

100 Years of Applied Psychology Research on Individual Careers: From Career Management to Retirement

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This article surveys 100 years of research on career management and retirement, with a primary focus on work published in the *Journal of Applied Psychology*. Research on career management took off in the 1920s, with most attention devoted to the development and validation of career interest inventories. Over time, research expanded to attend to broader issues such as the predictors and outcomes of career interests and choice; the nature of career success and who achieves it; career transitions and adaptability to change; retirement decision making and adjustment; and bridge employment. In this article, we provide a timeline for the evolution of the career management and retirement literature, review major theoretical perspectives and findings on career management and retirement, and discuss important future research directions.

Keywords: career interests, career choice, career success, job loss, retirement

A *career* is a sequence of related work experiences and activities over the span of a person's life (Hall, 2002). *Career management* is an umbrella term that encompasses various individual activities that shape people's career transitions and experience. These activities include components of career development (e.g., identifying one's career interests, making a career choice, and pursuing career success) and how one deals with career events and changes over time (e.g., job loss and job search). *Retirement* refers to the process via which an individual exits from the workforce (Shultz & Wang, 2011). This process is typically characterized by decreased psychological commitment to and behavioral withdrawal from work. Retirement does not necessarily mean career exit, rather it can be conceptualized as a late-career development stage that recognizes the continued potential for growth and renewal of careers in people's retirement life (Wang & Shi, 2014; Wang & Shultz, 2010). Together, career management and retirement capture major processes that shape one's labor force participation experience.

The purpose of this article is to celebrate a century of applied psychology research on career management and retirement, with

our focus primarily centered on the work that has been published in *Journal of Applied Psychology (JAP)*^{1,2}. Our review has four major parts. In the first section, we provide a brief historical overview of this area of inquiry, discussing how it began and evolved over time. In the second section, we delineate the major theoretical perspectives that have been used to study these topics within *JAP*. In the third section, we provide more detail about specific studies and findings within five topical areas that have received the most attention in the domain covered by our review: (a) developing and validating measures of career interests; (b) predictors and outcomes of career interests and career choice; (c) the nature of career success and who achieves it; (d) job loss, adaptability, and career transitions; and (e) retirement decision making, adjustment, and bridge employment. Finally, at the end of the article, we highlight important future research directions for advancing this area of research. Broadly speaking, individual careers are central to many of the studies in *JAP*. To avoid overlap with the other reviews in this centennial issue of *JAP*, our discussion does not review work on leadership development programs, employee socialization and mentoring, performance management, work motivation, job attitudes and affect, and employee stress and well-being. For the same reason, while we mention gender and diversity-related research related to careers, these topics are delineated in more detail in *Colella, Hebl, and King (2017)* and *Roberson, Ryan, and Ragins (2017)*.

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¹ The *Journal of Vocational Behavior* has published several large-scale reviews of the vocational psychology literature (e.g., Borgen, 1991), and provides an annual review of the year's research on vocational behavior each October (e.g., Fretz & Leong, 1982; Muchinsky, 1983; Phillips, Cairo, & Blustein, 1988; Slaney & Russell, 1987). These reviews are excellent sources of additional detail about the progression of this literature.

² Within the text, we italicize all articles that were published in the *Journal of Applied Psychology*. In the reference list, we include an asterisk in front of these references.

A Productive 100 Years: A Historical Overview

Figure 1 shows a graphical timeline of the progression of this literature. The application of psychology to career choice and vocational guidance predates the *Journal of Applied Psychology* (*JAP*) with roots in individual differences and mental testing that grew out of the work of Francis Galton and Wilhelm Stern in Britain (Savickas & Baker, 2005). In the United States, Raymond Cattell propagated mental testing, while his student Edward Thorndike highlighted its application to education, psychiatry, and human engineering (Thorndike, 1914). The measurement of individual differences became an important part of the war effort (i.e., WWI), especially in Britain, but also in the United States under the influence of Robert Yerkes and Walter Dill Scott (Savickas & Baker, 2005). In the 1930s the Minnesota Employment Stabilization Research Institute (MESRI) at the University of Minnesota undertook a program of research aimed at addressing the problem of massive unemployment and relocation following WWI and the Great Depression (Patterson & Darley, 1936). Psychology was put to work even more extensively in WWII through the use of a range of psychological tests used for selection, training, career management, and rehabilitation. In these early years, Parsons (1909) put forth the first discussion of person-environment fit in his book "Choosing a Vocation." He states on the opening page of his book "If a boy takes up a line of work to which he is adapted, he will achieve far greater success than if he drifts into an industry for which he is not fitted" (p. 3).

Soon after, *JAP* was launched in 1917. In one of the journal's first articles on career management, Kitson (1922) drew attention to the limitations of mental testing in vocational guidance compared with its use in selection given the vast range of occupational opportunities. The need to provide more definition around the large number of occupational opportunities was helped by the establishment of the Dictionary of Occupational Titles (Job Analysis and Information Section: United States Employment Service, 1939), and other systematic job and occupational classification

systems. Another especially influential innovation and milestone of this period was the development of the Strong Vocational Interest Blank (SVIB; Strong, 1927). The SVIB was the focus of extensive research after its development.

In the 1950s two distinguished and long-lived theory pieces were introduced. "A Theory of Vocational Development," was published in the *American Psychologist* and developed further in the book *Psychology of Careers* (Super, 1957). "A Theory of Vocational Choice," was published in the *Journal of Counseling Psychology* (Holland, 1959) and in book form (Holland, 1973, 1997). These theories provided rich, theory-based frameworks that facilitated a myriad of projects devoted to the understanding of career interests, the predictors of career choice, and the development of individual careers through the life span. By the early 1970s, there was sufficient scholarly activity and interest to warrant the creation of a new journal devoted to issues of vocational behavior and career development—the *Journal of Vocational Behavior*. Toward the end of this era, career indecision and interventions to reduce indecision garnered new attention (Osipow, Carney, & Barak, 1976). Career indecision was thought to reduce career success, and hence it was considered important to obtain measures of indecision as well as practical approaches to alleviate it.

It was not until the 1980s that the study of career issues began to substantially focus on issues beyond career choice and interest measurement. Organizations began to change their systems, structure, and technology to keep up with increased globalization and competition. Increased downsizing provided stimulus for studies examining the impact of job loss and job search processes (Ellis & Taylor, 1983; Prussia, Kinicki, & Bracker, 1993; Wanberg, Kanfer, & Banas, 2000; Wanberg, Kanfer, & Rotundo, 1999). At the individual level, there was a sharp decline in perceived job security. Academic research began to reflect a shift in philosophy from employer-managed careers to self-managed careers. This shift led to new research examining individual adaptability, predictors of

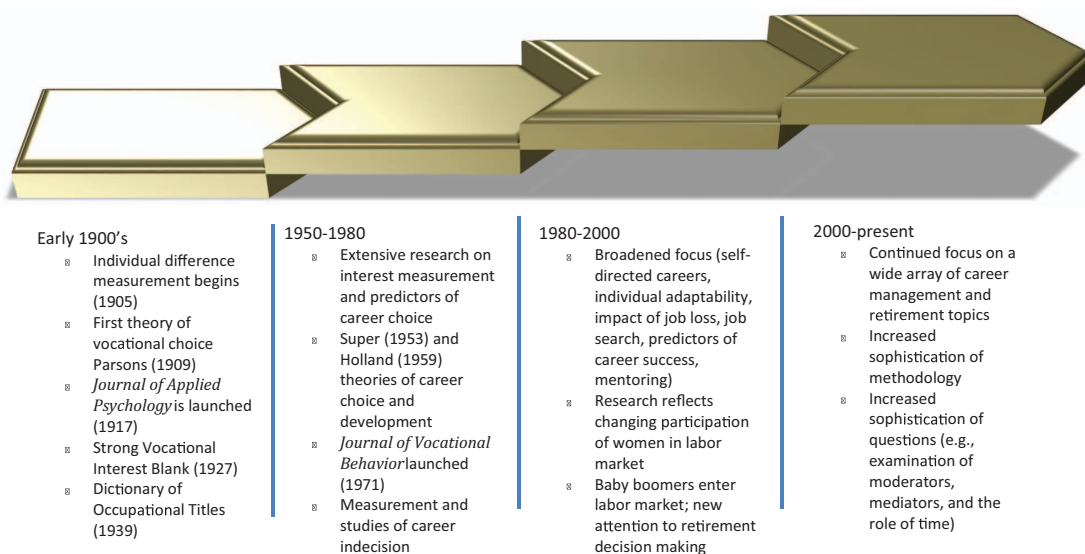


Figure 1. A graphical timeline of the progression of the career management and retirement literature. See the online article for the color version of this figure.

career success, and ways in which individuals exert agency on their careers. Another major development of this time was the steady increase in the labor force participation of women, and an increasing attention to gender inequality.

Also during this time frame, baby boomers started entering the labor market. This drew attention to the aging workforce (e.g., *Avery, McKay, & Wilson, 2007; Cleveland & Shore, 1992*). A few early studies on retirement had been conducted (e.g., *Carter, 1947*), but research on this topic gained momentum in the 1980s and after. A number of notable contributions on the topic of retirement originated at *JAP*. For example, *O'Brien (1981)* was one of the first studies to examine the impact of postretirement leisure activities on retirement adjustment. *Rosen, Jerdee, and Lunn (1981)* published the first study investigating age discrimination in retirement management. *Talaga and Beehr (1995)* were among the first to investigate gender differences in retirement decision-making.

Entering the new millennium, research has continued a broad focus on career management and retirement. Within both of these areas, perhaps the most dominant trend in research has been increased sophistication in both research questions and methodology. For example, questions have moved from description, main effects, and prediction to including questions of processes (mediators), and under what conditions (moderators; e.g., *Judge & Kammeyer-Mueller, 2012; Wang, Burlacu, Truxillo, James, & Yao, 2015*). Researchers have increasingly asked questions about the role of time. As an example, within the retirement literature, while pre-2000 research focused more on decision making, post-2000 research has turned to a more detailed understanding of the multiple pathways of retirement transition in terms of retirement adjustment and postretirement work activities (*Wang, 2007; Wang, Zhan, Liu, & Shultz, 2008; Zhan, Wang, & Shi, 2015*).

Major Theoretical Perspectives and Paradigms

Several perspectives and theories have been influential in shaping the thinking in this domain of research. Some of the most foundational perspectives used in career management and retirement research are reviewed briefly in this section.

Career Management

P-E fit perspective. Person–environment (P-E) fit theories have had a large influence on career research. *Parsons (1909)* is credited with one of the earliest forms of theorizing about the need for fit between individuals' interests and abilities and their work. Parsons stressed the importance of what has subsequently come to be known as "self-knowledge", "occupational knowledge" and "true reasoning (decision-making)." These three components feature in many subsequent theories, although often placed within a developmental or cyclical framework. Building upon Parsons' work, *Holland (1968; 1973)* proposed that individuals' career interests and work environments can be described by combinations of the following six interest areas: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional (RIASEC). He organized these interests visually on a hexagon, proposing that interests next to each other in the hexagon were more consistent. He also proposed that individuals working in environments matching their interest areas would be most satisfied. Holland's classification and

theory have had significant influence on both research and practice (*Nauta, 2010*), with one example being its extensive use in later versions of the Strong Interest Inventory (*Hansen & Campbell, 1985*) and its use as a categorization schema on O*NET (a comprehensive listing of occupational information in the U.S.; <https://www.onetonline.org/>).

The Minnesota Theory of Work Adjustment (TWA) is another detailed and well-researched theoretical model built on the premise of P-E fit (*Dawis & Lofquist, 1984*). Key components of this model highlight the value of commensurate but separate measurement of the person and the environment. For example, the theory separates the motivational aspects of interests and values and argues that their match contributes to job satisfaction. The theory also argues that a match between individuals' abilities and work requirements contributes to performance. The theory furthermore addresses the process of adjustment, and how individuals achieve and maintain correspondence with their work environments. TWA has been extended to examine the role of person–organization fit on satisfaction, tenure, and career success (*Bretz & Judge, 1994*).

Life span career development theories. *Super (1957)* introduced the concept of stages to describe and understand careers over the life span. Features of Super's theory incorporate ideas from *Parsons (1909)*, focusing on self-understanding and knowledge of opportunities with career choice being described as implementing one's self concept. In particular, *Super's (1957)* life span career stage model named five stages that individuals typically progress through during their careers: the Growth Stage (Birth–Age 14), Exploration Stage (Age 15–24), Establishment Stage (Age 25–44), Maintenance stage (Age 45–64), and Decline stage (Age 65 and on). According to this life span career development model, most career management-related activities (e.g., career interest development, career choice, professional training, and pursuing career success) happen during the first four stages described by the model, whereas the career-exit and retirement processes happen during the fifth stage. In a later revision of this model, *Super (1990)* recognized that individuals cycle and recycle through these various career stages. Therefore, he reconceptualized the career stages into a series of shorter career cycles that were less likely to be tied to specific ages.

Another theoretical lens that is influential in studying life span career development is *Levinson's (1978)* life stage theory of adult development. It is important to note that it is a developmental psychology theory; although it offers stage-based descriptions of adult development process, it does not directly speak to the specific career activities or development. Rather, it offers two useful theoretical notions to help understand the forces that shape a person's life (including career-related activities) at any given point in time. First, the life stage theory argues that a person's life structure primarily involves family and work and is influenced mainly by their social and physical environment. Second, the life stage theory argues that when a person moves from one developmental stage to another, he or she needs to go through a transition process. The transition process is critical in determining one's adjustment to the new life development stage. Both of these theoretical notions have been applied to studying career management and retirement phenomena in the life span context (*Haynie & Shepherd, 2011; Judge & Kammeyer-Mueller, 2012; Wang, 2007; Wang et al., 2008*).

Protean and boundaryless career models. Increased globalization, organization restructuring, technological change, outsourcing, and downsizing in the 1980s and 1990s contributed to new outlooks about careers and work, coined as protean (Hall, 1986) and boundaryless (Arthur & Rousseau, 1996). Both models are motivated by contexts in which individuals cannot depend on the organization they work for to direct their career progress, or to provide lifelong employment. Accordingly, the protean career model argues that individuals need to take charge of their own career and career progression, rather than the organization (Hall, 1986, 2002). As such, careers should be individually driven by one's personal values rather than organizational rewards. In addition, to enact protean careers, individuals need to be independent in taking action to adapt to the ever changing work environment. Taking together, individuals with a "protean" career orientation are both value-driven in terms of defining their career priorities and identity, and self-directed in terms of being adaptable to changing environmental demands (Briscoe & Hall, 2006). According to the protean career model, career success is more a matter of how satisfied individuals feel about their work and life, with core values focused on freedom and growth, not how much they make or the number of promotions they have obtained. This theoretical emphasis is shared by the boundaryless career model as well.

The boundaryless career model additionally argues that individuals' careers can transcend cultural and occupational boundaries (Arthur & Rousseau, 1996). In other words, individuals can take a boundaryless set of potential paths to form and develop their careers, which do not have to operate within a single organization. These paths may not involve progression, may require more consideration of family and extraorganizational networks, and emphasize subjective success (Sullivan & Arthur, 2006). The concept of the protean and boundaryless career stimulated studies examining how adaptability and openness to change are manifested by individuals as well as how ability to adapt shapes individual career outcomes (e.g., Dobrow Riza & Heller, 2015; Judge, Thoresen, Pucik, & Welbourne, 1999; Pulakos, Arad, Donovan, & Plamondon, 2000; Strauss, Griffin, & Parker, 2012; Stroh, Brett, & Reilly, 1992; Wanberg & Banas, 2000).

Cognitive and social cognitive theories. Cognitive and social-cognitive theories have been influential in the study of career choice (e.g., Van Eerde & Thierry, 1996) and career success (e.g., Dreher & Bretz, 1991). Expectancy-value theory, a cognitive theory of motivation, suggests that individuals make career choices consistent with their abilities as well as their perceptions of whether a given career will bring about valued outcomes (Vroom, 1964). An example application of this theory in JAP is a study that used paired-comparison of criteria (such as "opportunity to accomplish something worthwhile" and salary expectations) to study preferences for five types of careers and five types of organizations (Braunstein & Haines, 1968).

The backbone of social-cognitive theory is that individuals have individual differences in perceived agency and capability to act in a purposeful and motivated manner (Bandura, 1991). Social-cognitive career theory (Lent, Brown, & Hackett, 1994) draws from Bandura's work and suggests that self-efficacy is a key driver of career choice. These theories emphasize proactivity and self-regulation, and the processes of self-control that individuals use to stay focused, plan and coordinate actions, and persist when things get difficult. One example of the application of these theories in

JAP is a study of medical students which showed four elements of proactivity were important in career planning: envisioning, planning, enacting, and reflecting (Bindl, Parker, Tooterdell, & Hagger-Johnson, 2012). Another is Kanfer, Wanberg, and Kuntz (2001), conceptualizing job search as a self-regulated and self-motivated process of looking for work, thus opening up the study of antecedents and outcomes of job search as well as the study of job search persistence over time (Wanberg, Glomb, Song, & Sorenson, 2005).

Retirement

In applied psychology research, retirement has typically been conceptualized with three theoretical perspectives: retirement as decision making, retirement as an adjustment process, and retirement as a career development stage (Wang & Shultz, 2010; Wang & Shi, 2014).

Retirement as decision making. Conceptualizing retirement as decision making emphasizes retirement as a motivated choice (e.g., Beehr & Bennett, 2015; Feldman, 1994). This theoretical perspective assumes that after workers make the decision to retire, their work activities will monotonically decline over time and other life activities, such as leisure or community related activities, will increase. This perspective also emphasizes the importance of the retirement decision as a major life event and recognizes some normative motivations for people to retire, such as health issues, family care needs, attitudes toward one's job, employer, and career, and desires for leisure pursuits (Fisher, Chaffee, & Sonnega, 2016; Wang & Shi, 2014).

When studying retirement from the perspective of decision making, researchers often expect older workers to make their retirement decisions based on information they have regarding their own characteristics and their work and nonwork environment. Therefore, retirement decision making has been studied with rational choice theory, image and role theory, theory of planned behavior, and expectancy theory. For example, rational choice theory views the retirement decision as a result of comparing the financial resources accumulated and financial resources needed in retirement (Laitner & Sonnega, 2013; Martin & Xiang, 2015). According to this theory, people will retire when they feel that their accumulated financial resources and the forecast of future economic conditions allow them to meet their consumption needs in retirement.

Both image theory and role theory emphasize factors that relate to people's perceptions about themselves and their roles in the larger-societal context, such as their demographic status, work experience, marital life, type of industries, and productivity (Wang & Shultz, 2010). These factors form the base of comparisons for workers to evaluate whether the action of retirement matches their self-images or roles. If a good match is perceived, then the workers will make the decision to retire. The theory of planned behavior links workers' attitudes toward their jobs, organizations, and careers, to their retirement decision (e.g., Adams & Beehr, 1998; Zhan, Wang, & Yao, 2013). Accordingly, this theory emphasizes the importance of workers' attitudes toward retirement and its alternative—continuing working—in influencing their retirement decisions. Further, it highlights the role of perceived social pressure to retire in influencing an individual's retirement decision.

Finally, expectancy theory argues that workers' productivity, job characteristics, family situations, health status, and subjective life expectancy are associated to their retirement decisions (e.g., Madero-Cabib, Gauthier, & Le Goff, 2016; Shultz & Wang, 2007; Zaniboni, 2015). The general premise of this theory is that when retirees perceive low expectancy for reaching good productivity or receiving rewards from their work (due to their health status, job characteristics, skills or abilities, or family situations, etc.), they are more likely to retire instead of continuing to work.

Retirement as an adjustment process. Theorizing retirement from an adjustment perspective recognizes retirement as a longitudinal developmental process characterized by adjustment (van Solinge & Henkens, 2008; Wang, Adams, Beehr, & Shultz, 2009; Wang, Henkens, & van Solinge, 2011). In other words, it underscores the importance to understand the characteristics of the retirement transition process, rather than the decision of retirement itself. When conceptualizing retirement as an adjustment process, three theories are most frequently used to form research hypotheses. In particular, the life course perspective argues that a person's individual history (e.g., how people dealt with previous transitions, their work and leisure habits, and previous workforce participation patterns; Rudolph, 2016) and attributes (e.g., demographics, health and financial status, and transition related abilities and skills; Wang, 2007) influence how he or she accomplishes the transition to retirement. The general premise is that if an individual has cultivated a flexibility in dealing with life transitions, is less socially integrated with his or her work, and has the attributes that help facilitate the transition, the person will achieve better adjustment after transitioning into retirement (van Solinge & Henkens, 2008; Wang et al., 2011). Further, the life course perspective also emphasizes the specific contexts in which the transition occurs, such as older workers' job-associated statuses and roles (Wang, 2007; Wang et al., 2008; Zhan et al., 2013) and the social context (e.g., social network and family contexts; Szinovacz & Davey, 2004; Wang, 2007). Finally, the life course perspective predicts a positive adjustment trajectory into retirement, driven by gradually decreased psychological and physical demands associated with retirement lifestyle (Pinquart & Schindler, 2007; Wang, 2007).

Role theory conceptualizes retirement as triggering a role transition, which may weaken or eliminate work-based roles and strengthen the family- and community-based roles (Barnes-Farrell, 2003). Further, role theory argues that the role transition can lead to either positive or negative adjustment consequences, depending on whether the role transition is desirable or matches the individual's values and goals (e.g., Wang, 2007). Applying role theory, empirical studies often focus on examining impact of role stressors (e.g., Wang, 2007), role identities (e.g., M. A. Taylor, Shultz, Spiegel, Morrison, & Greene, 2007), and values and goals (e.g., Shultz, Morton, & Weckerle, 1998) on retirement adjustment.

Continuity theory argues that human beings have the general tendency to maintain consistency in life patterns over time (Atchley, 1999). Consequently, when going through life transitions, they can accommodate changes without experiencing a stressful disruption. Continuity theory predicts that only severe difficulty in maintaining general lifestyle will lead to unsuccessful adjustment to retirement. Examples of such difficulty include declines in health and financial status (e.g., Wang, 2007) and functional capacity change (e.g., Shultz & Wang, 2007).

Retirement as a career development stage. Instead of viewing retirement as a career exit, retirement can be conceptualized as a late career development stage with the continued potential for growth and renewal (Wang, Olson, & Shultz, 2013; Wang et al., 2008). This conceptualization is consistent with the protean career model reviewed earlier (e.g., Kim & Hall, 2013), paying attention to how retirees align their career goals with their work and leisure activities in retirement life. Accordingly, this theoretical perspective focuses on examining unique factors that are associated with retirees' career potential and career pursuit, which may inform retirees' workforce participation activities and patterns after they retire (Kalokerinos, von Hippel, & Henry, 2015; Wang et al., 2008; Zhan et al., 2015; Zhan et al., 2013).

Conceptualizing retirement as a late career development stage, empirical studies have endorsed a multilevel framework to understand retirees' career pursuit (Wang & Shi, 2014). At the individual level, factors that influence one's career capacity, such as physical aging (e.g., Gobeski & Beehr, 2009; Wang et al., 2008), experience and expertise (e.g., Kim & Feldman, 2000), and general motivational orientations (e.g., Zhan et al., 2015) may impact retirees' further career engagement and development. At the job level, issues such as keeping up with technology demands at work (Spiegel & Shultz, 2003), searching for desirable job characteristics (Adams & Rau, 2004), and coping with job stressors (Shultz, Wang, Crimmins, & Fisher, 2010) have been linked to retirees' career pursuit. Finally, at the organizational level, factors such as organizational climate related to age bias and discrimination (Finkelstein, King, & Voyles, 2015), organizational downsizings, and age-related managerial accommodations (van Dalen, Henkens, & Wang, 2015) have been associated with retirees' career pursuit. It is important to recognize that factors that may influence younger workers' career pursuits are not necessarily the same as those that may influence older workers and retirees' career pursuits (Kim & Hall, 2013; Wang et al., 2013). For example, a recent *JAP* article (Wang et al., 2015) showed that when receiving performance feedback, older workers cared more about the valence and the delivery manner of the feedback, while younger workers cared more about the quality of the feedback. This finding pattern underscores the motivational shift embedded in older workers and retirees' career pursuit (i.e., from pursuing growth to pursuing satisfactory social experiences).

Key Research Questions and Influential Findings

The historical review and theoretical perspectives sections provided an overview of the major research questions that have been the focus of *JAP* research over time. In this section we provide more detail about the specific research questions that received the most attention over the last 100 years. The Appendix provides a table showing an illustrative list of key articles within the refined scope of this review that have had the most scholarly influence as reflected through frequency of academic citations in Web of Science.

Developing and Validating Measures of Career Interests

As portrayed in Figure 1, early research focused on the development and validation of career interest inventories. The Strong

Vocational Interest Blank (SVIB) was the target of most of this research (e.g., *Barnette, 1943; Berdie, 1965; Harmon, 1969; McArthur, 1954; McArthur & Stevens, 1955; Porter, 1962*), but other inventories such as the Holland Vocational Preference Inventory (e.g., *Holland, 1958, 1968*), Minnesota Vocational Interest Inventory (e.g., *McCall, 1965; Silver & Barnette, 1970*), Kuder Preference Record (e.g., *Herzberg & Russell, 1953*), Edwards Personal Preference Schedule (e.g., *Goss, 1969*), Self-Directed Search (Costa, McCrae, & Holland, 1984), and the TALENT interest Inventory (Cooley, 1967) were studied extensively as well.

The original SVIB was developed by identifying items that differentiated men in specific occupations from men in general (Strong, 1927)—initial forms focused on men due to the higher representation of men in the workforce. Validation studies assessed whether interest scales could predict occupational choice and distinguish between individuals currently in different occupations (e.g., *Athelstan & Paul, 1971; Campbell, Borgen, Eastes, Johansson, & Peterson, 1968*). Early versions were valuable to users and counselors, yet the evaluation metrics were somewhat dismal by today's standards. As an example, *Campbell (1966)* identified 93 high school seniors who scored high on the "Life Insurance Salesman" SVIB scale. The scale accurately predicted occupational choice for 10% of the sample, with another 54% counted as "hits" because individuals went into closely related occupations. *Harmon (1969)* completed a study of women scoring high on the social work and laboratory technician scales. The scale accurately predicted the current job 11–13 years later for 9% of the sample, with 61–70% in similar occupations if homemakers were not included. Other research indicated that for individuals in the upper-middle and upper class, expressed interests are more useful predictors of occupational choice than scores on the Strong (*McArthur & Stevens, 1955*).

Due to these lackluster results, and because of the tremendous number of occupational scales that could be developed (*Rossmann, Lips, & Campbell, 1971*), it became apparent that a classification system or theoretical structure would be useful to categorize career interests and the scales within career interest inventories. While there were several early studies focused on grouping related occupations (e.g., *Farnsworth, 1969; Holland, Krause, Nixon, & Trembath, 1953*), one of the first comprehensive factor analyses of the SVIB at the item level was published in *JAP* by *Rounds and Dawis (1979)*. In what was a dramatic move at the time (because the Strong Interest Inventory was so sacred), Holland's RIASEC categorization of occupations was applied to the SVIB in 1972 (*Campbell & Borgen, 1999*). The theoretical structure helped solve the difficulty of trying to produce an inventory that could identify a specific occupation for an individual. Instead, individuals were pointed toward their primary RIASEC category (or categories), and informed about which occupations were identified with each RIASEC category.

Early versions of the SVIB had separate men and women forms. Several *JAP* studies focused on understanding the nature of women's interests and life goals, and differences between men and women (*Astin & Nichols, 1964; Bartol, 1976; Brief, Rose, & Aldag, 1977; Johnson, 1971; Murray, 1981; Perry & Cannon, 1968*). It is clear with earlier research that the concept of women working was fairly new. *Parker (1966)* used the Career and Marriage Attitude Inventory to assess if "the orientation of girls toward

careers and marriage are worthwhile avenues for the study of vocational development" (p. 232). Research at that time also suggested that working "is psychologically more central for men" (*Kuhlen, 1963*, p. 56) and because working outside the home is not traditional, women "may encounter increased role conflicts, time pressure, prejudice, and discrimination" when seeking employment (*Hall & Gordon, 1973*, p. 47). By the 1970s, occupational preferences of men and women were converging (*Bartol & Manhardt, 1979; Wertheim, Widom, & Wortzel, 1978*). It was noted that "working wives are simultaneously capable of showing high interest and concern both for the job and the family" (*Gannon & Hendrickson, 1973*, p. 340). At the same time, self-perceptions and lower proportion of women in any given occupation were found to reduce women's likelihood of choosing management and male dominated occupations (*Heilman, 1979; Terborg, 1977*). The SVIB received highly negative attention during this time for having separate pink (women) and blue (men) forms. The men and women's versions of the SVIB were combined in 1974 (*Campbell & Borgen, 1999*).

Research in *JAP* also examined the extent to which occupational interests are stable over time (*Lau & Abrahams, 1972*). As individuals age, their interests become more stable, and stability increases when there is a shorter time between assessments (*Gottfredson, 1977; Johansson & Campbell, 1971*). Findings using the Project Talent Interest Inventory suggest that there is substantial change in interests from ninth to twelfth grade (*Cooley, 1967*). *Gottfredson (1977)*, in a longitudinal study with a 5-year interval, used the Holland classification to examine career stability and change in a large sample of men and women aged between 20 and 70. The findings indicated that stability of careers was higher among those who initially worked in areas with a consistent Holland classification (e.g., those containing mainly Realistic and Investigative components which appear next to each other in the theory's hexagon, as distinct from one containing Realistic and Social components, which are on opposite ends of the hexagon).

Predictors and Outcomes of Career Interests and Career Choice

What factors explain why individuals choose the occupations they do? And what are the consequences of their choices? Several *JAP* studies have contributed to answering these key questions. Results suggest that ability, biographical data (e.g., parental involvement and socioeconomic status, student's school activities, sports participation, and extrafamilial relationships), and personality characteristics are associated with career choice. For example, data from Project Talent, a large, nationally representative study of high school students, showed that general, mathematical, and verbal ability predicted occupational attainment of 13,248 individuals 11 years after graduation (*Austin & Hanisch, 1990*). Consistent with the idea that artistic and scientific occupations involve being independent, intellectual, and less social, women who grew up with less parental control and popularity with the opposite sex were more likely to be interested in scientific and artistic topics (*Neiner & Owens, 1985*). Higher openness to experience is associated with having Investigative and Artistic interests, and higher extraversion is associated with having Social and Enterprising interests (*Costa et al., 1984*). Lower openness to experience is associated with having Conventional Interests (typ-

ified by jobs involving detail orientation, organization, and the need for accuracy) (Costa et al., 1984). A study by Wille and De Fruyt (2014) similarly found that individuals with higher extraversion tended to be in jobs with higher Social and Enterprising attributes, and individuals with higher openness to experience were in jobs with higher Artistic and Social attributes. The authors also found that the occupational environments that individuals are in are associated with personality change over time. For example, over a 15 year period, being in a Realistic occupation (typified by work that is physical, outdoors, using tools, and/or mechanical in nature) was associated with stronger declines in neuroticism and stronger increases in conscientiousness and agreeableness (compared to individuals in less prominent Realistic occupations) (Wille & De Fruyt, 2014). These findings suggest that occupations reinforce and reward individuals for certain personality traits and that personality change is to some extent influenced by occupational choice.

Experience is another key predictor of both career interests and the ability to narrow down one's career choice. Previous entrepreneurial experience, being male, and risk propensity are related to interest in entrepreneurial activities, with most of these predictors being mediated through entrepreneurial self-efficacy (Zhao, Seibert, & Hills, 2005). College internships can help students get a clearer idea of their occupational abilities and interests (M. S. Taylor, 1988).

While interests have been studied in relation to occupational choice, their effect on job performance has been studied less frequently. Van Iddekinge, Putka, and Campbell (2011) examined the relationships between career interests, job performance, and intentions to stay with the military. The study used a sample of 418 soldiers in four job categories with high levels of Realistic job content (close combat, maintenance, surveillance, and logistics/supply). They found that soldiers with higher levels of Realistic interests had more technical job knowledge and continuance intentions. Soldiers with higher Social interests had more interpersonal knowledge and continuance intentions. Career interests were related to job performance above and beyond measures of cognitive ability and personality, suggesting that interest assessments may be valuable in some selection contexts. Providing further evidence of the relationship between career interests and performance, a meta-analysis by Van Iddekinge, Roth, Putka, and Lanivich (2011) reported a .14 correlation between interest scales and job performance, .26 with training performance, and $-.15$ with turnover.

Finally, a recent JAP article by Le, Robbins, and Westrick (2014) used the P-E fit framework in the prediction of student college choices and persistence in science, technology, engineering, and mathematics (STEM) fields. They refer to this as an expanded P-E fit model as they included both ability-demands fit and interest-vocation fit, as well as their interactions. Their data support the independent and interactive roles of interests and abilities in predicting STEM choices and persistence.

What Is the Nature of Career Success and Who Achieves It?

In addition to the many studies in the last century that have focused on predictors of successful job performance for specific jobs or organizations (see Ployhart, Schmitt, & Tippins, 2017),

significant progress has been made in understanding how and what types of individuals achieve career success more generally. Reflecting the idea that career success is manifested in different ways, researchers have operationalized career success with a broad set of objective (i.e., earnings, occupational prestige, educational attainment, budget responsibilities) and subjective measures (i.e., job satisfaction, life satisfaction, and career satisfaction) (e.g., Childs & Klimoski, 1986; Judge & Kammeyer-Mueller, 2012; Porter, 1965; Wakabayashi, Graen, Graen, & Graen, 1988; Wolff & Moser, 2009).

JAP research has shown the importance of both individual differences (i.e., cognitive ability and personality) and structural variables (i.e., early career success, family socioeconomic status, and networks) in achieving career success (Dodd, Wollowick, & McNamara, 1970; Dreher & Bretz, 1991; Judge, Klinger, & Simon, 2010). Psychological perspectives suggest that individual differences affect career success by facilitating skill acquisition, motivation, and emotional intelligence. In contrast, structural or sponsored-mobility perspectives suggest that select individuals deemed as high potential or desirable are more likely to receive opportunities that accelerate their success or position. Taken together, the research in JAP has woven a fascinating story of the contribution of myriad variables to career success.

For starters, research has explicated the role that intelligence plays in objective career success. Annual compensation of 136 graduates of an MBA program was predicted by their grades (Weinstein & Srinivasan, 1974). Supporting a sponsored-mobility perspective, Dreher and Bretz (1991) found that individuals that begin their careers with higher levels of success are more likely to achieve higher job levels in subsequent years, perhaps in part because individuals with early achievement get earlier and more substantial attention, opportunity, and coaching. However, Dreher and Bretz (1991) also found that in cases where individuals did not experience early career success, high cognitive ability helped individuals catch up later. Another study following 320 profoundly gifted individuals reported participants were 50 times more likely to pursue doctoral degrees than average, putting them in the position to work in prestigious and highly paid occupations (Lubinski, Webb, Morelock, & Benbow, 2001). Judge et al. (2010) found that individuals with higher cognitive ability experienced faster increases in income and occupational prestige over a period of 28 years than individuals with lower cognitive ability. Consistent with a "cumulative advantage framework," individuals with higher cognitive ability advanced more rapidly over time in part because they completed more (and extracted more benefit from) education, training, and secured more complex jobs.

Specific actions that individuals and organizations can take to promote success have also been examined. Seibert, Crant, and Kraimer (1999) highlighted the idea that individuals can actively influence their career path. They showed that proactive personality (a disposition toward planning, taking action, and perseverance) contributed to the prediction of log salary, number of promotions, and overall satisfaction with one's career above and beyond demographic variables, education, field, and industry. Individuals with clearer images of their "future work selves" are more likely to engage in proactive career behavior such as developing new skills, career planning, and networking (Strauss et al., 2012). An intervention to help midcareer individuals enhance their career management skills was developed by Vuori, Toppinen-Tanner, and

Mutanen (2012). The training included clarifying strengths and career interests, attaining career information from social networks, and discussing career knowledge and skills, all aimed at improving the ability to be aware and proactive about career choices and growth. Individuals assigned randomly to this training had a significant increase in career management preparedness and decreased depressive symptoms. *Wolff and Moser (2009)* found that networking was related to both objective (salary) and subjective (satisfaction with one's career) success. In particular, individuals who maintained internal organizational contacts were more likely to experience steeper salary growth over a 3-year period. Relatedly, switching jobs rather than staying with the same organization is associated with increases in compensation, although this effect was only found for men but not for women (*Brett & Stroh, 1997*). As described in the centennial review focused on organizational socialization and mentoring (*Allen, Eby, Bauer, & Chao, 2017*), research in *JAP* also documents the career benefits of having a mentor, and the extent to which formal mentoring programs can provide the same benefits as informal mentors.

Research published in *JAP* points to the critical role of self-concept and ambition in shaping career success. *Judge and Hurst (2007)* conducted an investigation of whether core self-evaluation (CSE) in adolescence is related to income at midlife, and whether these traits help individuals with other benefits such as high family socioeconomic status get even further ahead. Their results showed that individuals with higher socioeconomic status and academic attainment were more likely to have higher income later if they had a high CSE. When CSE was low, high socioeconomic status and academic credentials made little difference to income. *Judge and Kammeyer-Mueller (2012)* examined the role of ambition ("the persistent and generalized striving for success, attainment, and accomplishment"; p. 759) in achieving career success. They found individuals with higher conscientiousness, extraversion, and lower neuroticism were more ambitious, as were individuals with parents that had more prestigious occupations. Higher ambition was associated with higher educational attainment, income, and occupational prestige. An 8-year follow up of individuals evaluated in an assessment center showed that aggressiveness, persuasiveness, oral communication, and self-confidence were positive predictors of later position level (*Hinrichs, 1978*).

Finally, research published in *JAP* has been instrumental in empirically establishing whether, and to what extent, demographic variables such as gender and physical characteristics such as height and weight might have an impact on career outcomes. *Stroh et al. (1992)* assessed the salary progression of men and women managers from 20 large companies. The authors concluded that work-force experience, education, and industry of employment were the strongest predictors of salary progression. Yet, the female managers and professionals in the study, despite being equally educated and being employed at the same rate in the highest paid industries, had slower salary progress than men (*Stroh et al., 1992*). Many additional questions have been studied in relation to gender including similarities and differences of leadership styles and work experiences of women and men (e.g., *Jago & Vroom, 1982; Lyness & Thompson, 2000*), reactions and attributions toward women who are mothers, successful on male-typed tasks, or in ambiguous situations (e.g., *Heilman & Haynes, 2005; Heilman & Okimoto, 2008; Heilman, Wallen, Fuchs, & Tamkins, 2004*), and how gender affects mentoring relationships (*Dreher & Ash, 1990; Ragins &*

Cotton, 1999; Ragins & Scandura, 1997) and work life conflict (*Duxbury & Higgins, 1991*). Detailed reviews on the role of gender in careers are provided by *Colella et al. (2017)* and *Roberson et al. (2017)*.

A meta-analysis ($k = 45$) by *Judge and Cable (2004)* showed a corrected correlation of .26 between height and career success outcomes including promotions and higher earnings. Four follow-up studies reported by the same authors led to the conclusion that an "individual who is 72 in. tall would be predicted to earn almost \$166,000 more across a 30-year career than an individual who is 65 in. tall" (*Judge & Cable, 2004*, p. 437). The authors did not find evidence that the height-success relationships were significantly different across gender. However, weight plays a stronger role in the career success of women than in men. *Judge and Cable (2011)* used data from a large panel study in Germany and showed very thin and very heavy men had lower earnings than average men. For women, the very thin (-2 SDs below average) earned the most, with a negative relationship between weight and overall earnings. Their results show that "all else equal, a woman who is average weight earns \$389,300 less across a 25-year career than a woman who is 25 lbs. below average weight" (*Judge & Cable, 2011*, p.109).

Job Loss, Adaptability, and Career Transitions

What do we know about the experience of job loss and other career transitions and changes adults experience before retirement? Research published in *JAP* has been instrumental in enhancing the understanding of the experience of unemployment, and has elucidated characteristics of individuals who are more adaptable to change in organizations. Less research has focused on voluntary midlife career transitions, beyond that covered by studies of turnover (which tend to focus on factors that explain why individuals quit their jobs).

The largest of these three literatures has been on job loss and unemployment. A meta-analysis of 52 cross-sectional studies and 23 longitudinal studies found unemployed individuals experience lower mental and physical health than employed individuals, with improvements in health once reemployed (*McKee-Ryan, Song, Wanberg, & Kinicki, 2005*). Unemployed individuals show most improvement in measures of well-being when they find satisfactory, as opposed to dissatisfactory, work (*Winefield, Winefield, Tiggeman, & Goldney, 1991*). Correlates of better well-being during unemployment include having a positive core self-evaluation, higher financial resources, higher social support, and lower work role centrality (*Jackson, Stafford, Banks, & Warr, 1983; McKee-Ryan et al., 2005*). Engaging in job-search behavior is negatively associated with well-being during unemployment (*Gowan, Riordan, & Gatewood, 1999; McKee-Ryan et al., 2005*), except for individuals who feel confident they will find work (*Wanberg, 1997*).

Research in *JAP* has also enhanced the theoretical and empirical understanding of the predictors of job search intensity, reemployment speed, and reemployment quality after job loss (*Ellis & Taylor, 1983; Prussia et al., 1993; Saks & Ashforth, 2002; Wanberg et al., 1999, 2000; Wanberg, Hough, & Song, 2002; Wanberg, Watt, & Rumsey, 1996*). *Kanfer et al. (2001)* developed a self-regulatory framework to organize and report the meta-analytic relationships between personality, social, motive, biographical, and individual difference variables and job search behavior and

reemployment outcomes. The meta-analysis suggests the strongest correlates of job seekers putting more time into job search are their levels of extroversion, openness, conscientiousness, self-efficacy, and employment commitment. The strongest correlates of reemployment status and unemployment duration were time and effort devoted to the job search, higher self-esteem, and higher social support (Kanfer et al., 2001).

A pioneering intervention to help unemployed individuals find quality work and sustain motivation during their job search was developed and tested by Caplan, Vinokur, Price, and van Ryn (1989). The intervention involved teaching job search skills and emphasized theory-driven concepts such as inoculation against setbacks and social support. Individuals who were randomly assigned to the intervention (eight 3-hr sessions) were reemployed faster and received a higher wage in their new jobs than individuals in a control condition (Caplan et al., 1989). The return on investment and lasting benefits of the program, later named the JOBS Program, was documented by Vinokur, van Ryn, Gramlich, and Price (1991). Another influential intervention involving self-efficacy training to speed reemployment was developed by Eden and Aviram (1993).

Judge et al. (1999) conducted one of the first studies (in both JAP and elsewhere) to understand the characteristics of managers who are more able to adapt to large scale organizational change and whether such adaptability has career consequences. Participants in their study were managers from six organizations that were in the midst of extensive changes, involving reorganization, downsizing, changes in management, and mergers. Their findings suggested that positive self-concept and risk tolerance were positively associated with coping with organizational change, and that the ability to cope more easily with change was associated with higher salary, higher independent assessments of job performance, and lower self-reports of career plateauing (Judge et al., 1999). When employed in a context where change is rampant, employees who are less open to change also tend to have lower job satisfaction, higher work irritation, and stronger intentions to quit (Wanberg & Banas, 2000). A review of critical incidents from 21 different jobs found that adaptive performance includes being able to deal with uncertain, unexpected, or stressful work situations, being creative and open to new ideas, enthusiasm for learning new work tasks, and interpersonal and cultural adaptability (Pulakos et al., 2000).

Beyond the extensive research that has examined employee onboarding (see Allen et al., 2016) and factors contributing to turnover (see Hom, Lee, Shaw, & Hausknecht, 2017), research on career change and transitions has been sparse. Career changers are more likely to be in occupations incongruent with their personalities (Gottfredson, 1977; Wiener & Vaitenas, 1977). A recent qualitative case analysis examined the career transitions of 10 soldiers disabled in combat (Haynie & Shepherd, 2011). The injuries sustained by the soldiers led to a shattering of their career identity—who they were and how they contributed to society. The reported analysis suggested that being able to develop and solidify a new, coherent, and future-oriented “career narrative” distinguished the soldiers who transitioned well from those who did not. Soldiers that transitioned better also spent less time in emotion-focused coping, such as drinking, using drugs, or sleeping, and moved more quickly into problem-focused coping.

Retirement Decision Making

The most important research question regarding retirement decision making is what factors drive workers to retire, if there is no mandatory retirement policy (Wang & Shultz, 2010). Empirical research has attempted to answer this question by testing predictors of retirement decision at different levels. Some of the most salient predictors of the decision to retire are at the individual level. For instance, those with more accumulated financial resources and higher levels of perceived adequacy of those resources (Laitner & Sonnega, 2013) are more likely to retire, as are those with poor actual and perceived health conditions (Shultz & Wang, 2007). Age is also a strong predictor: the older the individual is, the more likely that the individual will retire (e.g., Adams & Beehr, 1998; Kim & Feldman, 2000). Highly educated workers are less likely to retire and those with lower levels of education (e.g., Wang et al., 2008). Finally, some recent evidence suggests that individuals low in conscientiousness retired earlier than those who were high in conscientiousness (Lockenhoff, Terracciano, & Costa, 2009).

At the job level, workers in jobs with higher substantive complexity were less likely to retire, while workers in jobs with greater physical and psychological demands (Gobeski & Beehr, 2009) or those dissatisfied with their job (Kalokerinos et al., 2015; Wang et al., 2008) are more likely to retire. On the other hand, Adams and Beehr (1998) have shown that organizational commitment and career attachment are negatively related to the decision to retire. Further, at the family level, having a retired spouse, receiving higher levels of family support, and having to take care of dependents are all positively associated with decision to retire (Henkens & van Solinge, 2002; Szinovacz & Davey, 2004).

Finally, at a more macro level, Settersten and Hagestad (1996) reported that workplace and societal norms regarding appropriate retirement ages were positively associated with the decision to retire. Individuals who were behind schedule in their career advancement or had plateaued felt more pressure to retire. Research has also shown that raises in Medicare eligibility age would lead employees without employer health insurance beyond retirement to delay their retirement (French & Jones, 2004). Similar impact on retirement decision making is also noted for any raises in social security eligibility age (Merrin, Johnson, & Murphy, 2007).

One JAP article that has made significant contribution in addressing this research question is Talaga and Beehr (1995). This study was among the first that investigated gender differences in retirement decision-making and found that women's (but not men's) odds of being retired increased dramatically if they had more dependents living with them. They also found that women whose spouses were in poor health were more likely to retire than those whose spouses were not in poor health, and the opposite was true for men. Further, Talaga and Beehr (1995) found that patterns altered when different measures of retirement decision were used. Specifically, their findings are quite consistent when retirement was operationalized as pension status and self-attributed status. However, when retirement is operationalized as the degree of retirement (i.e., number of hours people work per week), the predictors became nonsignificant.

Retirement Adjustment

The two most important research questions on the topic of retirement adjustment are, (a) What is the general impact of retirement on the people's well-being? and (b) What are the factors that influence outcomes of retirement adjustment? One significant *JAP* article by *Wang (2007)* offered comprehensive answers to both questions. Regarding the first question, before *Wang (2007)*, the literature has demonstrated greatly mixed findings in terms of impact of retirement. Some research has found that retirees, in comparison with workers, tend to report greater depression and loneliness, lower life satisfaction and happiness, a less positive view about retirement, and lower activity levels (e.g., *Kim & Moen, 2002*). In contrast, other research has found most individuals tend to look forward to retirement (e.g., *Dorfman, 1992*), as well as report being satisfied with retirement (e.g., *Calasanti, 1996*). Finally, retirement has been shown to be a benign event with no apparent impact on an individual's well-being (e.g., *Wu, Tang, & Yan, 2005*). To reconcile these inconsistent findings, *Wang (2007)* hypothesized that multiple forms of retirement transition and adjustment coexist in the retiree population and indeed influence their well-being in different ways. Using longitudinal data from two nationally representative cohorts from the U.S. Health and Retirement Study and the growth mixture modeling technique (*Wang & Bodner, 2007*), the study demonstrates that over an 8-year time period of retirement adjustment process, about 70% of retirees experienced minimum psychological well-being changes; about 25% of retirees experienced negative changes in psychological well-being during the initial transition stage, but then showed improvements afterward; and about 5% of retirees experienced positive changes in psychological well-being. *Wang's (2007)* findings were further corroborated by *Pinquart and Schindler (2007)*, who used a nationally representative sample of German retirees from the German Socioeconomic Panel Study and found that during retirement transition and adjustment, about 75% of German retirees experienced trivial changes in life satisfaction; about 9% of German retirees experienced significant decrease in their life satisfaction during the initial transition stage, but continued on a stable or increasing life satisfaction trajectory thereafter; and about 15% of German retirees experienced significant increases in their life satisfaction. Taken as a whole, both studies suggest that retirement does not necessarily influence people's well-being (for at least 70% of the retiree population) as previous literature suggests. Rather, the same retirement decision may lead to different adjustment processes in retirement for different retirees (*Heybroek, Haynes, & Baxter, 2015; Wang & Shultz, 2010*).

Regarding the second research question, *Wang (2007)* is also the first that comprehensively examined the effects of individual attributes, preretirement job-related variables, family related variables, and retirement transition-related variables on retirement adjustment. Specifically, he found that retirees who (a) held a bridge job, (b) engaged in more retirement planning, and (c) were married and had a spouse who was present and not working were more likely to maintain their well-being after entering retirement. Retirees who retired from (a) physically demanding jobs, (b) stressful jobs, and (c) jobs with low job satisfaction were more likely to experience positive well-being changes after entering retirement. Retirees who (a) experienced objective health declines, (b) had an unhappy marriage, and (c) retired earlier than they

expected were more likely to experience negative well-being changes.

In addition to *Wang's (2007)* findings, previous literature has also shown that retirees' financial status to be positively related to their retirement adjustment (e.g., *Pinquart & Schindler, 2007; Quick & Moen, 1998; Reitzes & Mutran, 2004*). Further, retirees' work role identity (e.g., *Quick & Moen, 1998; Reitzes & Mutran, 2004*) is negatively related to retirement adjustment, whereas job challenges (e.g., *van Solinge & Henkens, 2008*) and unemployment before retirement (e.g., *Marshall, Clarke, & Ballantyne, 2001; Pinquart & Schindler, 2007*) are positively related to retirement adjustment. Research has also shown that retirees with fewer numbers of dependent children to support are more likely to achieve better adjustment outcomes (e.g., *Kim & Feldman, 2000; Marshall et al., 2001*), whereas losing a partner during the retirement transition has negative impact on retirement adjustment (*van Solinge & Henkens, 2008*). Finally, the voluntariness of the retirement (e.g., *Reitzes & Mutran, 2004; van Solinge & Henkens, 2008*), and volunteer work and leisure activities after retirement (e.g., *Kim & Feldman, 2000*) are all positively related to retirement adjustment.

Bridge Employment

Bridge employment is defined as the pattern of labor force participation exhibited by older workers as they leave their career jobs and move toward complete labor force withdrawal (*Beehr & Bennett, 2015; Wang et al., 2008*). The most important research question on this topic regards what factors drive different bridge employment decisions (*Wang et al., 2009*). Two *JAP* articles have played important roles in addressing this question. First, conceptualizing retirement as a career stage, *Wang et al. (2008)* was among the first to recategorize bridge employment decisions into three primary types: career bridge employment (i.e., individuals accept bridge employment in the same industry/field as their so-called career jobs), bridge employment in a different field, and full retirement. On the basis of this theoretical advancement, *Wang et al. (2008)* examined four categories of antecedents for bridge employment decisions: individual attributes, job-related psychological variables, family related variables, and retirement planning-related variables. They found that retirees who were younger, received more years of education, had better health, experienced less work stress at preretirement jobs, and thought less about retirement, were more likely to engage in either career bridge employment or bridge employment in a different field than full retirement. Further, retirees who had better financial conditions, and experienced less work stress and higher job satisfaction at preretirement jobs were more likely to engage in career bridge employment than bridge employment in a different field.

Second, drawing on the meaning of work model and socioemotional selectivity theory, *Zhan et al. (2015)* was the first to examine the effects of motivational orientations (i.e., status striving, communion striving, and generativity striving) on bridge employment, above and beyond previously known predictors. This study also applied the social gender role theory to examine the effect of gender in moderating the effects of motivational orientations. These authors found that communion striving and generativity striving were positively related to bridge employment participation. Further, gender moderated the effect of status striving such

that status striving was positively related to bridge employment participation for male retirees but not for female retirees. Taken together, these findings suggest that retirees' actual decisions to work after retirement were likely driven by different needs associated with their social gender roles.

In addition to *Wang et al. (2008)* and *Zhan et al. (2015)*, previous studies in other journals have also shown that job tenure, career commitment, organization commitment, meaning of work, having a working spouse, and having dependent children were all positively related to bridge employment, whereas salary at retirement, economic strain, and the declination of early retirement opportunity were negatively related to bridge employment (*Fasbender, Wang, Voltmer, & Deller, 2016; Gobeski & Beehr, 2009; Kim & Feldman, 2000; Zhan et al., 2013*).

Future Research Directions

Tremendous progress has been made in the last 100 years in applied psychology research on individual careers. While any one piece of research may seem small, together they represent a significant body of knowledge. In the last 100 years the profession has developed and validated useful interest and self-rated ability based assessments to help individuals choose a career—an amazing example of persistence and progression of research. Substantial progress has also been made in understanding how interests, values, personality, and biographical variables affect career choice, and the importance of individuals being in jobs congruent with these factors. Research on career success has identified its key predictors and their interactions, studied trajectories of career success over time, and recognized that career success does not look the same to everyone. We now have a solid understanding of the experience of transitions such as unemployment and retirement, and information about key predictors of adjustment during these experiences. As time passes, new issues emerge, and methodological and theoretical advances allow the exploration of questions from new angles. Future research should continue the strong trajectory it is currently on. In addition, there are several areas that we suggest need more attention.

First, we suggest that career management scholars have a great deal to offer in providing insight into several pressing social and economic issues, and that more attention might be put toward these issues. A prevailing paradigm within the career management literature, for example, is that of the importance of person-environment fit. This paradigm makes intuitive sense and is difficult to argue with. Individuals tend to be happiest if they are in an occupation that aligns with their interests and abilities. But to what extent does society and career counseling take this paradigm ("pursue your dreams!") too far? After all, there is a contemporary need to understand how and when to help individuals make career choices that are also aligned with organizational and societal talent needs (*Dobrow Riza & Heller, 2015*). Recent discussions highlight the economic costs associated with employer talent shortages and the need to provide more timely and fine-tuned labor market information about occupations that have the most job openings (and specific skill needs) to labor force participants and academic programs (U.S. Department of Labor, U.S. Department of Commerce, U.S. Department of Education, & U.S. Department of Health & Human Services, 2014). Several important questions requiring a psychological perspective exist and have been only infrequently touched upon (e.g., *Steel, 1996*). To what extent do

individuals incorporate labor market data into their decision making, and what are the characteristics of individuals who are most likely to do so? What are the advantages and disadvantages of making career choices based more substantially on market needs? How can current labor market data be used to help individuals desiring a career change transition into new work? To what extent does the U.S. culture emphasize individual interests as a driver of career choice in contrast to other cultures? Research has not sufficiently examined the frequency and consequences of individuals choosing majors congruent with their interests, only to graduate into a field that has very low placement rates and career prospects. We call for more research on the labor market component of P-E fit in career decision making.

Another contemporary issue is that of wage inequity, living wages, and poverty. Issues of minimum and living wage are largely in the domain of sociology and economics, yet psychology (and the domain of career management research) has a lot to contribute. What is it like to be working two or three jobs to make ends meet? Individuals working multiple jobs at low wages clearly have high motivation—to what extent have interests, skills, ability, or structural issues kept them from finding work with higher pay? It would be useful to apply the rich knowledge and methodology from career success research to the examination of high need and understudied populations, such as inner city youth, immigrants, or other minorities. *Chua and Rubenfeld (2014)* propose individual differences including insecurity and impulse control are important in propelling success in disadvantaged populations. For example, they note "Parents deliberately instilling insecurity in their children is almost unthinkable. Yet insecurity runs deep in every one of America's rising groups" (p. 3). A deeper understanding of the role and outcomes of these individual differences would be fascinating. These authors also discuss cultural differences that would be valuable to explore further. For example, they note a tendency for Chinese immigrant parents to have very high expectations for their children (*Chua & Rubenfeld, 2014*).

Related to the above, we want to make a quite specific and strong call for more research on the work lives and careers of ethnic minorities. It is excellent and appropriate that a significant amount of attention has been devoted to understanding career issues and barriers faced by women, but there is a significant research gap when it comes to studying the same issues among minority groups. In the U.S., only 76% of Hispanics and 68% of African American students graduate from high school, a rate 10% to 15% lower than Whites (*Pannoni, 2014*). While this might arguably be dismissed as the domain of other fields of research such as public policy or sociology, we contend that career management research in this arena is critical. Similar to the scope of work that has been conducted for men versus women, research is needed to not only understand ethnicity differences in career interests, goals, and preferences and career progression but also to examine how these trends change over time. In the next 20 years, it would be ideal if a new review of this literature marked a dramatic increase in our understanding of minority career choices, interests, paths, and barriers.

Another contemporary issue that could use additional attention is mid- or later-stage career change (*Mangelsdorf, 2010; Wang et al., 2013*). Different from job change within the same field, career change refers to a more dramatic switch to a new area of work. For example, take a 50-year old widow(er) or divorcee whose job does not make ends meet and needs to get more education or training to

find a higher paying position. Or, another consideration is a stay-at-home parent who is beginning a career at a later age. Research on this topic is minimal across all journals, and within *JAP* only have few articles specifically addressed career change (Gottfredson, 1977; Haynie & Shepherd, 2011). Research has examined decisions to pursue graduate education (Seibert, Kraimer, Holtom, & Pierotti, 2013), but this was among early career individuals. It would be highly valuable for scholars to provide more concrete information regarding the incidence of career change in our society, and to advance our understanding of the antecedents and positive and negative consequences of career change. The process itself of career change should be illuminated, as well as moderators of successful and unsuccessful attempts to change. Career change interventions (i.e., workshops) should be made available to individuals in their later career, and their effectiveness should be examined (Liu, Huang, & Wang, 2014). Relatedly, the protean (Hall, 1986) and boundaryless (Arthur & Rousseau, 1996) career conceptualizations are now being taken to a new level with an increase in temporary help agency work, contract workers, and independent contractors and freelancers (Katz & Krueger, 2016). The implications of what has been termed the “gig economy” and what it means for careers and the nature of work has been noted to have both benefits and drawbacks (Wartzman, 2016), and must be sorted out through empirical research.

With retirement playing a larger role in individuals’ lives, we also suggest that there is a need for more work linking individuals’ career trajectories with their postwork choices. Few studies have been conducted to directly link people’s career development history with their retirement transition and postretirement career experience. This is surprising, because the central premise of the life course perspective is that the variability in people’s life developmental history and context will influence their subsequent life transitions (Wang & Shultz, 2010). For example, from a career/job change perspective, as Wang et al. (2013) theorized, it is conceivable that features of one’s job/career history, such as the number of job/career cycles one had, the average length of job/career cycles, the various types of jobs/careers one held, the financial resources accrued over job/career cycles, as well as the ways one moved from one job/career to another, may play important roles in shaping how the person makes decision about retirement and what types of work-related activities that the person will engage in his or her retirement. Similarly, given that the cumulative advantage framework has been used to theorize and examine how cognitive ability shape long-term career development (e.g., Judge et al., 2010), it may also be fruitful to apply the same framework to examine how seemingly small differences in early career development may eventually lead to very different experiences in retirement transition and adjustment. From a methodological perspective, to fulfill the research potential in addressing these questions, computational modeling may be an extremely useful tool (Wang, Zhou, & Zhang, 2016). A computational model provides a mathematical depiction of a phenomenon of interest by using computational languages (e.g., mathematical equations or logical if—then statements) to represent the theoretical mechanisms underlying the dynamic processes associated with the phenomenon (Kozlowski, Chao, Grand, Braun, & Kuljanin, 2013; Wang et al., 2016). As such, a computational model is able to generate predictions and simulations about the dynamic states of the focal phenomenon over time. Future research can use compu-

tational modeling to further integrate theories about life span career development and retirement decision-making, describing and predicting how career trajectories emerge and later become inputs for forming retirement decisions. Further, an integrated computational model could also be developed to examine how various individual differences and life contexts influence different aspects of career and retirement processes over time.

Finally, Wang et al. (2009) have discussed how retirement is becoming an additional career stage for adults. That is, retirement is no longer seen as the end of one’s working life, but as an opportunity to continue one’s work life in a different venue and/or form. However, such work-related pursuit in retirement is also shaped by the changing nature of work. For example, work on the whole is becoming less physical but more dynamic, which may create a stressful work environment that pushes older adults to exit labor force and discourages them to continue working after retirement (Shultz et al., 2010). Therefore, to better understand postretirement work activities, future research needs to consider the evolving nature of work, careers, families, and the organization of work (Shultz & Wang, 2011). Relatedly, future studies should also investigate a wider range of postretirement activities. For example, both paid work and unpaid volunteering activities should be examined in more depth, basing on their respective meanings to retirees. Specifically, it is important to recognize that the needs served by work-related pursuits may also be met by non-work activities (Zhan et al., 2015).

Conclusion

In summary, the first several decades of research in this domain focused on career interest measurement and choice. It was only in the later 1980s where research broadened to include myriad other career related topics. Post-2000 research has involved a broad array of questions with improved sophistication of both questions and methodology. We suggest future research directions for scholars, including an increased focus on several contemporary issues.

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Appendix

Illustrative Listing of Highly Cited Papers Published in Journal of Applied Psychology on Career Management and Retirement

1. McKee-Ryan, F. M., Song, Z., Wanberg, C. R., & Kinicki, A. J. (2005). Psychological and physical well-being during unemployment: A meta-analytic study. *Journal of Applied Psychology*, 90, 53–76. (cited 452 times)
2. Judge, T. A., Thoresen, C. J., Pucik, V., & Welbourne, T. M. (1999). Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology*, 84, 107–122. (cited 307 times)
3. Seibert, S. E., Grant, J. M., & Kraimer, M. L., (1999). Proactive personality and career success. *Journal of Applied Psychology*, 84, 416–427. (cited 295 times)
4. Zhao, H., Seibert, S. E., & Hills, G. E. (2005). The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90, 1265–1272. (cited 268 times)
5. Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the workplace: Development of a taxonomy of adaptive performance. *Journal of Applied Psychology*, 85, 612–624. (cited 264 times)
6. Kanfer, R., Wanberg, C. R., & Kantrowitz, T. M. (2001). Job search and employment: A personality--motivational analysis and meta-analytic review. *Journal of Applied Psychology*, 86, 837–855. (cited 261 times)
7. Judge, T. A., & Cable, D. M. (2004). The effect of physical height on workplace success and income: Preliminary test of a theoretical model. *Journal of Applied Psychology*, 89, 428–441. (cited 211 times)
8. Stroh, L. K., Brett, J. M., & Reilly, A. H. (1992). All the right stuff: A comparison of female and male managers' career progression. *Journal of Applied Psychology*, 77, 251–260. (cited 202 times)
9. Caplan, R. D., Vinokur, A. D., Price, R. H., & van Ryan, M. (1989). Job seeking, reemployment and mental health: A randomized field experiment in coping with job loss. *Journal of Applied Psychology*, 74, 759–769. (cited 179 times)
10. Wang, M. (2007) Profiling retirees in the retirement transition and adjustment process: Examining the longitudinal change patterns of retirees' psychological well-being. *Journal of Applied Psychology*, 92, 455–474. (cited 136 times)

Note. Citation counts are according to a Web of Science report generated on May 23, 2016. The search specified *Journal of Applied Psychology* as the journal, with dates from 1900–present. The search specified the topics as follows: TS = career, career interests, occupational choice, career choice, career success, career transition, job loss, or retirement. The 138 articles produced by this search were sorted on “times cited” from highest to lowest. This table lists the top 10 most highly cited articles that fell within the domain of this review. Additional, highly cited and influential articles occurred in career-related topics we did not explicitly cover (leadership development programs, employee socialization and mentoring, performance management, work motivation, job attitudes and affect, employee stress and well-being).

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