

Journal of Vocational Behavior

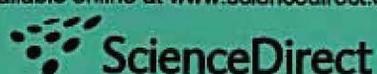
Editor
Mark L. Savickas

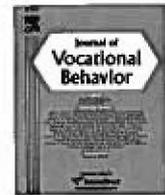
Editorial Board

John M. Arnold, Michael B. Arthur, Nancy E. Betz, David L. Blustein,
Wendy J. Casper, Jinyan Fan, Nadya A. Fouad, Gary D. Gottfredson,
Jeffrey H. Greenhaus, Jean Guichard, Douglas T. Hall, Jo-Ida C. Hansen,
Paul J. Hartung, Beryl Hesketh, John D. Kammeyer-Mueller, Lisa M. Larson,
Robert W. Lent, Frank Linnehan, Lori D. Lindley, Paula C. Morrow,
Karen D. Multon, Thomas W. H. Ng, Deniz S. Ones, Erik K. Porfeli,
Belle Rose Ragins, Patrick J. Rottinghaus, Denise M. Rousseau,
Joyce E. A. Russell, Alan M. Saks, Donna E. Schultheiss, Sandro M. Sodano,
Margaret S. Stockdale, Linda Mezydlo Subich, David M. Tokar,
Terence J. Tracey, Fred W. Vondracek, W. Bruce Walsh, Jane R. Williams,
Richard A. Young, Ryan D. Zimmerman

Founding Editor
Samuel H. Osipow

Available online at www.sciencedirect.com





CONTENTS

Conceptions of career choice and attainment: Developmental levels in how children think about careers Kimberly A.S. Howard, Mary E. Walsh	143
The structure of vocational interests in Germany: Different methodologies, different conclusions Gabriel Nagy, Ulrich Trautwein, Oliver Lüdtke	153
Motivational dynamics in the development of career attitudes among adolescents Isabel Nunes Janeiro	170
College students' perceptions of calling in work and life: A qualitative analysis Isaac Hunter, Bryan J. Dik, James H. Banning	178
Gendering career capital: An investigation of scientific careers Joanne Duberley, Laurie Cohen	187
Social cognitive influences on Mexican Americans' career choices across Holland's themes Lisa Y. Flores, Chris Robitschek, Elif Celebi, Christie Andersen, Uyen Hoang	198
The role of personality in the selection of a major: With and without vocational self-efficacy and interests Lisa M. Larson, Tsui Feng Wu, Donna C. Bailey, Courtney E. Gasser, Verena S. Bonitz, Fred H. Borgen	211
Interests, self-efficacy, and choice goals: An experimental manipulation Verena S. Bonitz, Lisa M. Larson, Patrick Ian Armstrong	223
Vocational self-concept crystallization as a mediator of the relationship between career self-management and job decision effectiveness Qingxiong Weng, James C. McElroy	234
Predicting occupational interests and choice aspirations in Portuguese high school students: A test of social cognitive career theory Robert W. Lent, Maria Paula Paixão, José Tomás da Silva, Lúgia Mexia Leitão	244
Testing the choice model of social cognitive career theory across Holland themes: A meta-analytic path analysis Hung-Bin Sheu, Robert W. Lent, Steven D. Brown, Matthew J. Miller, Kelly D. Hennessy, Ryan D. Duffy	252
RIASEC interest and confidence cutoff scores: Implications for career counseling Verena S. Bonitz, Patrick Ian Armstrong, Lisa M. Larson	265
From career decision-making styles to career decision-making profiles: A multidimensional approach Itamar Gati, Shiri Landman, Shlomit Davidovitch, Lisa Asulin-Peretz, Reuma Gadassi	277
A moderated mediation model of e-mentoring Marco S. DiRenzo, Frank Linnehan, Ping Shao, William L. Rosenberg	292
Commitment to nonwork roles and job performance: Enrichment and conflict perspectives Christy H. Weer, Jeffrey H. Greenhaus, Frank Linnehan	306
An examination of blue- versus white-collar workers' conceptualizations of job satisfaction facets Xiaoxiao Hu, Seth Kaplan, Reeshad S. Dalal	317
Political skill as moderator of personality – Job performance relationships in socioanalytic theory: Test of the getting ahead motive in automobile sales Gerhard Blicke, Stephanie Wendel, Gerald R. Ferris	326
Transitioning between work and family roles as a function of boundary flexibility and role salience Doan E. Winkel, Russell W. Clayton	336
Arrests, recent life circumstances, and recurrent job loss for at-risk young men: An event-history analysis Margit Wiesner, Deborah M. Capaldi, Hyoun K. Kim	344

Abstracted/indexed in AGRICOLA, Current Contents/Social & Behavioral Sciences, PsycINFO, Psychological Abstracts, PsycSCAN Research Alert, Social Sciences Citation Index. Also covered in the abstract and citation database SCOPUS®. Full text available on ScienceDirect®.

Journal of Vocational Behavior has no page charges.
A full and complete Guide for Authors can be found
at: <http://authors.elsevier.com/GuideForAuthors.html?PubID=622908&dc=GFA>



Vocational self-concept crystallization as a mediator of the relationship between career self-management and job decision effectiveness

Qingxiong Weng^a, James C. McElroy^{b,*}

^a School of Management, Xi'an Jiaotong University, Shanxi Province 710049, PR China

^b Department of Management, Iowa State University, 3189 Gerding Business Building, Ames, IA 50011-1350, USA

ARTICLE INFO

Article history:

Received 5 August 2009

Available online 31 October 2009

Keywords:

Career self-management

Job decision effectiveness

Vocational self-concept crystallization

Mediated effect

ABSTRACT

This article examines the influence of career self-management and vocational self-concept crystallization on job decision effectiveness and how vocational self-concept crystallization mediates the relationship between career self-management and job decision effectiveness. Six hundred and eleven Chinese employees participated in the research. Using hierarchical regression and structural equation modeling, the results showed that: (1) career self-management has a positive direct effect on vocational self-concept crystallization; (2) career self-management has a positive direct effect on job decision effectiveness; (3) vocational self-concept crystallization has a positive direct effect on job decision effectiveness; and (4) vocational self-concept crystallization partly mediates the relationship between career self-management and job decision effectiveness.

© 2009 Elsevier Inc. All rights reserved.

1. Introduction

Topel and Ward (1992) posit that employees in the United States will experience ten employers over their forty year work lives with two-thirds of these job changes coming within their first ten years in the labor market. In China, young people under the age of 30 average a job change at least once every five years (Zhou, 2006). In other words, it is common for today's employees to experience multiple careers and multiple job movements during their working lives (Sullivan & Arthur, 2006), whether voluntary or mandatory. The increased fluidity in employees' careers has led to an increase in research on career mobility and job change (Donohue, 2006; Sullivan & Arthur, 2006). Rather than working one's way up the corporate ladder within a single organization, today's professionals manage their own career paths, creating what is referred to as a boundary-less career, as they seize new and often different job opportunities to obtain training, enhance their human capital, and increase their marketability (Sullivan & Arthur, 2006).

Individuals are not equally adept at making such decisions, however, as some find suitable jobs with their initial employer, while others are unable to find appropriate jobs even after multiple job changes. This begs the question of the sources of individual differences in job decision effectiveness.

Thompson and Subich (2006) found that social status was related to career choice certainty, but that this relationship was fully mediated by career decision self-efficacy. Using person–job fit as measure of career decision-making effectiveness, Singh and Greenhaus (2004) revealed that individuals who used rational career decision-making made more effective job choices. In recent years, some scholars have investigated high school students' career decision-making processes (e.g. Germeijs & Verschueren, 2007), but there is still limited research about the mechanisms used in making effective career decisions, especially with respect to job changes.

* Corresponding author. Fax: +1 515 294 2534.

E-mail addresses: wqx886@126.com (Q. Weng), jmcelroy@iastate.edu (J.C. McElroy).

Singh and Greenhaus (2004) noted that it would be valuable to understand the context of job change by examining the motivation behind peoples' decisions to change jobs. They use career self-management as the process by which individuals collect information about themselves, identify a career goal, and engage in career strategies that increase the probability that their career goals will be achieved (Greenhaus, 1987). Orpen (1994) also found that career self-management influences employees' career success, but no one has examined the relationship between career self-management and job decision effectiveness. The first aim of this study is to address this gap in the literature.

Our second objective is to further develop Super's (1984) statement about the role of vocational self-concept in the career development progress, and evaluate its influence on job choice decision-making. In line with theoretical works (Super, Staritshevsky, Matlin, & Jordaan, 1963), we argue that people who have a diffuse sense of self will have difficulty deciding on a career, likely because it makes the self-appraisal task more difficult. In this paper we define this sense of self, relative to vocations, using the concept of vocational self-concept crystallization. Vocational self-concept crystallization is defined as the "degree of clarity and certainty of self-perception with respect to vocationally relevant attitudes, values, interests, needs and abilities" (Barrett & Tinsley, 1977, p. 302). Thus, our intention is to explore the role of both career self-management and vocational self-concept crystallization in job selection decisions. We do this by examining the role of employees' career self-management before joining their present organization, and by analyzing the mediating role of vocational self-concept crystallization in the relationship between the career self-management and job decision effectiveness, as shown in Fig. 1.

2. Job decision and job decision effectiveness

The job choice/decision is seen as either a decision to pursue a particular job or to accept a particular job if an offer has been made. Arguably, factors important to an individual may vary at different stages of the job search process as applicants become more aware of available opportunities and their own preferences. Compared with job decisions, career decisions refer to any decision that has implications for one's career, including a decision to change jobs, occupations, a voluntary turnover decision, or a decision to specialize or develop general skills. Simply stated, job decisions are a subset of career decisions, but a change in one's job is the underlying component that links many different types of career decisions (Latack, 1984). Career choice has been given much more attention by researchers than has job choice, despite the fact that their psychological processes are similar.

Career choice research has focused on both students and employees. According to Singh and Greenhaus (2004), research on students' career decisions generally has examined the choice of an educational major, occupation, career field, or vocation (Germeijs & Verschueren, 2007; Phillips, 1982), while employees' career decisions generally involve the selection of a career goal, initial career entry, mobility decisions, relocations, and other inter-role transitions (Murrell, Frieze, & Olson, 1996).

A number of studies have found that congruence is a significant factor in differentiating people who change careers from those who do not (Donohue, 2006). Congruence, or "fit," is seen as an indicator of an effective career decision (Holland, 1985), but what constitutes fit varies across researchers. Some focus on the match between an individual's personality or self-concept and characteristics of an occupation (Holland, 1985), while others look more specifically a match between a person's skills and abilities and the requirements of one's organization and/or job (Cable & Judge, 1997). There is even some debate as to whether congruence, or fit, is best represented by the match between the person and their job, career, organization, or even work group (Singh & Greenhaus, 2004).

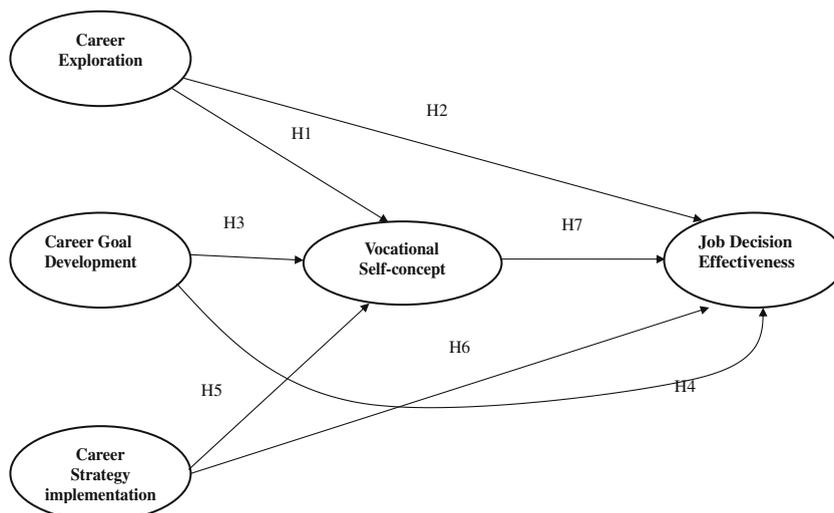


Fig. 1. Hypothesis model.

To sum up, much attention has been devoted to both job and career decisions; however, little research exists on job decision effectiveness and the factors that affect it. In this study, we focus on the job rather than the career, based on Singh and Greenhaus's (2004) argument of a direct link between career decisions and job changes. They contend that it is the congruence between job activities and their fit with the job-holder, or what they call person–job fit, that determines whether career development takes place. Following their research, in this study we directly apply P–J fit as our measure of job decision effectiveness.

3. The function of career self-management

Self-career management has long been characterized as a multi-step process, although there has been some disagreement over the precise labeling of its stages (e.g. Noe, 1996; Stumpf et al., 1983). Noe (1996) refined our understanding of the components of career self-management and developed an instrument to measure its dimensions. Our research follows Noe's (1996) viewpoint, by conceptualizing and measuring career self-management along the three dimensions he proposed: career exploration, career goal planning and career strategy implementation.

3.1. Career exploration

Career exploration involves two components, self-exploration and environmental exploration, or what Stumpf et al. (1983) refer to as gathering information about oneself and employment opportunities, respectively. By gathering information, people can become more keenly aware of their own values, interests, and talents, as well as the opportunities and obstacles in their environment. Therefore, individuals who engage in exploration should have a clearer sense of vocational self-concept.

Research indicates that career exploration is relevant to career development behavior, such as accepting transfers and participating in seminars (Sugalski & Greenhaus, 1986). Stumpf et al. (1983) indicated that career exploration involves four aspects: the direction of career exploration (environment versus self), the method (random versus systematic), the extent (frequency and amount of the information), and the content of career exploration (the focus of the exploration). Regarding the direction of career exploration, Phillips (1982) suggests that career exploration activities may increase employees' ability to progress in their careers by enhancing their recognition of work opportunities and by helping them realize which skills and behaviors need to be developed. With respect to the method of career exploration, systematic career exploration is more likely to provide individuals with a more profound recognition about what development they need in order to be successful in their careers. This recognition is the foundation for making high quality job decisions. Moreover, individuals who engage in greater amounts of career exploration have a higher recognition about their own information and the work world than do individuals who engage in less career exploration, which puts them in a better position to make higher quality job decisions. Therefore, we offer the following hypotheses:

Hypothesis 1. Career exploration is positively associated with vocational self-concept crystallization.

Hypothesis 2. Career exploration is positively associated with job decision effectiveness.

3.2. Development of career goals

Because career goals are goals people pursue at work, such as promotions, pay increases, and skill development (Greenhaus, 1987), goal-setting theory is relevant to understanding how they influence career oriented behavior. Individuals with specific and challenging goals perform better than either those with easy and ambiguous goals or those without any goals (Locke & Latham, 1990). People with career goals that are specific and focused will be more motivated to engage in behaviors that will help them realize their goals. Goal focus had been shown to be an important determinant of career goal realization, career development and participation in career development activities (Sugalski & Greenhaus, 1986). Consequently, employees with specific goals should have a more crystallized vocational self-concept and should be more focused and more successful in their job search activities than those with vague goals. Therefore, we proposed the following hypotheses:

Hypothesis 3. Career goal development is positively associated with vocational self-concept crystallization.

Hypothesis 4. Career goal development is positively associated with job decision effectiveness.

3.3. Career strategy implementation

The third component of Noe's (1996) model of career self-management is the development and implementation of a career strategy. A career strategy is an activity or behavior that increases the likelihood of attaining one's career goals. These can take the form of interpersonal career strategies, such as seeking out a mentor or networking, or intrapersonal strategies aimed at increasing one's skills and abilities. Interpersonal networking is said to lead to more favorable opinions by manag-

ers, higher performance ratings, and has been shown to be positively related to salary progression (Gould & Penley, 1984). Moreover, the use of interpersonal career strategies provides employees with valuable information and resources. By communicating with senior staff, individuals can obtain evaluative information about themselves, information that is valuable in developing a more highly crystallized vocational self-concept. The greater the density of such a network, the more access one has to information about themselves and new job opportunities. Network member recommendations and internal recruitment information are beneficial for making effective job decisions. With respect to intrapersonal career strategies, having a self-career strategy can encourage people to enhance their work skills and professional knowledge, thus enhancing their vocational self-concept. Therefore, we raised the following hypothesis:

Hypothesis 5. Career strategy implement is positively associated with vocational self-concept crystallization.

Hypothesis 6. Career strategy implement is positively associated with job decision effectiveness.

4. Vocational self-concept crystallization and job decision effectiveness

Vocational self-concept crystallization is the degree to which people perceive their own vocationally relevant attitudes, values, needs and abilities clearly (Barrett & Tinsley, 1977). As Super (1984) noted, vocational self-concept is basically the degree to which one is able to match their own vocationally relevant attitudes, values, needs etc., with the features of one's work. Given that one's understanding of their work and how it fits into their career may be affected by their own career behavior, (e.g. career self-management) one would expect vocational choice and career behavior to have significant effects on vocational self-concept. In turn, to the degree one has a clear vision of their own vocational self-concept, they should be equipped to make better, more effective, career decisions.

Vocational self-concept is an important concept in vocational theory (Super, 1984), but little work has investigated how vocational self-concept influences one's job decisions. Vocational self-concept was found to be inversely related to career indecision (Tokar, Withrow, Hall, & Moradi, 2003), and positively associated with job acquisition (Quint & Kopelman, 1995), but in this paper, we explore the role of vocational self-concept crystallization on employees' job choice decision effectiveness.

Super (1984) views self-concept as a key determinant of career development and selection. Given the link between job decisions and career development, we contend it plays a central role in job decision effectiveness as well. Whether a person has a clear vocational self-concept or not influences one's vocational selection and job decisions. Moreover, individuals who have a clear vocational self-concept are better able to make self-adjustments, modify their self-orientation to satisfy the requirements of changing job roles and responsibilities and seek out jobs better suited to their self-concept. Therefore, the clearer and more definitive one's vocational self-concept is prior to a job change, the better able one is to assess a job opportunity relative to their self-concept. Moreover, given that rationale has been developed above to hypothesize that one's vocational self-concept is hypothesized to be a function of career self-management activities (Fig. 1), the question arises as to whether it is these career self-management activities that enhance job decision effectiveness or whether it is their effect on one's vocational self-concept that enhances job decision effectiveness, or both. In other words, does vocational self-concept mediate the effects of career self-management activities on job decision effectiveness? Hence, we proposed the following hypotheses:

Hypothesis 7. Vocational self-concept crystallization is positively associated with job decision effectiveness.

Hypothesis 8. Vocational self-concept crystallization mediates the effects of career exploration, career goal development and career strategy implementation on job decision effectiveness.

5. Methodology

5.1. Research design

This study investigates employees' career self-management and vocational self-concept crystallization prior to joining the present organization, and their resulting job decision effectiveness. One precondition for participation in this study was that each respondent must have had at least one job-choice-decision experience, prior to joining the current organization. Respondents were asked to think back to the decision situation that involved the acceptance of their current job.

Job decision effectiveness was measured by the person–job fit associated with the present job. To reduce the possibility of biases inherent in retrospective accounts (Schwenk, 1995), subjects were limited to those who had initiated a job change to their present company in the last two years. Moreover, because one needs adequate time to determine their person–job fit, we limited participants to those who had spent at least three months in their present position. This time frame gives individuals enough time to make sense of their jobs and accurately assess their level of person–job fit and is consistent with the previous research (Latack, 1984; Singh & Greenhaus, 2004).

5.2. Sample

Data were collected in 150 Chinese enterprises operating in the Zhejiang and Hubei provinces. To increase the return rate, researchers communicated directly with a top executive of each enterprise to solicit support and explain the purpose of the investigation and data security measures. A total of 1000 questionnaires were distributed, 845 surveys were returned. Of these, 611 met the requirements of having changed jobs in the preceding two years and having worked for more than three months at their present position.

The demographic breakdown of respondents was as follows: 63.5 percent were male; 38.3 percent were under 25 years old, 36.1 percent were 26–30, 19.3 percent were 31–40, and 6.3 percent were 41–50. Senior managers accounted for 9.2 percent of the sample, mid-managers 27.5 percent, lower managers 28.7 percent, professional workers 27.4 percent and technicians 7.2 percent. Of the sample, 53.9 percent had less than a bachelors degree, 39.7 percent held a bachelors degree, and 6.4 percent had a masters degree or higher.

5.3. Measures

The survey consisted of measures designed to capture the three concepts being investigated in this research: job decision effectiveness, vocational self-concept crystallization and career self-management. All of the items in the questionnaire employed a five-point Likert scale format (1 = strongly disagree, 5 = strongly agree, unless otherwise indicated).

5.3.1. Job decision effectiveness

Adopting Singh and Greenhaus' (2004) suggestion, a global measure of person–job fit was used to measure job decision effectiveness. A global measure was selected rather than an attribute-specific measure because asking individuals about specific work attributes may exclude attributes that are important to some people and yet include attributes that some individuals find meaningless (Ironson, Smith, Brannick, Gibson, & Paul, 1989). Moreover, simply mathematically combining such a partial assessment (Ironson et al., 1989) may not accurately capture the overall phenomenon of P–J fit. A global measure lets respondents reflect on different facets of the phenomena that are important to them, resulting in a more accurate assessment of overall P–J fit.

For these reasons, we used a global measure of P–J fit, consisting of four items, adapted from Singh and Greenhaus (2004): “I perceive that I match with my present job very well”, “the requirements of my present job matches my experience, skills and knowledge”, “the work environment provided by the company fits my requirements” and “my personality and temperament fit my job”. The Cronbach's α value for this scale is 0.76.

5.3.2. Career self-management

Scales developed by previous researchers (Noe, 1996; Zikic & Klehe, 2006) were used to measure the three dimensions of career self-management. Career exploration was measured by three questions: (1) “I usually search for detailed information about the vocational area and jobs in which I am interested”, (2) “I usually consider how to combine my early work experience with my future career development”, and (3) “I often try to play new roles at work to explore whether I am suitable for them”. Career goal development was measured by four questions: (1) “My career goal is very definitive”, (2) “I have established detailed career development plans”, (3) “I am very clear about how my present position is related to my career objectives”, (4) “I am very clear about what efforts are needed to realize my career goals.” Finally, career strategy implementation was measured by four questions: (1) “I always attempt to learn more new knowledge and skills to realize my career objective”, (2) “I try to let my boss know about what I am doing to pursue my career and career objectives”, (3) “I have established a helpful interpersonal network inside my company which can promote my career development” and (4) “I usually consult with my boss and experienced colleagues for helpful career guidance.”

To examine the dimensionality of the career self-management instrument, we conducted a confirmatory factor analysis (CFA) with maximum likelihood estimation using LISREL 8.54. To examine the dimensionality, we followed prior scholars' (Noe, 1996; Zikic & Klehe, 2006) suggestions to compare the fitness between the one-factor model (all items loaded on one factor), two-factor model (career exploration and career goal development on one factor, career strategy implementation on the other), three-factor model (career exploration, career goal development, and career strategy implementation as separate factors) and four-factor model (career strategy implementation being split into two factors). Results indicated that the three-dimension model fit the data better than other models (GFI = 0.90, AGFI = 0.87, RMSEA = 0.048, NNFI = 0.96, CFI = 0.97). Chi-squared tests also indicated that the three-factor model resulted in a statistically significant increment over the other models, indicating that it was appropriate for us to use the three dimensions of career self-management separately. The Cronbach's α for the three scales were: career exploration = 0.86, career goal development = 0.83, and career strategy implementation = 0.87.

5.3.3. Vocational self-concept crystallization

The Vocational Rating Scale (VRS) was developed by Barrett and Tinsley (1977) as a global measure of vocational self-concept crystallization. This 40-item instrument uses a Likert-type summated scale (1 = completely false to 5 = completely true) such that higher scores on the VRS indicate greater vocational self-concept crystallization. Barrett and Tinsley (1977) reported evidence of strong internal consistency (Cronbach's α = 0.94) and test–retest reliability for their scale.

Quint and Kopelman (1995) found that by dropping seven items from the original instrument, Cronbach's α for the VRS was raised to 0.96. As a result, we used Quint and Kopelman's reduced scale to measure vocational self-concept crystallization. Sample items include: "My past work experiences have taught me a lot about myself", "I'm really not sure of what abilities I have that I can build a career around" (reverse coded), "I know myself well enough to know what kind of job fits me", "I'm not sure of what abilities I have that I can build a job around" (reverse coded), "I'm very aware of my own values and how they will influence my choice of career". The Cronbach's α for this scale in our study is 0.94.

5.3.4. Control variables

Demographic data were collected on respondent age, education, and seniority. Moreover, respondents indicated the number of job moves they had made, which was then divided by their years of service to obtain a measure of mobility frequency. Finally, respondents indicated the number of times they had experienced a move that involved changing vocations. These variables were controlled for in the study.

5.4. Analyses

Multiple regression is the recommended analytical technique for testing for mediation effects. However, using multiple items to measure the study's variables may adversely affect the use of multiple regression analysis, which involves the normalized treatment of the items. Consequently, LISREL 8.7 with maximum likelihood estimation was used to confirm the relationships among the three career self-management scales, vocational self-concept crystallization, and job decision effectiveness. Cheng (2001) suggested that multiple regression does not take into account the interaction effects among the posited variables. SEM is advocated because it expands the explanatory ability and statistical efficiency for model testing with a single comprehensive method (Hair, Anderson, Tatham, & Black, 1998). Because Chi-squared statistics are sensitive to sample size, the root-mean-square error of approximation (RMSEA), the Goodness of Fit Index (GFI), the Normed Fit Index (NFI), and the Comparative Fit Index (CFI) were used to assess model fit. GFI, NFI and CFI with values in the upper 0.90s indicate a good fit, RMSEA with values under 0.1 represent mediocre fit, values between 0.08 and 0.05 indicate responsible fit, and those under 0.05 show a close fit to the approximation of population (Bryne, 2000).

6. Results

6.1. Correlations

Table 1 shows the means, standard deviations and intercorrelations for the study's variables.

Mean values indicate that the participants in this study were more actively engaged in career exploration ($M = 4.11$, $SD = 0.77$) than either career goal development ($M = 3.58$, $SD = 0.84$), or career strategy implementation ($M = 3.29$, $SD = 0.83$). Participants reported a relatively high level of vocational self-concept crystallization ($M = 3.89$, $SD = 0.58$). Correlations support the positive relationships between career exploration and both vocational self-concept crystallization ($r = .33$, $p < .01$) and job decision effectiveness ($r = .21$, $p < .01$), as well as between career goal development and both vocational self-concept crystallization ($r = .45$, $p < .01$) and job decision effectiveness ($r = .22$, $p < .01$). Additionally, career strategy implementation was positively correlated with both vocational self-concept crystallization ($r = .29$, $p < .01$) and job decision effectiveness ($r = .23$, $p < .01$).

Table 1
Descriptive statistics and correlations.

	Mean	SD	1	2	3	4	5	6	7	8	9	
1 Age ^a	1.92	1.11	1.00									
2 Education ^b	1.63	.76	.05	1.00								
3 Seniority	5.67	6.15	.75**	-.25**	1.00							
4 Job mobility frequency ^c	.54	.54	-.264**	-.09	-.24**	1.00						
5 Times of inter-vocation job mobility	1.01	1.01	.26**	-.19**	.41**	.37**	1.00					
6 Career goal development	3.58	.84	-.11*	.01	-.11*	.07	-.11	1.00				
7 Career strategy implementation	3.29	.83	-.09	.06	-.05	.01	-.08	.39**	1.00			
8 Career exploration	4.11	.77	-.20**	-.05	-.10	.15**	-.06	.42**	.21**	1.00		
9 Vocational self-concept crystallization	3.89	.58	-.09	-.12*	-.00	.00	-.12*	.45**	.29**	.33**	1.00	
10 Job decision effectiveness	3.52	.69	.01	.01	.03	-.04	-.14*	.22**	.23**	.21**	.36**	1.00

* $p < .05$.

** $p < .01$.

^a For age, under 25 years old = 1; 25–30 years old = 2; 31–40 years old = 3; 41–50 years old = 4; over 50 years old = 5.

^b For education, less than bachelor = 1; bachelor = 2; masters or over = 3.

^c Job mobility frequency = times of job mobility/seniority.

6.2. Regression results

Hierarchical regression was used to investigate the effect of career self-management on vocational self-concept crystallization and job decision effectiveness, and whether vocational self-concept crystallization mediates the relationship between career self-management and job decision effectiveness. The results are reported in Table 2.

We first examined the relationship between career self-management and vocational self-concept crystallization. After controlling for education, seniority and job mobility frequency and times of inter-vocation job mobility, career self-management predicted an additional 22.5 percent of the variance in vocational self-concept crystallization, as shown in models 1 and 2. Among the three factors that comprise career self-management, the effect of career goal development on vocational self-concept crystallization was the greatest ($\beta = .368, p = .000$), followed by career exploration ($\beta = .324, p = .001$), and career strategy implementation ($\beta = .174, p = .003$). Therefore, H1, H3 and H5 were supported.

Secondly, we explored the influence of vocational self-concept crystallization on job decision effectiveness. These results are reported in model 4. After entering the control variables, vocational self-concept crystallization predicted an additional 18 percent of the variance in job decision effectiveness ($\beta = .288, p = .000$). Therefore, H7 was supported.

The regression results presented in model 5 show that career self-management also predicted job decision effectiveness. Following the controlling variables, career self-management predicted an additional 19.3 percent of the variance in job decision effectiveness. Of the three career self-management dimensions, the effect of career goal development was the most significant ($\beta = .277, p = .005$), followed by career exploration ($\beta = .216, p = .007$), and career strategy implementation ($\beta = .201, p = .007$). Thus, support was indicated for H2, H4, and H6.

Following Baron and Kenny's (1986) approach to establishing evidence of mediation, model 6 shows that the addition of vocational self-concept crystallization reduced but did not eliminate the significance of career self-management for predicting job decision effectiveness. Therefore, vocational self-concept crystallization partially mediates the relationship between career self-management and job decision effectiveness.

6.3. Structural equation modeling

To confirm these results, we constructed a structural equation model based on the assumptive model and the results of the above regression analysis (see Fig 1). The results of the SEM are shown in Table 3. The outcomes indicated that the coefficients of each observed item that loaded on their corresponding factors were all above 0.6, under 1, with all t -statistics significant at the $p < .001$ level. The t -value associated with the factor loadings changed from 9.12 to 18.96, demonstrating adequate convergent validity.

Table 3 also shows that the values obtained for the GFI (0.95), the NFI (0.96) and the RMSEA (0.057) for the proposed model indicate a satisfactory fit. The value of Chi-squared/ df (2.138) was below 3 indicating a good fit (Bentler & Bonette, 1980).

The SEM results confirmed the results of the regression analysis. Table 3 shows the path coefficients for this analysis. Among all the study variables, vocational self-concept crystallization was most significant related to job decision effective-

Table 2
Results of regression analyses.

Independent variables	Equation 1 (vocational self-concept crystallization)				Equation 2 (job decision effectiveness)							
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.	Beta	Sig.
<i>Controlling variables</i>												
Education ^a	-.105	.192	-.107	.195	.062	.331	.089	.152	.034	.599	.063	.313
Seniority	.107	.122	.130	.134	.132	.068	.139	.088	.174*	.038	.139	.090
Job mobility frequency ^b	.124	.810	.044	.710	.055	.440	.046	.597	.070	.382	.055	.475
Times of inter-vocation job mobility	-.220***	.001	-.150	.12	-.210**	.002	-.123*	.043	-.160*	.038	-.122	.105
<i>Career self-management</i>												
Career exploration			.324***	.001					.216**	.007	.063*	.015
Career goal development			.368***	.000					.277**	.005	.176**	.009
Career strategy implement			.174**	.003					.201**	.007	.151*	.014
<i>Vocational self-concept crystallization</i>							.288***	.000			.280***	.000
Model F	3.573		14.039		2.834		6.859		5.283		15.773	
F change ^c			19.994				11.062		3.123		16.314	
R ²	.052		.277		.046		.226		.239		.390	
R ² change			.225				.180		.193		.151	

* $p < .05$.

** $p < .01$.

*** $p < .001$.

^a For education, less than bachelor = 1; bachelor = 2; master or over = 3.

^b Job mobility frequency = times of job mobility/seniority.

^c In Equation (1), F change and R² change report changes from model 1; In Equation (2), report changes from model 3, except for model 6, which report changes from model 5.

Table 3

Path coefficients from structural equation model.

Hypothesized relationships	Path coefficient	Sig.	Hypothesis supported?
H1 Career exploration → vocational self-concept crystallization	0.34 ^{***}	0.000	Yes
H2 Career exploration → job decision effectiveness	0.08 ^{**}	0.012	Yes
H3 Career goal development → vocational self-concept crystallization	0.38 ^{***}	0.000	Yes
H4 Career goal development → job decision effectiveness	0.20 ^{**}	0.005	Yes
H5 Career strategy implementation → vocational self-concept crystallization	0.20 ^{**}	0.002	Yes
H6 Career strategy implementation → job decision effectiveness	0.15 ^{**}	0.005	Yes
H7 Vocational self-concept crystallization → job decision effectiveness	0.47 ^{***}	0.000	Yes
<i>Model fit:</i> Chi-squared/df = 2.138; RMSEA = 0.057; GFI = 0.95; NFI = 0.96; NNFI = 0.96; CFI = 0.97; IFI = 0.97			

* $p < .05$.** $p < .01$.*** $p < .001$.

ness ($\beta = .47$, $p = .000$), followed by career goal development ($\beta = .20$, $p = .01$), career strategy implementation ($\beta = .15$, $p = .01$), and career exploration ($\beta = .08$, $p = .05$). The results also suggest that vocational self-concept crystallization partially mediates the relationship between career self-management and job decision effectiveness.

7. Discussion and conclusion

In an era of increasing job mobility, career change and unemployment (Zhou, 2006), the effectiveness of one's decision to change jobs takes on added importance. In our study, person–job fit was used to measure job decision effectiveness, in order to explore the effect of employee career self-management and vocational self-concept crystallization on job decision effectiveness. Our results demonstrated that: (1) both employee career self-management and vocational self-concept crystallization positively affect job decision effectiveness; (2) vocational self-concept crystallization partially mediates the relationship between career self-management and job decision effectiveness; and (3) among the three factors of career self-management, career goal development has the greatest impact on both vocational self-concept crystallization and job decision effectiveness.

The current study makes several contributions to the literature. First, we extended research on the attraction and retention of talent to include the issue of job decision effectiveness. Job decision effectiveness is not only a key to attracting and retaining employees but is also the foundation behind career growth. Specifically, our research reveals the important roles played by career self-management and vocational self-concept crystallization in the process of realizing high job decision effectiveness. Our study supports Singh and Greenhaus's (2004) finding that job decision effectiveness is related to one's career decision-making strategy, self-awareness and environmental awareness. In other words, when people pay more attention to managing their career and have a clear vocational self-concept, they are more likely to make high quality job decisions when changing jobs.

Second, our results add career self-management to our understanding of the formation of vocational self-concept crystallization. Super et al. (1963) noted that self-concept crystallization is a product of the interaction of inherited aptitudes, neural and endocrine make-up, opportunity to play various roles, and evaluations of the extent to which the results of role playing meet with the approval of superiors and peers. Our results show that career self-management plays an important role in the formation of persons' vocational self-concept crystallization. This is an important contribution, because unlike neurons, endocrine make-up and inherited aptitudes, career self-management is within the control of the employee. By simply developing clear career goals an individual can positively affect their own vocational self-concept.

Our results also support Super's (1984) theory on the importance of vocational self-concept crystallization for making effective job decisions. Super's (1957, p. 196) central hypothesis is that "in choosing an occupation one is, in effect, choosing a means of implementing a self-concept". In our study, vocational self-concept crystallization explained the greatest proportion of the variance in job decision effectiveness. Our results also provide some indirect support for Tokar et al.'s (2003) finding of a negative relationship between vocational self-concept crystallization and career indecision.

Third, this paper supports Noe's (1996) contention that career self-management can be measured by three dimensions: career exploration, career goal development and career strategy implementation. Our results with respect to the role of career self-management support the Greenhaus, Hawkins, and Brenner (1983) finding that career exploration is related to the development and satisfaction of a career decision. Our research is also compatible with Singh and Greenhaus' (2004) research on the roles played by self-awareness and environmental awareness in job search effectiveness.

The relationship between career goal development and job decision effectiveness can be interpreted by goal-setting theory (Locke, 1968). Since goals affect effort (Locke & Latham, 1990) clear and specific career objectives increase ones' effort level with respect to exploring various alternative job possibilities that might be relevant to one's career goals.

Finally, career strategies are activities design to help people meet their career goals. The development and implementation of a career strategy should help individuals attain their career goals. Effective career strategies enable people to discover and take advantage of the right development opportunities in a timely manner.

In addition to contributing to the literature, this research has practical implications. Our study confirms Noe's (1996) belief in the importance of employee career development. In turbulent work environments, career self-management can function as a navigation system that guides individual career development, promotes the enhancement of self- and environmental awareness, and helps individuals realize their career goals, all of which lead to higher quality job choice decisions. Care must be taken, however, to ensure that these career self-management activities result in fostering a clear, specific expectation by the employee as to what their vocational self-concept is. This requires career management programs to be tailor-made to the individual employee.

Our findings also have implications for organizational recruitment practices. P-J fit is related to a number of positive work-related behaviors, such as performance, citizenship behaviors and other acts promoting organizational development. Consequently, it is in the best interest of organizations to pay attention to and review applicants' vocational self-concept, and career self-management activities during the recruitment process,

A few limitations of this study should be noted. First and foremost is the fact that the methodology used in this study is a retrospective one. Respondents were asked to recall their thoughts at the time they accepted their current job. A big criticism surrounding this methodology is whether people are able to accurately recall events that happened earlier. Perhaps they cannot remember or their responses are colored by events that have happened since accepting their current job. According to Churchill and Iacobucci (2005) two factors that can influence recall of events is how frequently they happen and their level of importance. In this study, changing jobs is an important career decision, so it does not fall into mundane everyday decisions for which recall of a single event might be clouded by other similar events. As for frequency, this form of measurement error was handled by using mobility frequency as a control variable. Miller, Cardinal, and Glick (1997) note that recall methodology is no substitute for longitudinal research and we agree. However, they note that it is often used when the researcher wants to study an event for which they are unable to anticipate the timing. Such is the case in this study. It would have been impossible to get into all previous organizations employing the respondents and anticipate the timing of their decisions to accept a new job. As noted above, the importance of such decisions, as well as our ability to control for the frequency of such decisions within our sample, should mitigate at least some of the measurement error surrounding the variables in this study. Moreover, as is common in survey research, data are cross-sectional rather than longitudinal and subject to common method error variance. Finally, while some may argue that the use of person–job fit as a measure of job decision effectiveness is not ideal, the standardized scale used in this study is widely used. Moreover, it taps the perceptions of person–job fit and, whether accurate or not, it is perceptions that drive behavior. A more objective measure, however, one based on the fit between employee or peer descriptions and a job analysis, may produce different results.

In conclusion, our findings, regarding the effects of career self-management and vocational self-concept crystallization on effective job decisions, suggest two things. First, this is not a uniquely American phenomenon. Our findings using Chinese employees are supportive of previous findings involving U.S. workers. Second, our findings suggest that the making of effective job changes is within the control of individual employees, but that it is something they need to work at. Exploring opportunities, setting career goals, and implementing specific plans to attain those goals enable people to make better job choices, but only if these activities result in clarifying a person's vocational self-concept.

Acknowledgment

This work has been supported by the Natural Science Foundation of China (Project Nos. 70572035, 70872034, and 70571061).

References

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Barrett, T. C., & Tinsley, H. E. A. (1977). Vocational self-concept crystallization and vocational indecision. *Journal of Counseling Psychology*, 24, 301–307.
- Bentler, P. M., & Bonette, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588–606.
- Byrne, B. M. (2000). *Structural equation modeling with Amos: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Cable, D. M., & Judge, T. A. (1997). Interviewers' perceptions of person–organization fit and organizational selection decisions. *Journal of Applied Psychology*, 82, 546–561.
- Cheng, E. W. L. (2001). SEM being more effective than multiple regression in parsimonious model testing for management development. *Journal of Management Development*, 20, 650–667.
- Churchill, G. A., & Iacobucci, D. (2005). *Marketing research: Methodological foundations* (9th ed.). Mason, OH: Thomson/South-western.
- Donohue, R. (2006). Person–environment congruence in relation to career change and career persistence. *Journal of Vocational Behavior*, 68, 504–515.
- Germeijs, V., & Verschueren, K. (2007). High school students' career decision-making process: Consequences for choice implementation in higher education. *Journal of Vocational Behavior*, 70(2), 223–241.
- Gould, S., & Penley, L. E. (1984). Career strategies and salary progression: A study of their relationships in a municipal bureaucracy. *Organization Behavior and Human Performance*, 34, 244–265.
- Greenhaus, J. H. (1987). *Career management*. New York: Dry Press.
- Greenhaus, J. H., Hawkins, B. L., & Brenner, O. C. (1983). The impact of career exploration on the career decision-making process. *Journal of College Student Personnel*, 24, 495–502.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Holland, J. L. (1985). *Making vocational choices: A theory of careers* (2nd ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Ironson, G. H., Smith, P. C., Brannick, N. T., Gibson, W. M., & Paul, K. B. (1989). Construction of a job in general scale: A comparison of global, composite, and specific measures. *Journal of Applied Psychology*, 74(2), 193–200.

- Latack, J. C. (1984). Career transitions within organizations: An exploratory study of work, nonwork, and coping strategies. *Organizational Behavior and Human Performance*, 34, 296–322.
- Locke, E. A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance*, 3, 157–189.
- Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Miller, C. C., Cardinal, L. B., & Glick, W. H. (1997). Retrospective reports in organizational research: A reexamination of recent evidence. *Academy of Management Journal*, 40, 189–204.
- Murrell, A. J., Frieze, I. H., & Olson, J. E. (1996). Mobility strategies and career outcomes: A longitudinal study of MBAs. *Journal of Vocational Behavior*, 49, 324–335.
- Noe, R. A. (1996). Is career management related to employee development and performance. *Journal of Organizational Behavior*, 17, 119–133.
- Orpen, C. (1994). The effects of organizational and individual career management on career success. *International Journal of Manpower*, 15(1), 27–37.
- Phillips, S. D. (1982). Career exploration in adulthood. *Journal of Vocational Behavior*, 20, 129–140.
- Quint, E. D., & Kopelman, R. E. (1995). The effects of job search behavior and vocational self-concept crystallization on job acquisition: Is there an interaction? *Journal of Employment Counseling*, 32, 88–96.
- Schwenk, C. R. (1995). Strategic decision-making. *Journal of Management*, 21(3), 471–493.
- Singh, R., & Greenhaus, J. H. (2004). The relation between career decision-making strategies and person–job fit: A study of job changers. *Journal of Vocational Behavior*, 64(1), 198–221.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the career exploration survey (CES). *Journal of Vocational Behavior*, 22, 191–226.
- Sugalski, T., & Greenhaus, J. (1986). Career exploration and goal setting among managerial employees. *Journal of Vocational Behavior*, 29, 102–114.
- Sullivan, S. E., & Arthur, M. B. (2006). The evolution of the boundaryless career concept: Examining physical and psychological mobility. *Journal of Vocational Behavior*, 69, 19–29.
- Super, D. E. (1957). *The psychology of careers*. New York: Harper & Brothers.
- Super, D. E. (1984). Career and life development. In D. Brown & L. Brooks (Eds.), *Career choice and development* (pp. 192–234). San Francisco: Jossey-Bass.
- Super, D. E., Starishevsky, R., Matlin, N., & Jordaan, J. P. (1963). *Career development: Self-concept theory*. New York: College Entrance Examination Board.
- Thompson, M. N., & Subich, L. M. (2006). The relation of social status to the career decision-making process. *Journal of Vocational Behavior*, 69, 289–301.
- Tokar, D. M., Withrow, J. R., Hall, R. J., & Moradi, B. (2003). Psychological separation, attachment security, vocational self-concept crystallization, and career indecision: A structural equation analysis. *Journal of Counseling Psychology*, 50(1), 3–19.
- Topel, R. H., & Ward, M. P. (1992). Job mobility and the careers of young men. *The Quarterly Journal of Economics*, 107, 439–479.
- Zikic, J., & Klehe, U.-C. (2006). Job loss as a blessing in disguise: The role of career exploration and career planning in predicting reemployment quality. *Journal of Vocational Behavior*, 69, 391–409.
- Zhou, W. (2006). *Career success: From concept to practice*. Shanghai: Fudan University Press.