

An Evaluation of Research Productivity Among I-O Psychology Doctoral Programs

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Abstract: There are various ways in which one can evaluate the quality of a doctoral program. Program quality is important to gauge because this information enables those within the field to better understand the dynamics contributing to the contemporary research environment. Evaluations may be utilized by prospective students to make decisions of where to apply, by schools to attract new faculty, and by the general public as a preview into the field. Previous studies have drawn upon both subjective indicators of program quality (e.g., *US News and World Report*, 2013) and objective indicators of program quality (e.g., Roy, Roberts, & Stewart, 2006). The present study seeks to provide an updated and expanded investigation of faculty research productivity associated with industrial-organizational (I-O) psychology doctoral programs. Using a multifaceted approach, we focused on various objective indicators of performance including faculty publications and program presence at national conferences.

It is essential to note that productivity is multidimensional. Previous studies have examined productivity using numerous

indicators, including the average number of publications produced by graduates of each program (Roy, Roberts, & Stewart, 2006), student ratings of quality (Kraiger & Abalos, 2004), and institutional representation in the SIOP conference program (Payne, Succa, Maxey, & Bolton, 2001). *US News and World Report* (2013) ranks programs based upon the opinions of psychology department chairs regarding reputations of graduate programs. Some of the most comprehensive objective evaluations of program productivity include efforts by Gibby, Reeve, Grauer, Mohr, and Zickar (2002), and Oliver, Blair, Gorman, and Woehr (2005). However, both of these studies have now become outdated. Gibby et al.'s study only examined publications through 2000 and Oliver et al.'s study only examined publications through 2003. In the decade since previous examinations of program research productivity, numerous changes have occurred within programs (e.g., faculty movement, programs created or dissolved); thus, it is imperative that this information is periodically updated.

The purpose of this paper is to update and extend previous objective evalua-

tions of I-O psychology doctoral programs in the United States conducted by Gibby et al. (2002) and Oliver et al. (2005). Both of these studies examined program research productivity using multiple indices: (a) publications in the top 10 I-O journals over the past 5 years, (b) publications in the top 10 I-O journals over the entire career of a faculty member, (c) total research output for the past five years, and (d) total research output for the entire career of a faculty member. However, both of these studies used 5-year assessments of recent productivity. In this study, we expanded this to a 10-year period (2003-2012) in order to provide a more stable index of recent productivity. In addition, this study integrated information beyond publications. Specifically, using methodology similar to that of Payne et al. (2001), we examined institutional representation (including both faculty and students) over the past 10 years at the SIOP conference.

Overall, this study contributes to existing literature by assessing program quality using multiple objective measures of performance (i.e., faculty publications and program presence at SIOP). Although some studies have examined these measures separately, this study is the first to combine several objective indicators of program performance into the same analysis. Given that performance is multidimensional, we chose to

include several different aspects of objective performance in order to better capture the criterion domain. An update to the existing research productivity studies is greatly needed, and this study sought to do just that.

Method

Overview

In accordance with previous studies, the SIOP official web page was used to access a list of current I-O and related psychology programs. Schools were included if they met the following criteria:

- The university offered a Doctor of Philosophy (PhD) degree in Industrial-Organizational Psychology or a similar program (including Organizational Psychology, Organizational Science, Applied Psychology, and Social-Organizational Psychology). Doctor of Psychology (PsyD) programs were excluded, as were Consulting and Health Psychology programs included on the official SIOP site.
- The program was not identified as a web-based (online) program.

This study analyzed both U.S. based and international schools included on the SIOP web site. Utilizing these criteria, 62 programs were included in the current study. Listings of core program faculty members as of fall 2012 were gathered from official university websites, and an initial e-mail was sent out

to each program's director or coordinator, if identifiable, to confirm its accuracy. Emeritus faculty members, visiting professors, and any faculty member not receiving at least part of his or her salary from the Psychology department were excluded. This correspondence also requested contact information for any faculty members who were not listed or the program's webpage did not provide an e-mail address. A reminder was sent out to any programs who failed to confirm their program's faculty. If a program did not respond to this second request, only faculty listed on the official program webpage were included.

Next, all core faculty members were contacted with a request for their updated curriculum vitae (CV), and a reminder was sent out approximately 2 weeks later if no response was received. Of 316 identified faculty members, 164 responded with the information requested, comprising a 51.9% response rate. All CVs were reviewed to check the date of the most recent citation. If this citation was 2011 or earlier, a PsychInfo database search was performed to ensure each faculty member's citations were current. A PsychInfo database search was also performed for any faculty member who did not provide a CV.

Our first step was to narrow down our database to a set of 40 schools for in-depth analyses. To do this, our first in-

dex was based on core faculty publications in the top 10 I-O journals as established by Zickar and Highhouse (2001) over the past 10 years (2003–2012). (See Appendix A for a list of included journals.) In accordance with prior studies, errata, editorials, comments, obituaries, and book reviews were excluded (Gibby et al., 2002). We also excluded introductions to special issues. Each qualifying journal article was assigned points based on a weighting scheme incorporating both authorship order and number of authors, utilizing Howard, Cole, and Maxwell's (1987) formula:

$$\text{credit} = (1.5^{n-i}) / \left(\sum_{i=1}^n 1.5^{i-1} \right)$$

where n indicates the number of authors on the article and i refers to the position of a specific target author among all authors on the article.

After points were determined for each article, points were summed to create a point total for each faculty member. The total points of each program's core faculty members were then summed to obtain the total number of points for each program.

We then calculated four additional indices for the top 40 schools: (a) publications in the top 10 I-O journals over the entire career of a faculty member, (b) total publications over the last 10 years of a faculty member, (c) total publications over the entire career of a faculty

member, and (d) institutional presence at the SIOP conference for the past 10 years. Finally, an overall productivity score across all of these assessments was calculated utilizing the methodology of Oliver et al. (2005). In addition, we calculated per-capita scores by dividing a program's overall score by the number of core faculty in that respective program.

Results

Productivity points for all schools in our database based upon publications in the top 10 I-O journals over the past 10 years (the first index), and comparisons between current scores and previous ranking data from Gibby et al. (2002) and Oliver et al. (2005) are presented in Table 1.

Tables 2 through 5 present further analyses for the top 40 schools only (as determined by the first index). For the second index, productivity points based upon publications in the top 10 I-O journals over a faculty member's entire career were calculated using the same exclusion criteria and weighting formula as outlined in the first index, and points were summed for each program (see Table 2).

For the third index, total publications (including all peer-reviewed journal publications, books, book chapters,

and edited books) over the past 10 years was calculated. Encyclopedia entries, publications in journals that are not peer reviewed, and publications with the same exclusion criteria as the previous two indices (obituaries, commentaries, etc.) were excluded from this index. Each qualifying publication was again weighted using Howard et al.'s (1987) formula, although no differential weight was given for varying types of publications (book, chapter, article, etc.). After points were determined, they were summed within each program to determine total program points. The fourth index expanded upon the third index by including total publications over the entire career of a faculty member. All procedures for this index were identical to those of the third index (see Table 3 for the third and fourth indices).

For the fifth index, we examined institutional presence at SIOP, including faculty and students, for the past 10 years. SIOP programs from 2003–2012 were compiled for data entry, and an individual search was performed for each of the 40 programs. In accordance with Payne et al. (2001), we did not differentiate between roles in a session (e.g., presenter, chair, host, discussant, panelist, coordinator, etc.). Submitters were not included in the present analysis. Due to the variety of session types

Table 1.

Initial Productivity Point Values for All Schools and Comparisons With Prior Productivity Studies

| Productivity points | University | Total points in top 10 journals: 2003-2012 | Ranking for publication in top 10 journals: | |
|---------------------|---|--|---|--|
| | | | 1996-2000 (Gibby et al., 2002) | 10 I-O journals: 1999-2003 (Oliver et al., 2005) |
| 1 | University of South Florida | 22.17 | 8 | 2 |
| 2 | University of Georgia | 19.71 | 9 | 8 |
| 3 | Michigan State University | 17.58 | 1 | 1 |
| 4 | University of Minnesota | 16.25 | 3 | 5 |
| 5 | Purdue University | 13.83 | 19 | 24 |
| 6 | Texas A&M University | 13.74 | 18 | 12 |
| 7 | University of Akron | 13.35 | 7 | 11 |
| 8 | George Mason University | 12.87 | 10 | 7 |
| 9 | Rice University | 12.05 | (NL) ^a | 31 |
| 10 | University of North Carolina - Charlotte | 10.56 | (NL) | (NL) |
| 11 | Bowling Green State University | 10.20 | 2 | 4 |
| 12 | University of Illinois at Urbana - Champaign | 10.02 | 4 | 6 |
| 13 | University of Maryland | 9.36 | (NL) | 9 |
| 14 | Georgia Institute of Technology | 9.29 | 15 | 17 |
| 15 | University of Houston | 8.75 | 5 | 50 |
| 16 | Baruch College, CUNY | 8.19 | (NL) | 15 |
| 17 | North Carolina State University | 7.94 | (NL) | 37 |
| 18 | The Pennsylvania State University | 7.56 | 6 | 3 |
| 19 | Portland State University | 7.44 | (NL) | 20 |
| 20 | Wright State University | 7.09 | (NL) | 43 |
| 21 | University of Western Ontario | 6.77 | (NL) | 16 |
| 22 | Central Michigan University | 6.49 | (NL) | 18 |
| 23 | Wayne State University | 6.04 | (NL) | 14 |
| 24 | Ohio University | 5.99 | (NL) | 40 |
| 25 | De Paul University | 5.76 | (NL) | 42 |
| 26 | University of Waterloo | 5.57 | 11 | 30 |
| 27 | Florida International University | 5.55 | (NL) | 22 |
| 28 | University of Missouri - St. Louis | 4.49 | (NL) | 25 |
| 29 | University of Central Florida | 4.41 | 20 | 23 |
| 30 | University at Albany, SUNY | 4.27 | (NL) | 34 |
| 31 | Illinois Institute of Technology | 4.02 | (NL) | 36 |
| 32 | Griffith University | 3.90 | (NL) | (NL) |
| 33 | Teacher's College, Columbia University | 3.82 | (NL) | 19 |
| 34 | University of Calgary | 3.78 | (NL) | 35 |
| 35 | University of Guelph | 3.53 | (NL) | (NL) |
| 36 | Florida Institute of Technology | 3.43 | (NL) | 51 |
| 37 | Colorado State University | 3.09 | 12 | 38 |
| 38 | Old Dominion University | 2.87 | (NL) | 52 |
| 39 | Clemson University | 2.72 | (NL) | 27 |
| 40 | Auburn University | 2.65 | (NL) | 48 |
| 41 | Northern Illinois University | 2.01 | (NL) | (NL) |
| 42 | Saint Louis University | 1.99 | (NL) | 59 |
| 43 | University of Tulsa | 1.86 | (NL) | 39 |
| 44 | University of Oklahoma | 1.77 | (NL) | 29 |
| 45 | Virginia Polytechnic Institute and State University | 1.40 | (NL) | 32 |
| 46 | University of Connecticut | 1.39 | 16 | 47 |
| 47 | Kansas State University | 1.34 | (NL) | 44 |
| 48 | Claremont Graduate University | 1.04 | (NL) | 57 |
| 49 | University of Tennessee Knoxville | 1.01 | (NL) | 13 |
| 50 | George Washington University | 1.00 | (NL) | 46 |
| 51 | Hofstra University | 0.94 | (NL) | (NL) |
| 52 | Roosevelt University | 0.71 | (NL) | (NL) |
| 53 ^b | Alliant International University - Los Angeles | 0.60 | (NL) | 21 |
| 53 | Louisiana Technical University | 0.60 | (NL) | (NL) |
| 55 | University of Texas - Arlington | 0.28 | (NL) | (NL) |
| 56 | University of Nebraska - Omaha | 0.24 | (NL) | 45 |
| 57 | Seattle Pacific University | 0.08 | (NL) | (NL) |

Notes. Schools with zero points were not included in the current table.

^a (NL) indicates a program not listed in the previous study.

^b Alliant University LA and Louisiana Technical University had identical scores, and are listed in alphabetical order.

Table 2

Research Productivity Based on Publications in the Top Ten I-O Psychology-Oriented Journals

| Rank | School | Total points in top 10 journals: 2003-2012 | Total points in top 10 journals: Career |
|------|--|--|---|
| 1 | University of South Florida | 22.17 | 59.83 (2) |
| 2 | University of Georgia | 19.71 | 35.99 (5) |
| 3 | Michigan State University | 17.58 | 62.83 (1) |
| 4 | University of Minnesota | 16.25 | 51.18 (3) |
| 5 | Purdue University | 13.83 | 16.33 (22) |
| 6 | Texas A&M University | 13.74 | 22.51 (14) |
| 7 | University of Akron | 13.35 | 36.12 (4) |
| 8 | George Mason University | 12.87 | 29.10 (8) |
| 9 | Rice University | 12.05 | 31.15 (7) |
| 10 | University of North Carolina - Charlotte | 10.56 | 19.91 (17) |
| 11 | Bowling Green State University | 10.20 | 25.81 (10) |
| 12 | University of Illinois at Urbana - Champaign | 10.02 | 27.22 (9) |
| 13 | University of Maryland | 9.36 | 22.71 (13) |
| 14 | Georgia Institute of Technology | 9.29 | 32.96 (6) |
| 15 | University of Houston | 8.75 | 21.83 (15) |
| 16 | Baruch College, CUNY | 8.19 | 15.87 (23) |
| 17 | North Carolina State University | 7.94 | 14.22 (24) |
| 18 | The Pennsylvania State University | 7.56 | 23.38 (12) |
| 19 | Portland State University | 7.44 | 13.14 (26) |
| 20 | Wright State University | 7.09 | 8.11 (35) |
| 21 | University of Western Ontario | 6.77 | 20.45 (16) |
| 22 | Central Michigan University | 6.49 | 24.21 (11) |
| 23 | Wayne State University | 6.04 | 17.86 (20) |
| 24 | Ohio University | 5.99 | 19.25 (18) |
| 25 | De Paul University | 5.76 | 9.84 (30) |
| 26 | University of Waterloo | 5.57 | 8.52 (33) |
| 27 | Florida International University | 5.55 | 11.99 (27) |
| 28 | University of Missouri - St. Louis | 4.49 | 17.20 (21) |
| 29 | University of Central Florida | 4.41 | 18.09 (19) |
| 30 | University At Albany, SUNY | 4.27 | 8.46 (34) |
| 31 | Illinois Institute of Technology | 4.02 | 8.92 (31) |
| 32 | Griffith University | 3.90 | 4.37 (37) |
| 33 | Teacher's College, Columbia University | 3.82 | 13.78 (25) |
| 34 | University of Calgary | 3.78 | 4.85 (36) |
| 35 | University of Guelph | 3.53 | 4.23 (38) |
| 36 | Florida Institute of Technology | 3.43 | 3.61 (39) |
| 37 | Colorado State University | 3.09 | 10.7 (28) |
| 38 | Old Dominion University | 2.87 | 10.38 (29) |
| 39 | Clemson University | 2.72 | 8.76 (32) |
| 40 | Auburn University | 2.65 | 3.45 (40) |

Table 3

Research Productivity Based on All Publications

| Rank | School | All publications: 2003- | |
|------|--|-------------------------|--------------------------|
| | | 2012 | All publications: Career |
| 1 | Michigan State University | 149.33 | 374.40 (1) |
| 2 | University of Minnesota | 127.93 | 218.62 (3) |
| 3 | University of South Florida | 125.68 | 277.78 (2) |
| 4 | University of Central Florida | 86.78 | 144.68 (6) |
| 5 | Griffith University | 84.11 | 128.76 (8) |
| 6 | Rice University | 80.36 | 117.76 (11) |
| 7 | George Mason University | 78.61 | 145.62 (5) |
| 8 | University of Georgia | 71.53 | 158.14 (4) |
| 9 | Teacher's College, Columbia University | 65.29 | 141.38 (7) |
| 10 | University of Akron | 59.68 | 123.20 (9) |
| 11 | University of North Carolina - Charlotte | 58.51 | 90.46 (19) |
| 12 | University of Calgary | 57.30 | 92.60 (18) |
| 13 | Portland State University | 52.27 | 93.50 (17) |
| 14 | Bowling Green State University | 50.59 | 102.72 (15) |
| 15 | University of Maryland | 49.49 | 83.23 (21) |
| 16 | University of Waterloo | 48.02 | 64.71 (25) |
| 17 | Old Dominion University | 46.50 | 77.13 (23) |
| 18 | Purdue University | 45.79 | 63.30 (26) |
| 19 | The Pennsylvania State University | 44.84 | 97.91 (16) |
| 20 | Georgia Institute of Technology | 41.16 | 122.37 (10) |
| 21 | Texas A&M University | 41.09 | 85.79 (20) |
| 22 | University of Illinois at Urbana - Champaign | 40.24 | 104.97 (14) |
| 23 | Central Michigan University | 38.48 | 105.83 (13) |
| 24 | Florida Institute of Technology | 38.07 | 49.96 (33) |
| 25 | Wright State University | 37.17 | 45.15 (34) |
| 26 | Baruch College, CUNY | 37.09 | 61.44 (29) |
| 27 | North Carolina State University | 36.03 | 62.35 (28) |
| 28 | University of Western Ontario | 34.59 | 82.38 (22) |
| 29 | University of Missouri - St. Louis | 33.26 | 72.82 (24) |
| 30 | Colorado State University | 32.55 | 57.21 (31) |
| 31 | Florida International University | 31.89 | 57.91 (30) |
| 32 | University of Houston | 28.71 | 108.55 (12) |
| 33 | Clemson University | 27.78 | 53.05 (32) |
| 34 | Wayne State University | 23.01 | 62.57 (27) |
| 35 | De Paul University | 22.67 | 43.47 (36) |
| 36 | University of Albany, SUNY | 20.86 | 33.14 (39) |
| 37 | University of Guelph | 19.46 | 24.13 (40) |
| 38 | Auburn University | 16.67 | 38.35 (37) |
| 39 | Ohio University | 16.65 | 44.96 (35) |
| 40 | Illinois Institute of Technology | 16.48 | 33.47 (38) |

Table 4

Research Productivity Based on Institutional Presence at SIOP Conference From January 2003 to December 2012

| Rank | School | SIOP presence: 2003-2012 | SIOP presence: | |
|------|--|-----------------------------|----------------|-------------------------|
| | | | 1986-2001 | (Payne et al., 2001) |
| 1 | Michigan State University | 1020 | 690 | (1) |
| 2 | University of Central Florida | 898 | 56 | (45) |
| 3 | George Mason University | 854 | 238 | (12) |
| 4 | University of Minnesota | 748 | 329 | (5) |
| 5 | University of South Florida | 686 | 217 | (14) |
| 6 | Texas A&M University | 567 | 270 | (7) |
| 7 | University of Georgia | 520 | 253 | (10) |
| 8 | University of Houston | 498 | 214 | (16) |
| 9 | University of Maryland | 496 | 393 | (4) |
| 10 | The Pennsylvania State University | 479 | 319 | (6) |
| 11 | Bowling Green State University | 475 | 469 | (2) |
| 12 | University of Akron | 431 | 432 | (3) |
| 13 | Portland State University | 426 | 67 | (41) |
| 14 | University of Illinois at Urbana - Champaign | 413 | 262 | (8) |
| 15 | Wayne State University | 384 | 107 | (29) |
| 16 | Wright State University | 345 | 72 | (40) |
| 17 | Clemson University | 338 | | (NL) |
| 18 | Central Michigan University | 337 | 107 | (29) |
| 19 | Florida Institute of Technology | 333 | | (NL) |
| 20 | Purdue University | 325 | 257 | (9) |
| 21 | North Carolina State University | 324 | 51 | (47) |
| 22 | Colorado State University | 309 | 157 | (20) |
| 23 | Rice University | 307 | 139 | (23) |
| 24 | Baruch College, CUNY | 287 | 107 | (29) |
| 25 | Florida International University | 251 | 192 | (17) |
| 26 | University of Western Ontario | 224 | | (NL) |
| 27 | Georgia Institute of Technology | 223 | 155 | (21) |
| 28 | Old Dominion University | 207 | 116 | (25) |
| 29 | University of North Carolina - Charlotte | 192 | | (NL) |
| 30 | University of Albany, SUNY | 181 | 224 | (13) |
| 31 | De Paul University | 179 | | (NL) |
| 32 | Illinois Institute of Technology | 171 | 94 | (35) |
| 33 | Ohio University | 136 | 48 | (48) |
| 34 | University of Missouri - St. Louis | 132 | 61 | (43) |
| 35 | Auburn University | 130 | 33 | (58) |
| 36 | University of Waterloo | 115 | | (NL) |
| 37 | University of Calgary | 111 | | (NL) |
| 38 | Teacher's College, Columbia University | 88 | 42 | (52) |
| 39 | University of Guelph | 61 | | (NL) |
| 40 | Griffith University | 16 | | (NL) |

Table 5

Overall and Per Capita Scores of Research Productivity

| Rank | School | Overall scores | Number of faculty | Per capita scores |
|------|--|----------------|-------------------|-------------------|
| 1 | Michigan State University | 83.75 | 8 | 10.47 (9) |
| 2 | University of South Florida | 77.26 | 8 | 9.66 (16) |
| 3 | University of Minnesota | 71.99 | 5 | 14.40 (3) |
| 4 | University of Georgia | 62.87 | 8 | 7.86 (29) |
| 5 | George Mason University | 61.95 | 7 | 8.85 (21) |
| 6 | University of Akron | 57.12 | 8 | 7.14 (32) |
| 7 | Rice University | 55.89 | 7 | 7.98 (28) |
| 8 | Teacher's College, Columbia University | 54.71 | 9 | 6.08 (38) |
| 9 | Texas A&M University | 53.85 | 6 | 8.98 (18) |
| 10 | Bowling Green State University | 53.13 | 5 | 10.63 (8) |
| 11 | University of Illinois at Urbana-Champaign | 52.00 | 4 | 13.00 (6) |
| 12 | University of Maryland | 51.73 | 3 | 17.24 (2) |
| 13 | Georgia Institute of Technology | 51.40 | 5 | 10.28 (10) |
| 14 | The Pennsylvania State University | 51.00 | 6 | 8.50 (24) |
| 15 | University of Houston | 50.66 | 5 | 10.13 (12) |
| 16 | University of Central Florida | 50.40 | 6 | 8.40 (25) |
| 17 | Purdue University | 50.21 | 5 | 10.04 (13) |
| 18 | University of North Carolina - Charlotte | 49.84 | 6 | 8.31 (27) |
| 19 | Portland State University | 49.22 | 5 | 9.84 (14) |
| 20 | Central Michigan University | 49.09 | 5 | 9.82 (15) |
| 21 | Griffith University | 46.71 | 7 | 6.67 (35) |
| 22 | Baruch College, CUNY | 46.50 | 7 | 6.64 (36) |
| 23 | University of Western Ontario | 46.48 | 5 | 9.30 (17) |
| 24 | North Carolina State University | 46.43 | 7 | 6.63 (37) |
| 25 | Wayne State University | 45.77 | 8 | 5.72 (39) |
| 26 | Wright State University | 44.79 | 5 | 8.96 (19) |
| 27 | Old Dominion University | 44.59 | 5 | 8.92 (20) |
| 28 | Florida International University | 43.84 | 5 | 8.77 (22) |
| 29 | University of Missouri - St. Louis | 43.64 | 6 | 7.27 (31) |
| 30 | University of Waterloo | 43.41 | 5 | 8.68 (23) |
| 31 | University of Calgary | 43.10 | 4 | 10.78 (7) |
| 32 | Ohio University | 42.55 | 2 | 21.27 (1) |
| 33 | Clemson University | 42.39 | 6 | 7.06 (33) |
| 34 | De Paul University | 41.76 | 5 | 8.35 (26) |
| 35 | Florida Institute of Technology | 41.32 | 6 | 6.89 (34) |
| 36 | Colorado State University | 40.99 | 4 | 10.25 (11) |
| 37 | University of Albany, SUNY | 40.41 | 3 | 13.47 (4) |
| 38 | Auburn University | 40.24 | 3 | 13.41 (5) |
| 39 | University of Guelph | 38.51 | 7 | 5.50 (40) |
| 40 | Illinois Institute of Technology | 38.48 | 5 | 7.70 (30) |

Table 6
Correlations Between Indices

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--|--------|--------|-------|-------|-------|-------|-------|------|---|
| 1. Top 10 Journals (2003-2012) | 8.18 | 4.90 | — | | | | | | |
| 2. Top 10 journals (entire career) | 19.98 | 14.19 | .87** | — | | | | | |
| 3. Total research output (2003-2012) | 50.41 | 30.66 | .67** | .76** | — | | | | |
| 4. Total research output (entire career) | 98.64 | 67.47 | .71** | .87** | .93** | — | | | |
| 5. SIOP presence (2003-2012) | 355.43 | 234.61 | .65** | .72** | .66** | .71** | — | | |
| 6. Overall productivity score | 50.00 | 10.00 | .87** | .94** | .89** | .95** | .77** | — | |
| 7. Number of faculty | 5.65 | 1.59 | .38* | .36* | .47* | .47** | 0.28 | .48* | — |

Notes: *Correlation is significant at the .05 level. **Correlation is significant at the .01 level.

(e.g., symposium/forum, poster session, panel discussion, etc.), authorship was not weighted. One point was given each time an individual listed the university as their affiliation. The total points for each university were summed to obtain the total number of SIOP points for each program. These findings are compared with Payne et al.'s (2001) point values for academic institutional presence at SIOP from 1986–2001 (see Table 4).

Last, we calculated each program's overall scores based on the methodology of Oliver et al. (2005). Specifically, scores within each index were converted to z-scores to account for differing measurements (i.e., authorship weights in indices 1 through 4 versus no weights in index 5), and average z-scores were calculated across all indices to determine an overall productivity score. These scores were then transformed into *t*-scores to remove any negative values. As a final analysis, we examined the impact that a program's number of faculty members has on its overall score. Each program's overall score was divided by its number of faculty members to create a per-capita score. Overall and per capita scores are included in Table 5.

Table 6 presents the intercorrelations between all indices. Most of the indices were highly correlated with one another (average intercorrelation of .71), and only one correlation was nonsignificant (i.e., $r = .28$ between number of faculty and SIOP presence). These findings are consistent with prior research, as all of our correlations between indices are within .08 of those found by Oliver et al. (2005), with only one exception. The sole discrepancy is the correlation between publications in the top 10 I-O journals from 2003–2012 and total output from 2003–2012 ($r = .67$ in the present study compared with $r = .85$ in Oliver et al.). In addition, presence at the SIOP conference, which was not included in Oliver et al.'s study, was significantly correlated with all other indices. This may suggest that SIOP presence should be incorporated into measures of program productivity.

Discussion

As described earlier, productivity can be measured in numerous ways. This study differed from previous studies (Gibby et al., 2002; Winter, Healy, & Svyantek,

1995) in a few ways. Both Gibby et al. and Winter et al. classified articles by program affiliation (including faculty and students) rather than core faculty. In contrast, this study (similar to Oliver et al., 2005) included only core faculty output for those working in the programs as of fall 2012 in indices 1 through 4. Both methods of data collection offer information regarding program productivity, and neither is without its limitations. Examining program affiliation provides an assessment of both faculty and student publications, and it accounts for retrospective productivity of a program. However, the fluid nature of academia and faculty positions may not allow for an accurate representation of a program's productivity based on the program's current faculty. A limitation of using program affiliation is that a university receives credit for publications for a faculty member who is no longer employed at that university. One key advantage of our approach is that our assessments capture the productivity of a program based on faculty who are currently affiliated with a given I-O program rather than who was there in the past.

Due in part to the fluidity of academic programs, but in some cases due to program inclusion criteria (e.g., University of North Carolina Charlotte), there are several notable differences between the present findings and Gibby et al.'s (2002) and Oliver et al.'s (2005) results. Of the programs included in all three studies, some have shown marked increases in produc-

tivity point standings since prior productivity studies (e.g., the University of South Florida, the University of Georgia, Purdue University), whereas others have shown decreases in productivity point standings since prior productivity studies (e.g., The Pennsylvania State University, Bowling Green State University), and still others have fluctuated widely (e.g., University of Houston). In addition, Tulane University, which held a ranking of 13th (Gibby et al., 2002) and 10th (Oliver et al., 2005) in the previous studies, no longer maintains an I-O program. These specific examples are just a sampling of the many differences found within productivity studies over time, supporting the need for more regular analyses of program productivity.

By including all peer-reviewed publications and SIOP presence, this study presents a broader assessment of overall program productivity across a variety of different criteria. The third and fourth indices account for programs whose faculty members may publish frequently in journals outside of those specific to I-O (*Psychological Bulletin*, *Psychological Methods*, etc.). The fifth index broadens the scope of the analysis by including conference representation of those associated with each institution, allowing for the incorporation of both faculty and graduate student work. It is important to note, however, that the SIOP program does not specify departmental affiliations (e.g., psychology vs. management). Thus, I-O program scores for SIOP pres-

ence are inflated to the extent that the particular institution has a strong SIOP presence from members of other departments within that university. This should be considered a limitation of this study. Furthermore, this study evaluated programs on the basis of faculty rather than student productivity and did not collect data on the number of graduate students who were enrolled within each program. Although the fifth index, SIOP presence, is certainly influenced by student performance, future research could benefit from evaluating student productivity within I-O psychology programs, as well as per capita student productivity, which may yield interesting findings.

The use of the contribution formula has both advantages and disadvantages. One advantage is that we use the same contribution formula as prior productivity studies, which facilitates comparisons across studies. By using author order to determine weight, however, individuals (and programs) that place a minimal role on collaboration are rewarded. Authors who publish alone receive maximum credit, whereas authors working on collaborative projects receive less credit. For example, an individual who publishes alone earns one point using Howard et al.'s (1987) formula, whereas the first author on a paper with five total authors earns .38 points. One might argue, though, that an individual actively collaborating will coauthor more publications (i.e., strength in numbers), causing the equation to balance out in the end.

Our focus on a specific set of 10 I-O journals may be considered a limitation of the present study. Indeed, some very reputable faculty members publish frequently in top psychology journals besides the 10 utilized in the initial analysis of this study (e.g., *Psychological Bulletin*, *Psychological Methods*) or prestigious journals in a specialty area (e.g., *Leadership Quarterly*), which were not captured in this first index (although this was captured in later indices). In addition, the specific list of top 10 I-O journals used in this study (as well as previous productivity studies) was determined in 2001 by assessing SIOP members' perceptions of the top 10 I-O journals (Zickar & Highhouse, 2001). What I-O psychologists consider a premier I-O journal may certainly have changed over time. In addition, when compared to Oliver et al. (2005), the correlation between publications in the top 10 I-O journals from 2003–2012 and all other indices decreased, including total research output. This may signal changes in publication trends. Thus, we believe an update of the top 10 I-O psychology publications is necessary. It is also critical to note that I-O programs vary in the emphasis they place on academic research and publications as compared to applied experience. Programs with a strong applied focus may need to be identified and examined with alternate methods (e.g., ability to prepare graduate students for applying I-O internships in the workplace) in order to fully assess productivity within that domain.

It is important to note that this study focused on objective assessments of program productivity; however, performance is a multidimensional construct (Campbell, McCloy, Oppler, & Sager, 1993), and as such, there are many other viable methods of assessing the performance/quality of a program. For example, programs could be evaluated based on reputation, grant support obtained, quality of jobs obtained by graduates, number of SIOP fellows produced, and many other methods.

Even with its limitations, this study provides the most comprehensive examination of program productivity using objective criteria to date. By incorporating both publications and program conference representation (which includes faculty and student output), this study aims to offer a multifaceted perspective that provides a more well-rounded representation than previous productivity studies. In line with previous studies (Winter et al., 1995; Gibby, 2002), it is recommended that these types of studies are frequently updated, in order to keep pace with the vast changes that often occur within and between academic programs.

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