

Predictors of success in the era of the boundaryless career

LILLIAN T. EBY*, MARCUS BUTTS AND ANGIE LOCKWOOD

Department of Psychology, University of Georgia, Athens, Georgia, U.S.A.

Summary

The present study examines three classes of career competencies proposed as important predictors of success in the boundaryless career. Three criteria of career success were examined: perceived career satisfaction, perceived internal marketability, and perceived external marketability. Using data from 458 alumni from a large southeastern university, predictions were tested using partial correlations and dominance analysis. The results found support for the importance of 'knowing why,' 'knowing whom,' and 'knowing how' as suggested by previous theoretical work. The findings are discussed in reference to future research and theorizing on the boundaryless career. Copyright © 2003 John Wiley & Sons, Ltd.

Introduction

Organizational careers have been traditionally conceptualized as linear trajectories where individuals advance hierarchically within a single organization over the course of their career. For example, Driver (1982) discusses 'steady state' and 'linear' careers marked by a common work role for life and upward mobility. The idea of career stability is also exemplified in Miller and Form's (1951) lifespan development model where they view careers as a series of social adjustments to the larger culture, culminating in job permanence. Likewise, Schein (1978) discusses hierarchical advancement and specialization in the idea of radial and vertical career paths.

Recently scholars have started building new models to understand the changing nature of careers. Given today's more volatile and unstable organizational environment, individuals can no longer expect lifetime employment within one organization or a steady climb up the corporate ladder. Increasingly, individuals are experiencing involuntary job loss, lateral job movement both within and across organizational boundaries, and career interruptions (Arthur & Rousseau, 1996b; Eby & DeMatteo, 2000; Sullivan, 1999; Sullivan, Carden, & Martin, 1998). This has led to an emerging paradigm to study organizational careers: the notion of the boundaryless career (Arthur & Rousseau, 1996a). This perspective emphasizes that careers are no longer characterized by a single form but can take 'a range of forms that defies traditional employment assumptions' (Arthur & Rousseau, 1996b, p. 3). A hallmark of the boundaryless career is that it is not bounded to a single organization. Rather, it transcends

* Correspondence to: Lillian T. Eby, The University of Georgia, Department of Psychology, 228 Psychology Building, Athens, GA 30602, U.S.A. E-mail: leby@uga.edu

Received 4 November 2002

Revised 18 March 2003

Accepted 22 April 2003

organizational memberships and consists of sequences of experiences across both organizations and jobs (Goffee & Jones, 2000; Peiperl, Arthur, & Anand, 2002).

While the idea of the boundaryless career has garnered substantial interest (e.g., the *Journal of Organizational Behavior* and *Group and Organization Management* both devoted special issues to the topic and numerous books have been written on the subject), little empirical research exists. A notable gap in the literature is examining the factors that are important for success in the boundaryless career. As such, the present study examines the predictors of success in the boundaryless career. Consistent with writing on the topic (Arthur & Rousseau, 1996b; Mirvis & Hall, 1996; Parker & Arthur, 2000), we use a tripartite operationalization of career success that includes an indicator of psychological success, perceived marketability within one's organization, and perceived marketability in the external marketplace. The selection of predictors was guided by writing on the boundaryless career which stresses the importance of 'knowing why,' 'knowing whom,' and 'knowing how' (Arthur, Inkson, & Pringle, 1999; DeFillippi & Arthur, 1994; Jones & Lichtenstein, 2000; Parker & Arthur, 2000). This study also investigates the relative importance of these three classes of predictors in understanding career success. By accomplishing these objectives we provide the first empirical test of recent theorizing about the predictors of success in the era of the boundaryless career.

Success in the Boundaryless Career

In the boundaryless career the emphasis is on inter-firm mobility and unpredictability (Arthur & Rousseau, 1996b; Sullivan, Carden, & Martin, 1998). As such, it is suggested that scholars expand their conceptualizations of career success beyond those typically studied (e.g., promotions, salary) while simultaneously de-emphasizing external or objective measures of success (Parker & Arthur, 2000). For example, Hall and colleagues (Hall, 1976; Hall & Mirvis, 1996; Mirvis & Hall, 1994, 1996) discuss the importance of psychological success as a criterion by which to judge career achievement. This represents 'a feeling of pride and personal accomplishment that comes from knowing that one has done one's personal best' (Hall & Mirvis, 1996, p. 26). Likewise, Parker and Arthur (2000) discuss the 'intelligent subjective career' (p. 101), emphasizing that how one feels about his or her career accomplishments is more important than external or tangible indicators like salary growth. The construct of perceived career success captures such feelings of satisfaction and accomplishment of one's career (Seibert, Crant, & Kramier, 1999) and is examined in the present study.

It is also argued that individual marketability is an important criterion of career success (Arthur & Rousseau, 1996b). With jobs and career patterns being less long term and stable, individuals who are successful are those who are able to remain value-added to their present employer and are viewed as marketable by other organizations (Bird, 1994; Sullivan, et al., 1998). This suggests that perceived internal marketability (beliefs that one is valuable to his or her current employer) and perceived external marketability (beliefs that one is valuable to other employers) are two additional indicators of career success.

Predictors of success in the boundaryless career

Writing on the boundaryless career suggests three classes of variables, referred to as career competencies, which should predict success. The first is 'knowing why' and it 'answers the question of "why" as it relates to career motivation, personal meaning, and identification' (DeFillippi & Arthur, 1994,

p. 117). This competency is associated with an individual's motivational energy to understand oneself, explore different possibilities, and adapt to constantly changing work situations (Arthur et al., 1999). 'Knowing why' also allows individuals to decouple their identity with their employer and remain open to new possibilities and career experiences (Arthur et al., 1999; Bridges, 1994; Mirvis & Hall, 1994).

In the present study we examine three 'knowing why' variables as predictors of success. The first variable is career insight and it captures the extent to which one has realistic career expectations, knowledge of one's strengths and weaknesses, and specific career goals (London, 1993; Noe, Noe, & Bachhuber, 1990). It reflects the arousal component of career motivation and is conceptually similar to goal clarity, social perceptiveness, future orientation, and realism of expectations (London, 1983; Noe et al., 1990). Given these characteristics, individuals high on career identity are expected to enact careers where investments made in their company, occupation, industry, and social arena (e.g., friends, non-work activities) complement their professional goals (Arthur et al., 1999). Such investments should in turn enhance one's perception of career success and marketability, both inside and outside the organization.

A second 'knowing why' variable is proactive personality. This refers to a dispositional tendency toward proactive behavior. Highly proactive individuals identify opportunities and take action on them, demonstrate initiative, and persevere in the face of setbacks (Bateman & Crant, 1993). These characteristics should facilitate success in the boundaryless career due to the increased need to adjust to ever-changing work conditions, take personal responsibility for one's career, and build personal networks (Hall & Associates, 1996). The personality characteristic of openness to experience is examined as a third 'knowing why' competency. Individuals high on this trait tend to be imaginative, curious, broad-minded, and active (Barrick & Mount, 1991). They also seek out new experiences and are willing to entertain new ideas (Costa & McCrae, 1992). With the reality of less stable employment and the need to constantly be on the lookout for ways to build new skill sets, it is expected that openness to experience will be important in predicting success in the boundaryless career.

Hypothesis 1: The 'knowing why' predictors of proactive personality, openness to experience, and career insight will be positively related to perceived career success.

Hypothesis 2: The 'knowing why' predictors of proactive personality, openness to experience, and career insight will be positively related to perceived internal marketability.

Hypothesis 3: The 'knowing why' predictors of proactive personality, openness to experience, and career insight will be positively related to perceived external marketability.

The second career competency is 'knowing whom.' This refers to career-related networks and contacts (Arthur et al., 1999; DeFillippi & Arthur, 1994), including relationships with others on behalf of the organization (e.g., suppliers, customers) and personal connections (e.g., professional and social acquaintances) (Parker & Arthur, 2000). The major benefits of 'knowing whom' are that they represent a resource for expertise, reputation development, and learning (Arthur, 1994; DeFillippi & Arthur, 1994; Hirsch, 1987; Lado, Boyd, & Wright, 1992; Parker & Arthur, 2000). 'Knowing whom' also provides access to new contacts and possible job opportunities (Arthur, 1994). The result of investing in this career competency is the development of 'career communities,' networks which provide venues for career support and personal development (Parker & Arthur, 2000, p. 105).

Three 'knowing whom' predictors are examined in the present study. *The first is experience in a mentoring relationship.* Mentoring relationships are important developmental experiences for individuals and valuable sources of learning (Kram, 1985). Mentors can also provide access and visibility to protégés both directly, by exposing them to important people within and outside the organization, and

indirectly, by providing challenging assignments, which facilitate additional contact networks (Kram, 1985). The other two predictors assess the extensiveness of networks within and outside the organization. Networks are considered essential elements of success in the boundaryless career for several reasons. With less job security among today's workers, individuals need to be well connected within their company as well as look outside the organization for support and developmental assistance (Arthur & Rousseau, 1996a; DeFillippi & Arthur, 1996; Higgins & Kram, 2001). Rapidly changing technology also means that maintaining up-to-date skills is increasingly important, yet also difficult. Networking inside and outside the organization can help individuals stay on top of new developments and approaches (Higgins & Kram, 2001). We predict that both internal and external networking is important since it provides non-redundant sources of support (Raider & Burt, 1996).

Hypothesis 4: The 'knowing whom' predictors of experience with a mentor, internal networks, and external networks will be positively related to perceived career success.

Hypothesis 5: The 'knowing whom' predictors of experience with a mentor, internal networks, and external networks will be positively related to perceived internal marketability.

Hypothesis 6: The 'knowing whom' predictors of experience with a mentor, internal networks, and external networks will be positively related to perceived external marketability.

The final category of career competencies is 'knowing how.' This refers to career-relevant skills and job-related knowledge which accumulate over time and contribute to both the organization's and the individual's knowledge base (Arthur et al., 1999; Bird, 1996; DeFillippi & Arthur, 1996). Two things make 'knowing how' unique from traditional discussions of human capital (e.g., education, training). The first is the emphasis on developing a broad and flexible skill base which is transportable across organizational boundaries. In addition there is an emphasis on occupational learning rather than job-related learning (DeFillippi & Arthur, 1996; Gunz, Evans, & Jalland, 2000).

The development of skills is enhanced when individuals are oriented toward continuous learning (DeFillippi & Arthur, 1996). A construct which reflects this propensity to engage in skill-enhancing opportunities and immersion in professional activities is career identity (London, 1993; Noe et al., 1990). It reflects the 'directional component of career motivation' (Noe et al., 1990, p. 341). As such, those high on career identity should spend time and energy developing skills and competencies which should increase his or her net worth both within and outside the organization (Arthur et al., 1999). **This construct is unique from 'knowing why' in that the emphasis is on opportunity development in terms of job-related skills and professional development rather than self-awareness** or a general willingness to try new things.

Hypothesis 7: The 'knowing how' predictors of career/job-related skills and career identity will be positively related to perceived career success.

Hypothesis 8: The 'knowing how' predictors of career/job-related skills and career identity networks will be positively related to perceived internal marketability.

Hypothesis 9: The 'knowing how' predictors of career/job-related skills and career identity will be positively related to perceived external marketability.

In addition to knowing which specific variables predict success in the boundaryless career, it is also important to understand the relative importance of these three classes of career competencies in predicting career success. This will provide insight into how an individual should invest his or her time in preparing for a boundaryless career. It will also guide researchers interested in developing new frameworks, and augmenting existing ones, to understand modern careers.

Predictors of Success in the Era of the Boundaryless Career

The Setting

The study was conducted with alumni who graduated in 1995 from a major land-grant university in the southeast. The university was established in 1785 and is the state's flagship institution of higher education. It is also the state's oldest, most comprehensive, and most diversified institution of higher education. The university offers baccalaureate, master's, doctoral and professional degrees in the arts, humanities, social sciences, biological sciences, physical sciences, agricultural and environmental sciences, business, environmental design, family and consumer sciences, forest resources, journalism and mass communication, education, law, pharmacy, social work, and veterinary medicine. The University has enrollment of over 30 000 undergraduate and graduate students and attracts students nationally and internationally as well as from within the state. *U.S. News & World Report* magazine ranks this university 20th on its 2000 list of 50 top public universities, based on factors such as academic reputation, student retention, faculty resources, student selectivity and financial resources.

The Economy and Job Market from 1995–2001

According to the Bureau of Labor Statistics (BLS), the gross domestic product (GDP) grew at an annual rate of 3.2% during the 90's and is expected to increase to an average annual rate of 3.4% over the next ten years (2000–2010). The unemployment rate for the college educated workforce steadily declined from the mid 90's until the first quarter of 2001, when unemployment rates skyrocketed and have been steadily increasing ever since. Median job tenure from the mid 90's to 2001 decreased from 5 years to 4.7 years. During the mid 90's, many companies were downsizing and increasingly outsourcing their secondary business functions. The expansion of business to the internet also perpetuated that trend. Meanwhile, demand for jobs in the computer processing and health services industries have been on the rise since the late 90's and will continue to increase in the near future. The first three years of the 21st century have been mired by corporate scandals and questionable accounting practices (e.g., Enron, Worldcom), as well as economic uncertainty resulting from the attacks on 9/11.

Participating alumni

Alumni who participated in the study were highly educated and represented a wide range of majors and colleges within the university setting. These included the hard sciences (e.g., biology, chemistry), soft sciences (e.g., psychology, sociology), education (e.g., health promotion), business (e.g., finance, accounting), the humanities (e.g., philosophy), and agriculture (e.g., poultry science). The most well represented majors included psychology (4.9%), English (4.4%), and early childhood education (4.2%). Very few study participants were from the areas of agriculture, drama and arts, and environmental design. At least one major was represented from every college within the university. In addition, all study participants were in the early career stage as described by career theorists (e.g., Greenhaus et al., 1990; Feldman, 1988). This is important because unique career-related issues face individuals at different career stages. Those in the early career deal primarily with establishing a sense of professional identity and achieving early career successes (e.g., challenging assignments, promotions, job transfers). Finally, while study participants were living and working throughout the United States, most of the alumni were currently residing in the southeast. These sample characteristics should be kept in mind when generalizing our findings to other populations.

Participants and procedure

A survey was sent to 2250 alumni of a large southeastern university who graduated in 1995. Surveys were sent to participants' home addresses along with a self-addressed stamped envelope to return completed surveys. Following Dillman's (2000) suggestion, both a pre-notification postcard and a follow-up postcard were also sent to each participant. Four hundred and fifty-eight completed surveys were returned and an additional 201 surveys were returned as undeliverable. In estimating a response rate it is important to note that we were not able to target employed graduates, yet our survey was only applicable to these individuals. Thus, our response rate of 29 per cent is a conservative estimate since it does not take into account those individuals sampled who were involuntarily or voluntarily unemployed. Due to missing data our sample size ranges from 396 to 411 for subsequent analyses. Sample characteristics are shown in Table 1.

To assess non-response bias we compared characteristics of the total sample sent surveys to those who returned completed surveys. These comparisons suggested that study participants were highly similar to the total sample in terms of gender (respondents 56 per cent female; total sample 52 per cent female), age (respondents 41 per cent 27–29 years old and 54 per cent 30–39 years old; total sample 37 per cent 27–29 years old and 59 per cent 30–39 years old), and race (respondents 96 per cent Caucasian; total sample 93 per cent Caucasian). These comparisons suggest that non-response bias is not likely to be a concern in the present study.

Table 1. Sample characteristics: frequencies, means, and standard deviations

Variable	Frequency	Mean	SD
Organizational tenure	—	4.63	4.37
Job tenure	—	3.58	2.44
Age	—	30.83	4.78
Pay	—	61 182.45	62 893.93
Gender (<i>N</i> = 408)			
Female	229	—	—
Male	179	—	—
Education level (<i>N</i> = 407)			
Bachelors degree	285	—	—
Masters degree	92	—	—
Doctorate or equivalent	30	—	—
Job type (<i>N</i> = 405)			
Executive/managerial	89	—	—
Professional specialty	203	—	—
Technician	7	—	—
Sales	41	—	—
Clerical/administrative	13	—	—
Protective services	3	—	—
Transportation operative	2	—	—
Service	4	—	—
Production/craft	3	—	—
Machine operator/inspector	38	—	—
Other	2	—	—
Organization size (<i>N</i> = 405)			
Less than 50	123	—	—
50–100	58	—	—
101–250	44	—	—
251–500	32	—	—
Over 500	148	—	—

Measures

Criteria

Perceived career success was measured using Greenhaus et al.'s. (1990) five-item measure (sample item: 'I am satisfied with the success that I have achieved in my career'). Coefficient alpha for this measure was 0.91. Perceived internal marketability and was measured with three items adapted from Johnson (unpublished, University of Georgia, 2001) (i.e., 'My company views me as an asset to the organization,' 'Given my skills and experience, the company that I work for views me as a value-added resource,' 'There are many opportunities available for me in my company,' alpha = 0.73). Perceived external marketability was measured by three similar items adapted from Johnson (unpublished, 2001) (i.e., 'I could easily obtain a comparable job with another employer,' 'There are many jobs available for me given my skills and experience,' 'Given my skills and experience, other organizations view find me as a value-added resource,' alpha = 0.74). To assess the dimensionality and uniqueness of these three criteria, a principal components factor analysis with oblique rotation was conducted. A three-factor solution was obtained with items loading on the appropriate, a priori factor. All criteria measures were rated on a five-point Likert-type scale, ranging from strongly disagree to strongly agree.

'Knowing why' predictors

Proactive personality was measured using Bateman and Crant's (1993) 10-item scale (alpha = 0.89, sample item: 'I am always looking for better ways to do things'). Openness to experience was assessed using Saucier's (1994) Mini-Markers Set. The measure consists of eight adjectives associated with openness to experience (e.g., creative, imaginative) and the respondent indicates the extent to which each adjective accurately describes him or herself using a five-point Likert-type scale ranging from 'completely inaccurate' to 'completely accurate' (alpha = 0.79). Mauer and Tarulli's (1994) three-item measure was used to assess career insight (alpha = 0.68; sample item: 'I have specific career goals and plans'). Proactive personality and career insight were measured using a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

'Knowing whom' predictors

Whether or not the respondent had experience as a protégé was assessed by the following question: 'One type of work relationship is a mentoring relationship. A mentor is generally defined as a higher-ranking, influential individual in your work environment who has advanced experience and knowledge and is committed to providing upward mobility and support in your career. Your mentor may or may not be in your organization, and he/she may or may not be your immediate supervisor. Have you ever had a mentor?' Responses were dummy coded such that 1 = no and 2 = yes, with 59 per cent of study respondents reporting experience with a mentor. Breadth of networks within the organization (internal networks) was assessed using a three-item Likert-type measure developed for the present study (i.e., 'Co-workers say that I know a lot of people within the organization,' 'I am well connected within the organization,' 'I have a lot of contacts within the organization,' alpha = 0.93). Breadth of networks outside the organization was measured with a four-item Likert-type measure (i.e., 'I have extensive contacts within the industry in which I work,' 'Co-workers say that I know a lot of people outside the organization,' 'I regularly network with individuals outside of my organization,' 'I do not have many professional contacts' (reverse scored), alpha = 0.80). A principal components factor analysis using oblique rotation was conducted on these two newly developed network measures. Results supported the two dimensions of internal and external networks in that two factors emerged with eigenvalues greater than 1.0 and all items loaded on their a priori factor and had no meaningful cross-loadings. Both network measures were scaled using a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

‘Knowing how’ predictors

Career/job-related skills were measured with five items developed for the present study (i.e., ‘I seek out opportunities for continuous learning in my career,’ ‘I have a diversified set of job related skills,’ ‘I remain current on the trends and development in my profession,’ ‘I seek out training and development opportunities,’ ‘I constantly update my job-related skills’; $\alpha = 0.86$). Four items from Noe et al.’s (1990) measure were used to assess career identity ($\alpha = 0.70$; sample item: ‘I have joined professional organizations related to my career goals’). Both were measured using a five-point Likert-type scale (1 = strongly disagree to 5 = strongly agree).

Control variables

Several control variables are used in the present study. Since age, education, and pay may be related to perceptions of career success these variables are controlled in all subsequent analyses. Likewise, perceptions of internal and external marketability may vary based on the type of job an individual has (dummy coded), his/her job tenure (measured in years), and the size of the company (measured by the number of employees). Thus, these variables are also treated as control variables.

Results

Means, standard deviations, and zero-order correlations among study variables are shown in Table 2. Tests of Hypothesis 1–9 appear in Table 3, which presents the relationship between each predictor and each of the three criterion measures partialling out (controlling for) age, education, pay, job type, job tenure, and organization size. As shown in Table 3, Hypotheses 1–3 are fully supported; proactive personality, openness to experience, and career insight are all significantly related to perceived career success, perceived internal marketability, and perceived external marketability. Hypotheses 4 and 5 are partially supported (see Table 3). Internal and external networks are significantly related to all three criteria, whereas experience with a mentor is not significantly related to either criterion. Hypothesis 6 is fully supported (see Table 3); all three ‘knowing whom’ predictors are related to perceived external marketability. Finally, Hypotheses 7–9 are fully supported. Both career/job-related skills and career identity are related to all three criteria of success in the boundaryless career (see Table 3).

A second objective of the current study is to determine the relative importance of the three classes of variables (‘knowing why,’ ‘knowing whom,’ ‘knowing how’) in predicting perceived career success, perceived internal marketability, and perceived external marketability, respectively. Dominance analysis (Budescu, 1993) was used to make this determination. While conducted within a hierarchical regression framework, dominance analysis is an alternative analytic strategy that assesses the relative importance of more than one set of variables to prediction. The advantage of dominance analysis is that it overcomes the primary limitation of hierarchical regression, namely the residualization approach to assessing the usefulness or importance of a set of variables to prediction (see Darlington, 1968). In the typical regression approach, the importance of a set of variables is dependent upon that variable’s unique contribution to prediction after partialling out any variance shared with variables entered previously in the hierarchical sequence. This can be problematic when variables are intercorrelated and when the order of entry of sets of variables is not clearly specified by theory (Cohen & Cohen, 1983). Thus, different results are obtained depending on the order in which sets of variables are entered. To deal with this limitation dominance analysis computes the average variance accounted for by each variable set by examining all possible combinations of sets in a regression sequence.

Table 2. Means, standard deviations and correlations among study variables

	M	SD	Correlations										
			1	2	3	4	5	6	7	8	9	10	11
Predictor variables													
1. Proactive personality	3.83	0.54	—										
2. Openness to experience	3.89	0.58	0.35*	—									
3. Career insight	4.21	0.60	0.40*	0.19*	—								
4. Experience with a mentor	0.60	0.52	0.06	-0.03	0.07	—							
5. Internal networks	3.98	0.80	0.25*	0.10	0.29*	0.13*	—						
6. External networks	3.61	0.72	0.37*	0.17*	0.37*	0.16*	0.50*	—					
7. Career/job-related skills	3.99	0.65	0.40*	0.19*	0.55*	0.14*	0.27*	0.39*	—				
8. Career identity	3.38	0.82	0.24*	0.14*	0.48*	0.06	0.21*	0.35*	0.62*	—			
Criterion variables													
9. Perceived career success	3.91	0.85	0.27*	0.08	0.41*	0.15*	0.27*	0.30*	0.39*	0.33*	—		
10. Perceived internal mark	3.91	0.71	0.26*	0.13*	0.33*	0.10*	0.28*	0.28*	0.32*	0.28*	0.50*	—	
11. Perceived external mark	3.96	0.71	0.26*	0.13*	0.28*	0.13*	0.20*	0.27*	0.45*	0.34*	0.39*	0.43*	—

Note: N = 396-411. *p < 0.05.

Table 3. Partial correlations between predictors and criteria

	Perceived career success	Perceived internal marketability	Perceived external marketability
‘Knowing why’ predictors			
Proactive personality	0.28***	0.28***	0.26***
Openness to experience	0.13*	0.15**	0.19***
Career insight	0.38***	0.29***	0.24***
‘Knowing whom’ predictors			
Experience with a mentor	0.10	0.07	0.12*
Internal networks	0.20***	0.22***	0.14**
External networks	0.24***	0.21***	0.23***
‘Knowing how’ predictors			
Career/job-related skills	0.33***	0.29***	0.39***
Career identity	0.27***	0.22***	0.24***

Note: Age, education, pay, job type, job tenure, and organization size partialled out from all correlations.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

In the present study three dominance analyses were conducted, one for each criterion variable. For each criterion variable the dominance analysis proceeded in two steps, following Budescu’s (1993) guidelines. Step 1 consists of computing seven separate regression equations based on all possible ordering of sets of variables and qualitatively assessing the dominance of each set of predictors. In all regression equations the control variables of age, education, pay, type of job, job tenure, and company size were included. Set A represents ‘knowing why’ predictors of proactive personality, openness to experience, and career insight. Set B represents the ‘knowing whom’ predictors of experience with a mentor, internal networks, and external networks. Finally, Set C represents the ‘knowing how’ predictors of career/job-related skills and career identity. Step 2 of the dominance analysis involves a quantitative assessment of the relative importance of each set of predictors (Set A, Set B, Set C). This requires determining the average R^2 for each set of variables, across all possible orderings of sets ($k = 0, k = 1, k = 2$; where $k =$ the number of additional sets taken into account). Through this process an index is derived that represents the average usefulness of a set of predictors ($M(Cxi)$). From this index one can determine the relative importance of each variable set to prediction (i.e., what percentage of variance is accounted for by each variable set based on the total variance accounted for by the full model).¹

Dominance analysis results for perceived career success

Table 4 presents the results of step 1 of the dominance analysis. A qualitative assessment of dominance is determined by comparing each pair of variable sets, across all rows for which both variable sets are non-empty. Examining the first row of Table 4 one can see that Set A (0.2658) is greater than both Set

¹Analyses were also conducted using hierarchical regression with Set A variables entered in step 1, Set B variables entered in step 2, and Set C variables entered in step 3 (and control variables used in all equations). For perceived career success and external marketability all three variable sets made a significant and unique contribution to prediction. For internal marketability, only Set A and Set B were significant in the hierarchical sequence. Further, in all three sets of analyses, the vast majority of model variance was accounted for in step 1, with descending variance accounted for as additional sets were added to the hierarchical sequence. This pattern of findings highlights the strengths of dominance analysis. Rather than test for significance using a residualization approach to variance partitioning (i.e., considering only unique contribution to prediction such that shared variance among variables is assigned to the variable entered first in the hierarchical sequence) dominance analysis considers the average contribution of variable sets to prediction by considering all possible combinations of variables sets in computing $M(Cxi)$. A full report of these analyses is available upon request.

Table 4. Dominance analysis for perceived career success criterion

Variable set ^a	Additional contribution of			
	R^2	Set A	Set B	Set C
—	0	0.2658	0.1868	0.2301
Set A	0.2658	—	0.0160	0.0149
Set B	0.1868	0.0950	—	0.0615
Set C	0.2301	0.0506	0.0182	—
Set A, Set B	0.2818	—	—	0.0099
Set A, Set C	0.2807	—	0.0110	—
Set B, Set C	0.2483	0.0434	—	—
Total R^2 (Set A, Set B, Set C) =	0.2917			

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size.

^aSet A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity).

B (0.1868) and Set C (0.2301), providing some initial evidence that Set A is dominant to the other variable sets. Data from row 3 and row 4 confirm this assertion. In row 3 Set A (0.0950) is greater than Set C (0.0615) and in row 4 Set A (0.0506) is greater than Set B (0.0182). Regarding the dominance of Set B versus Set C, the results are mixed. In row 1 Set C (0.2301) is greater than Set B (0.1868). However, in row 2 Set B (0.0160) is greater than Set C (0.0149). Table 5 reports the quantitative assessment of dominance. Of the total variance accounted for by all variables, including the covariates ($R^2 = 0.2917$ as shown in Table 4), Set A makes the most unique contribution to prediction, followed by Set C and then Set B. As shown in Table 5, the average R^2 for Set A is 0.1273, compared to 0.0927 for Set C and 0.0716 for Set B. More specifically, the 'knowing why' predictors (Set A) account for 43.6 per cent of the total variance in the full model, the 'knowing how' predictors account for an additional 31.8 per cent of the variance, and the 'knowing whom' predictors account for the remaining 24.6 per cent of the explained variance.

Dominance analysis results for perceived internal marketability

Tables 6 and 7 report the results of the dominance analysis for internal marketability. The total variance accounted for by all three variable sets (including the covariates) is $R^2 = 0.2109$ (see Table 6). The

Table 5. Quantitative measures of importance for variable sets with perceived career success criterion

k	Set A	Set B	Set C
0	0.2658	0.1868	0.2301
1	0.0728	0.0171	0.0382
2	0.0434	0.0110	0.0099
M(Cxi)	0.1273	0.0716	0.0927
Relative percentage	43.6%	24.6%	31.8%

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size. Set A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity). M(Cxi) indicates the average usefulness of each set of variables. Relative percentage indicates the relative importance of each set of variables to overall prediction.

Table 6. Dominance analysis for perceived internal marketability criterion

Variable set ^a	Additional contribution of			
	R^2	Set A	Set B	Set C
—	0	0.1750	0.1299	0.1530
Set A	0.1750	—	0.0275	0.0131
Set B	0.1299	0.0726	—	0.0460
Set C	0.1530	0.0351	0.0229	—
Set A, Set B	0.2025	—	—	0.0084
Set A, Set C	0.1881	—	0.0228	—
Set B, Set C	0.1759	0.0350	—	—
Total R^2 (Set A, Set B, Set C) =	0.2109			

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size.

^aSet A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity).

Table 7. Quantitative measures of importance for variable sets with perceived internal marketability criterion

k	Set A	Set B	Set C
0	0.1750	0.1299	0.1530
1	0.0539	0.0252	0.0296
2	0.0350	0.0228	0.0084
M(Cxi)	0.0880	0.0593	0.0637
Relative percentage	41.7%	28.1%	30.2%

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size. Set A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity). M(Cxi) indicates the average usefulness of each set of variables. Relative percentage indicates the relative importance of each set of variables to overall prediction.

row-wise comparisons in Table 6 demonstrate that, again, Set A ('knowing why') is dominant to both Set C ('knowing how') and Set B ('knowing whom'). Also consistent with the results for perceived career success, there is not a clear pattern of dominance between Set B and Set C (see row-wise comparisons in Table 6). Table 7 provides quantitative information on the relative importance of these three sets of predictors. Set A ('knowing why') accounted for 41.7 per cent of the total variance, followed by Set C (30.2 per cent) and Set B (28.1 per cent).

Dominance analysis results for perceived external marketability

Tables 8 and 9 present the dominance analysis results for external marketability. The total variance accounted for by all variables, including the covariates, is $R^2 = 0.2616$ (see Table 8). A different pattern of findings is found with this criterion. As illustrated in Table 8, Set C ('knowing how') is dominant to both Set A ('knowing why') and Set B ('knowing whom'). However, in comparing Set A and Set B, Table 8 does not portray a clear pattern of dominance. In terms of relative importance to prediction, of the total variance accounted for Set C makes the most unique contribution to prediction (46.1 per cent, see Table 9). In addition, Table 9 indicates that Set A is more important to prediction than Set B, with Set A accounting for 29.9 per cent of the model variance and Set B accounting for 24.0 per cent of the variance.

Table 8. Dominance analysis for perceived external marketability criterion

Variable set ^a	Additional contribution of			
	R^2	Set A	Set B	Set C
—	0	0.1954	0.1636	0.2432
Set A	0.1954	—	0.0207	0.0571
Set B	0.1636	0.0525	—	0.0894
Set C	0.2432	0.0093	0.0098	—
Set A, Set B	0.2161	—	—	0.0455
Set A, Set C	0.2525	—	0.0091	—
Set B, Set C	0.2530	0.0086	—	—
Total R^2 (Set A, Set B, Set C) =	0.2616			

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size.

^aSet A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity).

Table 9. Quantitative measures of importance for variable sets with perceived external marketability criterion

k	Set A	Set B	Set C
0	0.1954	0.1636	0.2432
1	0.0309	0.0153	0.0733
2	0.0086	0.0091	0.0455
M(Cxi)	0.0783	0.0627	0.1207
Relative percentage	29.9%	24.0%	46.1%

Note: All sets include control variables age, education, pay, job type, job tenure, and organization size. Set A = Knowing why predictors (proactive personality; openness to experience; career insight). Set B = Knowing whom predictors (experience with a mentor; internal networks; external networks). Set C = Knowing how predictors (career/job-related skills; career identity). M(Cxi) indicates the average usefulness of each set of variables. Relative percentage indicates the relative importance of each set of variables to overall prediction.

Discussion

Our findings illustrate that ‘knowing why,’ ‘knowing whom,’ and ‘knowing how’ are all important in predicting perceived career success, perceived internal marketability, and perceived external marketability. This provides strong support for recent theorizing on the importance of these three classes of career competencies in understanding career success (Arthur et al., 1999; DeFillippi & Arthur, 1994). The results of the dominance analysis demonstrate that all three classes of predictors have practical value given their unique contribution to prediction and indicate the relative importance of these three sets of predictors in understanding the three criterion variables.

The specific findings associated with ‘knowing why’ demonstrate that not all individuals may fare equally well in the boundaryless career. Consistent with recent writing, individuals who are ‘self-starters’ (i.e., proactive), flexible and adaptable to new experiences (i.e., high on openness to experience), and know their personal strengths and liabilities (i.e., have career insight), are more likely to thrive in an unstable and ever-changing work environment (e.g., Mirvis & Hall, 1996). Our findings are consistent with previous research which has found that personality variables affect individuals’ ability to adjust to inter-firm transitions (e.g., Kilduff & Day, 1994) and that individuals high on proactive personality tend to report greater career satisfaction (Seibert et al., 1999). However, the significant

relationship found between openness to experience and perceived career success is not consistent with previous research, which has typically failed to find significant effects (e.g., Seibert, Crant, & Kramer, 2001). One explanation is that our sample is different from those used in previous research. Specifically, the subjects in the present study tended to be younger (and more homogeneous in age) than those included in previous research (e.g., Judge, Higgins, Thoresen, & Barrick, 1999; Seibert et al., 2001). Perhaps the 'Generation X' individuals in our study who were higher on openness to experience believe they have achieved greater career success because they have different expectations than individuals from other age cohorts. While additional research is needed to determine the scientific merit of this explanation, it is consistent with writing on the changing expectations of younger workers (e.g., Hall & Richter, 1990). Another interesting area for future research would be determining *how and why* these traits are related to one's marketability. For example, do individuals who are high on proactive personality or openness to experience network more effectively or intensively? Likewise, is it that those high on career insight engage in more career exploration, or perhaps do so more efficiently?

'Knowing whom' predictors are also important predictors of career success. Previous research has demonstrated that networking is associated with re-employment (e.g., Granovetter, 1973; Lin & Dumin, 1986) and traditional indicators of career success such as promotion rates, bonuses, and job mobility (e.g., Burt, 1997). Our findings extend this research by linking networking to perceived career success, as well as perceptions of both internal and external marketability. It is also noteworthy that having extensive networks *within* the organization is associated with perceptions of *external* marketability and vice versa (*external* networks are associated with perceptions about *internal* marketability). This finding is consistent with the idea that networking is very important in today's marketplace (Hirsch, 1987; Powell & Brantley, 1992) and suggests that individuals may want to invest time in networking both inside and outside their organization.

The final class of predictors ('knowing how') is also related to all three criteria of career success. The idea that building and diversifying one's skill set and engaging in continuous learning is essential in today's economy has been extensively discussed in the literature (e.g., Arthur et al., 1999; Arthur & Rousseau, 1996a; Bird, 1994). Our findings confirm the importance of these activities by linking skill building to perceived career success, internal marketability, and external marketability. Perhaps those with extensive skill sets and a propensity to seek out new learning experiences report more satisfaction in their career because they feel well rounded and have a strong professional identity. This would be consistent with Hall and colleagues writing on the importance of developing an integrated self-identity that is not tied to any one organization and instead is linked to one's profession (Hall & Mirvis, 1996; Mirvis & Hall, 1994, 1996).

While general support is found for the 'knowing why,' 'knowing whom,' 'knowing how' framework, experience with a mentor did not consistently emerge as a significant predictor of career success. While mentoring was related to perceptions of external marketability, it was neither related to perceptions of internal marketability nor perceived career success. This is surprising since previous research has linked the mentoring functions of career-related and psychosocial support to career satisfaction (see Allen, Eby, Poteet, Lentz, & Lima, 2003, for a review). Perhaps the reason that the present study failed to find support is that we used a global measure of mentoring experience. We also did not differentiate whether the individual had experience in a formal or informal mentoring relationship, and research indicates that this distinction may be important (e.g., Ragins & Cotton, 1999). The finding that experience with a mentor was related to perceived external, but not internal, marketability is interesting. It may be reflective of changes in the role of a mentor (e.g., providing visibility to those outside one's organization; see Eby & McManus, 2002) or the reality that mentors can do less to enhance internal marketability since resources and opportunities are constrained in many organizations.

The dominance analysis provides additional information on the relationship between the three classes of predictors and career success. First and foremost, each class of predictors contributed

considerable unique variance to the prediction of perceived career success, perceived internal marketability, and perceived external marketability. This indicates that all three types of career competencies are likely to add value to individuals' careers. Further, in two of the three analyses (predicting perceived career success and perceived internal marketability) 'knowing why' emerged as the most important set of predictors. Thus, a willingness to try new things, create opportunities, and set realistic goals appears particularly likely to pay career dividends. In addition, the 'knowing whom' career competency was consistently ranked as the least important set of predictors (i.e., it explained the least unique variance of all three variable sets). Additional research is needed on the role of networking in the boundaryless career since this is the first empirical study examining this relationship and our measures of networking are new to the literature. In addition, our weaker findings related to 'knowing whom' may in part reflect the limitations associated with our measure of mentoring.

The dominance analysis also reveals that the relative importance of 'knowing why,' 'knowing whom,' and 'knowing how' varies some across criteria. Specifically, in predicting perceived external marketability the most important set of variables were those associated with 'knowing how' whereas for the other two criteria (perceived career success and perceived internal marketability) 'knowing why' emerged as most essential. **Taken together, the dominance analysis confirms that certain 'types' of individuals are likely to fare better in the boundaryless career than others, that investing in training and skill updating should yield a good return on investment, and that, while to a lesser degree, being connected within and outside the organization may all be important for career success.**

Implications for future research

The present study has several implications for research. Most notably our findings provide initial support for Arthur and colleagues' (Arthur et al., 1999; DeFillippi & Arthur, 1994, 1996) theorizing that 'knowing why,' 'knowing whom,' and 'knowing how' are important predictors of success in the boundaryless career. An interesting avenue for future study is the causal relationships among the three career competencies. For instance, self-awareness and proactivity ('knowing why' variables) may be antecedents of network development ('knowing whom' variables) since individuals who have clearly defined goals and are willing to try new things may be more likely to seek out relationships with others. Alternatively, the process of building relationships within and outside one's organization ('knowing whom' variables) may lead to greater self-knowledge, goal setting, and encourage greater exploration ('knowing why' variables) or help one more effectively use their 'know-how' (Radier & Burt, 1996). Unfortunately we cannot tease apart these associations in the present study. Future research using longitudinal research designs is encouraged. Another idea for future research is examining the relative importance of internal and external marketability. Specifically, what matters most in terms of being able to adapt to a boundaryless career? Perhaps it depends on what one is trying to predict. External marketability may be associated with greater employment opportunities elsewhere whereas internal marketability may predict involuntary turnover (i.e., the more value-added one is to the company, the lower one's chance of involuntary job loss).

At a broader level, many fundamental questions still exist about the boundaryless career. For example, Gunz et al. (2000) raise definitional questions about the concept of a career boundary. Does this represent a labor market phenomenon (i.e., the extent to which people have mobility within their organization), a demand-side phenomenon (i.e., reluctance to hire individuals without certain skills sets or increased reliance on external versus internal hiring practices), or reluctance to move (i.e., employee resistance to try new things and adapt)? Goffee and Jones (2000) also struggle with the concept of boundarylessness, suggesting that it can take very different forms and also is likely to vary across occupations. Both of these perspectives highlight the need for in-depth qualitative research on how

individuals' careers unfold in different types of organizations and industries. Some initial work in this area exists (Peiperl et al., 2002; Peiperl, Arthur, Goffee, & Morris, 2000) but additional work is needed.

Implications for practice

The finding that career insight and career identity were related to career success highlights the importance of individuals managing their own careers rather than expecting their employer to do so. This idea has been lamented in the careers literature (Hall & Associates, 1996) and the current study validates the importance of such individual action. Specific steps that individuals might take include joining professional organizations, subscribing to industry/trade journals to stay on top of trends, and engaging in both self and environmental exploration on a continuous basis. Our findings also suggest that in order to maximize beliefs about external marketability individuals should invest in their own human capital and engage in continuous learning. This might mean taking advantage of learning opportunities and stretch assignments within one's organization, attending seminars and training, or going back to school to diversify one's portfolio of skills. In addition, individuals may want to develop a diverse network base both within and outside the organization and consider entering into a mentoring relationship, particularly if they are looking to enhance their external marketability.

Implications also exist for organizations. One important role that organizations can play is providing opportunities for individuals to develop new skill sets and build internal and external networks. This can reap benefits for an organization since it increases the knowledge base within the company and may foster cross-fertilization of ideas and information across business units and departments (DeFillippi & Arthur, 1994). Organizations may also want to encourage mentoring relationships among their employees since having externally marketable employees increases the human capital available within the organization and creates a more competitive applicant pool in the marketplace.

Limitations and conclusions

One limitation is that all the data were collected with one administration of a survey. The use of a survey methodology was appropriate given the perceptual nature of the study variables (e.g., perceived career success, personality) but does raise concerns about common method bias. Two things argue against common method bias as an alternative explanation for our findings. First, the correlations are low to moderate (Podsakoff & Organ, 1986). Second, a one-factor test was conducted where all items were factor analyzed to see if a large factor accounted for the majority of the variance (Podsakoff & Organ, 1986). Twelve factors emerged, with the first factor only accounting for 24 per cent of the variance. Nonetheless, to help overcome this limitation future research might measure internal and external marketability from another source such as a supervisor or from human resource inventories. The cross-sectional nature of the present study also means that direction of causality cannot be unambiguously determined. Since the 'knowing why' variables represent stable individual differences it seems unlikely that they would be *caused* by career satisfaction or perceived marketability. However, it is possible that the relationship between marketability and networking is reciprocal; for example, networking may enhance an individual's marketability, which in turn leads to more networking behavior. Future research might collect data over time to better understand such relationships.

Other limitations are related to the measures used in the present study. While scales with established reliability and validity were used whenever possible, in some cases measures of focal constructs did not exist (e.g., perceived internal marketability, perceived external marketability). In such cases it was

necessary to develop measures. Care was taken to write items that tapped each construct domain and reliability analyses supported these newly developed measures. Further, factor analyses provided some initial construct validity evidence for the criterion variables of perceived internal and external marketability as well as the predictor variables of internal and external networks. However, additional validation work is needed on these newly created measures. Another measurement issue is that we used a global measure of mentoring experience. Future research might examine mentoring functions provided, mentoring quality, or an individual's history of mentoring experiences to more fully capture the influence of mentoring on career success.

With respect to the sample, while it was diverse in terms of the types of jobs held as well as industries and organizations sampled, participants were relatively homogeneous with respect to age, education level, and race. Future research might seek samples that are more diverse on these characteristics. For example, Sullivan (1999) notes that with shorter-term employment arrangements discrimination in hiring may increase and minorities may face obstacles finding mentors and developing networks. It may also be the case that younger workers adapt better to fluid and changing employment arrangements than older workers due to more realistic expectations about employment contracts and different value systems (Sullivan et al., 1998). These represent interesting and potentially important areas for future research on the boundaryless career.

A related issue that has been noted in the literature is whether there are gender differences in success in the boundaryless career (Fondas, 1996).² We conducted post hoc analyses to explore this possibility. No main effects for gender were found in terms of perceived career success, internal marketability, or external marketability. However, four significant interactions were found. This included an interaction between sex and external networks on career satisfaction, an interaction between sex and internal networks on career satisfaction, an interaction between sex and career/job-related skills on career satisfaction, and an interaction between sex and proactive personality on external marketability. Follow-up tests indicated that in all four cases the relationship between the predictor and criterion was stronger for women than men (e.g., the correlation between proactive personality and external marketability was 0.31, $p < 0.001$ for women and 0.20, $p < 0.001$ for men; the correlation between internal networks and career satisfaction was 0.36, $p < 0.001$ for women and 0.13, n.s. for men). Given these preliminary findings, additional research on the role of gender in the boundaryless career seems warranted.

With individuals experiencing less job stability and increased organizational changes, the boundaryless career is emerging as an important paradigm in the study of careers. The present study provides the first comprehensive empirical study of the career competencies theorized as important in managing a boundaryless career and illustrates the relative importance of each as predictors of career satisfaction, internal marketability, and external marketability. Our findings serve as an empirical foundation for future research on the boundaryless career and highlight the complex sets of career competencies that may be necessary to successfully navigate in today's more volatile organizational environment.

Acknowledgements

This research was supported by a grant from the University of Georgia Research Foundation. The opinions expressed herein reflect those of the authors and not the granting agency. A previous version of this paper was presented at the 2003 annual meeting of the Society for Industrial and Organizational Psychology, Orlando, Florida. Thanks to Andi Brinley for her assistance with this study.

²Thanks to an anonymous reviewer for noting the potentially important role of gender in predicting career success.

Author biographies

Lillian T. Eby is an Associate Professor of Psychology at the University of Georgia. Her current research interests include career theory, organizational mentoring, and work and family issues.

Marcus M. Butts is a doctoral student in the Applied Psychology Program at the University of Georgia. His current research interests are in the area of work teams and organizational careers.

Angie L. Lockwood is a doctoral student in the Applied Psychology Program at the University of Georgia. Her current research interests are in the area of organizational mentoring and work and family.

References

- Allen, T. D., Eby, L. T., Poteet, M., Lentz, L., & Lima, L. (2003). Outcomes of mentoring for protégés: a meta-analysis. *Journal of Applied Psychology* (in press).
- Arthur, M. B. (1994). The boundaryless career: a new perspective for organizational inquiry. *Journal of Organizational Behavior*, *15*, 295–306.
- Arthur, M. B., & Rousseau, D. M. (1996a). *The boundaryless career: A new employment principle for a new organizational era* (pp. 237–255). New York: Oxford University Press.
- Arthur, M. B., & Rousseau, D. M. (1996b). Introduction: the boundaryless career as a new employment principle. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 3–20). New York: Oxford University Press.
- Arthur, M. B., Inkson, D., & Pringle, J. (1999). *The new careers: Individual action and economic change*. London: Sage.
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: a meta-analysis. *Personnel Psychology*, *44*, 1–25.
- Bateman, T. S., & Crant, J. M. (1993). The proactive component of organizational behavior. *Journal of Organizational Behavior*, *14*, 103–118.
- Bird, A. (1994). Careers as repositories of knowledge: a new perspective on boundaryless careers. *Journal of Organizational Behavior*, *15*, 325–344.
- Bird, A. (1996). Careers as repositories of knowledge: considerations for boundaryless careers. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 150–168). New York: Oxford University Press.
- Bridges, W. (1994). *Jobshift*. Reading, MA: Addison-Wesley.
- Budescu, D. V. (1993). Dominance analysis: a new approach to the problem of relative importance of predictors in multiple regression. *Psychological Bulletin*, *114*, 542–551.
- Burt, R. S. (1997). Contingency value of social capital. *Administrative Science Quarterly*, *42*, 339–365.
- Cohen, J., & Cohen, P. (1983). *Applied multiple correlation/regression*. Hillsdale, NJ: Lawrence Erlbaum.
- Costa, P. T., Jr., & McCrae, R. (1992). *NEO-PI-R and NEO-FFI professional manual*. Odessa, FL: Psychological Assessment Resources.
- Darlington, R. R. (1968). Multiple regression in psychological research and practice. *Psychological Bulletin*, *69*, 161–182.
- DeFillippi, R. J., & Arthur, M. B. (1994). The boundaryless career: a competency-based perspective. *Journal of Organizational Behavior*, *15*, 307–324.
- DeFillippi, R. J., & Arthur, M. B. (1996). Boundaryless contexts and careers: a competency-based perspective. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 116–131). New York: Oxford University Press.
- Dillman, D. A. (2000). *Mail and internet surveys*. New York: Wiley.
- Driver, M. J. (1982). Career concepts: a new approach to career research. In R. Katz (Ed.), *Career issues in human resource management*. Englewood Cliffs, NJ: Prentice-Hall.

- Eby, L. T., & DeMatteo, J. S. (2000). When the type of move matters: examining employee outcomes under various relocation situations. *Journal of Organizational Behavior*, 21, 677–687.
- Eby, L. T., & McManus, S. E. (2002). Protégés' most positive mentoring experience. Paper presented in the symposium 'Underlying processes responsible for beneficial mentorships: Implications of emerging research', R. Day, & T. D. Allen (Co-Chairs), Annual meeting of the Society for Industrial and Organizational Psychology, Toronto, Canada, April.
- Fondas, N. (1996). Feminization at work: career implications. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 282–293). New York: Oxford University Press.
- Goffee, R., & Jones, G. (2000). Career, community, and social architecture: an exploration of concepts. In M. A. Peiperl, M. B. Arthur, R. Goffee, & T. Morris (Eds.), *Career frontiers: New conceptions of working lives* (pp. 256–272). Oxford: Oxford University Press.
- Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.
- Greenhaus, J. H., Callanan, G. A., & Godshalk, V. M. (1990). *Career management* (3rd edn). Fort Worth: Dryden Press.
- Greenhaus, J. H., Parasuraman, S., & Wormley, W. M. (1990). Effects of race on organizational experiences, job performance evaluations, and career outcomes. *Academy of Management Journal*, 33, 64–86.
- Gunz, H., Evans, M., & Jalland, M. (2000). Career boundaries in the 'boundaryless' world. In M. A. Peiperl, M. B. Arthur, R. Goffee, & T. Morris (Eds.), *Career frontiers: New conceptions of working lives* (pp. 24–53). Oxford: Oxford University Press.
- Hall, D. T. (1976). *Careers in organizations*. Santa Monica, CA: Goodyear.
- Hall, D. T. & Associates (1996). *The career is dead—long live the career: A relational approach to careers*. San Francisco, CA: Jossey Bass.
- Hall, D. T., & Mirvis, P. H. (1996). The new protean career: psychological success and the path with a heart. In D. T. Hall & Associates (Ed.), *The career is dead—long live the career* (pp. 15–45). San Francisco: Jossey Bass.
- Hall, D. T., & Richter, J. (1990). Career gridlock: baby boomers hit the wall. *Academy of Management Executive*, 4(3), 7–23.
- Higgins, M. C., & Kram, K. E. (2001). Reconceptualizing mentoring at work: a developmental network perspective. *Academy of Management Review*, 26, 264–288.
- Hirsch, P. (1987). *Pack your own parachute*. Reading, MA: Addison-Wesley.
- Jones, C., & Lichtenstein, B. M. B. (2000). The 'architecture' of careers: how career competencies reveal firm dominant logic in professional services. In M. A. Peiperl, M. B. Arthur, R. Goffee, & T. Morris (Eds.), *Career frontiers: New conceptions of working lives* (pp. 153–176). Oxford: Oxford University Press.
- Judge, T. A., Higgins, C. A., Thoresen, C. A., & Barrick, M. R. (1999). The big five personality traits, general mental ability, and career success across the lifespan. *Personnel Psychology*, 52, 621–652.
- Kilduff, M., & Day, D. V. (1994). Do chameleons get ahead? The effects of self-monitoring on managerial career success. *Academy of Management Journal*, 37, 1047–1060.
- Kram, K. E. (1985). *Mentoring at work*. Glenview, IL: Scott Foresman.
- Lado, A. A., Boyd, N. G., & Wright, P. (1992). A competency-based model of sustainable competitive advantage: toward a conceptual integration. *Journal of Management*, 18, 77–91.
- Lin, N., & Dumin, M. (1986). Access to occupations through social ties. *Social Networks*, 8, 365–385.
- London, M. (1983). Toward a theory of career motivation. *Academy of Management Review*, 8, 620–630.
- London, M. (1993). Relationships between career motivation, empowerment, and support for career development. *Journal of Occupational and Organizational Psychology*, 66, 55–69.
- Mauer, T. J., & Tarulli, B. A. (1994). Investigation of perceived environment, perceived outcome, and person variables in relationship to voluntary development activity by employees. *Journal of Applied Psychology*, 79, 3–14.
- Miller, D. C., & Form, W. H. (1951). *Industry sociology*. New York: Harper Collins.
- Mirvis, P. H., & Hall, D. T. (1994). Psychological success and the boundaryless career. *Journal of Organizational Behavior*, 15, 365–380.
- Mirvis, P. H., & Hall, D. T. (1996). Psychological success and the boundaryless career. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 237–255). New York: Oxford University Press.
- Noe, R. A., Noe, A. W., & Bachhuber, J. A. (1990). An investigation of the correlates of career motivation. *Journal of Vocational Behavior*, 37, 340–356.
- Parker, H., & Arthur, M. B. (2000). Careers, organizing, and community. In M. A. Peiperl, M. B. Arthur, R. Goffee, & T. Morris (Eds.), *Career frontiers: New conceptions of working lives* (pp. 99–121). Oxford: Oxford University Press.

- Peiperl, M. A., Arthur, M. B., & Anand, N. (2002). *Career creativity: Explorations in the remaking of work*. Oxford: Oxford University Press.
- Peiperl, M. A., Arthur, M. B., Goffee, R., & Morris, T. (2000). *Career frontiers: New conceptions of working lives*. Oxford: Oxford University Press.
- Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: problems and prospects. *Journal of Management*, 12, 531–544.
- Powell, W. W., & Brantley, P. (1992). Competitive cooperation in biotechnology: learning through networks? In N. Nohria, & R. G. Eccles (Eds.), *Networks and organizations* (pp. 366–394). Boston, MA: Harvard Business School Press.
- Ragins, B. R., & Cotton, J. L. (1999). Mentor functions and outcomes: a comparison of men and women in formal and informal mentoring relationships. *Journal of Applied Psychology*, 84, 529–550.
- Raider, H. J., & Burt, R. S. (1996). Boundaryless careers and social capital. In M. B. Arthur, & D. M. Rousseau (Eds.), *The boundaryless career: A new employment principle for a new organizational era* (pp. 187–200). New York: Oxford University Press.
- Saucier, G. (1994). Mini-markers: a brief version of Goldberg's unipolar big-five markers. *Journal of Personality Assessment*, 63, 506–516.
- Schein, E. V. (1978). *Career dynamics: Matching individual and organizational needs*. Reading, MA: Addison-Wesley.
- Seibert, S. E., Crant, J. M., & Kramier, M. L. (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84, 416–427.
- Seibert, S. E., Crant, J. M., & Kramier, M. L. (2001). The five-factor model of personality and career success. *Journal of Vocational Behavior*, 58, 1–21.
- Sullivan, S. E. (1999). The changing nature of careers: a review and research agenda. *Journal of Management*, 25, 457–484.
- Sullivan, S. E., Carden, W. A., & Martin, D. F. (1998). Careers in the next millennium: directions for future research. *Human Resource Management Review*, 8, 165–185.