

# Narrowing the Science–Practice Divide: A Call to Action

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*Editor's Note: This article is based on Cascio and Aguinis (in press, Journal of Applied Psychology).*

The field of industrial and organizational (I-O) psychology is known for its support of the scientist–practitioner model (Bass, 1974; Dunnette, 1990; McHenry, 2007; Murphy & Saal, 1990; Rupp & Beal, 2007). However, there is a concern regarding the widening of the science–practice gap (e.g., Aguinis & Pierce, 2008; Anderson, 2007; Cascio, 2008; McHenry, 2007). Thus, motivated by this concern, we (i.e., Cascio & Aguinis, in press) addressed the following questions:

1. What type of knowledge, in terms of content, has I-O psychology produced and what is it currently producing?
2. Does the knowledge produced by I-O psychology address important societal issues that involve people and work settings (i.e., human-capital trends)?
3. Does I-O psychology produce research that is relevant to employees, their managers, broader stakeholders, and society at large, and that informs human resource management (HRM) practitioners and other organizational decision makers?

## Methodological Overview

To answer the above questions, we conducted a 45-year (1963–2007) content analysis of published research in I-O psychology in the two leading journals in the field: *Journal of Applied Psychology (JAP)* and *Personnel Psychology (PPsych)*. We developed a coding taxonomy that included 15 broad categories and that subsumed 50 more specific ones. The final version of the taxonomy, which was used to code all the articles, is included in Table 1. We cannot assert that this is the only possible taxonomy. The taxonomy shown in Table 1, however, is sufficiently comprehensive that it allowed us to classify each of the 5,780 articles included in our review. Also, the comparison of publication trends with broader human-capital trends involves the inevitable task of trying to map categories from one area onto the other. This can be challenging, especially when the terms used by academics and practitioners do not overlap.

Table 1  
*Taxonomy Used to Classify Articles Appearing in the Journal of Applied Psychology and Personnel Psychology, 1963–2007*

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Job analysis
• Job analysis/job classification
• Job design
• Work schedules

Table 1. (continued)

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Research methodology and psychometric issues

- Psychometrics/testing issues
- Statistics/research methods
- Moderator variables
- Test validity/validation issues
- Differential validity/prediction
- Utility analysis
- Criterion issues
- Commentaries on I-O psychology as a field

Predictors of performance

- Assessment centers
- Biographical data
- Interviews
- Performance (work sample) tests
- Personality assessment
- Behavior, prediction of processes and outcomes
- Genetic screening
- Personnel selection/placement classification
- Recruitment/initial screening

Performance measurement and work outcomes

- Absenteeism, attendance, turnover, retention
- Accidents: work, driving, home
- Performance appraisal/feedback

Training and development

- Training, learning, organizational development and change

Industrial relations

- Unions/industrial relations issues

Reward systems

- Compensation- pay, benefits, incentives, equity, distributive justice
- Job evaluation/comparable worth

Work motivation and job attitudes

- Job satisfaction/attitudes/involvement/commitment
- Motivation/goal setting
- Organizational cultures, climates, policies, citizenship
- Stress, burnout, role conflict, role ambiguity
- Work values
- Communication/counseling

Leader influences

- Leadership
- Managerial behavior/performance/interests

Work groups and teams

- Quality circles
- Work groups/teams

Career issues

- Careers/vocational choice/interests
- Work-family issues

Decision making

- Decision-making processes
- Problem solving
- Innovation/creativity

Human factors and applied experimental psychology

Consumer behavior

- Consumer behavior/attitudes/perceptions

Societal issues

- Equal employment opportunity
- Ethical/privacy issues
- Legal implications of employment practices
- Disabilities
- Demographic changes
- International applications of I-O psychology

## Selective Results

### ***Trends Regarding the 15 Broad Topical Areas***

The top five topical areas (ranked from 1–5) published in *PPsych* from 1963–2007 are as follows (the first number in parentheses indicates the total number of articles for each topic, and the second indicates the percentage of the 1,451 articles published on this topic over the entire 45-year period):

1. Methodology/psychometric issues (298, 20.54%),
2. Predictors of performance (284, 19.57%),
3. Work motivation and attitudes (179, 12.34%),
4. Performance measurement/work outcomes (161, 11.10%), and
5. Leader influences (103, 7.10%).

The top five topical areas (ranked from 1–5) published in *JAP* from 1963–2007 differ only slightly from those above (the first number in parentheses indicates the total number of articles for each topic, and the second indicates the percentage of the 4,329 articles published on this topic over the entire 45-year period):

1. Methodology/psychometric issues (940, 21.71%),
2. Work motivation and attitudes (688, 15.89%),
3. Predictors of performance (544, 12.57%),
4. Performance measurement/work outcomes (425, 9.82%), and
5. Human factors/applied experimental psychology (372, 8.59%)

The convergence in the two sets of data over a 45-year period is remarkable, particularly given that our review covers eight editorial teams for *JAP* and nine editorial teams for *PPsych*. This convergence provides evidence that both journals serve as sound indicators of common, underlying trends in the research produced in the field of I-O psychology.

### ***Trends Regarding the 50 Subcategories Within Broad Topical Areas***

Analysis at the level of the subcategory within each of the 15 broad, topical areas revealed that the five most popular subcategories within *JAP* over the 45-year period of the study are the following:

1. Statistics/research methods (9%)
2. Human factors/applied experimental psychology (8.48%)
3. Job satisfaction/attitudes/involvement/commitment (6.3%)
4. Performance appraisal/feedback (6.21%)
5. Psychometrics/testing issues (5.17%)

The same analysis of subcategories within broad, topical areas for *PPsych* revealed the five most popular categories to be:

1. Performance appraisal/feedback (7.82%)
2. Psychometrics/testing issues (5.41%)
3. Personnel selection/classification (4.85%)
4. Job satisfaction/attitudes/involvement/commitment (4.77%)
5. Statistics/research methods (4.16%)

Perhaps the most striking result of this analysis is that *JAP* and *PPsych* shared four out of five of the most popular subcategories, of a total of 50 possible categories, across the 45-year period of the study, once again indicating that both journals provide very consistent accounts of the relative attention given to various areas of research in the field of I-O psychology.

### ***Linkage of Research in I-O Psychology to Human-Capital Trends***

To identify human-capital trends within each decade, we conducted a search of the broad literature in human resource management, psychology, and related fields. The number of commentaries on these trends within each decade varied from a low of two sources (1963–1972) to a high of six sources (1983–1992), with a median of five sources per decade. We then content-analyzed each source to extract the key human-capital trends discussed by the author(s). Within each decade, we tabulated the top trends by frequency of mention. The human-capital trends we identify relate to the concerns of multiple stakeholders, including human resource managers and general managers, as well as to the concerns of employees (e.g., work–life balance) and society at large (e.g., equal opportunity).

The human-capital trends we identified are the following:

- 1963–1972: Rise of participative management; the passage of Equal Pay and Civil Rights Acts, plus similar executive orders; and *Equal Employment Opportunity Commission (EEOC) Guidelines* for compliance
- 1973–1982: Manpower planning; compliance reviews, affirmative action plans; role of job evaluation in the comparable-worth debate; widespread use of management by objectives (MBO); Occupational Safety and Health Administration (OSHA) compliance; union avoidance
- 1983–1992: Women’s movement, demands for equal pay for equal work; flexible work schedules; passage of the Americans With Disabilities Act; beginning of downsizing and computer-based technology leads to worker dislocation; calls for new approaches to motivation, training, and managing change; role of immigration in offsetting predicted labor shortages; employers as enforcers of immigration law (Immigration Reform and Control Act—IRCA); full participation of baby boom cohort (born 1946–1964); two-gender workforce; quality of work–life movement; transforming organizational cultures; some labor–management cooperation; union mergers; non-union grievance procedures; rise of strategic HR planning, 360-degree feedback, global competition
- 1993–2002: Growth in service, jobs in information technology, domestic and global mergers and acquisitions; large-scale downsizing and restructuring; multiple careers; need for retraining; telework, contingency workers, virtual teams, human support systems in the workplace (EEO, EAPs, safety, counseling, coaching); increasing globalization; rise of e-commerce
- 2003–2007: Rise in health care costs, outsourcing, emphasis on leadership development; changes in executive compensation; changes in the forms of compensation and benefits; demand for work–life balance;

retirement of large numbers of baby boomers; new attitudes towards aging and retirement; rise of identity theft; work intensification as employers try to increase productivity with fewer employees; vulnerability of technology to attack or disaster; talent management, culture transformation, managing change, increasing diversity, globalization; ethics and ethical leadership

### **Some Conclusions and a Call to Action**

We emphasize that I-O psychology is not HR and that there are numerous areas within the broad field of HR that fit human-capital trends but that generally lie outside the purview of I-O psychology. These include topics such as rising health care costs, identity theft, the role of immigration in offsetting predicted labor shortages, and the vulnerability of technology to attack or disaster. Hence, we should not expect complete isomorphism between topics in I-O psychology research and human-capital trends. We hasten to add, however, that many human-capital trends do fall within the purview of I-O psychology, and we would expect to see that researchers publishing in the top two journals in the field show an interest in them.

A rough “scorecard” reveals a 45-year record that is decidedly mixed. Although research in I-O psychology has addressed many within-decade human-capital issues, it has done so only modestly (and, in some cases, only indirectly), such as with talent management, work–life programs, diversity, globalization, ethics, and ethical leadership. Published research in the two leading journals of I-O psychology often (and in some cases, seriously) lags behind such trends. Based on our review, if we extrapolate past emphases in published research to the next 10 years, we are confronted with one compelling conclusion, namely, that I-O psychology will not be out front in influencing the debate on issues that are (or will be) of broad organizational and societal appeal. It will not produce a substantial body of research that will inform HR practitioners, senior managers, or outside stakeholders, such as funding agencies, public-policy makers (including elected officials), or university administrators who control budgets.

We are not advocating that all published I-O research focus on issues that managers think are important. Certainly there will always be a need for basic research that is not immediately relevant to practitioners (e.g., statistical, methodological, or psychometric research) or research that is stimulated by the simple desire to understand human behavior at work more fully. If the bulk of published I-O research falls into those categories, however, then the field cannot have a major impact on HR policies or management practices. After all, the scientist–practitioner model discourages both practice that has no scientific basis and research that has no clear implications for practice (Murphy & Saal, 1990).

Is the current, and perhaps future, trajectory of research in I-O psychology inevitable? We think not, but the necessary change in course is clear. Researchers can make conscious choices now to understand current and emerging human-capital issues more deeply, as well as the contextual con-

straints that managers face and the needs of organizational members, and to use their well-honed research skills to conduct research that addresses those trends and informs the debate over the relative merits of alternative positions (Zedeck & Goldstein, 2000). Yet, the changes needed are more than simply motivational. Certainly the incentive structure of academic research is unlikely to be altered substantially in the near future, which could be a big impediment for change given that performance management systems can shape the culture and orientation of organizations and entire professions (Aguinis, 2009).

McHenry (2007) argued for a three-pronged approach to the science and practice of I-O psychology:

- Work with issues that are important
- Measure outcomes that are important (at multiple levels of analysis)
- Share knowledge effectively

With respect to sharing knowledge, Symon (2006) argued that one objective of published I-O psychology research should be to encourage practitioners to think differently. Toward that end, Gelade (2006) suggested that researchers frame their questions and hypotheses in terms that appeal to practitioner concerns as well as theoretical issues, that there be greater emphasis on practical implications in the discussion sections of published articles, that more articles include commentaries by peers (particularly valuable for examining claims and proposed solutions for which the evidence base is disputed or uncertain; Hodgkinson, 2006), and that greater use be made of the World Wide Web. Ed Locke (as reported by Rupp & Beal, 2007) proposed that one strategy for doing that is to implement a science–practice networking Web site where researchers can learn about issues that practitioners are observing in the field, can find sites for conducting field experiments, and where practitioners can read summaries and abstracts of current research being published in the journals.

Finally, results of our review suggest several research areas, and specific questions, that I-O psychology researchers could address to help narrow the academic–practice divide. For example, consider the following illustrations (see Cascio & Aguinis, in press, for additional areas and questions):

- Work–life issues: What do empirical data reveal about the impact of the full spectrum of flexible work policies on the ability to meet the needs of customers?
- Retirements of baby boomers: What are the relative merits of alternative strategies for preserving institutional memory? What features of the work environment or the structure of work itself might make retirement less (or more) attractive than ongoing employment?
- Attitudes toward aging: Can we identify alternative strategies for changing long-held, deeply ingrained attitudes toward older workers? Can we develop strategies to counter “age-grading” in employment interviews and in performance reviews?
- Increasing diversity: How can we link the broad concept of diversity (e.g., of thought, of approaches to innovation and change, of orientation

toward teamwork) to improved performance at the individual, team, and organizational levels?

- Globalization: To what important outcomes is the construct of cultural intelligence related and not related? What are the most effective strategies for recruiting, selecting, and managing the performance of members of global virtual teams?
- Ethics and ethical leadership: Given the realities of organizations, under what conditions is ethical (unethical) behavior most likely to occur? Under what conditions will employees and their leaders do the right thing even when no one is looking?

Changes in graduate training and the socialization of new faculty members are also necessary. At present it is popular to train graduate students to recognize the importance of a variable in organizational research in terms of its psychometric characteristics. Yet, in modeling the effects of contextual factors that might contribute to the prediction of some organizational outcome, the input of practitioners or managers with first-hand experience and in-depth knowledge of an organization is, in our opinion, even more important if the research is to demonstrate ecological validity (accurately represent the pattern of relationships between employees and their organizational environments). One way to do that, as noted by Tushman and O'Reilly (2007) and Vermeulen (2007), is to use executive education or programs customized for a particular firm to create contexts where faculty and thoughtful practitioners might develop relations that spawn virtuous cycles of knowing (faculty and doctoral student research) and doing (linking scholarly research to real-world practice). How many generations of scholars in I-O psychology have been educated and trained without the benefit of that framework?

In the context of mentoring junior faculty members, it is important that senior faculty members encourage them to couple their research to practice and to think about the practical applications of their research. That means studying dependent variables that are of interest to decision makers and independent variables that can be changed by instituting new policies (Ruback & Innes, 1988). Junior-faculty members who do research without implementation in mind risk becoming disconnected, and therefore out of touch, with the kinds of workplace issues that many of their own students face.

What can professional organizations such as SIOP do? One simple step is to offer interactive sessions in which academics and practitioners can work together on important problems (see also Bartunek, 2007). SIOP's preconference workshops partially address this issue, but we advocate a much more focused effort. Rynes (2007) noted that this is probably the single most important thing that our professional associations can do to narrow the gap.

The changes in course that we have described will not be easy, and many may choose not to do so. That is unfortunate because I-O psychology has the potential to provide the evidentiary foundation of solid research that can (a) improve human welfare in the workplace and (b) inform debates over human-



capital issues that are critical to employees, their managers, broader stakeholders, and society at large. Each member of the field must make his or her own choice. What will yours be?

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