

A LONGITUDINAL MODEL OF SPONSORSHIP AND CAREER SUCCESS: A STUDY OF INDUSTRIAL-ORGANIZATIONAL PSYCHOLOGISTS

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Drawing from research on the sociology of science, we hypothesized a model of academic career success in an effort to extend research on particularistic and universalistic influences on career success. Results, based on a sample of 154 members of the Society of Industrial and Organizational Psychology, provided support for the hypothesized model. Specifically, doctoral program prestige and publications as a PhD student influenced prestige of the first job. Furthermore, these 2 variables—along with chair publications—influenced career publications, prestige of the first job and career publications influenced extrinsic success (a composite variable comprised of rank, salary, longitudinal citation rates, prestige of current job, fellowships, and presence on editorial boards), and extrinsic success influenced intrinsic career success (career satisfaction). The results further suggest that individual performance has a stronger influence on the career success of industrial-organizational psychologists than do social networks.

There is a long and vigorous debate about how resources like money and status are apportioned over the course of a career, reflecting a broader question about how society recognizes and rewards people for their work. Though numerous theories of career success make distinct contributions to this debate, one major way to divide this research literature is by distinguishing between theories that propose that success is primarily determined by one's background and the efforts of powerful others (e.g., Caplow & McGee, 1958; Long, Allison, & McGinnis, 1979), as opposed to those who emphasize individual attributes and performance (e.g., Cole & Cole, 1967; Judge, Higgins, Thoresen, & Barrick, 1999).

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The theoretical background for comparing individual productivity versus social structure as antecedents of career success has been developed across several parallel research domains. Merton (1973) differentiated between universalistic norms that propose that professional recognition and rewards are given to those who contribute the more substantial advancements in their fields versus particularistic norms that propose that success is determined by characteristics not immediately relevant to performance, such as access to social networks and sponsorship by those already in the elite group. Turner (1960) described how performance and effort are more often assessed and reassessed in countries favoring universalism (like the United States), as opposed to countries favoring particularism (like Britain), where status is comparatively set once a person is selected into the elite group. Similarly, the mentoring literature indirectly differentiates universalistic assistance, such as facilitating acquisition of task knowledge, and particularistic assistance, such as providing favorable exposure to powerful others (Kram, 1985). Collectively, these comparative strands could be labeled the "what you do" (universalistic) and "who you know" (particularistic) perspectives on career success.

Based on these distinctions, the theories of universalism and particularism provide a unique way of framing several existing theories of career success. Understanding whether success is related to universalistic or particularistic factors is informative because it answers important questions about how careers are rewarded by society and helps to understand how norms are played out in practical terms (e.g., Long & Fox, 1995). For individual career entrants, it also provides guidance regarding how to achieve success. If a universalistic model is supported, individuals should strive to accomplish objective performance, but if a particularistic model is supported, time spent working on job tasks might be more productively put towards meeting and greeting important individuals and securing favors from them.

Although seldom discussed as such, at their core, the universalistic and particularistic models imply distinct theories of decision making related to career rewards (Turner, 1960). The particularistic model implies that decision makers favor individuals with influential sponsors, that these decision makers infer competence based on these associations with other effective performers, that selection into the elite group occurs early and once the selection decision is made there is little status movement, and that selection into the inner circle favors those of the "right type" who will not rock the boat. The universalistic model proposes, on the other hand, that those who make important decisions about career rewards attempt to find direct indicators of the quality of individual work and then provide more resources to these individuals based on the per-

ception that such individuals will be more productive for the group as a whole. However, comparatively little research has focused on which of these processes actually facilitate the development of success or how they affect decisions about promotions or wage increases.

Several studies have examined these universalistic and particularistic models, often with a focus on academic careers. Studies of early career performance find support for both particularistic (e.g., dissertation advisor productivity) and universalistic (e.g., abilities, preappointment publications) factors as predictors of research activity (Green & Bauer, 1995; Long, Allison, & McGinnis, 1979; Tenenbaum, Crosby, & Gliner, 2001; Williamson & Cable, 2003). More directly related to decisions regarding occupational rewards, Cable and Murray (1999) found that management departments attached more weight to universalistic criteria than particularistic criteria when selecting academic job seekers and offering initial salaries, but other research shows that the particularistic model is more supported among biochemists (Long, Allison, & McGinnis, 1979) and academic psychologists (Hurlbert & Rosenfeld, 1992). In a nonacademic sample, Wayne, Liden, Kraimer, and Graf (1999) found stronger support for universalistic (e.g., training, motivation) than particularistic (e.g., leader-member exchange) predictors of career success, although both were significant.

Despite the contributions of past research to our knowledge of the role of universalism and particularism in academic career success, there are important areas for further contribution that can be achieved by merging several research streams. One opportunity lies in integrating social status as a concept from the universalistic/particularistic model into mentoring research, which has focused more on mentor functions than on the status or power of the individuals who are providing the functions. For example, Podolny and Baron (1997) found that individuals with network ties to an organization's decision makers had faster promotion rates, but those with networks involving low-status individuals had slower career advancement. Research on advisor and dissertation committee success also suggests that, in some cases, influential sponsors can facilitate career rewards (e.g., Cable & Murray, 1999; Reskin, 1979). These status variables have not been widely integrated into the mentoring literature as predictors.

There are also gains to be had from incorporating the mentoring literature's focus on career success—in terms of position, status, salary, and satisfaction with career progress—as outcomes of universalistic and particularistic influences. Longitudinal studies involving universalism and particularism have often focused on research productivity (Reskin, 1979; Williamson & Cable, 2003). Although this research clarifies the role of universalistic and particularistic variables on productivity, such

studies do not address the central thesis of the theories of universalism and particularism as they related to rewards, specifically, that there is a social decision-making process that weighs either individual performance or social background in determining how much money and status should go to a person. We are also not aware of any studies linking these concepts to indicators of both intrinsic and extrinsic career success.

An additional area for improvement in both literatures is expanding the time frame of the investigations. Past research on the relationships between advisors and doctoral students has not considered postgraduation career success over several years. For example, several studies have examined job offers and placements after graduate school but did not have information available regarding long-term career success for these recent graduates (Cable & Murray, 1999; Long, Allison, & McGinnis, 1979). Thus, there is still quite a bit left to be learned about long-term outcomes and how decisions about providing career rewards and opportunities accumulate over the course of one's career. Indeed, Tenenbaum et al. (2001) note that it would be informative to conduct research considering the long-term career success of doctoral students following graduation. Furthermore, relationships between mentoring and career success are nearly always estimated by measuring mentoring and career success variables at the same time, allowing for little understanding of the internal dynamics of career success. Ragins, Cotton, and Miller (2000) noted, "It is clear that longitudinal research is needed in this area" (p. 1191).

Finally, although some studies of the publication success of industrial-organizational (I-O) psychologists have appeared (de Meuse, 1987; Newman & Cooper, 1993), these studies have not tested universalism and particularism because they do not explore career rewards and success. Beyond the implications and interest for I-O psychologists, there are other reasons to focus on this profession. First, concentrating on a relatively narrow field with well-established norms for publication reduces concerns about extraneous differences in publication rates from more heterogeneous fields. Second, to an even greater extent than most fields, I-O psychologists advocate and work to develop universalistic systems for selection and advancement as embodied in the Cleary regression model and related developments (e.g., Campbell, 1996; Guion, 1998; Sackett, Schmitt, Ellingson, & Kabin, 2001). Third, researchers in the area of organizational justice, one of the dominant topics in I-O psychology, also explicitly endorse universalism in proposing that decisions should be based on objective information that is applied equally across all individuals without consideration of performance-irrelevant factors like social class or connections (e.g., Leventhal, Karuza, & Fry, 1980). This emphasis on universalism is important because the traditional sociology of science literature, Merton (1968) notwithstanding, argues that par-

ticularism is so entrenched that it is difficult for universalism to reveal itself. Indeed, prior research has shown that universalism often is not important in predicting career success relative to particularism (Long & Fox, 1995). Thus, unlike many fields where particularism has been argued to predominate (Allison & Long, 1987), I-O psychology is a setting in which both the concepts of universalism and particularism may be relevant.

In sum, no study has linked universalism and particularism to a model that includes both initial job search success and long-term extrinsic and intrinsic career success. Accordingly, the purpose of this study is to test a longitudinal model of the effect of universalistic and particularistic factors on initial job placement and subsequent career success. In the next section, we explicate a model of career success and discuss the hypothesized linkages in the model.

Hypothesized Model of Career Success

The universalistic and particularistic models can be further developed using supporting theory from human capital, social capital, and mentoring models. Figure 1 demonstrates the hypothesized model that combines universalistic and particularistic predictions, as well as incorporating the concept of accumulated advantage.

The universalistic model hypothesizes that success is earned by individuals because of their superior performance on core job tasks that are agreed upon as objectively good and treated equally for all individuals under consideration. Under the universalistic model, decision makers must frequently monitor performance because the possibility of promotion or demotion is seen as a powerful motivator, even after admission to the elite group, so ongoing performance will be a strong predictor of career success (Turner, 1960). Underlying the universalistic model is the human capital model, which provides that a worker's knowledge, skills, abilities, and other characteristics are rented by the employer, so enhancement of these through superior education results in higher wages (Becker, 1964). According to Kram (1983, 1985) and Kram and Isabella (1985), mentors also enhance human capital by providing challenging work assignments and act as role models for their protégés, a function most advisors would be expected to provide as well. As noted in Bandura's (1997) social cognitive theory, modeling can have both motivational (successful advisors should increase student self-efficacy) and learning (students should acquire more job-relevant skills from successful advisors) effects. These models suggest that superior educational institutions and mentoring facilitate superior performance for students so that the market's decision to provide superior outcomes for those from

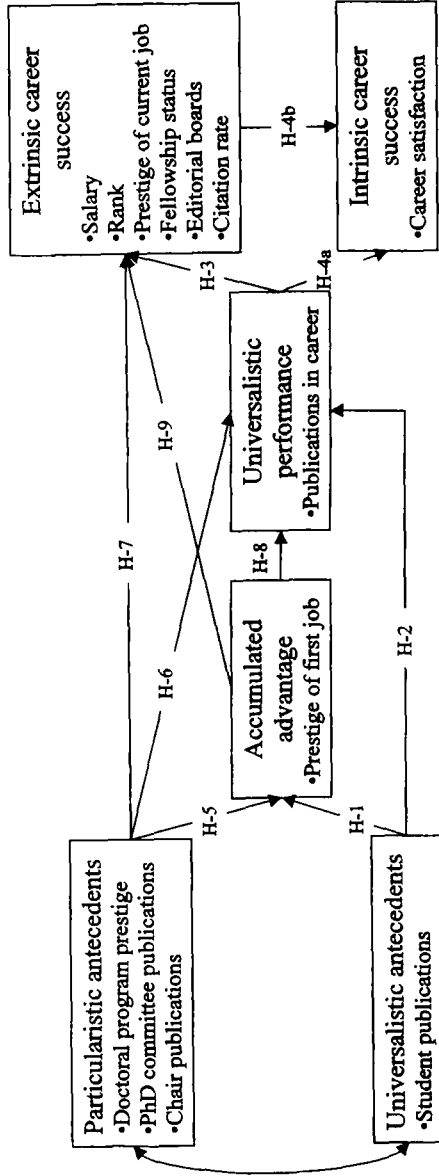


Figure 1: Hypothesized Model

better educational institutions is based on a rational, accurate valuation of their knowledge, skills, and abilities.

Apprenticeship is the first place sponsorship affects a new occupational entrant. In research apprenticeships, advisors and committee members provide direct input into the research performed by their students. In this case, sponsors serve as a role model by showing the student how to develop research ideas and get them published, as well as demonstrating the importance of publishing (Reskin, 1979). Because universalistic systems allocate status based on one's own contributions (Rosenbaum, 1984), students who have contributed the most should be most successful in obtaining high quality and prestigious jobs. Previous studies have found that publication success as a doctoral student is a robust predictor of initial success, including likelihood of receiving a job offer, the prestige of the job offers received, and starting salary (Cable & Murray, 1999; Reskin, 1979). Thus:

Hypothesis 1: Publications as a PhD student will be positively related to prestige of first job.

Success early in one's career is an important component of later career accomplishments. Precocity is an important harbinger of success that creates a self-fulfilling prophecy—individuals who attain success early are viewed more positively by others and, indeed, may see themselves as more capable (Rosenbaum, 1984). Dreher and Bretz (1991) found strong correlations between early career success and subsequent career attainment. Of course, individual differences (such as motivation and ability) that lead one to be successful early are likely to cause subsequent success as well, leading to a correlation between early and subsequent career success. Accordingly:

Hypothesis 2: Publications as a PhD student will be positively related to universalistic performance (career publications).

Universalistic norms suggest that “to the victor go the spoils”—those who perform well should receive rewards (earnings, promotions) commensurate with their success. Though the link between performance and pay raises in any given year may be modest, cumulatively, evidence suggests a positive relationship between performance and earnings (Harris, Gilbreath, & Sunday, 1998). Ferris, Witt, and Hochwarter (2001) found that performance and salary were positively correlated ($r = .38, p < .01$) in a sample of software engineers. Van Scotter, Motowidlo, and Cross (2000) found that task performance was a consistent predictor of subsequent career success in a longitudinal study of Air Force mechanics (rewards, promotability ratings, military rank). Taylor, Locke, Lee, and

Gist (1984) found that productivity was positively ($r = .35, p < .01$) correlated with faculty extrinsic career success. Thus:

Hypothesis 3: Universalistic performance (publications in career) will positively influence extrinsic career success.

As Judge, Cable, Boudreau, and Bretz (1995) comment, "Individuals define their success, in part, based on their objective accomplishments" (p. 487). The link between intrinsic career success (satisfaction with one's career) and extrinsic career success (pay, promotions, job level) has been demonstrated in numerous studies. Boudreau, Boswell, and Judge (2001), for example, found that career satisfaction was positively related to earnings in a sample of American ($r = .24, p < .01$) and European executives ($r = .29, p < .01$). Turner (1960) notes that under universalistic systems there is a strong tendency to mark one's worth based on objective accomplishments, which is not present in particularistic systems. Although little research has investigated the relationship between job performance and career satisfaction, Greenhaus, Parasuraman, and Wormley (1990) hypothesized that job performance would lead to higher career satisfaction because high performance evaluations lead to valued outcomes. Though this supports an indirect relationship between performance and career satisfaction, a direct link is also possible if publication success is intrinsically satisfying, as might be the case in a universalistic system. Thus:

Hypothesis 4: Intrinsic career success (career satisfaction) will be positively influenced by: (a) extrinsic career success; (b) universalistic performance (publications in career).

In contrast to a career system where success accrues solely based on merit and accomplishment (universalism), particularistic norms bestow success on those who bear the "markers" of success (Merton, 1973). An extreme version of the particularistic model would claim that some individuals, arbitrarily or based on social structures, end up early in their careers in a comparatively "good" or "internal" part of the market that is characterized by higher pay, resources, and status, but others end up in comparatively "bad" or "external" part of the market characterized by lower pay, resources, and status and a lack of upward mobility. Although these differences are often discussed within firms, a similar distinction can be drawn in occupational labor markets where transfer among jobs as a means of career progress is common (e.g., Althaus, 1989; Baron, Davis-Blake, & Bielby, 1986; Dalton & Snelling, 1983; Smith, 1983), as is the case in academia. Here, the internal track involves the most prestigious schools and networks of well-established academics who focus

their attention on each others' students and who afford special status to social backgrounds above actual accomplishment.

There are three key reasons that the particularistic model might be supported due to favorable impressions spread by influential others, as is the case when one's social network position enhances career success (Seibert, Kraimer, & Liden, 2001). First, the prestige of one's doctoral program would be relevant because the hiring committees from high status schools should have more connections to faculty at other prestigious universities (Long, Allison, & McGinnis, 1979). Second, the prestige of one's first job may be influenced by the individual efforts of distinguished faculty, such that, even holding productivity constant, students of accomplished advisors and other members of the committee should benefit from the prestige of their affiliation based on a highly similar mechanism (Allison & Long, 1987; Cable & Murray, 1999). Third, it may be that prestigious departments also wish to hire faculty from other prestigious universities simply for the way that it looks to external observers (Caplow & McGee, 1958).

Consistent with the particularistic model, Cable and Murray (1999) found that even when publication success was held constant, there was still a moderate relationship between chairperson eminence and the prestige of the job offers new faculty members reported that they received. Hurlbert and Rosenfeld (1992) similarly found degree program eminence was positively related to ratings of the prestige of the first job held by recent graduates. Advisor publication rates were not significant predictors of success in research involving chemists (Reskin, 1979). Thus, though the findings are in conflict, in light of theoretical support from the particularistic model, we hypothesize:

Hypothesis 5: Publications by the PhD committee, publications by the chair, and school prestige will be positively related to prestige of first job.

Beyond facilitating the prestige of their initial placement, individuals also may find that the prestige of their advisor and committee benefits their career performance. This may be the result of directly assisting the student with knowledge and resources to write publishable articles, although a more skeptical perspective posits that even blind reviewed articles receive special treatment if they are associated with the "right" people. Williamson and Cable (2003) hypothesized that chair productivity and university prestige influence early career publications but found that neither direct link was significant. In contrast, Reskin (1979) did find that prestige of one's university was related to subsequent publication rates, and Long, Allison, and McGuinnis (1979) found university prestige was related to subsequent citation rates. To address prior inconsistencies, and based on the foregoing theory, we hypothesize:

Hypothesis 6: Publications by the Ph.D. committee, publications by the chair, and school prestige, will be positively related to universalistic performance (career publications).

A particularistic perspective on extrinsic career success implies that, counter to the universalistic performance hypothesis, it is one's connections early in the career that actually lead to subsequent rewards. Although comparatively little research has examined the paths from departmental reputation and the prestige of one's doctoral committee, the one study that has examined this phenomenon did find limited support for a residual effect from departmental reputation to the reputation of one's job 8 years after obtaining a degree (Reskin, 1979).

Hypothesis 7: Particularistic background (publications by the PhD committee, publications by the chair, and school prestige) will positively influence extrinsic career success.

After universalistic and particularistic characteristics have facilitated individuals' acquisition of a desirable job, their effects could be compounded based on the accumulated advantage model of career success. Merton called accumulated advantage "The Matthew Effect" based on a passage in the Gospel of Matthew which states that, "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath" (Merton, 1968, p. 58). Merton proposed that this was an accurate description of scientific careers, where disproportionate rewards are attained for esteemed scientists, while disproportionate deficits in recognition are realized for those with lower professional status. Accumulated advantage thus means that individuals who are rewarded early experience increasing rewards over time by attracting greater resources to facilitate performance, or by having rewards provided based on previous institutional affiliations and status. This is partially demonstrated by data showing a very wide dispersion in publication rates, with the majority of researchers obtaining few publications, while a minority of individuals produce far more publications at an increasing rate over time (Allison, Long, & Krauze, 1982; Cox & Chung, 1991). However, there is little evidence showing whether initial research productivity and quality of one's first job affects performance or future success.

The prestige or quality of one's first job may be the foundation upon which early career success is built, particularly given the advantages (facilities, intellectual stimulation, motivational expectations) that such jobs provide (Allison & Long, 1990). This is a pure accumulated advantage effect, as those who begin in a superior position in their careers will find that they are able to increase their advantage as more resources are

provided to them. Indeed, in the sociology of science literature, Long's (1978) longitudinal study of biochemists revealed that department prestige influenced subsequent productivity. Williamson and Cable (2003) did not find a significant effect for department prestige, though it should be noted that their productivity measure was limited to early career productivity. Thus, though prior research is somewhat contradictory, under the accumulated advantage model, and in an effort to resolve this inconsistency, we hypothesize:

Hypothesis 8: Accumulated advantage (prestige of first job) will positively influence universalistic performance (career publications).

A segmented labor market accumulated advantage hypothesis proposes that once one gets a foothold in the set of "good" jobs, it is likely to stay that way. In other words, the simple fact that you have had a good job implies you will have more good jobs later. This explanation adds to Hypothesis 5 in that it suggests prestige is nothing more than having good network connections, and that a person who gets into a good job early will keep getting good jobs even if they fail to perform well. We were able to locate only one study on this topic, which showed a considerable effect of one's first job on departmental reputation of one's job eight years after obtaining a degree (Reskin, 1979).

Hypothesis 9: Accumulated advantage (prestige of the first job) will positively influence extrinsic career success.

Method

Sample and Procedure

The respondents consisted of a random sample of 303 active members of the Society of Industrial and Organizational Psychology (SIOP), the primary professional organization of I-O psychologists. SIOP members who received their doctorate after 1970 and who were currently employed in higher education were sampled from the 1998 SIOP Membership Directory. Other information collected from the directory included the year in which the PhD was earned, the institution that granted the PhD, and the university where the person was currently employed.

Questionnaires were mailed to the society members identified above. Participants were asked questions about (a) their work history prior to enrolling in their doctoral training, (b) their experiences in the PhD program, and (c) post PhD attitudes and behaviors. Of the 303 questionnaires mailed, 154 were returned and usable. This represents a response rate of 51%. Controlling for alpha inflation due to the number

of comparisons, an analysis of respondents versus nonrespondents—with respect to the variables we collected from archival means (years since degree, gender, prestige of doctoral program, publication success of chair and committee, prestige of first job, publication success, fellowship status, board memberships)—revealed no significant differences between respondents and nonrespondents. Finally, we asked each respondent to provide a current vita. Of the 154 respondents who returned a questionnaire, 124 complied with our request.

The average study participant had obtained his or her doctorate 16.69 years before the study. The average committee member published 1.32 articles per year and the average chair published 1.31 articles per year. Sixty-five percent of the respondents were women, 47% had published one or more articles as a doctoral student, 22.5% were SIOP fellows, 37.1% are or had been members of one or more editorial review boards in the past 20 years, and 55.3% were assistant or associate professors and 44.7% were full/chaired professors. In terms of the prestige/quality variables, 59.6% obtained their doctorates from an institution that had earned a score higher than 4.00 (where 5 = highest rating) in *The Gourman Report*, 29.7% had their first job at a university scoring above 4.00 on *The Gourman Report*, and 24.5% currently were employed at an institution scoring above 4.00 on the Report. In their careers, 39.7% had had their research cited fewer than 100 times, 25.2% between 100 and 300 times, and 35.1% more than 300 times. To compare the representativeness of our sample to the SIOP database, we obtained a random sample of 50 SIOP members who held positions in academia. We then calculated the publications per year, first authored publications per year, and top tier publications per year for this random sample and compared these measures to our sample. The differences between these groups was relatively small (ave. $d = 0.17$), and none of them were statistically significant, suggesting that our sample was representative of the I-O psychologists holding academic appointments.

Measures

Control variables. *Years since degree* was included to reflect career dynamic effects, such as the effects of time on career satisfaction, publication rates, and rank. *Gender* (1 = male, 0 = female) was included based on the possibility that there could be gender differences in mentoring outcomes and processes (Lyness & Thompson, 2000; Ragins & Scandura, 1997) as well as sex differences in publication rates (Long, 1992).

Doctoral program quality/prestige. Doctoral program prestige was coded using *The Gourman Report* (Gourman, 1997). *The Gourman Report* assigns continuous quality ratings to universities on a 1.00–5.00

scale. We coded doctoral program prestige using the ratings for the program in which individuals received their degrees (I-O psychology, business, industrial relations); if the prestige of the program could not be coded, we used the overall Gourman rating for the university as a whole.

Although the *Report* has been criticized (Bedeian, 2002), the important advantage of the *Report* in the present study was its comprehensiveness—other measures of university prestige, such as the *U.S. News and World Report* annual survey, do not rate virtually every university as does the *Report*. Cable and Murray (1999) showed that *Gourman Report* ratings displayed relatively strong convergent validities with other measures of university quality and prestige, such as acceptance rates ($r = -.54$), Graduate Management Admission Test (GMAT) scores ($r = .76$), and average starting salaries ($r = .66$). Moreover, in our comparison of the 1997 Gourman Report scores for psychology doctoral programs and the 1995 National Research Council ratings of psychology doctoral programs, we found a convergent validity of $r = .89$. For business schools, we found that the *Gourman Report* rankings correlated $r = .67$, $r = .81$, and $r = .86$ with *Business Week*, *U.S. News and World Report*, and *Financial Times* rankings, respectively. Finally, because individuals obtained their doctoral degrees at very different times, it is relevant to ask variation in prestige might have introduced unmeasured variability in the ratings. However, *Gourman Report* ratings appear to be quite stable. Analyzing the stability of Gourman Report ratings from the 56 schools, which granted the most doctorates to individuals in our sample, we found that the stability of the *Gourman Report* ratings was $r = .84$ over a 3-year period and $r = .94$ over a 13-year period.

PhD committee publications and chair publications. In the survey that was sent to participants, individuals were asked to write the names of their dissertation chairperson and doctoral dissertation committee members or other individuals who served in a critical advisory capacity. Using the Web-of-Science and PsycINFO databases, we recorded the total number of publications of the respondent's advisor and the average number of publications for the committee members identified by each respondent. We divided these by the years since the advisor's (committee's) first publication to establish a rate of publication.

Publications as PhD student. Publications as PhD student was assessed by recording the number of refereed journal articles that the individual had published before obtaining his or her PhD (articles published the same year the individual obtained his or her PhD were counted, based on the assumption that these articles were accepted pre-PhD). This information was collected from the vitae that were provided or, in the case of individuals who did not provide a vita, from a search of the PsycINFO and Web-of-Science databases.

Prestige/quality of first job. On the survey, individuals were asked to indicate the department and university of their first academic (post-PhD) position. The prestige of the department (or, if department could not be coded, university) was then coded using *The Gourman Report* as with doctoral program prestige.

Publications in career. Total career publications was measured using an index of information taken from respondents' vitae and the databases. Specifically, total publication success was measured with four variables: (a) total refereed journal articles per year; (b) total first-authored articles per year; (c) total top-tier journal articles per year;¹ and (d) total first-authored, top-tier publications per year. When the four variables were subjected to a principal components analysis, a single factor emerged with an eigenvalue of 4.90 that explained 81.72% of the variance in the measures. Thus, this principal component was saved as a variable representing career publication success. The coefficient alpha reliability of this 4-item scale was $\alpha = .95$.

Extrinsic career success. Extrinsic career success was measured using an index of six variables: (a) respondents' annual salary, which they indicated on the survey; (b) respondents' current academic rank, which again they indicated on the survey, and was coded 1 = *assistant professor*, 2 = *associate professor*, 3 = *full professor*, 4 = *chaired professor*; (c) the prestige/quality of respondents' current affiliation—the affiliation was recorded from the SIOP database and then coded using *The Gourman Report*; (d) whether the respondent was a SIOP fellow, which was taken from the most recent edition of the SIOP membership directory; (e) the number of editorial boards on which the respondent has served in the top five journals in I-O psychology (Zickar & Highhouse, 2001); (f) the number of times the respondents' research has been cited according to the ISI Web-of-Science database. When a principal components analysis was estimated for these three variables, a single factor emerged with an eigenvalue of 3.63; this factor explained 60.53% of the variance in the measures. Thus, as with publication success, this principal component was saved as a variable, in this case representing extrinsic career success. The coefficient alpha of this 6-item scale was $\alpha = .87$.

Career satisfaction. Career satisfaction, as an indicator of intrinsic career success, was measured with the 5-item career satisfaction mea-

¹ Relying on Gomez-Mejia and Balkin (1992) and Zickar and Highhouse (2001), we designated the following management/I-O journals as top tier: *Journal of Applied Psychology*, *Personnel Psychology*, *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, and *Organizational Behavior and Human Decision Processes*. In addition, based on Koulak and Keselman (1975), we designed two psychology journals in which OB/I-O individuals sometimes publish, *Psychological Bulletin* and *Journal of Personality and Social Psychology*, as top tier. Designations of top tier journals do change over time, though as Judge, Cable, Colbert, and Rynes (2003) note, journal prestige ratings show high degrees of temporal stability and interrater agreement.

TABLE 1
Descriptive Statistics of Study Variables

	<i>M</i>	<i>SD</i>	Minimum	Maximum
Years since PhD receipt	16.69	6.67	4.00	38.00
Gender (1 = <i>male</i> , 0 = <i>female</i>)	.65	.48	.00	1.00
Doctoral program prestige	4.22	.51	2.00	4.95
Committee publications	1.32	.89	.00	4.47
Chair publications	1.31	.94	.00	5.79
Publications as PhD student	.81	1.24	.00	12.00
Prestige/quality of first job	3.78	.62	2.65	4.93
Publications in career	.17	1.13	-1.01	6.01
Salary	2.33	1.17	1.00	5.00
Prestige of current job	3.70	.54	1.00	4.94
Rank	2.40	.72	1.00	4.00
Fellowship status	.22	.41	.00	1.00
Editorial boards	.92	1.58	.00	8.00
Career citations	268.41	301.70	.00	1588.00
Extrinsic career success	-.07	.96	-1.26	2.67
Career satisfaction	19.55	3.66	9.00	25.00

Note: Publications in career and extrinsic success are standard scores.

sure developed by Greenhaus et al. (1990). Sample items include, "I am satisfied with my career advancement," and "I am satisfied with the progress I have made toward meeting my career goals." The coefficient alpha reliability of this 5-item scale was $\alpha = .86$.

Results

Descriptive statistics and intercorrelations among the study variables are presented in Tables 1 and 2. To test the hypothesized model displayed in Figure 1, a covariance structure model was estimated with LISREL 8 (Jöreskog & Sörbom, 1993). The most widely used measure of model fit is the chi-square (χ^2) statistic, often indexed in terms of χ^2 per model degree of freedom to indicate parsimony (Mulaik, James, Alstine, Bennett, Lind, & Stilwell, 1989). Hu and Bentler (1999) further suggest that multiple indices be used for judging model fit, particularly a combination of Standardized Root-Mean-Square Residual (SRMSR) less than .08 with Comparative Fit Index (CFI) greater than .95. For comparison of the hypothesized model to alternative models, the Root-Mean-Square Error of Approximation (RMSEA) and Expected Cross Validation Index (ECVI) are presented because they have calculable confidence intervals (Browne & Cudeck, 1993). By comparing the extrema of these confidence intervals, the degree to which model fits can be distinguished from one another can be assessed.

As shown in Table 3, the hypothesized model fits the data well. The hypothesized model was compared to two more parsimonious alterna-

TABLE 2
Intercorrelations Among Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Years since PhD receipt	—															
2. Gender (1 = male, 0 = female)	.20	—														
3. Doctoral program prestige	-.31	-.03	—													
4. Committee publications	-.19	.16	-.04	—												
5. Chair publications	-.04	.14	-.08	.19	—											
6. Publications as PhD student	.20	.16	.31	-.09	.10	—										
7. Prestige/quality of first job	-.06	.30	.03	.12	.32	.57	—									
8. Publications in career	.40	.15	.22	-.12	-.02	.33	.54	—								
9. Salary	.15	.16	.33	-.11	.08	.30	.76	.52	—							
10. Prestige of current job	.64	.18	.15	-.23	-.18	.03	.21	.15	.54	—						
11. Rank	.38	.19	.02	-.13	-.07	.17	.35	.43	.49	.38	—					
12. Fellowship status	.23	.16	.14	-.12	.00	.42	.47	.59	.63	.53	.31	—				
13. Editorial boards	.51	.23	.14	-.19	-.01	.37	.50	.53	.65	.57	.52	.69	—			
14. Career citations	.49	.23	.21	-.19	-.04	.36	.61	.59	.85	.70	.62	.78	.82	—		
15. Extrinsic career success	.13	.24	.08	-.07	.02	.16	.30	.36	.41	.31	.28	.25	.30	.28	—	
16. Career satisfaction																—

Note: Listwise $N = 133$. Correlations greater than .16 are significant at the .05 level (two-tailed).

TABLE 3
Fit Indices for Hypothesized and Alternative Models

	<i>df</i>	χ^2	χ^2/df	<i>CFI</i>	<i>SRMSR</i>	<i>RMSEA</i> 90% <i>C.I.</i>	<i>ECVI</i> 90% <i>C.I.</i>
Hypothesized model	6	1.68	0.28	1.00	0.01	[0.00–0.00]	[0.79–0.79]
<u>Alternative models</u>							
Particularistic	9	119.78**	13.31	0.70	0.11	[0.24–0.33]	[1.27–1.77]
Universalistic	16	49.71**	3.11	0.91	0.06	[0.09–0.17]	[0.83–1.16]

Notes: *CFI* = Comparative Fit Index. *SRMSR* = Standardized Root-mean-square Residual. *RMSEA* = Root-mean-square Error of Approximation. *ECVI* = Expected Cross Validation Index. *C.I.* = Confidence Interval. *N* = 133.

p* < .05 *p* < .01

tive models. One model was a universalistic model, which excluded links from the particularistic antecedents to prestige of the first job, career publications, and extrinsic career success. Another model was a particularistic model, which excluded links from student publications to prestige of the first job and career publications. As shown in Table 3, there is a clear difference between model qualities. The particularistic model is rejected most strongly. The universalistic model fits considerably better, with minimal overlap between the upper bound of the confidence intervals of *RMSEA* and *ECVI* of the universalistic model and the lower bound of the confidence intervals of these fit statistics for the particularistic model. However, the hypothesized model (Figure 1) shows an even better fit, with no overlap between the upper bound of the confidence intervals of *RMSEA* and *ECVI* of the hypothesized model and the lower bound of the confidence intervals of these fit statistics for the alternative models. In addition, the nonsignificant chi-square for the hypothesized model means that the hypothesis that these data are accurately represented by the model cannot be rejected, and both the *CFI* and *SRMSR* are superior according to the criteria of Hu and Bentler (1999).

Because some estimates in the model reflect the effect of an exogenous on an endogenous variable ($\hat{\gamma}$) whereas other estimates reflect in the effect of one endogenous variable on another ($\hat{\beta}$), for simplicity we use a common notation ($\hat{\theta}$) to denote all structural estimates. Results in Table 4 reveal that, consistent with Hypothesis 1, prestige of the first job is significantly predicted by publications as a PhD student ($\hat{\theta} = .38$). Moreover, consistent with Hypothesis 2, career publications also is significantly predicted by publications as a PhD student ($\hat{\theta} = .41$). Consistent with Hypothesis 3, career publications, in turn, significantly predict extrinsic career success ($\hat{\theta} = .68$). Hypothesis 4 was partially supported, though career publications bore no direct relationship to intrinsic career success ($\hat{\theta} = .07$), failing to support Hypothesis 4a, Hypothesis 4b was supported in that extrinsic success did significantly pre-

TABLE 4
Path Coefficients and Estimated T-Ratios for Hypothesized Covariance Structure Model

	Prestige of first job $\hat{\theta}$ (SE)	Career publications $\hat{\theta}$ (SE)	Extrinsic success $\hat{\theta}$ (SE)	Intrinsic success $\hat{\theta}$ (SE)
Control variables				
Years since degree	.11 (.08)	-.12 (.08)	.46* (.07)	-.16 (.17)
Gender (1 = male, 0 = female)	.08 (.08)	.21** (.07)	-.07 (.07)	.15 (.10)
Hypothesized variables				
Doctoral program prestige	.31** (.08)	.00 (.07)	.10 (.07)	-
PhD committee publications	-.08 (.08)	.02 (.08)	-.10 (.07)	-
Chair publications	.04 (.08)	.15* (.07)	-.18** (.07)	-
Publications as a PhD student	.38** (.08)	.41** (.08)	-	-
Prestige/quality of first job	-	.33** (.08)	.24** (.08)	-
Publications in career	-	-	.68** (.09)	.07 (.15)
Extrinsic career success	-	-	-	.47* (.22)
R ² for variable	.28	.54	.87	.28

Notes: $\hat{\theta}$ represents standardized path coefficients. SE = Standard error for standardized coefficients. N = 133.

*p < .05 **p < .01

dict intrinsic success ($\hat{\theta} = .47$). In sum, most of the universalistic links were supported in the model.

Turning to the more particularistic links in the model, consistent with Hypothesis 5, doctoral program prestige is also a factor even with publications as a PhD student considered ($\hat{\theta} = .31$). The other particularistic predictors (PhD committee and chair publications) were not significant though, so Hypothesis 5 was only partially supported. Similarly, Hypothesis 6 was only partially supported in that the only significantly influence on career publications was chair publications and this link ($\hat{\theta} = .15$) was roughly one-third the coefficient for publications as a PhD student ($\hat{\theta} = .41$). The only particularistic variable that is predictive of career success, chair publications, is negatively related to extrinsic success ($\hat{\theta} = -.18$) once one's own publication rate is considered. This should not be misconstrued as evidence that chair productivity is negatively related to extrinsic success, because the zero-order correlation for this variable is approximately zero ($r = -.04$). This finding, however, is directly contrary to Hypothesis 7, in that individuals who come from very productive chairs are actually less likely to be considered extrinsically successful for the same comparative publication rate. In addition, doctoral program prestige is not significantly related to extrinsic success. Because program prestige is a significant predictor of quality of first job and not of career publications, it can be inferred that the impact of degree program on subsequent extrinsic career success is fully mediated through the quality of one's first placement.

Lastly, the hypotheses pertaining to accumulated advantage were supported. Specifically, prestige/quality of the first job predicts career publications ($\hat{\theta} = .33$). This provides support for Hypothesis 8. Moreover, consistent with Hypothesis 9, prestige of first job is positively related to extrinsic success overall even when productivity is taken into account ($\hat{\theta} = .24$).

Practical Effects of Full Model Variables on Extrinsic and Intrinsic Career Success

To more fully demonstrate the effect of the universalistic and particularistic variables on tangible outcomes, we regressed the six extrinsic success variables (salary, prestige of current job, rank, fellowship status, editorial boards, and career citations) on the independent variables from the full model. Because editorial boards and career citations follow a distribution where the variable represents counts (number of board memberships and citations) and the variance is greater than the mean, we used negative binomial regressions in predicting editorial boards and career citations (Gardner, Mulvey, & Shaw, 1995). Because fellowship

status is a dichotomous variable, we used logistic regression in estimating the effect of the independent variables on fellowship status. For the other three career success variables, we used ordinary least squares (OLS) regression, though consistent with prior research (e.g., Judge et al., 1995), we did take the natural log of salary before entering it into the regression to normalize its distribution and to allow interpretation of coefficients as percent changes in salary. To facilitate comparison of the independent variables, we standardized them, thereby putting all of them on a common standard deviation matrix.

The results of these regression analyses are provided in Table 5. One result across all predictors is that publications in career and prestige of first job were the standout predictors in terms of consistently predicting all outcomes and having large *t*-ratios. Each *SD* increase in prestige of first job increased expected salary by 14%, compared to a larger 19% increase for each *SD* increase in career publications. Each *SD* increase in prestige of first job increased expected prestige of the current job by .33, compared to a .13 increase for each *SD* increase in career publications. Although prestige of first job was unrelated to rank, each additional *SD* in career publications increased expected rank by .15. Prestige of first job was also unrelated to fellowship status, but each *SD* increase in career publications multiplied the odds of having a fellowship by 4.22. Each *SD* increase in prestige of first job increased number of editorial board placements by 1.43, compared to a 2.25 increase for each *SD* increase in career publications. Finally, each *SD* increase in prestige of first job increased number of career citations by placements by 1.26, compared to a 2.03 increase for each *SD* increase in career publications.

Role of Advisor and Advisee Gender

In terms of the career success variables, the results reveal that men have higher levels of career success (publication success, extrinsic career success, and career satisfaction) than do women, although it is important to note that in the fully specified model (see Table 4), some or all of the gender differences disappear. However, these analyses do not take the gender of the advisor into account. Are those who are advised by women disadvantaged? Moreover, are there compositional effects such that male or female advisees are differentially affected by the gender of their advisor? In order to address these questions, we conducted a series of moderated regression analyses where advisor gender, advisee gender, and their interaction were used to predict prestige of the first job, career publications, extrinsic career success, and career satisfaction. In no case was advisor gender or the advisor \times advisee gender interaction significant. We should note, however, that the small cell sizes for female

TABLE 5
Regression Estimates Predicting Career Success Variables

	Log salary		Prestige of current job		Rank		Fellowship status		Editorial boards		Career citations	
	β	T	β	T	β	T	$\hat{\theta}$	Z	$\hat{\theta}$	Z	$\hat{\theta}$	Z
Years since degree	.20	5.19**	.00	.16	.43	8.40**	3.87	3.78**	.59	2.93**	.92	6.04**
Sex (<i>male</i> = 1, <i>female</i> = 0)	-.03	-.74	.00	.09	.01	.18	.94	-.16	.11	.72	.00	.05
Doctoral program prestige	.03	.79	.08	2.28*	.02	.33	.66	-1.16	.09	.50	.05	.49
PhD committee publications	.01	.37	-.03	-1.21	-.02	-.65	.86	-.66	-.16	-1.52	-.06	-.83
Chair publications	-.03	-.82	-.03	-.87	-.10	-1.95	.72	-1.08	-.12	-.85	.08	.69
Prestige/quality of first job	.14	3.44**	.33	9.19**	-.02	-.33	1.61	1.41	.43	2.34*	2.26	2.07*
Publications in career	.19	4.97**	.13	4.05**	.15	3.03**	4.22	4.04**	1.25	5.11**	1.03	5.70**

Notes: Log salary, prestige of current job, and rank were estimated with ordinary least squares (OLS) regression where estimates ($\hat{\beta}$) are unstandardized regression coefficients and represent predicted change in dependent variable for a one standard deviation change in the independent variable. Salary was transformed by taking its natural log (and thus $\hat{\beta}$ represents predicted change in log of salary). Fellowship status regression was estimated with logistic regression where estimate ($\hat{\theta}$) represents the predicted change in the odds that fellowship status would occur (e.g., 3.87 = 3.87 times as likely) for a one standard deviation change in the independent variable. Career citations and editorial boards regressions were estimated with negative binomial regressions where estimates are one minus the exponential of raw coefficients, so ($\hat{\theta}$) represents predicted change in number of events (dependent variable) for a one standard deviation change in the independent variable.

* $p < .05$ ** $p < .01$

advisors (there were only 12 advisees in our sample with female advisors) limits the inferences that can be drawn from such an analysis.

Impact of Labor Market on Initial Placement

Because prestige of the department for one's first placement might be expected to vary with the labor market opportunities available, we investigated whether the general economic conditions affected the degree to which advisees were able to obtain a high prestige initial position. Because occupation-specific unemployment rates were unavailable for many of the years in which advisees received their doctorates, to control for general economic conditions we used the national unemployment rate for the year in which the advisees obtained their doctorates. Accordingly, prestige of the first job was regressed on the variables already in the full model (doctoral program prestige, committee publications, chair publications, publications as a PhD student), and these results were compared to a model that included these variables plus the relevant unemployment rate. The impact of the independent variables changed very little (largest $\Delta\beta = .01$) and the unemployment rate itself was not a significant predictor of prestige of the first job. Moreover, none of the interactions between the unemployment rate and the independent variables were significant. Thus, it does not appear that the general economic conditions affected advisees' ability to obtain prestigious initial appointments, nor does it appear to impact the factors such as doctoral program prestige or publications that impact prestige of the first appointment.

Discussion

At the outset, we proposed that this paper would provide evidence that could help clarify the debate on whether success was primarily the result of the efforts of powerful others (i.e., particularism) or whether success was the result of individual attributes and performance (i.e., universalism). Overall, the results more strongly support the universalistic model than the particularistic model. Indeed, a purely universalistic model, eliminating all particularistic ties, provided a reasonable fit to the data. It is true that the best fitting model combined particularistic and universalistic influences. Of the two, however, the universalistic influences were stronger.

The current study has shown several significant findings that were not previously found in the literature. First, our study builds on previous work (e.g., Cable & Murray, 1999; Hurlbert & Rosenfeld, 1992; Long, Allison, & McGinnis, 1979; Reskin, 1979; Williamson & Cable,

2003) showing that elements of one's particularistic and universalistic background can have a strong effect on subsequent career success. Unlike these models, ours provided a test of these theories using full model comparisons with structural equation modeling and demonstrated that the universalistic model received more support for the current sample. The results demonstrated that the largest effects on the career success process variables were for publications as a doctoral student and career publications. Although these effects were strong, it should also be noted that this study did demonstrate that there was a significant relationship between prestige of one's first job and subsequent success several years out, even after publication rates are taken into consideration. Although the universalistic model did receive more support, this prestige effect is consonant with the predictions of the particularistic model that propose once a person is selected into the elite, they may continue to receive rewards regardless of their performance.

Second, this is the first study of its kind to examine a broad set of outcome variables such as fellowship status, editorial board membership, career citations, and career satisfaction. Although reviews highlight these factors as important indications of career success in academic circles (Long & Fox, 1995), there is comparatively little empirical research attesting to this point or investigating how such rewards are distributed. Through this decomposition, it can be seen that, although accumulated advantage does have a significant effect on outcomes like salary, membership on editorial boards, and citation rates, the only place where prestige of one's first job had a stronger effect than career publications was in the domain of prestige of one's current job. In addition, there was not a single career success variable for which universalistic performance (career publications) was a nonsignificant predictor.

Third, we were able to examine the long-run consequences of career success and investigate different theories of accumulated advantage and initial status side by side. Our results showed that even with career success measured many years out, for some, publications as a doctoral student was a good predictor of career success in the reduced model. This supplements findings from previous research showing that previous productivity is a good predictor of subsequent success. The links between prestige of one's first job with subsequent prestige suggest that advisors may also influence upward mobility for their students by introducing the students into prestigious networks. This residual effect for initial placement on subsequent placements and career rewards—even with publication success held statistically constant—demonstrates that there is an element of particularism in I-O psychology careers.

Fourth, this study allowed for an investigation of the effects of universalism as opposed to particularism in a field that has strong universal-

istic norms. Studies in the past have found that success for management scholars rested primarily on individual performance (Cable & Murray, 1999), for chemists there was a mix of sponsorship and individual performance (Reskin, 1979), and for biochemists sponsorship was more important than individual performance (Long, Allison, & McGinnis, 1979). Comparing across these studies, it appears that a possible direction for future research building on this model is to compare data directly across several fields to determine if there are differences in the degree to which universalistic and particularistic norms are endorsed and if these endorsements are related to actual reward patterns.

The role of advisee gender in our model deserves discussion. On the one hand, gender was related to most of the career success variables, such that women had significantly lower levels of success than did men. On the other hand, in the full model, when other factors were taken into account (e.g., the effect of gender on extrinsic success is net of the effect of career publications [in addition to other variables], the effect of gender on career satisfaction is net of the effect of career publications and extrinsic success, etc.), the direct impact of gender on career success became much smaller and, generally, nonsignificant. That the direct impact of gender on career success was relatively small and nonsignificant may be heartening. Before one takes too much comfort in the results, however, several facts must be considered. First, the results in the fully specified regression (see Table 5) deal with direct effects of gender. The total effects are still there. Specifically, in the fully specified LISREL model, the fully standardized total effects of gender are prestige of first job, .08 ($p = .33$); publication success, .22 ($p = .002$); extrinsic success, .10 ($p = .15$); and career satisfaction, .21 ($p = .02$).

That the gender direct effects are generally substantially smaller than the total effects merely means that our variables explain why the gender effects are there; they do not make the effects go away. Second, because that was not the focus of our investigation, the variables in our model do not provide a complete account of factors that might explain gender differences in our sample, including hours worked, career interruptions, dual-career families, and household division of labor. Given that gender differences in the productivity of I-O psychologists are well documented (see Ones & Viswesvaran, 2000), future research should analyze more closely the relationship of gender to publication success and career outcomes. Finally, there are important other gender-related issues we were unable to fully analyze, such as gender composition effects (due to the small number of female advisors in our sample), and possible generational gender effects (diminution of "old boy's network" over time). These are important topics for future research.

Despite our inability to include variables that would allow a more concerted focus on gender effects, the combination of significant total effects and small direct effects of gender on career success may support a type of accumulated advantage for gender. Specifically, although the direct effect of gender on the career outcomes may be relatively small when other influences are taken into account, cumulatively, gender clearly matters in a way that leads to women being less extrinsically and intrinsically successful in their careers. Because men are more likely to obtain better initial jobs and are more likely to work with productive chairs, these initial successes appear to accumulate over time, so that the gender effect becomes stronger over the course of the career. To wit, the influence of gender is strongest on the “right hand” variables in the model such as publication success and career satisfaction. Whether the concept of accumulated advantage is relevant in explaining gender effects is an important area of future research.

Limitations, Strengths, and Contributions

There are a few limitations in this study that should be noted. First, unlike studies of mentoring and career success, there is no direct measurement of the perceptions of social influence or mentoring functions reported by advisees. However, the fact that the results show consistent relationships between objective advisor characteristics and objective ratings of career success provides an important supplement to an area of research that has primarily relied on self-report perceptual measures (Wanberg, Welsh, & Hezlett, 2003). The use of objective measures of relationship may, however, create a limitation in interpreting the results of this study beyond advising relationships. One premise of this research is that it is possible to build on the mentoring literature by considering advisee–advisor relationships, but it is not necessarily the case that all advisors act as mentors to an equal degree. Research suggests that there are differences between the types of formal relationships like those between advisors and advisees and more informal relationships (Ragins, Cotton, & Miller, 2000). It is also possible that doctoral students may have informal mentors with whom they work closely who are not their advisors. Future research should consider obtaining measures of mentoring in advising relationships to determine if variations in advisor behavior along mentoring scales could affect advisee outcomes.

It would be interesting to ascertain whether career-oriented mentoring might enhance the effect of universalistic and particularistic antecedents on subsequent outcomes (prestige of first job, publications in career). For example, would advisees who have received career-oriented mentoring be better able to translate their advisor’s success,

or their own early success, into subsequent performance? Alternatively, would career-oriented mentoring serve as a substitute for chair and student publications? The addition of mentoring functions to the variables included in this study would provide answers to these and other interesting questions. Another possibility for future research is to explore differential functioning of various domains of sponsorship in the doctoral advisory process. As shown in previous work on socialization into the medical profession, new entrants to the profession develop a sense of identity in terms of three distinct normative role components involving people, social status, and science (Adler & Shuval, 1978; Shuval & Adler, 1977). Given the results of this study showing a strong link between sponsorship and career success, a similar typology might be applied to explain the pathways from academic advisors to student success.

This study is also limited by the exclusion of distal factors that might explain particularistic and universalistic influences. Specifically, both personality and cognitive ability influence career success (Judge et al., 1999). It would be interesting to see how these variables could be integrated with the model tested in the present study. For example, it may not only be that intelligent individuals achieve more success due to universalistic effects (they publish more), they also may be advantaged through particularistic influences (being more likely to be selected by prestigious institutions, being mentored by esteemed advisors). Moreover, we did not collect data on several variables (race, age, teaching experience) that may have facilitated a comparison between our results and those of Cable and Murray (1999). We would also note that years since receiving one's doctorate, which was in our model, is likely substantially correlated with age and, yet, more proximal in the context of our model, and that the effect of those three variables in Cable and Murray (1999) was nonsignificant across all of their regressions.

One possible limitation in this study is the potential overlap between the current sample and the sample of Academy of Management Members used by Cable and Murray (1999) and Williamson and Cable (2003), given the substantial overlap between Academy of Management and SIOP membership. Cable and Murray (1999) and Williamson and Cable (2003) studied Academy of Management members who were on the job market in 1995, meaning that the vast majority of their sample should have received their doctorates in 1995–1996. Because only 6% of our sample members received their doctorates in 1995 or 1996, and because only a fraction of those individuals may have participated in the earlier studies, the overlap between the two samples is very small so this appears to not be a significant concern.

Another interesting extension of these results would be to consider career assistance on the first job. It has been said that one's first job

in academia is where one earns one's "second PhD." Although the productivity of one's chair and the prestige/quality of the first job both contribute to later productivity, the productivity of the I-O psychologists in the department where an individual obtains his or her first job also would seem relevant. Indeed, it is possible that this post-PhD mentoring could supplement (substitute for), or enhance, earlier advising deficiencies. Moreover, it would be interesting to determine what factors lead to the initiation of these post-PhD relationships.

A strength of the study is the research design. The data are longitudinal; in most cases the left-hand (pre-PhD) variables are dated many years before the right-hand (career success) variables. Furthermore, very few of the links in the model tests are susceptible to common source variance. Though one can never be fully confident of the causal inferences in such a model, given the longitudinal, multisource nature of the data, we believe more faith can be placed in the validity of these model results than is often the case.

Although the contributions of prior, related works in this area must be acknowledged (Cable & Murray, 1999; Gomez-Mejia & Balkin, 1992; Williamson & Cable, 2003), our study contributes beyond these studies in a number of important ways. First, as noted earlier, we greatly expanded the set of variables indicative of academic extrinsic success. Citation rates, entry into the upper echelons of one's field (fellowship status), presence on editorial review boards, and academic rank are all important indicators of extrinsic career success that are new additions. Importantly, our results show that the dominant universalistic variable, career publications, was significantly related to each of these new criteria, with effect sizes that were far from trivial.

Second, none of these studies have included intrinsic career success (career satisfaction). Though extrinsic success is the dominant means by which career success has been examined, as Judge et al. (1995) note, the attainment of extrinsic success at the expense of intrinsic success is a dubious accomplishment. In general, research has indicated that intrinsic and extrinsic success display positive, but relatively modest, intercorrelations (Judge et al., 1999). In our study, however, intrinsic and extrinsic success were fairly strongly correlated ($r_u = .39$, $r_c = .45$). Thus, although some researchers may speculate why extrinsic success must come at a high price in terms of intrinsic success (Korman, Wittig-Berman, & Lang, 1981), it does not appear that this tradeoff operates to the same degree in I-O psychology. Moreover, it appears that universalistic performance (career publications) predicts intrinsic success as well as extrinsic success. Operating from the base of previous related research (Cable & Murray, 1999; Gomez-Mejia & Balkin, 1992; Williamson & Cable, 2003), these represent new insights into the literature.

Finally, our study represents a significant expansion of the time frame of past research. Specifically, Cable and Murray (1999) studied career success immediately after graduation, and Williamson and Cable's (2003) study culminated in early career productivity. Though early and later career success are correlated, career success is a dynamic process. Because academic careers are relatively autonomous and unstructured, individuals are unusually able to define their roles. As Feldman (2002) has noted, as individuals age, they often modify their career interests and skills. Though many study participants undoubtedly have experienced important shifts in career interests, that the predictive validity of most variables was maintained over the span of a career suggests that such transitions, when they did occur, did not diminish the effect early career successes on later career success. This again is an original contribution of our study.

Practical Implications and Future Research

These findings have important practical implications both for I-O psychologists and for institutions that employ these scientists. For those aspiring to academic careers as I-O psychologists, the results suggest that a successful career begins with choosing a prestigious doctoral program. There was a moderately strong link between prestige of the doctoral program and prestige of the initial job placement. Various measures exist that assess the prestige and quality of doctoral programs in I-O psychology and business (Gourman, 1997). It behooves the doctoral aspirant to choose the best program possible. Once in the program, or as part of the choice of programs, individuals need to select an advisor or chair and committee. On this front, though, the implications of the findings are equivocal. On the one hand, chair productivity is related to career publications, though the effect was small and mixed. On the other hand, committee publications had no significant effect on any variable.

Even more important than choosing a doctoral program and a chair and committee, is what the individual does in his or her program. The strongest, most consistent predictor of all outcomes in the reduced model was publications as a doctoral student. Though chair publications do have a positive effect on career publications, they have a negative effect on extrinsic success once the individuals' publications are taken into account. In this sense, the results attach particular importance to what the individual does, as opposed to where they are or who they know, as a doctoral student. Choosing a productive chair matters, but the network advantages alone will not carry a student to a successful career. There is no substitute for publishing.

Another practical implication for I-O psychologists in academe lies in the results from the right-hand side of the model. The relatively strong effects of both career publications and prestige/quality of the first job on extrinsic career success implies some practical advice. Individuals who initially work at prestigious or high quality institutions are more extrinsically successful in their careers, which suggest that individuals should choose the best school they can early in their career, even if that is at the expense of other job attributes. Even more important to extrinsic career success is one's publication record. Although the link between productivity and extrinsic career success is not a surprise, the strength of the effect suggests that it is a critical, perhaps the critical, variable in attaining long-term career success.

Of course, with all of this advice comes the acknowledgement that intrinsic success is likely to be increased by predictors that are not included in our model. These include things like providing assistance to graduate students, developing a personally satisfying philosophy of research, and engaging in work that is intellectually stimulating. It also is worth considering that there are always circumstances like family location preferences that might make life satisfaction a much different thing than career satisfaction.

For institutions seeking to enhance their scholarly reputation in I-O psychology, the results also have implications. It is common for institutions to limit their search to individuals who are from certain programs or have worked with productive advisors. Another common criterion is to hire individuals on the basis of the records they have established in their doctoral studies. Although the best advantage might be obtained by hiring individuals who score well on all criteria, choices are rarely without tradeoffs. When there is a tradeoff between an applicant from a prestigious university working with a renowned chair (but with little in the way of publications) versus an applicant who has amassed an impressive research record but is from a relatively undistinguished program, our results suggest that, if hiring the most productive individuals who will have the most successful careers is the criterion, such institutions should choose the individual with the record over the individual with the pedigree.

Although this study provides important implications for I-O psychologists, there are also likely to be equally important implications for other fields as well. We looked at a field which admonishes others to use objective data on job performance for developing rewards (e.g., Bommer, Johnson, Rich, Podsakoff, & Mackenzie, 1995). It would be interesting to see if there is a weaker relationship between universalistic performance and extrinsic rewards in fields that do not have this same

commitment. In a related vein, a too often neglected aspect of professional socialization is discovering how role performance is rewarded, with norms for what should or should not contribute to success being conferred to newcomers often and early. It is possible that some professions do not socialize individuals to recognize universalistic performance as central, which might be reflected in greater emphasis on particularistic antecedents than was found in this study. In addition, Tolbert (1996) noted that social networks are particularly important in highly professionalized fields where the occupation is more likely to be the locus of critical information than within-firm information. Such occupations are marked by high educational requirements, strong professional organizations, and explicit standards for practice, all of which are met by I-O psychology. A comparison of highly professionalized fields like engineering, accounting, law, and medicine with fields that do not have this type of structure, like sales or management, would also be informative.

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