García-Pérez, 2010; Harzing & Alakangas, 2016; Kousha & Thelwall, 2008; Meho & Yang, 2007; Mongeon & Paul-Hus, 2016). For example, Kousha and Thelwall (2008) found that compared to WoS, Google Scholar reported citations from a larger set of journals, especially those that are open-access (e.g., PloS One). However, studies comparing WoS with other citation indices in different fields such as computer science (Zhao & Logan, 2002), natural sciences (Pauly & Stergiou, 2005), and psychology (Diener, Oishi, & Park, 2014) concluded that results from different citation indices covary considerably (Meho & Yang, 2007). Overall, WoS remains a widely used measure of academic impact and contains the fewest errors (Garcia-Perez, 2010). Accordingly, and in keeping with the method used by others (e.g., Aguinis et al., 2012; Aguinis, Ramani, & Villamor, in press; Podsakoff et al., 2008), we relied on WoS citations as our measure of scholarly impact on research.

Control Variables

Based on recommendations regarding the use of control variables (Bernerth & Aguinis, 2016), we included the number of years since the cited authors received their doctoral degrees as a statistical control in certain analyses. We did so because a greater number of years since the degree was received provides the author more time to accumulate citations (Aguinis et al., 2012). We also included author's gender and the prestige of their university as additional control variables in some of the analyses (Aguinis, Ji, & Joo, 2018) but, as described later, results remained unchanged, so we report results without these two controls.

RESULTS

We describe results following the sequence of our five research questions. Before we do so, we offer four clarifications.

First, as has been documented in the past, citations follow a heavy-tailed distribution (Aguinis, Ramani et al., in press; Joo, Aguinis, & Bradley, 2017; Podsakoff et al., 2008). In other words, there is a minority of sources, articles/books chapters, and authors that account for a disproportionately large amount of citations. So, analyses and results based on an increasingly long list of entries are not informative because the number of citations decreases asymptotically and very quickly (usually to single digits). Accordingly, we based our analyses on the top-50 sources and articles (including ties), and the top-100 authors (including ties).[1]

Second, because citations are not normally distributed, we implemented statistical procedures that do not assume normality. Specifically, although Pearson's *r* is the most frequently used correlational

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[1] Note that conducting analyses based on samples smaller than the ones we chose would not yield sufficient statistical power to answer our questions with confidence. For example, if $N = 29$, the population correlation coefficient would have to be at least $\rho = .50$ to find a statistically significant result in the sample at the $\alpha = .05$ level.

test, results can be biased when variables are from distributions with heavy tails (Bishara & Hittner, 2012; de Winter, Gosling, & Potter, 2016). So we used the Spearman correlation r_s (de Winter et al., 2016) rather than Pearson's correlation. In addition, ordinary-least-squares (OLS) regression relies on the normality of residuals assumption, which is also violated in the presence of heavy-tailed distributions (Aguinis & O'Boyle, 2014). Accordingly, we implemented additive unrestricted nonparametric multiple regression (Hayfield & Racine, 2008; Wood, 2011).

Third, there is increased awareness of the detrimental effects of endogeneity, particularly when there are inferences about causal relations between variables, as described by Clougherty, Duso, and Muck (2016). Endogeneity would be a concern if we claimed that internal scholarly impact causes external scholarly impact or vice versa. But, our goal is to examine whether there is a relationship between internal and external citations, not establish a causal link between them. Also, regarding the potential threat of endogeneity due to selection bias, our targeted population includes those sources, articles, and authors that have at least a degree of external scholarly impact. This is precisely why we started our data collection process with the selection of samples that are cited in textbooks. This process does not lead to "selection bias" because we were not interested in sources, articles, and authors that are not cited in textbooks at all (i.e., those with zero external scholarly impact).[2]

Fourth, to facilitate future research as well as follow-up comparisons and analyses, and based on recently recommended guidelines about data-sharing (Aguinis, Ramani, & Alabduljader, 2018; Aguinis & Solarino, in press), we make our entire database available upon request to be used for different purposes. For example, a user of our database may be interested in learning about the relative scholarly impact of two specific journals, or a journal compared to a popular-press source. Another user may be interested in comparing the scholarly impact of two or more articles by the same or different

authors. And, yet another user (e.g., department chair or dean, faculty member who will be considered for promotion) may be interested in comparing the relative scholarly impact of two authors within or across universities. Moreover, making our entire database available will also allow users to compare two or more particular universities—or even countries or regions of the world— by grouping authors based on their affiliation.

Research Question 1

Internal and external scholarly impact of sources. To answer the question of whether the most impactful sources in textbooks are also equally impactful in journals, we first identified the most cited sources in textbooks (e.g., academic journals, edited books). Results regarding the most cited sources are in Table 1 for OB, Table 2 for HRM, Table 3 for SM, and Table 4 for GM. Tables S1 (OB), S2 (HRM), S3 (SM), and S4 (GM) in the online supplement include additional entries. Results based on the top-50 most cited sources (as included in Tables S1–S4) show that 46% are non-academic in GM and HRM, and this value was about 27% in OB, and about 25% in SM.

Then we calculated the correlation between the number of times a source is cited in textbooks and a source's 5-year impact factor (note that practitioner sources do not have an impact factor, so these were not included in the calculation of these correlations). Both of these measures are at the source level of analysis (i.e., journal). Spearman correlations were $r_s(37) = .32$, $p = .052$ for OB textbooks; $r_s(27) = .31$, $p = .111$ for HRM textbooks; $r_s(38) = .46$, $p = .003$ for SM textbooks; and $r_s(27) = .28$, $p = .161$ for GM textbooks. Squaring these correlations indicates that the average variance overlap across the four types of textbooks was 12.21%. The largest overlap between sources that are cited most frequently in journals and sources that are cited most frequently in textbooks is in SM (i.e., 21% variance overlap), and the overlap for OB, HRM, and GM textbooks is not statistically different from zero.

Research Questions 2 and 3

Internal and external scholarly impact of articles and book chapters. Research Question 2 asked about the most impactful individual items in textbooks. Results including the most cited articles and book chapters are included in Table 5 for OB, Table 6 for HRM, Table 7 for SM, and Table 8 for GM. Tables S5 (OB), S6 (HRM), S7(SM), and S8 (GM) in the

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[2] In fact, including journals and authors who have zero citations in textbooks would lead to range enhancement (Sackett & Yang, 2000; Schmidt & Hunter, 2014). Range enhancement occurs when the range of values in the variables studied is artificially increased due to the sample selected, leading to an upward bias in the correlations (Schmidt & Hunter, 2014: 123–132). Therefore, including those sources, articles, and authors that have zero citations artificially increases the range because these journals and authors, by definition, have no external scholarly impact.

TABLE 1
Most Cited Sources in Organizational Behavior Textbooks

Rank	Academic Source	Academic Rank	Source	Number of Citations	% of Total Citations in all OB Textbooks Analyzed	Impact Factor
1	Yes	1	*Journal of Applied Psychology*	1,675	9.35%	7.12
2	Yes	2	*Academy of Management Journal*	827	4.62%	11.25
3	Yes	3	*Harvard Business Review*	459	2.56%	4.93
4	Yes	4	*Academy of Management Review*	423	2.36%	13.28
5	No		*Bloomberg BusinessWeek*	390	2.18%	na
5	Yes	5	*Journal of Management*	390	2.18%	12.04
7	Yes	6	*Personnel Psychology*	348	1.94%	7.35
8	Yes	7	*Journal of Personality & Social Psychology*	338	1.89%	7.39
9	Yes	8	*Organizational Behavior & Human Decision Processes (*formerly *Organizational Behavior & Human Performance)*[a]	327	1.83%	3.68
10	No		*Wall Street Journal*	300	1.67%	na
11	Yes	9	*Academy of Management Perspectives (*formerly *Academy of Management Executive)*[a]	296	1.65%	7.34
12	Yes	10	*Journal of Organizational Behavior*	272	1.52%	5.89
13	No		*Fortune*	268	1.50%	na
14	Yes	11	*Organizational Dynamics*	255	1.42%	1.36
15	Yes	12	*Psychological Bulletin*	222	1.24%	21.99
16	Yes	13	*Administrative Science Quarterly*	213	1.19%	8.66
17	No		*HR Magazine*	200	1.12%	na
17	Yes	14	*Leadership Quarterly*	200	1.12%	5.36
19	Yes	15	*Human Relations*	155	0.87%	4.35
20	No		*USA Today*	138	0.77%	na
21	Yes	16	*American Psychologist*	116	0.65%	7.22
22	Yes	17	*Organization Science*	108	0.60%	5.43
23	Yes	18	*Group & Organization Management (*formerly *Group & Organization Studies)*[a]	96	0.54%	3.39
24	No		*New York Times*	92	0.51%	na
25	Yes	19	*Journal of Vocational Behavior*	91	0.51%	4.20

Note: OB = Organizational Behavior. Sources are ranked by number of citations in Organizational Behavior textbooks. Sources with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. Impact factor refers to 2017 5-year impact factor as reported in JCR (i.e. calculated by dividing the number of current year citations to the source items published in that journal during the previous five years). The entire database including all 3,986 sources is available upon request. na = Not Applicable.

[a] Citation counts for these sources are the sum of both titles of the journal.

online supplement include additional entries on which we based our analyses.

Also regarding Question 2, many frequently cited items in textbooks are reviews, and therefore, we examined this issue more closely.[3] Overall, 23.96%

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[3] First, the second and fifth author independently classified each of the most cited articles as review versus nonreview by reading each article. Next, we compared the independent ratings using a simple matching function in Excel to determine the overlap between independent selections and found 95.18% agreement. Subsequently, the two coders met to resolve differences and reached 100% agreement.

of the most cited articles in textbooks as listed in Tables S5–S8 are reviews. Then, to make a comparison, we examined the proportion of reviews in the published academic literature by analyzing all articles published from 2015 through 2017 in six journals: *Academy of Management Journal*, *Human Resource Management*, *Journal of Applied Psychology*, *Journal of Management*, *Personnel Psychology*, and *Strategic Management Journal*. We chose these six journals as they provide information regarding each of the four fields (i.e., OB, HRM, SM, and GM) in our study, and are among the top-five most cited academic sources in textbooks in their respective

TABLE 2
Most Cited Sources in Human Resource Management Textbooks

Rank	Academic Source	Academic Rank	Source	Number of Citations	% of Total Citations in all HRM Textbooks Analyzed	Impact Factor
1	Yes	1	*Journal of Applied Psychology*	1,244	11.50%	7.12
2	Yes	2	*Personnel Psychology*	697	6.44%	7.35
3	No		*HR Magazine*	627	5.80%	na
4	No		*Wall Street Journal*	594	5.49%	na
5	No		*Bloomberg BusinessWeek*	341	3.15%	na
5	No		*Workforce Magazine*	339	3.13%	na
7	Yes	3	*Academy of Management Journal*	256	2.37%	11.25
8	No		*T & D*	248	2.29%	na
9	No		*Compensation & Benefits Review*	213	1.97%	na
10	No		*New York Times*	209	1.93%	Na
11	Yes	4	*Human Resource Management*	180	1.66%	3.36
12	No		*Human Resource Executive*	134	1.24%	na
13	No		*Fortune*	130	1.20%	na
14	No		*Workspan Magazine*	130	1.20%	na
15	Yes	5	*Harvard Business Review*	120	1.11%	4.93
16	Yes	6	*Academy of Management Review*	118	1.09%	13.28
17	Yes	7	*Industrial & Labor Relations Review*	116	1.07%	2.27
17	No		*Society for Human Resource Management (SHRM)*	114	1.05%	na
19	Yes	8	*Human Resource Management Review*	113	1.04%	4.20
20	No		*Personnel Journal*	108	1.00%	na
21	No		*Training Magazine*	104	0.96%	na
22	Yes	9	*Academy of Management Perspectives (*formerly *Academy of Management Executive)*[a]	98	0.91%	7.34
23	Yes	10	*International Journal of Selection & Assessment*	90	0.83%	1.39
24	Yes	11	*Journal of Management*	89	0.82%	12.04
25	Yes	12	*Organizational Behavior & Human Decision Processes (*formerly *Organizational Behavior & Human Performance)*[a]	72	0.67%	3.68

Note: HRM = Human Resource Management. Sources are ranked by number of citations in Human Resource Management textbooks. Sources with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. Impact factor refers to 2017 5-year impact factor as reported in JCR (i.e. calculated by dividing the number of current year citations to the source items published in that journal during the previous five years). The entire database including all 1,810 sources is available upon request. na = Not Applicable.

[a] Citation counts for these sources are the sum of both titles of the journal.

domains (although we excluded one of the most cited sources, *Academy of Management Review,* because it does not publish literature reviews or empirical research).[4] Results showed that review articles accounted for 7.90% of all articles in the published academic literature, which is considerably lower than the average of 23.96% review articles found in textbooks.

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[4] The second and fifth authors coded all articles using the same procedure described above for coding items cited in textbooks.

Regarding Question 3, which asked about the proportion of individual items that are academic in nature, we found that, on average, peer-reviewed scholarly articles comprised approximately 89% of the most cited individual items. In terms of specific fields, they comprised 87% (83 of 95) of the most frequently cited articles and book chapters in OB; 86% (136 of 159) in HRM; 96% (54 of 56) in SM; and 86% (74 of 86) in GM textbooks. So all textbooks are heavily influenced by scholarly publications. We also collected information on the number of WoS citations for each individual item. Note that both

TABLE 3
Most Cited Sources in Strategic Management Textbooks

Rank	Academic Source	Academic Rank	Source	Number of Citations	% of Total Citations in all SM Textbooks Analyzed	Impact Factor
1	Yes	1	Strategic Management Journal	798	13.48%	7.48
2	Yes	2	Harvard Business Review	447	7.55%	4.93
3	No		Wall Street Journal	316	5.34%	na
4	Yes	3	Academy of Management Journal	279	4.71%	11.25
5	Yes	4	Academy of Management Review	168	2.84%	13.28
5	No		Bloomberg BusinessWeek	168	2.84%	na
7	No		Fortune	146	2.47%	na
8	Yes	5	Journal of Management	121	2.04%	12.04
9	Yes	6	Journal of International Business Studies	107	1.81%	8.45
10	Yes	7	MIT Sloan Management Review	103	1.74%	4.58
11	Yes	8	Academy of Management Perspectives (formerly Academy of Management Executive)[a]	99	1.67%	7.34
12	Yes	8	Journal of Management Studies	99	1.67%	7.96
13	Yes	10	Organization Science	97	1.64%	5.43
14	Yes	11	Business Horizons	61	1.03%	3.03
15	No		Forbes	59	1.00%	na
16	Yes	12	Management Science	54	0.91%	4.93
17	No		Journal of Business Strategy	50	0.84%	na
17	Yes	13	Journal of Business Venturing	48	0.81%	9.07
19	Yes	14	California Management Review	47	0.79%	4.16
20	No		Harvard Business School Case	45	0.76%	na
21	Yes	15	Administrative Science Quarterly	44	0.74%	8.66
21	Yes	15	Journal of Business Research	44	0.74%	3.69
23	Yes	17	Strategic Entrepreneurship Journal	41	0.69%	4.29
24	Yes	18	Journal of Financial Economics	39	0.66%	7.51
25	No		New York Times	38	0.64%	na

Note: SM = Strategic Management. Sources are ranked by number of citations in Strategic Management textbooks. Sources with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. Impact factor refers to 2017 5-year impact factor as reported in JCR (i.e. calculated by dividing the number of current year citations to the source items published in that journal during the previous five years). The entire database including all 1,172 sources is available upon request. na = Not Applicable.

[a] Citation counts for these sources are the sum of both titles of the journal.

citations in textbooks and WoS citations are measured at the item (i.e., article) level of analysis. In other words, we collected the actual number of WoS citations accrued by each article rather than using the journal in which each article was published as a proxy because a journal's impact factor is a very imperfect measure of the impact of individual articles (Starbuck, 2005). Spearman correlations were $r_s(76) = .350$, $p = .002$ for OB textbooks; $r_s(134) = .036$, $p = .679$ for HRM textbooks; $r_s(54) = .569$, $p < .001$ for SM textbooks; and $r_s(62) = .021$, $p = .874$ for GM textbooks. Squaring these correlations indicated that the average proportion of variance overlap was 12.29%. In terms of specific fields, we found about 32% of shared variance between citations in textbooks and WoS citations for SM, about 12% of shared variance for OB, and that the shared variance

for HRM and GM was statistically indistinguishable from zero.

Research Questions 4 and 5

Internal and external scholarly impact of authors and universities. To answer Questions 4 and 5, we first identified the top-100 (including ties) most cited authors in OB, HRM, SM, and GM textbooks. Results are included in Table 9 for OB, Table 10 for HRM, Table 11 for SM, and Table 12 for GM. Tables S9 (OB), S10 (HRM), S11 (SM), and S12 (GM) in the online supplement include additional entries.

As a first step in answering this question, we computed the correlation between citations in textbooks and WoS citations. The Spearman correlations between the number of times an author is cited in

TABLE 4
Most Cited Sources in General Management Textbooks

Rank	Academic Source	Academic Rank	Source	Number of Citations	% of Total Citations in all GM Textbooks Analyzed	Impact Factor
1	No		*Wall Street Journal*	1,293	8.57%	na
2	Yes	1	*Harvard Business Review*	833	5.52%	4.93
3	No		*Bloomberg BusinessWeek*	790	5.23%	na
4	Yes	2	*Academy of Management Journal*	502	3.33%	11.25
5	No		*New York Times*	499	3.31%	na
5	No		*USA Today*	476	3.15%	na
7	No		*Fortune*	469	3.11%	na
8	Yes	3	*Academy of Management Perspectives (*formerly *Academy of Management Executive)*[a]	398	2.64%	7.34
9	Yes	4	*Academy of Management Review*	354	2.35%	13.28
10	Yes	5	*Journal of Applied Psychology*	347	2.30%	7.12
11	No		*HR Magazine*	326	2.16%	na
12	Yes	6	*Journal of Management*	232	1.54%	12.04
13	Yes	7	*Organizational Dynamics*	209	1.38%	1.36
14	No		*Inc.*	206	1.36%	na
15	Yes	8	*Business Horizons*	198	1.31%	3.03
16	No		*Fast Company Magazine*	167	1.11%	na
17	No		*Industry Week*	164	1.09%	na
17	No		*Workforce Magazine*	151	1.00%	na
19	No		*Training Magazine*	139	0.92%	na
20	No		*Forbes*	130	0.86%	na
21	Yes	9	*Strategic Management Journal*	111	0.74%	7.48
22	Yes	10	*Personnel Psychology*	104	0.69%	7.35
23	Yes	11	*MIT Sloan Management Review*	101	0.67%	4.58
24	Yes	12	*Administrative Science Quarterly*	96	0.64%	8.66
25	Yes	13	*Organizational Behavior & Human Decision Processes (*formerly *Organizational Behavior & Human Performance)*[a]	87	0.58%	3.68

Note: GM = General Management. Sources are ranked by number of citations in General Management textbooks. Sources with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. Impact factor refers to 2017 5-year impact factor as reported in JCR (i.e. calculated by dividing the number of current year citations to the source items published in that journal during the previous five years). The entire database including all 2,635 sources is available upon request. na = Not Applicable.

[a] Citation counts for these sources are the sum of both titles of the journal.

textbooks and their total WoS citations were $r_s(109) = .36$, $p < .001$ for OB authors; $r_s(88) = .37$, $p < .001$ for HRM authors; $r_s(117) = .58$, $p < .001$ for SM authors; and $r_s(62) = .20$, $p = .121$ for GM authors. The average variance overlap across the four fields was 16.07%. There are more authors in SM (i.e., about 34% variance overlap) who are able to impact both other researchers and management education as compared to OB and HRM (i.e., about 13% variance overlap), and the overlap is statistically indistinguishable from zero for GM.

As a second step to assess the relationship between textbook and WoS citations for authors, we conducted an additive unrestricted nonparametric multiple regression using the np and mgcv packages in R (Hayfield & Racine, 2008; Wood, 2011) in which

textbook citations was the criterion variable. We first entered the number of years since doctorate earned as a statistical control variable and then, as a second step, we entered the number of WoS citations.[5] For OB authors, $b = .000$, $\Delta F(2, 105) = 3.26$, $p = .002$, $\Delta R^2 = .126$. For HRM authors, $b = .002$, $\Delta F(2, 85) = 2.43$, $p = .001$, $\Delta R^2 = .226$. For SM authors, $b = .000$,

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[5] Similar to Judge, Cable, Colbert, and Rynes (2007), we conducted these same analyses using gender and university prestige (based on the report by Gourman [1997]) as two additional control variables. All substantive results and conclusions remained unchanged. So, we report results without these two variables as suggested based on best-practice recommendations in the use of control variables by Bernerth and Aguinis (2016).

TABLE 5
Most Cited Articles and Book Chapters in Organizational Behavior Textbooks

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	WoS Citations
1	Yes	*Journal of Applied Psychology*	Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W.	2002	Personality and leadership: A qualitative and quantitative review	11	879
1	Yes	*Group & Organization Management*	Tuckman, B. W., & Jensen, M. A. C.	1977	Stages of small-group development revisited[a]	11	
1	No	*Studies in Social Power*	French, J. R. P., & Raven, B. H.	1959	The bases of social power	11	na
4	Yes	*Psychological Bulletin*	Tuckman, B. W.	1965	Developmental sequence in small groups	10	1,661
5	No	*Advances in Experimental Social Psychology*	Adams, J. S.	1965	Inequity in social exchange	9	na
5	Yes	*Journal of Applied Psychology*	Colquitt, J. A., Conlon, D. E., Wesson, M. J., Porter, C. O. L. H., & Ng, K. Y	2001	Justice at the millennium: A meta-analytic review of 25 years of organizational justice research	9	1,971
5	Yes	*Personnel Psychology*	Barrick, M. R., & Mount, M. K.	1991	The big five personality dimensions and job performance: A meta-analysis	9	2,908
5	Yes	*Psychological Bulletin*	Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K.	2001	The job satisfaction-job performance relationship: A qualitative and quantitative review	9	1,258
9	Yes	*Administrative Science Quarterly*	House, R. J.	1971	A path goal theory of leader effectiveness	8	1,008
9	Yes	*Journal of Applied Psychology*	Judge, T. A., & Bono, J. E.	2001	Relationship of core self-evaluation traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance	8	1,047
11	Yes	*Academy of Management Perspectives*	Javidan, M., Dorfman, P. W., Luque, M. S., & House, R. J.	2006	In the eye of the beholder: Cross-cultural lessons in leadership from Project GLOBE	7	274
11	Yes	*Harvard Business Review*	Kotter, J. P.	1995	Leading change: Why transformation efforts fail	7	934
11	Yes	*Organizational Behavior & Human Performance*	Hackman, J. R.	1976	Motivation through the design of work: Test of a theory	7	2,436
11	Yes	*Journal of Applied Psychology*	Judge, T. A., Piccolo, R. F., & Ilies, R.	2004	The forgotten ones? The validity of consideration and initiating structure in leadership research	7	408
11	Yes	*Organizational Behavior & Human Decision Processes*	Cohen-Charash, Y., & Spector, P. E.	2001	The role of justice in organizations: A meta-analysis	7	1,259
11	Yes	*Academy of Management Journal*	Gersick, C. J. G.	1988	Time and transition in work teams: Toward a new model of group development	7	868
11	Yes	*Journal of Applied Psychology*	Judge, T. A., & Piccolo, R. F.	2004	Transformational and transactional leadership: A meta-analytic test of their relative validity	7	1,097

Note: WoS = Web of Science. na = Not Applicable. Book citations = number of textbooks citing each article. Articles are ranked by number of citations in Organizational Behavior textbooks. Articles with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. The entire database including all 12,266 articles is available upon request. Web of Science citation counts are as of July 8, 2018.

[a] We were unable to locate the Web of Citation counts for this article.

$\Delta F(2, 109) = 12.858$, $p < .0001$, $\Delta R^2 = .504$. For GM authors, $b = .000$, $\Delta F(2, 58) = 1.243$, $p = .062$, $\Delta R^2 = .102$. Results were quite similar in terms of variance explained compared to analyses based on Spearman correlations for OB (i.e., 13% overlap). Results showed a non-zero overlap regarding HRM (i.e., 23%), SM (i.e., 50%), but it was statistically indistinguishable from zero for GM.

TABLE 6
Most Cited Articles and Book Chapters in Human Resource Management Textbooks

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	WoS Citations
1	Yes	*Journal of Occupational & Organizational Psychology*	Taylor, P. J., & Small, B.	2002	Asking applicants what they would do versus what they did do: A meta-analytic comparison of situational and past behavior employment interview questions	5	52
1	Yes	*Personnel Psychology*	Posthuma, R. A., Morgeson, F. P., & Campion, M. A.	2002	Beyond employment interview validity: A comprehensive narrative review of recent research and trends over time	5	165
1	Yes	*Journal of Applied Psychology*	Harter, J. K., Schmidt, F. L., & Hayes, T. L.	2002	Business-unit level relationship between employee satisfaction, employee engagement, and business outcomes: A meta-analysis	5	1,064
1	Yes	*Journal of Applied Psychology*	Barrick, M. R., & Zimmerman, R. D.	2005	Reducing voluntary turnover through selection	5	68
1	Yes	*Academy of Management Journal*	Bernardin, H. J., & Cooke, D. K.	1993	Validity of an honesty test in predicting theft among convenience store employees	5	22
6	Yes	*Journal of Applied Psychology*	Schmidt, F. L., & Zimmerman, R. D.	2004	A counterintuitive hypothesis about employment interview validity and some supporting evidence	4	34
6	Yes	*Personnel Psychology*	Arthur, W., Day, E. A., McNelly, T. L., & Edens, P. S.	2003	A meta-analysis of the criterion-related validity of assessment center dimensions	4	166
6	Yes	*Personnel Psychology*	Maurer, S. D.	2002	A practitioner-based analysis of interviewer job expertise and scale format as contextual factors in situational interviews	4	11
6	Yes	*Journal of Applied Psychology*	Tracey, J. B., Tannenbaum, S. I., & Kavanagh, M. J.	1995	Applying trained skills on the job: The importance of the work environment	4	292
6	Yes	*Personnel Psychology*	Fulmer, I. S., Gerhart, B., & Scott, K. S.	2003	Are the 100 best better? An empirical investigation of the relationship between being a great place to work and firm performance	4	140
6	Yes	*Personnel Psychology*	Huffcutt, A. I., Weekley, J. A., Wiesner, W. H., DeGroot, T. G., & Jones, C.	2001	Comparison of situational and behavior description interview question for higher-level positions	4	47

TABLE 6
(Continued)

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	WoS Citations
6	No	*HR Magazine*	Fox, A.	2009	Curing what ails performance reviews	4	na
6	Yes	*Personnel Psychology*	Van Iddekinge, C. H., & Ployhart, R. E.	2008	Developments in the criterion-related validation of selection procedures: A critical review and recommendations for practice	4	38
6	Yes	*Journal of Applied Psychology*	Winfred, A., Bennett, W., Edens, P. S., & Bell, S. T.	2003	Effectiveness of training in organizations: A meta-analysis of design and evaluation features	4	355
6	Yes	*Journal of Applied Psychology*	Shaffer, M. A., & Harrison, D. A.	2001	Forgotten partners of international assignments: Development and test of a model of spouse adjustment	4	105
6	Yes	*Journal of Applied Psychology*	Zhao, H., & Liden, R. C.	2011	Internship: A recruitment and selection perspective	4	31
6	Yes	*Journal of Applied Psychology*	Cawley, B. D., Keeping, L. M., & Levy, P. E.	1998	Participation in the performance appraisal process and employee reactions: A meta-analytic review of field investigations	4	134
6	Yes	*Personnel Psychology*	Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck., J. R., Murphy, K., & Schmitt, N.	2007	Reconsidering the use of personality tests in personnel selection contexts	4	246
6	Yes	*Academy of Management Journal*	Cadsby, C. B., Song, F., & Tapon, F.	2007	Sorting and incentive effects of pay for performance: An experimental investigation	4	118
6	Yes	*Personnel Psychology*	Sitzman, T., Kraiger, K., Stewart, D., & Wisher, R.	2006	The comparative effectiveness of web-based and classroom instruction: A meta-analysis	4	253
6	Yes	*Psychological Bulletin*	Flanagan, J. C.	1954	The critical incident technique	4	3,165
6	Yes	*Personnel Psychology*	Klein, H. J., & Weaver, N. A.	2000	The effectiveness of an organizational-level orientation training program in the socialization of new hires	4	102
6	Yes	*Personnel Psychology*	Rynes, S. L., Bretz, R. D., & Gerhart, B.	1991	The importance of recruitment in job choice: A different way of looking	4	245

TABLE 6
(Continued)

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	WoS Citations
6	Yes	*Personnel Psychology*	Shippmann, J. S., Ash, R. A., Batjtsta, M., Carr, L., Eyde, L. D., Hesketh, B., …. & Sanchez, J. I.	2000	The practice of competency modeling	4	170
6	Yes	*Journal of Applied Psychology*	Morgeson, F. P., & Humphrey, S. E.	2006	The work design questionnaire (wdq): Developing and validating a comprehensive measure for assessing job design and the nature of work	4	541
6	Yes	*Journal of Applied Psychology*	Colquitt, J. A., LePine, J. A., Noe, & Raymond, A.	2000	Toward an integrative theory of training motivation: A meta-analytic path analysis of 20 years of research	4	751
6	Yes	*Human Resource Management Review*	Gill, C.	2009	Union impact on the effective adoption of high-performance work practices	4	25
6	Yes	*Psychological Bulletin*	Hunter, J. E., & Hunter, R. F.	1984	Validity and utility of alternative predictors of job performance	4	1,036
6	Yes	*Personnel Psychology*	Roth, P., Bobko, P., McFarland, L., & Buster, M.	2008	Work sample tests in personnel selection: A meta-analysis of black-white differences in overall and exercise scores	4	29

Note: WoS = Web of Science. na = Not Applicable. Book citations = number of textbooks citing each article. Articles are ranked by number of citations in Human Resource Management textbooks. Articles with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. The entire database including all 8,815 articles is available upon request. Web of Science citation counts are as of July 8, 2018.

To learn which universities have the most scholarly impact based on the affiliation of the most impactful authors, we examined the affiliation of each of the most cited authors included in Tables S9 through S12 in the online supplement (recall that Tables 9–12 include shorter versions of these lists). The schools with which the most cited authors (excluding authors who are now deceased) in OB, HRM, SM, and GM textbooks are affiliated are listed in Table 13. Michigan State is at the top of the OB and HRM lists and Harvard is at the top of the SM and GM lists.

DISCUSSION

Our examination of scholarly impact in management education based on 7,445 unique sources, 33,719 unique articles and book chapters, and 32,981 authors cited in 38 OB, HRM, SM, and GM textbooks provides an expanded approach for evaluating knowledge transfer. In turn, these insights have implications for the science–practice gap and a consideration of students as stakeholders, the conceptualization and measurement of knowledge transfer and the design of academic performance management and reward systems, and choices regarding what knowledge academics create and disseminate. By utilizing textbook citations as a novel conceptualization and measure of external KT and scholarly impact, our results offer a complementary and expanded view of the influence of scholarship and lead to several implications, as we describe next.

TABLE 7
Most Cited Articles and Book Chapters in Strategic Management Textbooks

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	WoS Citations
1	Yes	*Journal of Management*	Barney, J.	1991	Firm resources and sustained competitive advantage	7	13,945
2	Yes	*Strategic Management Journal*	Lieberman, M. B., & Montgomery, D. B.	1988	First-mover advantages	5	1,298
2	Yes	*Harvard Business Review*	Porter, M. E.	1987	From competitive advantage to corporate strategy	5	607
2	Yes	*Strategic Management Journal*	Amit, R., & Schoemaker, P. J. H.	1993	Strategic assets and organizational rent	5	2,666
2	Yes	*Harvard Business Review*	Kaplan, R. S., & Norton, D. P.	1992	The balanced scorecard: Measures that drive performance	5	3,228
2	Yes	*Harvard Business Review*	Prahalad, C. K., & Hamel, G.	1990	The core competence of the corporation	5	4,572
2	Yes	*Strategic Management Journal*	Peteraf, M. A.	1993	The cornerstones of competitive advantage: A resource-based view	5	3,143
2	Yes	*Harvard Business Review*	Porter, M. E.	1996	What is strategy?	5	1,674
9	Yes	*Administrative Science Quarterly*	Burgelman, R. A.	1983	A process model of internal corporate venturing in a major diversified firm	4	878
9	Yes	*Strategic Management Journal*	Wernerfelt, B.	1984	A resource-based view of the firm	4	6,792
9	Yes	*Journal of Political Economy*	Fama, E. F.	1980	Agency problems and the theory of the firm	4	2,923
9	Yes	*Harvard Business Review*	Hamel, G., Doz, Y. L., & Prahalad, C. K.	1989	Collaborate with your competitors-and win	4	727
9	Yes	*Strategic Management Journal*	Eisenhardt, K. M., & Martin, J. A.	2000	Dynamic capabilities: What are they?	4	4,171
9	Yes	*Harvard Business Review*	Porter, M. E.	2000	How competitive forces shape strategy	4	480
9	Yes	*Strategic Management Journal*	Harrigan, K. R.	1986	Matching vertical integration strategies to competitive conditions	4	111
9	Yes	*Strategic Management Journal*	Mintzberg, H., & Waters, J. A.	1985	Of strategies, deliberate and emergent	4	1,242
9	Yes	*Academy of Management Journal*	Chen, M. J., & Hambrick, D. C.	1995	Speed, stealth, and selective attack: How small firms differ from large firms in competitive behavior	4	404
9	Yes	*Journal of Financial Economics*	Jensen, M. C., & Meckling, W. H.	1976	Theory of the firm: Managerial behavior, agency costs and ownership structure	4	14,992

Note: WoS = Web of Science. Book citations = number of textbooks citing each article. Articles are ranked by number of citations in Strategic Management textbooks. Articles with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. The entire database including all 4,799 articles is available upon request. Web of Science citation counts are as of July 8, 2018.

TABLE 8
Most Cited Articles and Book Chapters in General Management Textbooks

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	Wos Citations
1	Yes	*Harvard Business Review*	Katz, R. L.	2009	Skills of an effective administrator	8	224
2	Yes	*Harvard Business Review*	Kotter, J. P., & Schlesinger, L. A.	1979	Choosing strategies for change	7	266
2	Yes	*Academy of Management Perspectives*	Kirkpatrick, S. A., & Locke, E. A.	1991	Leadership: Do traits matter? [a]	7	
2	Yes	*Group & Organization Management*	Tuckman, B. W., & Jensen, M. A. C.	1977	Stages of small-group development revisited [a]	7	
2	No	*Studies in Social Power*	French, J. R. P., & Raven, B. H.	1959	The bases of social power	7	na
6	No	*Fortune*	Varies	Yearly	100 best companies to work for	6	na
6	Yes	*Journal of Applied Psychology*	Rodgers, R., & Hunter, J. E.	1991	Impact of management by objectives on organizational productivity	6	81
6	No	*Journal of Contemporary Business*	House, R. J., & Mitchell, T. R.	1974	Path-goal theory of leadership	6	na
6	Yes	*Harvard Business Review*	McClelland, D. C., & Burnham, D. H.	1976	Power is the great motivator	6	190
6	Yes	*Organizational Behavior & Human Performance*	Kerr, S.	1978	Substitutes for leadership: Their meaning and measurement	6	690
11	Yes	*Administrative Science Quarterly*	House, R. J.	1971	A path goal theory of leader effectiveness	5	1,008
11	Yes	*Psychological Review*	Maslow, A. H.	1943	A theory of human motivation [a]	5	
11	Yes	*Academy of Management Perspectives*	Pfeffer, J.	2010	Building sustainable organizations: The human factor	5	193
11	No	*Psychology Today*	Mehrabian, A.	1968	Communication without words	5	na
11	Yes	*Psychological Bulletin*	Tuckman, B. W.	1965	Developmental sequence in small groups	5	1,661
11	Yes	*Academy of Management Review*	Jones, T. M.	1991	Ethical decision making by individuals in organizations: An issue-contingent model	5	1,384
11	Yes	*Academy of Management Review*	Dane, E., & Pratt, M. G.	2007	Exploring intuition and its role in managerial decision making	5	426
11	No	*Wall Street Journal*	Kwoh, L.	2012	Firms hail new chiefs (of diversity)	5	na
11	Yes	*Organizational Dynamics*	Bass, B. M.	1985	Leadership: Good, better, best	5	174
11	Yes	*Academy of Management Perspectives*	Cascio, W. F.	2000	Managing a virtual workplace	5	188
11	Yes	*Academy of Management Perspectives*	Furst, S. A., Reeves, M., Rosen, B., & Blackburn, R. S.	2004	Managing the life cycle of virtual teams	5	70
11	Yes	*Organizational Dynamics*	Hofstede, G.	1980	Motivation, leadership and organization: Do American theories apply abroad?	5	770
11	Yes	*Academy of Management Review*	Ford, J. D., Ford, L. W., & D'Amelio, A.	2008	Resistance to change: The rest of the story	5	269

TABLE 8
(Continued)

Rank	Academic Source	Source	Authors	Year	Article/Chapter Title	Book Citations	Wos Citations
11	Yes	*Academy of Management Journal*	Miller, C. C., & Cardinal, L. B.	1994	Strategic planning and firm performance: A synthesis of more than two decades of research	5	299
11	No	*Fortune*	Kaplan, D. A.	2010	The best company to work for	5	na
11	Yes	*Journal of International Business Studies*	Hofstede, G.	1983	The cultural relativity of organizational practices and theories	5	867
11	Yes	*American Sociological Review*	Carey, A.	1967	The Hawthorne studies: A radical criticism [a]	5	
11	Yes	*Journal of World Business*	Perlmutter, H. V.	1969	The tortuous evolution of the multinational corporation	5	519

Note: WoS = Web of Science. na = Not Applicable. Book citations = number of textbooks citing each article. Articles are ranked by number of citations in General Management textbooks. Articles with equal numbers of citations are ranked alphabetically and assigned the same rank. Sources are classified as "Academic" if they are included in the Web of Science Journal Citations Report (JCR) database. The entire database including all 11,407 articles is available upon request. Web of Science citation counts are as of July 8, 2018.

[a] We were unable to locate the Web of Citation counts for this article.

Implications for the Science–Practice Gap and Students as Stakeholders

Results based on the top-50 most frequently cited sources in textbooks showed that the percentage of non-academic sources is about 46% in GM and HRM textbooks, 27% in OB textbooks, and 25% in SM textbooks. Moreover, there are non-academic sources among the top-5 most cited sources in GM (e.g., *Wall Street Journal* is #1 and *Bloomberg BusinessWeek* is #3), HRM (e.g., *HR Magazine* is #3 and *Wall Street Journal* is #4), OB (e.g., *Bloomberg BusinessWeek* is #5), and SM (e.g., *Wall Street Journal* is #3 and *Bloomberg BusinessWeek* is #5). These results are encouraging regarding the science–practice gap because they show that although textbooks rely mostly on knowledge published in academic sources, they also rely on non-academic sources. As such, these results are a far cry from concerns about a science–practice gap because they suggest that students, who are for the most part future practitioners, are exposed to knowledge and content originating in both academic and non-academic outlets.

In terms of specific publications, *Journal of Applied Psychology* is the #1 most frequently cited source in OB and HRM textbooks, *Strategic Management Journal* is the #1 cited source in SM, and *Academy of Management Journal* is the most-cited academic source in GM (#4, after *Wall Street Journal*, *Harvard Business Review*, and *Bloomberg*

BusinessWeek). Again, these results point to a possible narrowing of the science–practice gap because students are receiving knowledge published in what are usually considered some of the most prestigious and scientifically rigorous academic journals among OB, HRM, SM, and GM researchers.

In terms of individual items, peer-reviewed scholarly articles comprised approximately 86% of the most frequently cited articles and book chapters in OB, HRM, and GM, and 96% in SM textbooks. These results indicate that students are predominantly exposed to knowledge created by researchers. And, because articles appearing in textbooks reach a large number of students, our results again provide encouraging evidence that management research seems to have a broad impact on future practitioners.

Another result regarding individual items that has implications for the science–practice gap is that about 24% of the most-cited articles in textbooks are literature reviews. In contrast, we found that approximately 8% of all articles published in the academic literature are reviews. This result shows that textbooks are indeed serving the role of knowledge disseminators because of their focus on articles that offer research syntheses. In other words, it seems that in some instances knowledge may be created in some earlier work, then re-packaged for an academic audience in a literature review, and finally, cited in textbooks.

TABLE 9
Most Cited Authors in Organizational Behavior Textbooks

Rank	Author Name	Text Citations	WoS Citations	Current/Most Recent Affiliation	Doctoral Year	Doctoral Degree School
1	Fred Luthans	186	9,913	Emeritus, College of Business Administration, University of Nebraska, Lincoln	1965	University of Iowa
2	Timothy A. Judge	169	24,075	Fisher College of Business, Ohio State University	1990	University of Illinois, Urbana-Champaign
3	Bruce J. Avolio	119	12,926	Foster School of Business, University of Washington	1981	University of Akron
4	Edwin A. Locke	116	10,352	Emeritus, Robert H. Smith School of Business, University of Maryland	1964	Cornell University
5	Robert J. House	105	10,375	Deceased. Wharton School, University of Pennsylvania	1960	Ohio State University
6	Gary P. Latham	97	11,380	Rotman School of Management, University of Toronto, Canada	1974	University of Akron
7	Gerald R. Ferris	78	9,753	College of Business, Florida State University	1982	University of Illinois, Urbana-Champaign
8	Jeffrey Pfeffer	77	12,059	Graduate School of Business, Stanford University	1972	Stanford University
9	Jeffery A. LePine	71	8,015	W. P. Carey School of Business, Arizona State University	1998	Michigan State University
9	Remus Ilies	71	6,452	Business School, National University of Singapore, Singapore	2003	University of Florida
11	J. Richard Hackman	68	8,340	Deceased. Department of Psychology, Harvard University	1966	University of Illinois, Urbana-Champaign
12	Murray R. Barrick	64	9,619	Mays Business School, Texas A&M University	1988	University of Akron
13	Jerald Greenberg	59	5,859	Deceased. College of Business, University of Texas, Arlington	1975	Wayne State University
14	Gary A. Yukl	56	4,969	School of Business, State University of New York, Albany	1967	University of California, Berkeley
15	Jason A. Colquitt	54	9,181	Terry College of Business, University of Georgia	1999	Michigan State University
16	Robert C. Liden	52	10,883	University of Illinois at Chicago Business	1981	University of Cincinnati
16	Michael K. Mount	52	9,195	Tippie College of Business, University of Iowa	1977	Iowa State University
16	Joyce E. Bono	52	8,464	Warrington College of Business Administration, University of Florida	2001	University of Iowa
16	John R. Hollenbeck	52	4,767	Eli Broad College of Business, Michigan State University	1984	New York University
20	Albert Bandura	51	48,390	Emeritus, Department of Psychology, Stanford University	1952	University of Iowa

Note: Authors are listed in decreasing order of number of citations in Organizational Behavior (OB) textbooks, and then in decreasing order of number of Web of Science citations. Authors with equal numbers of textbook citations are assigned the same rank. Text = OB textbook citations. WoS = Web of Science. The entire database including all 16,289 authors is available upon request. Web of Science data are as of July 8, 2018.

Overall, our results also suggest that the science–practice gap does not seem to develop during students' undergraduate studies. Rather, it seems that it is likely to form later in the career of management scholars—probably in the course of doctoral-level socialization and training (Cascio & Aguinis, 2008). This conclusion is consistent with empirical research showing a moderate relationship between undergraduate-level coursework and subsequent job performance—it seems undergraduate students receive knowledge that is both rigorous and relevant. For example, Roth, BeVier, Switzer, and Schippmann (1996) reported a meta-analytically derived correlation of 0.36 (95% CI [0.30–0.42]) between college education and subsequent job performance for undergraduate students (corrected for measurement reliability in the predictor and criterion and range restriction in the predictor). Ng

TABLE 10
Most Cited Authors in Human Resource Management Textbooks

Rank	Author Name	Text Citations	WoS Citations	Current/Most Recent Affiliation	Doctoral Year	Doctoral Degree School
1	Frank L. Schmidt	80	13,481	Emeritus, Tippie College of Business, University of Iowa	1970	Purdue University
2	Michael A. Campion	68	6,860	Krannert School of Management, Purdue University	1982	North Carolina State University
3	Herman Aguinis	67	6,200	School of Business, George Washington University	1993	State University of New York, Albany
3	Wayne F. Cascio	67	2,916	School of Business, University of Colorado, Denver	1973	University of Rochester
5	Timothy A. Judge	63	24,075	Fisher College of Business, Ohio State University	1990	University of Illinois, Urbana-Champaign
6	Paul R. Sackett	57	5,829	Department of Psychology, University of Minnesota	1979	Ohio State University
7	H. John Bernardin	56	1,123	College of Business, Florida Atlantic University	1976	Bowling Green State University
8	Barry Gerhart	55	4,155	School of Business, University of Wisconsin, Madison	1985	University of Wisconsin, Madison
9	Philip L. Roth	53	3,906	College of Business, Clemson University	1988	University of Houston
10	Luis R. Gomez-Mejia	52	5,668	W. P. Carey School of Business, Arizona State University	1981	University of Minnesota
11	Neal Schmitt	47	6,762	Emeritus, Department of Psychology, Michigan State University	1972	Purdue University
12	Gary P. Latham	46	11,380	Rotman School of Management, University of Toronto, Canada	1974	University of Akron
13	Kevin R. Murphy	45	2,791	Kemmy School of Business, University of Limerick, Ireland	1979	Pennsylvania State University
14	Frederick P. Morgeson	44	6,956	Eli Broad College of Business, Michigan State University	1998	Purdue University
15	John E. Hunter	43	10,348	Deceased. Department of Psychology, Michigan State University	1964	University of Illinois, Urbana-Champaign
16	Filip Lievens	40	4,508	Department of Personnel Management and Work and Organizational Psychology, Ghent University, Belgium	1999	Ghent University, Belgium
17	Edward E. Lawler III	38	5,877	Marshall School of Business, University of Southern California	1964	University of California, Berkeley
18	Murray R. Barrick	37	9,619	Mays Business School, Texas A&M University	1988	University of Akron
19	Sara L. Rynes	36	5,220	Tippie College of Business, University of Iowa	1981	University of Wisconsin, Madison
19	Philip Bobko	36	3,396	Pamplin College of Business, Virginia Tech	1976	Cornell University

Note: Authors are listed in decreasing order of number of citations in Human Resource Management (HRM) textbooks, and then in decreasing order of number of Web of Science citations. Authors with equal numbers of textbook citations are assigned the same rank. Text = HRM textbook citations. WoS = Web of Science. The entire database including all 9,744 authors is available upon request. Web of Science data are as of July 8, 2018.

and Feldman (2009) reported a similarly corrected meta-analytically derived correlation of 0.24 (95% CI [0.15–0.33]) between education level and objective measures of job performance. So, it seems that the knowledge received by undergraduate students is indeed useful in terms of their future job performance.

Implications for Conceptualizing and Measuring Knowledge Transfer and the Design of Academic Performance Management and Reward Systems

In psychometric theory, a measurement instrument is defined as "deficient" when it does not capture the targeted construct or domain in a comprehensive manner (Aguinis et al., 2001). Our results provide

TABLE 11
Most Cited Authors in Strategic Management Textbooks

Rank	Author Name	Text Citations	WoS Citations	Current/Most Recent Affiliation	Doctoral Year	Doctoral Degree School
1	Michael A. Hitt	93	20,338	Neeley School of Business, Texas Christian University	1974	University of Colorado, Boulder
2	Michael E. Porter	72	22,314	Harvard Business School, Harvard University	1973	Harvard University
3	Jay Bryan Barney	56	11,464	David Eccles School of Business, University of Utah	1982	Yale University
4	Robert E. Hoskisson	53	10,955	Jones Graduate School of Business, Rice University	1984	University of California, Irvine
5	Kathleen M. Eisenhardt	37	40,303	Graduate School of Business, Stanford University	1982	Stanford University
6	Charles W. L. Hill	36	6,152	Foster School of Business, University of Washington	1983	University of Manchester, England
7	Frank T. Rothaermel	35	4,789	Scheller College of Business, Georgia Institute of Technology	1999	University of Washington
8	R. Duane Ireland	33	10,076	Mays Business School, Texas A&M University	1977	Texas Tech University
9	Gary Hamel	28	10,011	Management Innovation Exchange	1990	University of Michigan
10	Donald C. Hambrick	27	18,389	Smeal College of Business, Pennsylvania State University	1979	Pennsylvania State University
11	Harbir Singh	26	14,178	Wharton School, University of Pennsylvania	1974	University of Michigan
12	Oliver E. Williamson	25	13,367	Emeritus, Haas School of Business, University of California, Berkeley	1963	Carnegie Mellon University
12	C. K. Prahalad	25	12,700	Deceased. Stephen M. Ross School of Business, University of Michigan	1975	Harvard University
14	Jeffrey H. Dyer	24	10,526	Marriott School of Management, Brigham Young University	1993	University of California, Los Angeles
15	Clayton M. Christensen	22	4,500	Harvard Business School, Harvard University	1992	Harvard University
16	Pankaj Ghemawat	21	2,884	Stern School of Business, New York University	1982	Harvard University
17	Michael C. Jensen	20	35,716	Emeritus, Harvard Business School, Harvard University	1968	University of Chicago
18	Shaker A. Zahra	19	17,073	Carlson School of Management, University of Minnesota	1982	University of Mississippi
18	Henry Mintzberg	19	10,332	Desautels Faculty of Management, McGill University, Canada	1968	Massachusetts Institute of Technology
18	Danny Miller	19	15,733	School of Business, HEC Montreal, Canada	1976	McGill University, Canada
18	Robert S. Kaplan	19	7,752	Emeritus, Harvard Business School, Harvard University	1968	Cornell University
18	Ian C. MacMillan	19	5,722	Wharton School, University of Pennsylvania	1975	University of South Africa, South Africa
18	Ming-Jer Chen	19	4,059	Darden School of Business, University of Virginia	1988	University of Maryland, College Park
18	Robert A. Burgelman	19	3,759	Graduate School of Business, Stanford University	1980	Columbia University
18	David G. Sirmon	19	3,589	Foster School of Business, University of Washington	2004	Arizona State University

Note: Authors are listed in decreasing order of number of citations in Strategic Management textbooks, and then in decreasing order of number of Web of Science citations. Authors with equal numbers of textbook citations are assigned the same rank. Text = Strategic Management textbook citations. WoS = Web of Science. The entire database including all 6,326 authors is available upon request. Web of Science data are as of July 8, 2018.

TABLE 12
Most Cited Authors in General Management Textbooks

Rank	Author Name	Text Citations	WoS Citations	Current/Most Recent Affiliation	Doctoral Year	Doctoral Degree School
1	Edwin A. Locke	73	10,352	Emeritus, Robert H. Smith School of Business, University of Maryland	1964	Cornell University
2	Robert J. House	54	10,375	Deceased. Wharton School, University of Pennsylvania	1960	Ohio State University
3	Joann S. Lublin	51	na	Wall Street Journal	na	na
4	Jeffrey Pfeffer	50	12,059	Graduate School of Business, Stanford University	1972	Stanford University
5	Gary P. Latham	49	11,380	Rotman School of Management, University of Toronto, Canada	1974	University of Akron
5	Jae Yang	49	na	USA Today	na	na
7	Henry Mintzberg	48	10,332	Desautels Faculty of Management, McGill University, Canada	1968	Massachusetts Institute of Technology
8	Bernard M. Bass	44	6,261	Deceased. School of Business, State University of New York, Binghamton	1949	Ohio State University
8	Edward E. Lawler III	44	5,877	Marshall School of Business, University of Southern California	1964	University of California, Berkeley
10	Del Jones	41	na	USA Today	na	na
10	Rachel E. Silverman	41	na	Wall Street Journal	na	na
12	Richard L. Daft	39	5,571	Emeritus, Owen Graduate School of Management, Vanderbilt University	1974	University of Chicago
13	Linda K. Trevino	36	10,993	Smeal College of Business, Pennsylvania State University	1987	Texas A&M University
14	Michael E. Porter	35	22,314	Harvard Business School, Harvard University	1973	Harvard University
14	Geert Hofstede	35	7,426	Emeritus, Faculty of Arts and Social Sciences, Maastricht University, Netherlands	1967	Groningen University, Netherlands
16	Timothy A. Judge	34	24,075	Fisher College of Business, Ohio State University	1990	University of Illinois, Urbana-Champaign
17	Fred Luthans	33	9,913	Emeritus, College of Business Administration, University of Nebraska, Lincoln	1965	University of Iowa
18	Geoffrey Colvin	31	na	Fortune	na	na
18	Sue Shellenbarger	31	na	Wall Street Journal	na	na
20	Gary Hamel	30	10,011	Management Innovation eXchange	1990	University of Michigan
20	J. Richard Hackman	30	8,340	Deceased. Department of Psychology, Harvard University	1966	University of Illinois, Urbana-Champaign
20	Margery Weinstein	30	na	Training Magazine	na	na

Note: Authors are listed in decreasing order of number of citations in General Management textbooks, and then in decreasing order of number of Web of Science citations. Authors with equal numbers of textbook citations are assigned the same rank. Text = General Management textbook citations. WoS = Web of Science. na = not applicable. The entire database including all 11,558 authors is available upon request. Web of Science data are as of July 8, 2018.

empirical evidence that if the goal is to measure impact on stakeholders other than researchers, conceptualizing, measuring, and rewarding KT exclusively in terms of scholarly impact on other academics is a psychometrically deficient approach.

Regarding sources, the Spearman correlation between a journal's 5-year impact factor and the number of citations it received in OB, HRM, and GM textbooks was statistically indistinguishable from zero (but, there was 21% variance overall for SM textbooks). These results suggest that the examination of KT based on a journal's impact factor is not necessarily informative about KT in management education. For example, although journals with high 5-year JCR

TABLE 13
Affiliations and Number of Most Cited Authors in Organizational Behavior (OB), Human Resource Management (HRM), Strategic Management (SM), and General Management (GM) Textbooks (based on Tables S9–S12 in the online supplement)

OB Textbooks	Number of Authors	HRM Textbooks	Number of Authors	SM Textbooks	Number of Authors	GM Textbooks	Number of Authors
Michigan State University	5	Michigan State University	6	Harvard University	11	Harvard University	6
Arizona State University	4	University of Iowa	4	INSEAD	5	Stanford University	3
Stanford University	4	Ohio State University	3	Dartmouth College	4	University of Washington	3
University of Maryland	4	Texas A&M	3	Stanford University	4	Ohio State University	2
Florida State University	3	University of Georgia	3	Texas A&M University	4	Pennsylvania State University	2
Harvard University	3	University of Minnesota	3	University of California, Berkeley	4		
University of Florida	3	University of South Carolina	3	University of Pennsylvania	4		
University of Iowa	3	Colorado State University	2	University of Washington	4		
University of Washington	3	Florida State University	2	Columbia University	3		
		National University of Singapore	2	University of Maryland	3		
		University of Southern California	2				
		University of South Florida	2				
		Virginia Tech	2				

Note: Universities are ranked in decreasing order of number of people among the list of non-deceased most cited authors in in OB, HRM, SM, and GM textbooks, and then alphabetically by university name.

impact factors (e.g., *Academy of Management Journal:* 11.25; *Journal of Applied Psychology:* 7.12) made the list of most cited sources in textbooks, the list also includes journals with substantially lower 5-year JCR impact factors (e.g., *Small Group Research:* 1.67; *Industrial & Labor Relations Review:* 2.27), as well as numerous practitioner-oriented and bridging journals (e.g., *Organizational Dynamics*) and news sources (e.g., *Bloomberg BusinessWeek*).

Results regarding individual items were consistent with those based on sources. Specifically, Spearman correlations between an article's number of citations in other articles and the number of citations it receives in textbooks was statistically indistinguishable from zero in HRM and GM (but, there was about 12% of variance overlap in OB and 32% of variance overlap in SM). Results of a literature review by Carlson and Herdman (2012) showed that a correlation of at least .70 (i.e., 49% variance

overlap) is needed to conclude that two measures assess the same underlying construct (i.e., evidence of convergent validity). Although the correlations were larger for SM and OB, all of the correlations fell below the recommended threshold. Thus, again, knowledge of an individual article's impact on other researchers is not necessarily a valid indicator of the article's impact on management education.

Now, consider results for authors and the relationship between their internal and external scholarly impact. Results based on Spearman correlations showed a statistically nonsignificant overlap for GM, 13% for OB, 14% for HRM, and 34% for SM in terms of citations received in textbooks and WoS citations. We also analyzed textbook citations based on WoS citations including years since the doctorate was earned as a control variable by implementing additive unrestricted non-parametric multiple regression. As expected, variance explained increased

(but only slightly) given the use of the control variable for HRM (23%) and SM (50%), but results were quite similar for OB (13%) and statistically indistinguishable from zero for GM. Again, these results mean that a researcher's scholarly impact on other researchers, which is a typical and necessary measure used in academic promotion and reward decisions, is not necessarily informative regarding the researcher's scholarly impact on management education. In other words, although informative and necessary, using citations in journals as the exclusive arbiter of rewards for academics may fail to adequately reward academics who are influential on the knowledge received by students.

Also, pertaining to our results regarding authors, information included in Tables 9–12 shows that some academics are boundary spanners (Schwarz, Cummings, & Cummings, 2017) because they have a noticeable scholarly impact on both management research and also on management education. So, it seems that some researchers are both knowledge creators as well as knowledge disseminators. Examples include Albert Bandura, Jay B. Barney, Kathleen E. Eisenhardt, Donald Hambrick, Michael A. Hitt, Timothy A. Judge, Gary P. Latham, Edwin A. Locke, Jeffrey Pfeffer, Michael E. Porter, and Frank L. Schmidt, among others. Nevertheless, analyses based on correlation and regression analyses show that most scholars are still struggling to achieve the dual goal of producing and disseminating research that is impactful on diverse audiences.

Our results pertaining to academic institutions summarized in Table 13 show that no institution has scholars who are among the list of the most cited authors in the four domains we examined (i.e., OB, HRM, SM, and GM). Also, this table shows that there are only two non-US universities: INSEAD for SM and National University of Singapore for HRM. In addition, the 136 unique academic institutions with which the most cited authors are affiliated represent a wide variety of academic programs, school sizes, missions, and levels of research focus. Given this heterogeneity among institutions, the continued reliance on an exclusive "one-size-fits-all" measure to design performance management systems does not capture different dimensions of scholarly impact. In addition, some universities seem to have specialized in having scholarly impact on some fields, but not others. For example, researchers from Michigan State University (MSU) are cited more frequently in OB and HRM textbooks than any other university, but MSU researchers are not among those most frequently cited in SM or GM textbooks. As another

example, Harvard University is highly influential in terms of OB, SM, and GM textbooks, but it is not among the top 13 universities most influential in HRM. This is useful information for potential employees (i.e., faculty members) as well as students who may not be fully aware that the school they wish or are about to join has specialized impact in a particular domain and not others.

From a theory standpoint, our results emphasize the need for the field of management to broaden "current operationalization's of impact (beyond articles, citations, media mentions)" (Academy of Management, 2017). Relying exclusively on narrow conceptualizations of KT limits our understanding of the construct of "scholarly impact." While there is a rich literature about KT within and across organizations that examines features such as trust (Levin & Cross, 2004), unintended obstacles (Davenport & Glaser, 2002), collaborative networks (Singh, 2005), social capital (Inkpen & Tsang, 2005), and team diversity (Cummings, 2004), theories about the what, when, why, and how of KT within academia are mostly limited to evaluating features of published academic articles (e.g., Judge, Cable, Colbert, & Rynes, 2007; Partington & Jenkins, 2007) and assessing the most impactful scholars within the field of management based on journal citations (Podsakoff et al., 2008) and number of articles (Van Fleet & Bedeian, 2016). Once again, we emphasize that measures of scholarly impact on research, such as academic citations, are clearly important and necessary because researchers aspire to influence the work of other researchers. But, our results uncovered the need for more pluralist conceptualizations and measures of scholarly impact, as noted by others (Adler & Harzing, 2009; Aguinis et al., 2014; Doh, 2009). Broadening our conceptualization and assessment of KT and scholarly impact can help us formulate and answer questions about how the training, socialization, and networks of academic scholars may contribute to their ability to successfully engage in KT with different stakeholders.

Another implication in terms of theory and future research relates to methodological issues. Specifically, in reflecting on his just-concluded term as editor-in-chief of *AMLE*, J. Ben Arbaugh (2013: 121–122) expressed a desire for "AMLE do more to push the methodological envelope." Our article contributes toward this goal by implementing non-parametric analyses, which are not used frequently by *AMLE* authors. As such, our study demonstrates the possibility and benefits of using alternative data-analytic procedures when the data do not satisfy the usual assumptions.

In terms of practice, the evidence regarding the multidimensional nature of the scholarly impact construct raises questions about how to reward scholarly impact when scholars publish in sources that do not enjoy a high impact factor (which assesses the extent to which a journal is cited in other journals). Specifically, our findings suggest the need to recognize sources that influence the knowledge received by students. For example, practitioner-oriented journals, which operate as "knowledge-transfer mechanisms" that bridge the gap between science and practice (Birkinshaw et al., 2016), are well placed to disseminate knowledge to a broader audience. Therefore, they play an important role in disseminating knowledge and increasing the relevance of the knowledge produced by scholars. Thus, our findings raise an important question: How should we view scholarly impact and assess the prestige of journals such as *Business Horizons*, *California Management Review*, *MIT Sloan Management Review*, and *Organizational Dynamics*, which are highly cited in textbooks, but not as highly cited in other academic journals? Also, how should we view the scholarly impact of practitioner-oriented sources and news articles cited in textbooks, given that they reach a larger number of external stakeholders compared to many journals traditionally read by other scholars? Further, what does this mean for a professor's career aspirations? A critical implication of our results is the need to measure scholarly impact in line with a university's strategic goals and the particular stakeholders to whom it is most interested in transferring knowledge.

Overall, an important implication for practice of our empirical results is that performance management systems for faculty that include citations in journals exclusively as a criterion for evaluating performance are not necessarily assessing scholarly impact in management education. We are aware that many faculty performance management systems include measures of teaching effectiveness in the form of student evaluations or peer class visits and assessments (Briggs, Workman, & York, 2013). But, to our knowledge, very few, if any, include measures of KT in management education—as measured by the number of citations in textbooks. If a university is interested in understanding their faculty's scholarly impact in management education, it will be necessary to use measures to supplement citations in journals. In other words, a pluralist assessment that includes, for example, citations in textbooks, will also be necessary to gain a more comprehensive understanding of KT—and then make administrative choices and decisions

about associated rewards. As a further contribution, our database, which we make available upon request, can be used to search for any of the 32,981 unique authors who have been cited at least once in any of the 38 textbooks as an initial step in terms of understanding each individual's scholarly impact in management education. Although valuable at present, our database will have to be updated in the future, and we hope that funding agencies, accreditation bodies, and other organizations will take on this task—as they do regularly regarding measures of internal impact.

Finally, as is the case with many performance management systems, we should also try to anticipate negative effects of our recommendations (Aguinis, 2019). For example, we are certainly not recommending a system that encourages "chasing textbook citations," which may actually create larger problems given that it would encourage researchers to repackage rather than create new knowledge. The pluralist system that we propose involves including multiple and not mutually exclusive indicators of scholarly impact to avoid such problems. For example, additional indicators of external impact include participating in executive education, writing popular-press books, engaging with the media, writing cases, delivering presentations to practitioner audiences, and writing articles for practitioner outlets, among others (Aguinis et al., 2014).

Implications for the Choices of What Knowledge to Create and Disseminate

Our results also have implications for the knowledge that academics create and disseminate. First, the finding that there is a weak relationship between traditional measures of scholarly impact (for journals and authors) and the number of citations in textbooks suggests that many scholars are producing knowledge that is mostly of relevance to other academics. Because scholars are primarily rewarded for publishing in top-tier journals, the desire to obtain more and more "A-publications" may motivate scholars to create knowledge that is primarily used by other academics, regardless of whether it will be of use for other stakeholders (Shapiro & Kirkman, 2018).

An additional implication of our pluralist conceptualization in terms of the field of management is that there is no need to assume that the individual who makes a novel contribution based on a journal article is also the same person who is cited in textbooks or writes a popular-press article that

meaningfully influences practitioners. A pluralist conceptualization implies that there are individuals who are more influential regarding one type of scholarly impact but not necessarily both. We believe that, overall, the field of management can be successful at both creating and transferring knowledge even if some researchers mostly publish in academic journals and others mostly publish in practitioner or bridging journals—assuming the knowledge disseminated is based on the scholarly literature, is accurate, and not just personal opinion.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Although we took great care to identify the most popular general OB, HRM, SM, and GM textbooks, there are specialized textbooks that address domains such as leadership, motivation, and teams that we did not include in our study. An analysis of textbooks specializing in particular OB, HRM, SM, and GM domains might produce different results from those obtained in our study.

Our results about the most impactful universities raise the possibility that textbook authors may in some way differ from non-textbook authors and that citation patterns may reflect a textbook author's social and professional network (e.g., Seibert et al., 2017). This may have resulted in, for example, our findings with respect to Michigan State University (MSU) given that its doctoral programs in both industrial and organizational psychology and the business school are strong and have graduated many students who likely know each other and are familiar with one another's work. But, the list of textbook authors included in Appendix A in the online supplement shows that they comprise a very diverse group and, therefore, differ in their social and professional networks. For example, in the specific cases of HRM and OB, in which MSU is highly influential, textbook authors are affiliated with 46 different universities, but only one of them is affiliated with MSU. Moreover, these universities vary greatly in terms of location, research intensity, size, and private versus public status.

In spite of the diversity of the textbook authors, a "textbook author effect" would threaten the validity of our conclusions regarding the relative uniqueness of the internal compared to the external impact constructs. So, we collected additional data to assess this possibility to compare the sources, articles, and authors cited in textbooks with those the same textbook authors cited in their peer-reviewed journal articles. The presence of a textbook author effect would be revealed by a great deal of correspondence regarding types of sources, individual items, and authors cited in their textbooks compared to their articles. On the other hand, a low degree of correspondence would confirm the notion that internal and external impact are unique constructs. To address this issue, we identified one textbook author in each of the four domains (i.e., OB, HRM, SM, and GM) and gathered all of their peer-reviewed articles published between January 2008 and June 2018 as listed in Google Scholar.[6] Then, we scanned and extracted information from the References sections from all of the articles by following the same procedures we implemented for textbooks.[7] We then computed Spearman correlations to compare the relative frequency of sources, authors, and articles as cited in textbooks compared to those the textbook author cited in their peer-reviewed articles. For sources, the correlations were $r_s(104) = .639$, $p < .001$ (OB), $r_s(56) = .478$, $p < .001$ (HRM), $r_s(51) = .663$, $p < .001$ (SM), and $r_s(57) = .315$, $p = .017$ (GM). Squaring these correlations indicates that the average variance overlap across the four textbook authors was 29.39%. For authors, the correlations were $r_s(577) = .405$, $p < .001$ (OB), $r_s(297) = .214$, $p < .001$

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[6] We did so by choosing an author with a number of publication around the 50th percentile among authors within each domain who have published a textbook within the past 3 years. In this way, each author is a good representative from the domain (i.e., not someone who has published only a handful of articles). The four textbook authors are Jeffery LePine (OB), Raymond A. Noe (HRM), Frank T. Rothaermel (SM), and S. Trevis Certo (GM). Each of these textbook authors had published between 14 and 19 articles during the selected time-period.

[7] Once the transcription of the journal articles was completed, the second author conducted an accuracy and quality-control check by inspecting approximately 15% of all transcribed entries. Of the 875 entries inspected, we found 19 errors, for an error rate of 2.17%. Most of these errors were attributable to the inability of the optical character recognition software to distinguish between letters (e.g., "*Academy of Management Learning & Education*" scanned incorrectly as "Academy of Management Leaming & Education"). Overall, the coders invested approximately 225 hours to transcribe the data from the pdf files into Excel. The final database of the references for all 68 journal articles contains 5,792 rows of information, including individual items with multiple citations each. The database contains 4,029 unique published items (e.g., articles, book chapters), drawn from 1,093 unique sources (e.g., journals, books), and authored by 5,684 unique individuals with at least one citation each.

(HRM), $r_s(153) = .327$, $p < .001$ (SM), and $r_s(72) = .067$, $p = .574$ (GM). Squaring these correlations indicates that the average variance overlap across the four textbook authors was 8.03%. Regarding articles, the correlations were $r_s(122) = .174$, $p = .063$ (OB), $r_s(34) = .125$, $p = .480$ (HRM), $r_s(56) = .133$, $p = .328$ (SM), and zero for GM (i.e., only two articles that were cited by the textbook author in both the textbook and journal articles). Squaring these correlations indicates that the average variance overlap across the four textbook authors was 1.59%. In sum, based on the low degree of overall overlap in variance regarding the extent to which textbook authors cite the same sources (i.e., about 30%), authors (i.e., about 8%), and articles (i.e., about 2%) in their textbooks and also in their own articles indicates that internal compared to external impact is not about who writes the textbook. Rather, results confirmed our conceptualization and previous results that internal and external impact are unique constructs.

There are several potential limitations related to our use of citations as a measure of scholarly impact, which also lead to future research directions. First, although the use of citations to determine scholarly impact and influence is a long-standing practice (Starbuck, 2017), it does not provide precise information about why a particular article was cited (Zupic & Čater, 2015). We acknowledge this limitation and encourage future research to measure the relevance of a particular citation to scholarly work (Kacmar & Whitfield, 2000). Also, textbook citations may not fully capture the scholarly impact of original academic research on students. For example, an article published in *Academy of Management Journal* (i.e., academic journal; *AMJ*) may influence the thinking of an author whose article is published in *Human Resource Management* (i.e., bridging journal). But, the *Human Resource Management*, rather than the *AMJ*, article may be the one cited in the textbook. Future research could implement a procedure used by Aguinis, Dalton, Bosco, Pierce, and Dalton (2011) called ancestry searching, which involves working from the more contemporary references and tracking their predecessors to assess the extent to which this "citation chain" may be happening. Third, there are additional measures of external impact that could be examined in future research. For example, these include the extent to which a professor participates in executive education, writes popular-press books, has media appearances, and writes in practitioner outlets. Moreover, instructors also include material outside of textbooks in their courses. Fourth, an additional potential limitation

is that not all textbook chapters could be assigned readings for students, and it is also possible that only certain pages of chapters could be assigned. To examine this possibility, we searched Google.com for syllabi for introductory OB, HRM, SM, and GM courses using the textbooks included in our study. We used the keywords "syllabus" and "syllabi" along with the name of the textbook, the name of the textbook author, and the name of the field (e.g., "Fundamentals of Management Stephen P. Robbins General Management syllabus"). Each of the syllabi we found explicitly assigned all chapters from the textbook as required reading for students enrolled in the course. A sample of 12 of these syllabi is included in Appendix B in the online supplement. So, although it may be that in some cases instructors assign portions of the textbooks, an examination of syllabi available online indicates that in the vast majority of cases instructors assign the entire book.

CONCLUDING REMARKS

The desire to have an impact on different groups of stakeholders by engaging in KT in the roles of teacher, researcher, or leader is a long-term aspiration of most academics. Given these cherished aspirations, effective KT is a critical issue for faculty who view research as a calling (Brower, 2013), or even as a sacred activity (Walsh, 2011), and not simply an event leading to a publishable outcome. Indeed, the multiple elements of the professional mission can be reconciled and integrated to the advantage of all constituencies (Bailey, 2006). Despite several recent calls to broaden the conceptualization and assessment of KT, most research on this topic has relied exclusively on measuring the number of citations of academic work by other academic work—the extent to which researchers refer to the work of other researchers. Clearly, an assessment of scholarly impact based on citations in academic publications is important and necessary (Aguinis, Ramani, et al., in press). But, our examination of 38 widely used OB, HRM, SM, and GM textbooks addresses a broader and more pluralist conceptualization of scholarly impact to also examine the knowledge transferred to students, who are future practitioners. Our analyses and results provide insights and implications for scholarly impact in management education because they offer empirical evidence that understanding KT requires a multidimensional approach. Specifically, we found that scholarly impact within the Academy (i.e., on other scholarly work) is not necessarily the same as scholarly impact in management education

(i.e., on textbook content). Reliance on the traditional measure of scholarly impact (i.e., citations in select other academic journal articles) to guide academic performance appraisal and management practices is clearly necessary, but there is also a need to expand our understanding of how knowledge is disseminated. We are fully aware that metrics—new or old—can have unintended consequences (Muller, 2018), but we hope that our results can serve as a starting point for a reflective and necessary conversation about a more pluralist understanding of KT and scholarly impact on different types of stakeholders who are the potential beneficiaries of the knowledge we produce.

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