

FOCAL ARTICLE

Educating Industrial–Organizational Psychologists for Science and Practice: Where Do We Go From Here?

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Abstract

Graduate training in industrial and organizational (I–O) psychology has long prepared students with skills and knowledge that are highly valued by employers, both in practice and academe alike. Our article, based on a panel discussion, explores what aspects of graduate training are sought out by employers in multiple fields, what new I–O hires need to know, and ways we can improve professional preparation for both practice and academics. Although the current SIOP *Guidelines for Education and Training* are satisfactory for present market conditions, we explore areas where the *Guidelines* could be made more forward thinking in determining the kind of training I–O students should be receiving.

Because of the quality of their “hard” knowledge and “soft” interpersonal skills, industrial–organizational (I–O) psychologists have been successful finding

employment opportunities even in difficult economic times. However, with ongoing government and private industry cutbacks on the horizon, along with increasing competition from other disciplines seeking to expand (e.g., social and counseling psychologists, behavioral economists), employment opportunities are harder to find. Members of SIOP need to be forward thinking by proactively reevaluating the kind of training I–O students should be receiving to ensure they are prepared

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for (and competitive in) the shifting employment marketplace. In August 1999, SIOP's Education and Training Committee published the *SIOP Guidelines for Education and Training at the Doctoral Level in Industrial–Organizational Psychology* (referred to as *SIOP Guidelines* hereafter; SIOP, 1999). The emphasis of the *SIOP Guidelines* is on the scientist–practitioner model and recognizing content areas necessary for practice and academe. These guidelines present 25 areas of competence for inclusion in I–O doctoral programs. Though these areas of competence have served the field well historically, it is time to be proactive and ask what may be required for future I–O education and training as global economic and industry influences modify the types of experience and skills required of workers.

Our objective is to spark conversation among SIOP members by presenting a vision of education for the future based on the shared perspectives of practitioners and educators who hire and/or train I–O psychologists. We do not challenge the existing *SIOP Guidelines*, nor seek to reinvent them. We also do not offer assessments of the current state of graduate curriculum, as Tett, Walser, Brown, Simonet, and Tonidandel (2013) already do so in their report of the 2011 SIOP Graduate Program Benchmarking Survey.¹ Rather, we propose, through dialog between academicians and practitioners, to extend the *SIOP Guidelines* by developing an understanding of what is needed today and how to offer what is needed in order to ensure that graduates of I–O doctoral programs are ready for the future.

By way of quick review of the issues at stake, consider, for example, that new assistant professors of I–O psychology hired today into many psychology departments must be ready to write for and successfully obtain grant funding for their research even as granting agencies have scaled

back their awards. None of the competencies from the *SIOP Guidelines* address the skills necessary for successfully maneuvering through the mazes of federal funding agencies, strategizing research agendas that lend themselves to federal or foundation funding, or establishing a track record necessary for advancing through grant types and sizes to win the “big one.” Also, business school-based management and human resources/organizational behavior (HR/OB) departments have different expectations of their new hires, and as such the competencies required are different from those of psychology departments. However, the *SIOP Guidelines* do not explicitly speak to the differences between HR/OB and psychology departments, even though many I–O psychology graduates choose to work in business schools. In practice, the ability to synthesize and integrate scientific knowledge with the realities of business is critical, yet few newly minted I–O psychologists have practice or understanding of what trade offs are acceptable for business decisions (e.g., what kind of validity evidence is critical versus a luxury, whether to trade off common method bias for experimental control) or how to combine knowledge across disciplines to develop adequate and practical client solutions. This level of synthesis comes with practice.

No competency area seems to address the ability to integrate across topic areas and other disciplines to develop new client solutions or work across academic departments. According to Tett et al. (2013), doctoral programs offer a course in the *SIOP Guidelines* competency area consulting and business skills, on average, only once every 5 years. And though this competency area tends to speak to practitioners, some of the same skills are required in academe. Furthermore, though the *SIOP Guidelines* refer to on-the-job training as a possible means for achieving nonclassroom instruction of competencies that require practice and experience, today's organizations and universities cannot afford to hire an I–O psychologist

1. See other results of the 2011 survey in *TIP* starting October 2012 at <http://www.siop.org/tip/oct12/04tett.aspx>

and then wait until their doctoral level professional new hire has a few years under the belt.

Our article grew out of a panel discussion at the 2012 Annual Conference of SIOP. The numbers in attendance and their involvement in the discussion suggested that we were hitting on a topic of conversation within the I–O community that is of interest, timely, and needed. We launch the dialog here by first proposing that SIOP adopt our recommendations for doctoral training that we believe address some of the issues raised during our panel discussion. Second, we support our recommendations by tackling three specific questions about educating the future of I–O psychology that were discussed in the panel. The questions were developed based on what we ourselves have time and again been asked by students, interns, and other interested parties about getting into the field of I–O. The three questions in this article were voted by the SIOP audience as the ones of greatest interest. The remarks generally fall into practitioner or academic camps, sometimes both at once, to objectively represent the practice and academic arms of our field.

Recommendation for the Future

We first propose that SIOP urge I–O programs to require certified internships for practice-aimed students and postdoc positions for academic/research-aimed students. The certified internship should provide students skill development in the practitioner-oriented areas we note as relevant and in some areas lacking in the SIOP *Guidelines*. The postdoc should provide skill development in the areas we note particular to academic/research associate positions. We specifically do not advocate a one-size-fits-all approach; internships and postdoc positions must be tailored to their organizational need and appropriate for the situation.

We suggest that SIOP form a specific committee comprising academicians and

program directors, practitioners (e.g., consultants, federal psychologists), research associates (e.g., including researchers at federal funding agencies or commercial institutions), and members of the Education and Training Committee. The committee's role is to investigate and form standards for internships and postdoc positions, and then review and certify (with a SIOP seal of approval) organizations' position statements for internships and postdoc positions.

There are at least three functions for the certification. First, we believe that internships and postdocs require proper supervision, which includes the quality of the supervisor and contact hours; adequate payment; health benefits; and importantly, appropriate developmental experiences such as the competency areas we note below that can be mastered after graduate school as opposed to during. The committee may determine that other critical components should be addressed, as well. By requiring the intern/postdoc providing institution to meet these basic needs to the standards expected of SIOP, our field protects its vulnerable population while ensuring proper training.

The second function of the certification is to protect the intern/postdoc granting organizations by making their outcome expectations clear and transparent, hopefully avoiding inappropriate or unverifiable statements and myths about internships/postdoc positions. By having SIOP review and certify their position requirements and expectations, the organizations can feel confident that they have reasonable expectations for graduate students. The certification process also works to the benefit of employers by making information available to organizations considering internships/postdocs; telling organizations what to expect in terms of salary and benefits; helping to create a meaningful, significant learning/developmental opportunity for the student; and by clearly identifying what to do to recruit and hire for their positions.

A third possible function of the certification is that it may improve the credibility of internships/postdocs such that students get

a bigger benefit out of the experience than they may receive today. Specifically, a SIOP certified internship/postdoc could level the playing field, at least a little, for the company that is small, relatively unknown, or otherwise not on the usual list of organizations with whom most in I–O are familiar. Thus, a student isn't at the mercy of the reputation or name recognition of their internship/postdoc host to be given adequate credit at the time of job search and hire.

Our second recommendation is that the SIOP certification committee review the results of Tett et al. (2013) to determine which of the 25 areas of competencies within the SIOP Guidelines could be moved from the traditional curriculum-based graduate training programs to the internship/postdoc training. We provide a few suggestions below to get the committee started. Because not all 25 are adequately addressed at the graduate school level (see Tett et al., 2013), several may be best addressed, along with a few additional competencies recommended below, after graduate school.

Our Rationales

Q1: What Competencies Should Practice-Oriented I–O Psychologists Possess Upon Graduation?

The language of practice is competencies. No single definition for competency seems to exist. Recently Campion et al. (2011) offered a definition of competencies similar to that proposed in 2002 by Rodriguez, Patel, Bright, Gregory, and Gowing: "A measurable pattern of knowledge, skill, abilities, behaviors, and other characteristics that an individual needs to perform work roles or occupational functions successfully" (p. 312; see also a similar definition by Rogelberg, Laber, & O'Connor, 2000). The SIOP *Guidelines* describe a competency-based approach; however, these standards are almost explicitly *curriculum*-based (e.g., history and systems in psychology, leadership, and management; small group theory and team

processes). Tett et al. (2013) determined that curriculum-based structures of graduate training, on average, focus only moderately on about seven primary competencies. That only seven competencies were associated with graduate training should at least spark discussion regarding content adequacy. Second, given that the language of practice is competencies, graduate programs should configure their curriculum around competencies. Applicants for any employment position should be able to talk about their graduate training in terms of competencies. For example, applicants to federal psychologist positions need to describe their training in terms of *managing oneself, collaboration, networking, embracing diversity, managing one's own career, oral and written communication, psychological methods and research expertise, and avoiding counterproductive behavior*. Of these, Tett et al.'s list of competencies only included methods and research expertise. We think the whole person needs to show up for work not just an executor of methodology.

Counterproductive behaviors as a competency deserves a brief explanation because its roots begin at the start of graduate school and it is not addressed by the SIOP *Guidelines*. Counterproductive behaviors here refer to ill-considered or even illicit behavior (e.g., fabricating data, plagiarism, computer hacking, drug habits, operating vehicles while intoxicated, or even espionage or money laundering). Though avoiding behaviors like espionage or money laundering may seem obvious, published research has documented a nontrivial base rate of counterproductive competencies among students, including: posting photos of oneself on social media sites using alcohol or drugs (e.g., Chretien, Greysen, Chretien, & Kind, 2009; Peluchette & Karl, 2010); forging advisor's signatures, research data, or engaging in plagiarism and other forms of unverified credentials or information (e.g., Park, 2003; Zinberg, 1994); and being caught using fake identification cards for exams (e.g., Muhney et al., 2008). Of course, in addition,

criminal databases will capture information regarding, *inter alia*, drunk driving arrests. Federal agencies and arguably many universities and other local government institutions require new hires to undergo a background investigation of some intensity to determine suitability for employment. These investigations may include reviews of financial history, substance abuse, criminal activity, foreign travel or affiliations, military service, and previous job performance, depending on the organization. Some positions require a security clearance. This involves even more intense scrutiny than a background check and includes interviews with friends, family members, and current and previous coworkers, who are all also investigated. So, even if one can avoid the Facebook situations or the arrests, friends or previous coworkers may have a number of stories they can share, exposing counterproductive competencies. Leaving the topic of counterproductive competencies to the internship/postdoc is too late, and assuming people know better is unrealistic. Even SIOP itself has a mandatory conference substance abuse policy to which attendees must affirmatively agree and adhere, which in our opinion clearly demonstrates that unstated professional expectations are, indeed, meaningless. We suggest that language regarding counterproductive competencies be added to the SIOP *Guidelines* as an additional competency area and addressed during graduate school training.

It is important for graduate students and programs to have familiarity with federal regulations outside of the AERA/APA/NCME *Standards*, *Uniform Guidelines*, and *SIOP Principles*. Executive Orders and Title V of the Code of Federal Regulations, along with an agency's management directives, provide "ground rules" and argot for expectations regarding fair treatment and performance in agencies. Though employment law is a topic area of the *Guidelines*, Tett et al. (2013) found that a course in the topic area was, on average, taught at the doctoral level in psychology I–O programs less than once in 5 years and not at all in doctoral

business/management programs. In addition, typical employment law courses do not cover other regulations such as those noted here that are pertinent to specific positions. Employment law may be a topic important only to those entering specific practice positions and, therefore, could be moved to being covered as part of a certified internship.

It is a competitive advantage for I–O graduate students interested in practice careers, in particular, to have experience making presentations about technical material for a nontechnical discipline-diverse audience composed of people with competing agendas. Though consulting and business skills refers to effective communication skills, the specific competency we identify here is not reflected with the *Guideline's* description. Furthermore, combining knowledge across disciplines to develop new practical client solutions, or synthesize and integrate scientific knowledge of assessment with the realities of business are not noted anywhere in the *Guidelines*. Thus, the development of these integrative professional competencies should be reflected in the *SIOP Guidelines'* description under consulting and business skills, and could be trained/practiced during the certified internship.

Two very practical issues drive a requirement for breadth and depth in the field of I–O for practice-oriented graduate students. First, in many practice-oriented jobs, the I–O psychologist may be the most, or only, methodologically trained professional in the immediate organization. There may be little opportunity to consult with similarly trained colleagues. Second, advanced statistical methods are among the most difficult topics for individuals to learn on their own, informally, or while on the job. It is also sometimes the case that one of the expectations of the newly hired I–Os is that they bring new techniques and methods to the problems being addressed and expand the education of those who preceded them. We need not argue that statistics and methods be covered within the current graduating training programs; Tett et al.'s (2013) results

assure us that this is already taking place. However, our point here is that graduate students considering careers in practice should not discount or underestimate the value or importance of their mastery of statistical and methodological concepts trained during graduate school.

One specific domain that arose in our panel discussion was *individual assessment*, a topic area in the *SIOP Guidelines*. Assessment is defined here as the integration of qualitative and quantitative information by a trained professional psychologist, for an individual assessee for any of a variety of purposes, including selection, promotion, development, or succession planning (McPhail & Jeanneret, 2012). Whereas it is likely true that not every I–O graduate needs to have explicit in-depth training in conducting such assessments, all graduates should have knowledge of the practice, issues, and science underlying them. Highhouse (2009) has argued that regardless of whether one is a proponent or skeptic about such assessments, they seem to have achieved a level of “functional autonomy” as part of the I–O domain. We suggest that training in how to conduct individual assessments along with adequate practice integrating assessment data should be acquired during a certified internship.

Finally, there is much to commend the wisdom of including the breadth of psychology in the *SIOP Guidelines*. If we are to take seriously our professional identity as psychologists, we cannot ignore the broader context of that profession in which we will practice and from which we have historically derived concepts, research paradigms, and frameworks for assessing, interpreting, and influencing human behavior in organizations. In this light, including content in graduate programs that is required for licensure (which we discuss in more detail later) is coincidental with appropriate content for thorough education as an I–O psychologist. That content includes that which is noted in the *SIOP Guidelines* under fields of psychology. According to Tett et al. (2013), content considered within this competency area is given only minimal focus (even in

psychology departments!). Moreover, many areas within I–O have begun incorporating physiological bases of behavior to better understand attitudes and behaviors in organizations, suggesting that a casual approach to reemphasizing coverage of the fields of psychology is not enough. We recommend that curriculum-based training programs be encouraged to include adequate, if not extensive, coverage of the above content and emphasize mastery for graduation with an advanced degree in I–O psychology.

Q2: What Differentiates I–O Psychologists From Graduates of Business Programs in OB, or Clinician/Counseling Programs Who Are Applying for I–O Jobs—What Education or Training Will Provide I–O Psychologists a Competitive Advantage?

Much of what differentiates I–O psychologists from allied fields in business and OB is grounding in psychology and its rich intellectual contributions to understanding human behavior. This grounding is coupled with methodological rigor and innovation in studying the complex, multivariate, and multivalued constructs that underlie human functioning, and interaction in varied and highly complex systems. What differentiates the I–O psychologists from fellow non-I–O psychologists is the organizational context itself. That is, when researching or impacting human behavior, I–O psychologists are doing so *in a context in many ways different from those in which clinicians and counselors function*.

Doctoral training in I–O psychology provides graduates with a highly refined schema for analyzing and solving complex (i.e., “real world”) problems, and thus they are better able to integrate information from diverse viewpoints than are graduates of other programs. For example, in the case of OB programs, there is little exposure to phenomena and theory studied across the span of psychological specialties. Although there is training in research design, statistical analysis, and macrolevel topics in the typical OB doctoral program, the I–O graduate has superior and more

extensive exposure to microlevel topics. For clinical/counseling graduates, exposure to macrolevel topics, and also research design and statistical analysis, is often limited in scope or amount. Another important distinction between the I–O graduate and those of OB or counseling programs is the firm and often rigorous grounding in psychometrics. Although arguably a few programs in counseling psychology may stake claim to solid psychometrics training for their graduates, the focus of clinical or counseling programs tends to be narrowly targeted on the psychometrics of assessment instruments for diagnosing psychological disorders.

At the risk of simplicity, one of the biggest differences between training in I–O psychology versus OB is that I–O psychology is grounded in psychology, including social and cognitive psychology, whereas OB is grounded in business and uses principles of psychology and other fields (e.g., sociology, economics) to describe how work is achieved. The approach of I–O psychology could be described as a top-down and bottom-up approach. The approach of OB could be described as a top-down only approach, where what happens and is decided at the organizational level trickles down to affect the people within groups. The primary objective of OB is to understand how to best get the group to be satisfied so that the organization's performance is high. I–O psychologists focus on how people individually react and interpret organizational practices that affect their performance and how they adapt to or react to the changes within the overall organization. A main point here is that I–O psychologists have a competitive advantage because they have studied *psychology* and their orientation is from a psychological base. We urge I–O psychology, as a field, to not run away from that orientation but instead embrace it as a strength. One way to do that is to ensure more thorough coverage of the fields of psychology in graduate school.

There are many I–O psychologists who after graduating find their home base in OB programs, taking faculty

positions in management departments. It is very unusual, however, for an OB graduate to be hired into a psychology department because of his or her lack of knowledge in psychology (leaving issues of salary differential aside). In addition to the standard curriculum, OB students are also taught to focus on the presentation of their skills and knowledge, making them in general better marketers and salespeople of their ability and what they can offer to general business. I–O psychologists are usually not taught how to sell their value added, market their knowledge and skills, and, in general, convey the value of what they bring to the table in business terms. We propose that selling and marketing skills be specifically added to the consulting and business skills competency area of the SIOF *Guidelines* and that training for these skills can take place in certified internships and postdoc experiences.

Clinical and counseling psychologists often receive training in group dynamics and interpersonal interaction. This provides them a competitive advantage over I–O graduate students for coaching positions and with team development. Clinical and counseling psychology graduates are trained in rapport building, diagnostic interviewing, interpersonal relationships, stress management, and group dynamics or group facilitation, which most I–O psychologists (with the exception of stress management covered in some OHP programs within I–O) and OB graduates do not receive.

To reduce the competitive advantage of counseling/clinical graduates over I–O psychology graduates, we recommend I–O students master group facilitation and interpersonal skills such as those taught and extensively practiced in clinical or counseling training programs. These skills should be developed during graduate school, as these skills are also essential for success throughout graduate school and in an internship/postdoc. To reduce the competitive advantage of OB graduates over I–O psychology graduates, certified internships for I–O students could include training and experience with methods of

accounting, structure and strategy, and entrepreneurship, as well as sales and marketing. Although interpersonal skills training is included in consulting and business skills of the *SIOG Guidelines*, selling and marketing skills are not—we recommend they be added to the description. We also recommend that group facilitation, rapport building, and diagnostic interviewing, which are particularly valuable in organizational diagnosis and client work, be added to interpersonal skills training.

Finally, we recommend that the consulting and business skills competency area be subdivided such that those skills truly specific to practice are included under consulting and business skills (e.g., marketing, accounting), and those more general to communication (including interpersonal as well as selling ones capabilities), group facilitation, and integrating across topic areas should be included under a new competency area called “interpersonal and communication skills.”

Q3: What Skills and Knowledge Do Academicians Need and Want of I–O Psychologists Applying for Jobs as Faculty and Researchers?

Faculty members generally require a large breadth of knowledge of the field of I–O to be able to say what is and is not I–O, and to know if research has been conducted in that area. Breadth is important in supervising students and when writing or asking comprehensive exam questions, also called “doctoral orals” or doctoral qualifying exams. Breadth matters, not only for one’s own research and teaching, but also when speaking to colleagues across campus and having to explain what I–O psychology is, what topics are generally studied, and why the field is valuable to have at the university (which is very handy when called upon to justify one’s existence or for getting more positions). Breadth is also valuable when considering grant applications—being able to draw from a variety of areas across I–O helps

with writing and developing ways to collaborate with colleagues. Finally, breadth is helpful and important when speaking to organizations during study design and/or developing research collaborations.

Each new I–O faculty member must have a few areas of depth because he or she will be expected to teach some courses (sometimes a variety across I and O) and to have mastered that topic or be able to master it relatively quickly to a greater level of depth than an advanced graduate student. In addition, faculty members and researchers at research institutes must establish and maintain a research agenda, and that is a challenge without some depth in one or more areas of I–O. Greater depth is obtained over time; to claim one is an expert in a particular area of the field requires depth. The postdoc experience alone may not be enough to check the expert box, but it will go a long way toward developing a confident level of depth that is hard to gain in a 5-year or less doctoral program that is also designed to ensure adequate breadth of the competencies of the *SIOG Guidelines*.

We can make a distinction between the “musts” and “wants” for competencies of new hires into academe. A “must” is a hiring breaker, where without this competency the candidate stands no chance of being hired. A “want” is a plus that gives the candidate an advantage over others in the hiring pool. It can be argued that the only “musts” are the knowledge and skills necessary to publish high quality research as evidenced by publications in good journals. The “wants” include teaching experience with good evaluations, good academic training pedigree that can indicate good exposure to high caliber content and productivity, basic ability to mentor others, and good presentation skills as evidenced in the teacher ratings and well-delivered job talk. What is emphasized in the “must” versus “wants” lists varies by individual and by hiring institution. For example, colleges/universities whose focus is primarily on teaching will include

teaching experience with good evaluations as a “must” rather than a “want.” Regardless of specifics, one could assume that the “musts” should be taught in the graduate programs, whereas the “wants” can be fostered in a certified postdoc position.

One can argue that there is no distinction between “musts” and “wants,” but rather what varies across hiring institutions is the desired level or quality of skill, amount of breadth and depth of knowledge, and experience level or practice associated with each competency area. Basic level of proficiency is achieved in the standard doctoral programs that exist today, whereas higher levels of proficiency can be achieved within the certified postdoc. For example, outstanding teaching comes with time and experience; hence, it is ideal for development during a certified postdoc. Likewise, good mentoring skills and the ability to handle problem situations requires experience and coaching, also achieved as part of a certified postdoc. We found no mention in the *SIOP Guidelines* of mentoring skills or conflict management skills that would be considered part of a self-management competency; therefore, we recommend that the *SIOP Guidelines* include a new competency area to capture these skills or noted under our new competency “interpersonal and communication skills.”

Knowledge areas required for faculty positions in I–O generally include those incorporated within the *SIOP Guidelines*. It’s too late to learn how to work well with others during a postdoc or at the time of hire or after; this is a skill one needs to develop early on—even before attending graduate school. Job applicants are sometimes asked about their collaboration experiences, how they have handled past conflicts with others, or how they have brought together people from different perspectives who didn’t agree. Those who are hiring want to know that the new faculty member will be a good colleague on committees and in situations where groups of diverse members (e.g., cross-college committees) are expected to work together under

sometimes tough conditions (i.e., reduced resources, highly politicized decisions). In contrast, other skills such as large project management skills important for running a research lab or supervising a group of students on a large project can be mastered during a certified postdoc. In addition, specific programs or tools beyond those used in graduate school can be learned in a certified postdoc. The knowledge and ability to write for grants, required for some faculty positions but not others, can also be learned during a certified postdoc.

A key challenge for the training of academicians who are expected to teach is that there are few formal mechanisms for developing teaching skills. Some universities have tackled this problem to a small degree. For example, at George Mason University and Colorado State University, graduate teaching assistants have a teaching orientation in which they are shown some of the behind the scenes elements of effective teaching. No doubt, many other universities offer similar vehicles for helping graduate students and newly hired faculty learn to become effective instructors. Unfortunately, there are also a fair number of universities that do not offer such resources. We recommend a better way to achieve such training is through a certified postdoc specifically aimed at developing teaching skills.

Some hiring faculty members attach weight to whether or not they find a candidate’s research interesting. According to one *SIOP* member, “this is an absurdly subjective practice; it’s amazing that an I–O psychologist would engage in it;” however, it does occur. The absurdity of the practice is grounded in our field. Specifically, before Barrick and Mount (1991), most I–O psychologists would have relegated research on personality to the “uninteresting” heap. In fact, had this “interesting” criterion been applied when some of us were interviewing for jobs, we probably wouldn’t have gotten a nibble. It seems very odd indeed to mark a candidate down for doing “uninteresting” research even though the candidate passes the publication test. Isn’t publication evidence

that the research is interesting in some way? An implication of “selection by interesting” practice for training of I–O psychologists is that a certified postdoc can provide time and opportunity to publish, providing evidence that the field is interested in the applicant’s topic.

Finally, we acknowledge that faculty search committees include more than just I–O psychologists; they include faculty members from diverse backgrounds (often outside of psychology) who ask whether the candidate’s research topic is “hot.” The question behind the question here is whether the candidate has a research agenda that is likely to be publishable—thus, serving as a way of gauging if this person can eventually meet promotion and tenure criteria. The certified postdoc may enable a candidate to provide an answer to this question at the time of interviewing by accumulating publications and conference presentations during the postdoc year(s). It should be acknowledged here that the certified postdoc doesn’t guarantee that the I–O graduate has researched a topic that everyone finds interesting or that he or she can play well with others; rather, it provides a vehicle for obtaining evidence that can speak to both.

Reflections Upon the SIOP Guidelines for Education and Training at the Doctoral Level in I–O Psychology for Science and Practice

We have addressed several current topics in I–O relating to competencies, typical practices, and boundaries between I–O and related fields, and in some cases referred back to the *SIOP Guidelines*. In this section, we reflect on how well the *SIOP Guidelines* address these considerations through a few closing questions.

Do the SIOP Guidelines Still Meet Our Needs?

The answer seems to be yes—to a degree (e.g., Tett et al., 2013). Though the practice

of I–O psychology continues to evolve, the extent of its evolution since the job analyses and *TIP* articles cited in the *SIOP Guidelines* will be known in 2013 or 2014, when the results of SIOP’s “practice analysis,” now underway, become available. The *SIOP Guidelines* have the virtue of being *guidelines* rather than standards or requirements. They allow for great latitude to faculty to plan and offer learning experiences that build professional knowledge and skill. That latitude also allows students and faculty to plan and execute somewhat individualized programs of study. For example, the *SIOP Guidelines* say or imply little about global and international perspectives, yet programs, faculty members, and students can elect to focus on such perspectives as they wish. Another example is that the *SIOP Guidelines* say or imply little about serving effectively as a member or leader of a multidisciplinary or multifunctional project team; yet, from what we’ve stated in the previous sections, one could argue, depending on perspective, that such skills are essential (e.g., government psychologists may argue that this is a “must,” whereas faculty may argue that this is a “want” only). Again, decisions about the breadth and depth of knowledge and skill to be developed and demonstrated are resolved in individual cases—therein lies the beauty of the word *guidelines* rather than *standards*.

Nevertheless, although the *SIOP Guidelines* avoid constraining or impinging upon graduate training and program discretion, they do not challenge graduate training programs to respond to the evolving marketplace, to show innovation in educational delivery, or to produce graduates who compete successfully relative to other disciplines. The *SIOP Guidelines* may meet needs that we as a profession define but not necessarily as students or the broader community of employers define their needs for our new graduates and our services. That tension is endemic to the comments in this article.

Should I–O Programs Include Content to Qualify Graduates to Apply For Licensure? What Are the Implications for Training Programs?

An issue of some controversy has been whether or not I–O programs should include content necessary to qualify graduates to apply for licensure. The 2010 Model Act for State Licensure of Psychologists adopted by APA includes the following areas as required for licensure (APA, 2010, p. 6):

1. Scientific and professional ethics and standards
2. Research design and methodology
3. Statistics
4. Psychometric theory
5. Biological bases of behavior: physiological psychology, comparative psychology, neuropsychology, sensation and perception, and psychopharmacology
6. Cognitive-affective bases of behavior: learning, thinking, motivation, and emotion
7. Social bases of behavior: social psychology, group processes, organizational, and systems theory
8. Individual differences: personality theory, human development, and abnormal psychology

The first four areas would seem to engender little debate. Many states establish as a requirement for licensure that applicants' education must be primarily psychological in nature, sometimes referenced as where the program resides in the university but usually also referencing some content requirements similar to those listed above. Licensing and regulation of psychologists are done on a state by state basis, and therein lies a tremendous complication. APA has its model licensing act, but that act serves only as "advice" for the states. The Association of State and Provincial Psychology Boards (ASPPB) has a different model licensing act, one that is less nuanced to the diversity of practices that

constitute professional psychology. Both are premised on protecting the public. Initially, states enacted legislation to regulate who could claim the title of "psychologist," and the easy out for I–Os was not to use that title, using instead titles not regulated by statute and that were more descriptive of the services rendered. That also creates heated debate: Why shouldn't an I–O psychologist be allowed to call him or herself a psychologist?

I–O doctoral programs already include content that, in part, qualifies graduates to apply for licensure. The problem with this statement is the phrase "in part." Should I–O programs do more to include course content for licensure? One can take the perspective of an emphatic *NO*, we should not train for licensure! There are three disciplines in psychology that suffer from acute APA accreditation: clinical, counseling, and school psychology. To succeed in their quixotic quest to meet the mercurial and nebulous demands of APA, programs in these areas must devote a significant proportion of their resources to the development of practice skills, leaving very little time for research. We suggest instead that these skills could be developing in a certified internship, specifically focused on the graduate student wanting to obtain licensure. As noted previously, Tett et al. (2013) reported minimal coverage of fields of psychology in curriculum-based training. Thus, we can safely deduce that current programs, on average, do not cover the content necessary for licensure. For a graduate student deciding to go into a position where licensure is necessary, quite a bit of additional coursework and supervision is necessary. We suggest both can be obtained via a certified internship in the desired state; however, more coverage of the fields of psychology should be done in curriculum-based training for reasons previously discussed.

I–O doctoral programs wanting to at least support those of their students foreseeing the need for licensure can pay more attention to how to document the content that is given to students. For example, for

licensure, you have to demonstrate that you've had an ethics course. Though many I–O programs offer ethics training of some kind, it is not explicitly documented in the course syllabi like in a counseling or clinical program, for example. Thus, I–O graduates struggle to demonstrate graduate training in ethics. A simple change to the syllabus could go a long way.

There is one venue where some argue that the possession of a license is likely to be an advantage for an I–O psychologist and that is on the witness stand. A regular part of jury trials is reviewing the credentials claimed by individuals to establish their status as experts; not being licensed in a profession where licensing is common presents a rhetorical hurdle. One's occupational title, scope of practice, and expertise matter a great deal. Thus, one could counterargue that licensure is not necessary and does nothing for credentials if the rest of the "package" is in good order; that is, the scope of work, experience, and evidence of expertise warrants the position on the witness stand as an expert. Most likely whether having a license or not as a competitive advantage or at least a level-the-playing-field factor varies by topic area and situation.

On the opposite side of the spectrum from "definitely do not train for licensure," I–O programs wishing to be supportive of graduates who want or foresee needing to be licensed, and programs that realize it will take a while before SIOP can influence the licensure process enough to adequately include and embrace I–O psychology, can offer a leg up on the licensing process by paying attention to the licensing exams and requirements. Consider modifying syllabi to document important training such as ethics, and/or encourage students to take courses as appropriate that can contribute to the licensing process (e.g., a general course in psychology; ASPPB cites the lack of knowledge of basic psychology as one of the most frequent failures to licensure).

Are we advocating for I–O programs to train for licensure? No and yes. The

no is driven by not wanting to be told by non-I–O psychologists whether one is competent to practice I–O psychology and what is required to demonstrate that competence, and by not wanting to supplant research and important I–O training with non-I–O related practica and coursework designed only for the purpose of meeting licensure requirements. The yes is driven by recognizing the state of the field as it currently is, that change to the licensure guidelines and processes as well as public perception are slow to make, and recognizing the potential advantage that I–O graduates may have by being able to obtain licensure.

Conclusion: Where Do We Go From Here?

We foresee a future marketplace that requires even more of I–O psychologists than ever before, and therefore our focus has been on how we adopt a forward-thinking, proactive approach to anticipate these needs. We recommended that SIOP create a committee whose focus is to first develop criteria and a process for certification of internships for practice and postdoc positions for research/science, and to second certify internships and postdoc opportunities that organizations put forth. Our goal is to create a "stamp of approval" from SIOP that communicates a rigorous standard to the internship/postdoc that ensures the student of a developmental experience and the organization of a high quality outcome. We are not advocating that SIOP adopt a licensure-like iron fist but instead consider the certification more like a "Best Places to Work" or "Good Seal of Approval" stamp.

We added a few competencies to the SIOP *Guideline* list of competency areas including (a) the avoidance of counter-productive behavior, (b) networking, (c) interpersonal and communication skills, and/or (d) self-management (includes mentoring, conflict management). With a certified internship/postdoc, we suggested that a number of the existing competency areas

from the SIOP *Guidelines* be addressed after graduate school within these specialized certified experiences. These include (a) employment law and other regulations; (b) specifics of individual assessment along with adequate practice; (c) content areas specific to business/management such as methods of accounting, and organizational structure and strategy; (d) focused depth in a particular research/topic area along with specialized tools for study in that field; (e) teaching; (f) grant writing; (g) large project and data management; (h) synthesis across groups and the 10,000 foot view; and (i) preparation for APA licensure. We emphasized the value and importance of a few competency areas in an effort to reassert to graduate programs that they continue to offer and advance these topic areas with adequate coursework but also add coverage if their current course offerings are nonexistent or skimpy. These include (a) statistics and methodology, and (b) fields of psychology. Finally, we recommended additional explanations to the consulting and business skills competency area, to ensure that several skills critical today and in the future are captured and trained. These include (a) presentation of technical material to nontechnical discipline-diverse audiences, and (b) marketing and selling of I–O capability.

We hope to generate discussion, debate, and action toward considering where we need to go with the education of I–O psychologists for the future. Are we leaving critical opportunities and advantages on the table given that we're soon to be 15 years beyond when the SIOP *Guidelines* were developed? If we succeed at all in this article, it will be by developing a framework for introspection and spur to action in the upcoming review of the SIOP *Guidelines*.

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