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CAREER
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FESTSCHRIFT FOR
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VII
**DIMENSIONALITY OF CAREER INDECISION:
METHODOLOGICAL PERSPECTIVES**

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Abstract

The dimensionality of career indecision has been the subject of theorizing and empirical research for more than seventy years. Many studies, however, have methodological shortcomings that preclude the necessary distinction between career indecision and career indecisiveness. One possible solution to the problem would be to employ recent methodological advances to identify latent trait and latent state dimensions in items designed to examine career indecision and indecisiveness. More definitive findings regarding the career indecisiveness-indecision distinction will require what Vondracek and his colleagues suggested more than thirty years ago: longitudinal research designs using state of the art analytical methods.

Keywords: career indecision, career indecisiveness, longitudinal research designs.

Introduction

Over the past 70 years a large body of research has been accumulated on the multidimensionality of career indecision. Disparate findings have fueled ongoing discussions among researchers and practitioners in the fields of vocational/career counseling and career development. Although the most common contents of constructed scales for career indecision are consistent with vocational/career counseling observations by pioneers in this field, there are some remaining issues regarding the distinction between career indecision and career indecisiveness. In this chapter, inspired by the writings of E. G. Williamson (1939), I will review selected scales developed for measuring career indecision. In order to shed new light upon the relationships between career indecision and career indecisiveness, current methodologies designed to examine the trait-state distinction in human development are introduced.

Diagnostic approach for vocational problems

Williamson (1939) defined the four key problems of vocational choice as *uncertain vocational choice*, *no vocational choice*, *discrepancy between interests and aptitudes*, and *unwise vocational choice*. He also discussed the role of vocational indecision in causing vocational choice uncertainty and in the failure to make a vocational choice. For example, he said “The causes of vocational choice uncertainty are many, usually consisting of fear and lack of aptitude, fear of displeasing parents and friends, and fear of failure in chosen occupations” (p.414), and “many students are unable to decide definitely even though there are several occupations which appeal to them” (pp.431-432). Bordin

(1946) reconsidered these problems with reference to the psychodynamic position of vocational counseling and proposed the new diagnostic categories for the classification of vocational problems as *self-conflict*, *lack of information*, *dependence*, *choice anxiety*, and *no problem* (see also Byrne, 1958; Pepinsky, 1948, and Robinson, 1950, 1963). More than two decades after his original classification, Bordin (1968) reclassified these problems into *dependence*, *lack of information*, *self-conflict*, *choice anxiety*, and *lack of assurance* (Bordin & Kopplin, 1973).

Criticizing the unreliability of approaches such as Bordin's, Crites (1969) proposed that vocational problems should be conceptualized as problems of adjustment, problems of indecision, and problems of unrealism. He further proposed an integrated system of classification criteria for career choice problems based on the trait-factor approach (see also Crites, 1981). After reviewing various classifications of vocational/career choice problems, Rounds and Tinsley (1984) raised concerns that "the heuristic value of the classification system may be compromised by tautology" (p.154). Spokane (1991) also pointed out that such problem diagnoses "while intellectually rich, have not led to research and evaluation, since the link between the categories and existing diagnostic measures and possible interventions is not clear" (p.77).

Typological approaches for studying career indecision

Career counseling for students might start with the question "what is your career choice?" Based on their answers to this, they would be classified into two groups; a decided group and an undecided group. After investigating the characteristics of decided versus undecided students, Williamson (1939) concluded that there were no differences in academic aptitude and so-

cio-economic status, findings that were also reported by others (e.g., Baird, 1968, 1969; Slaney, 1980). Decided and undecided students differed, however, on scales specifically constructed to measure career indecision (Slaney, 1980).

The most important one of such scales for measuring career indecision in vocational/career counseling and research has been the Career Decision Scale (CDS: Osipow, Carney, & Barak, 1976). Osipow and his colleagues developed the CDS “to standardize the identification of sources of career indecision to serve as a diagnostic aid in using a series of structured interventions” (Osipow, 1991, p.232).

Two different directions of research were inspired by the CDS. One was designed to create a typology of career indecision based on the tradition of diagnostic categories for vocational problems in career counseling. Accordingly, Savickas and Jarjoura (1991) used cluster analysis procedures to identify career indecision types using the items of the CDS. Other cluster analytic studies of career decision status were conducted with various psychological scales related to indecision and to decision making. For example, Larson, Heppner, Ham, and Dugan (1988) reported four clusters such as *planless avoider*, *informed indecisives*, *confident but uninformed*, and *uninformed* in response to the CDS, the CPI (Career Planning Inventory), the PSI (Problem Solving Inventory: Heppner & Petersen, 1982), and the Consistency and Differentiation of the VPI (Vocational Preference Inventory: Holland, 1978). Wanberg and Muchinsky (1992) reported also four clusters such as *confident decided individuals*, *concerned decided individuals*, *indifferent undecided individuals*, and *anxious undecided individuals* using the CDS, the Career Decision Profile (CDQ: Jones, 1989), the MVS (My Vocational Situation: Holland, Daiger, & Power, 1980), and personality measures including state and trait anxiety. Based on theoretical considerations, Gati, Krausz,

and Osipow (1996) proposed a typology of ten career decision making difficulties and developed the Career Decision-Making Difficulties Questionnaire (CDDQ).

Traditionally, researchers in the field of counseling often classify clients into various types depending on their diagnostic purposes. Although cluster analysis is suitable for identifying groups of observed variables under investigation, groups discovered by this method vary with the calculation methods that are used (e.g., distance among variables; algorithms used to calculate clusters; variables included for calculation). Moreover, the advantage of calculating for the best cluster for the focus group of a given study might be one of the disadvantages in cross-group studies. In other words, cluster analysis is not suitable for establishing or confirming the invariance of measurement among culturally or developmentally different groups. Researchers using this method should pay heed to the cautionary statements made by Spokane (1991).

Factor analytic approaches for studying career indecision

Another approach to studying career indecision inspired by the CDS is the exploratory research on the dimensionality of career indecision using factor analysis. Factor analysis was developed to find the latent dimensions of constructs such as intelligence, personality, interest, and so on. Confirmatory factor analysis has been the prevalent method that has been employed to establish factorial invariance of the factor structure of a given psychological variable (Vandenberg & Lance, 2000).

The four factors originally reported by Osipow et al. (1976) stimulated further exploratory factor analytic studies. Comparing findings from seven such studies with their own results, Shimizu,

Vondracek, Schulenberg, & Hostetler (1988) reported that they were similar to their four factors of the CDS on oblique common factor space even though they were different in some cases regarding the numbers of factors. These four factors identified by Shimizu et al., (*diffusion, support, approach-approach, and external barriers*) were confirmed to possess factorial invariance by means of structural equation modeling (Schulenberg, Shimizu, Vondracek, & Hostetler, 1988). Factor analytic studies of the CDS were carried out not only on the original (English language) version but also on translated versions in a number of different languages. A selection of those findings is summarized in Table 1. Interestingly, the multidimensional factors of the CDS extracted from the sixteen items of this scale are quite similar to the classified problems of the diagnostic approach (c.f., Bordin, 1968).

Table 1. Factor analytic studies of the CDS (Osipow, Carney, & Barak, 1978)

Scale	Authors	Dimensions	Method	Related Research
Career Decision Scale (CDS)	Osipow, Carney, & Barak (1978)	Two, Three or Four	EFA	cf. Table 1 of Shimizu et al., (1988)
		Four (Diffusion, Support, Approach-Approach and External Barriers)	EFA and MGCFA	Shinizu et al, (1988) and Schulenberg et al., (1988)
		Four (Lack of Information about Self and Careers, Uncertainty about Appropriateness or Degree of Fit Between Self and Career, Multiple Interests, and Specific Barriers to a Previous Choice)	EFA	Fuqua, Newman, & Seaworth (1988)
		Three (Identity Diffusion, Positive Choice Conflict and Tentative Decision)	MGCFA	Feldt (2013)
Greek version of the CDS		Four (Absence of Structure, Need for Career Guidance, Diffusion of Interests, and Personal Conflicts)	EFA	Argyropoulou, Sidiropoulou-Dimakou, & Besevegis (2007)
Spanish version of the CDS		Four (Lack of Structure, Lack of Support, Approach-Approach, and Perceived Barriers)	EFA	Corkin, Arbona, Coleman, & Ramirez (2008)

Note: EFA-Exploratory Factor Analysis; MGCFA-Multi-Group Confirmatory Factor Analysis

Although the MVS (Holland, et al.,1980) has also been used to diagnose clients having difficulties in career decision-making using three scales (vocational identity, occupational information, and career barriers), the CDS was developed intending to assess career indecision directly using items collected in career counseling practice (Osipow, 1999). The relatively large number of studies conducted to explore the dimensionality of career indecision is very likely a consequence of the controversy surrounding the number of factors of the CDS (Shimizu, Vondracek, & Schulenberg, 1994). Most of the more recently developed scales of career indecision include some subscales corresponding to dimensions extracted from various factor analytic studies (Table 2).

Kelly and Lee (2002) used joint factor analysis to search for communality among some of the different measures. Specifically, they examined the relationships among the CDS (16 items), CDDQ (44 items), and CFI (21 items), and reported the following eight factors: Lack of Information (CDDQ), Need for Information (CFI), Trait Indecision (CFI), Disagreement with Others (CDDQ), Identity Diffusion (CDS), Choice Anxiety (CFI), Positive Choice Conflict (CDS), and Tentative Decision (CDS). Investigating the same measures, Nauta (2012) utilized confirmatory factor analysis with parceled variables and reported five factors: Lack of Information (CDDQ), Need for Information (CFI), Trait Indecision (CFI), Disagreement with Others (CDDQ), and Choice Anxiety (CFI). Among the CDS, CDDQ, and CFI, it appeared that there was no communality on latent variables of career indecision. In conducting a search for the structure of a construct via exploratory factor analysis among such different instruments, it is important that the number of factors is decided appropriately. If the number of factors is too large, the specific factors that are extracted may simply reflect the differences of item statements or response categories among the measures. On the other hand,

when the number of factors is too small, such factors might then be considered as representing a kind of general factor.

Table 2. Scales of career indecision and scale construction method

Scale	Items	Authors	Dimensions	Method	Related Research
Career Decision Profile (CDP)	24	Jones (1989)		EFA	
Career Factors Inventory (CFI)	21	Chartrand, Robbins, Morrill, & Boggs (1990)	Career Choice Anxiety, Generalized Indecisiveness, Need for Information, Need for Knowledge	CFA	
			Second Order Factors: Personal-Emotional (Career Choice Anxiety, General Indecisiveness); Informational (Need for Information and Need for Knowledge)	CFA	Dickinson & Tokar (2004)
			Career Choice Anxiety, Generalized Indecisiveness, Need for Information and Need for Knowledge	CFA	Simon & Tovar (2004)
Career Decision-Making Difficulties Questionnaire (CDDQ)	44	Gati, Krausz, & Osipow (1996)	Lack of Readiness (Lack of Motivation, Indecisiveness, and Dysfunctional Myths); Lack of Information (Process, Self, Occupation, and Ways of Obtaining Additional Information); Inconsistent Information (Unreliable Information, Internal Conflicts, External Conflicts)	Cluster Analysis	
Career Thoughts Inventory (CTI)	48	Sampson et al., (1996)	Decision-Making Confusion, Commitment Anxiety, External Conflict	PCA	Sampson et al., (1998)
Career Indecision Scale (CIS)	22	Germeijs & DeBoeck (2003)	Indecision	PCA	
Emotional and Personality Career Difficulties Scale (EPCDS)	50	Saka, Gati, & Kelly (2008)	Pessimistic Views, Self-Concept, and Identity	CFA, Cluster Analysis	
Career Indecision Profile (CIP)	65	Brown et al., (2012)	Neuroticism/Negative Affectivity, Choice Commitment Anxiety, Lack of Readiness, Interpersonal Conflic	EFA, CFA, MGCFCA	Hacker et al., (2013) Adams et al., (2003)
				EFA	Shimizu & Hanai (2008)
Japanese Career Decision Inventory (JCIDI)	42	Shimizu & Hanai (2007)	Choice Anxiety, Indecision, Conflict, Moratorium, Seeking Counsel, Evasion, Sense of "Barrier"	EFA	Shimizu & Hanai (2008)

Note: The CDS is not represented on this Table (see Shimizu et al., 1988 and Table 1); Note: EFA-Exploratory Factor Analysis; CFA-Confirmatory Factor Analysis; MGCFCA-Multi-Group Confirmatory Factor Analysis

Applying a meta-analytic approach to 28 correlation matrices published in the research field of career related behavior, Brown and Rector (2008) reported a comprehensive four factor model of career indecision: Neuroticism/Negative Affectivity, Choice/Commitment Anxiety, Lack of Readiness, and Interpersonal Conflict. Based on these findings, Brown et al. (2012) developed the CPI, consisting of 167 items, to measure their four factors. Subsequently, Hacker, Carr, Abrams, and Brown (2013) developed the short version of the CPI with 65 items and confirmed the four factor structure.

One important difference among the above scales is whether they included a measure of career indecisiveness. After reviewing the scales, it appears that they can be classified into two types: (1) chiefly constructed to measure the career indecision component (e.g., Osipow, 1999; Sampson et al., 1999; Shimizu & Hanai, 2007), and (2) intentionally constructed to separately assess the career indecisiveness component (e.g., Chartrand et al., 1990; Frost & Shows, 1993; Gati et al., 1996; Van Matre & Cooper, 1984; Santos, Ferreira, & Gonçalves, 2014).

Differentiating between indecision and indecisiveness: Selected validity studies

As reviewed above, there are already many multidimensional career indecision scales with adequate psychometric properties, which have been constructed appropriately by exploratory or confirmatory factor analysis. However, most of the results in this field were obtained with cross-sectional data, and mostly from traditional correlational analyses.

The study of career indecision has been a long and unique process, at least with regard to the following three observations:

(1) The measurement of career indecision has been focused on phenomena observed in career counseling situations and not on constructs as investigated in personality psychology; (2) Measurement has been designed to capture change as a consequence of career intervention, as it is desirable that career indecision will change during the counseling process. Nevertheless, a measure that is supposed to produce different results depending on some intervention may not be considered reliable in the context of traditional measurement; (3) Career indecision and career indecisiveness have co-existed. Career indecision is considered to be a state-like concept that may change at different occasions following career intervention, but indecisiveness is considered to be a stable and trait-like phenomenon related to personality (e.g., Osipow, 1999).

A unique contribution to the differentiation of indecision and indecisiveness was made by Crites (1969). Based on Goodstein's (1965) groundbreaking theoretical distinction between indecision and indecisiveness, Crites (1969, p. 601) proposed to use an experimental design with pre-test and post-test of the same measurement to operationally define these constructs. His influential idea has been instrumental in the formulation of longitudinal research on the distinction between career indecision and career indecisiveness with trait and state variables.

Some researchers have treated the two concepts of career indecision and career indecisiveness as independent/orthogonal dimensions (e, g., Van Matre & Cooper, 1984). Unfortunately, however, there are no statistically concrete differences in psychometric results of repeated measures of scales of these concepts, but rather there are some notable similarities between them. For examples on the CDS, Fuqua, Newman, and Seaworth (1988) discussed the substantial correlations between career indecision and trait anxiety, a relationship that had been predicted by Goodstein's (1965)

conceptualization of indecision/indecisiveness. Saunders, Peterson, Sampson, and Reardon (2000) reported that the CDS correlated with state anxiety (.27) and with trait anxiety (.29). Mojgan, Kadir, and Soheil (2011) reported also that the CDS correlated with state anxiety (.62) and with trait anxiety (.33). Meanwhile, the stability of the CDS has been reported as being very high (e.g., Creed, Patton, & Prideaux, 2006; Nauta, 2012). Guay, Ratelle, Senécal, Larose, and Deschênes (2006) reported that the stabilities of the total scores of the CDS were .54 - .38 on three-year longitudinal data of college students and these scores were correlated with autonomy (-.33 - -.42) and self-efficacy (-.51 - -.59).

Discussing both cognitive and affective aspects of career indecision, Saunders et al. (2000) reported that the CTI also correlated with state anxiety (.36), and with trait anxiety (.42). Di Fabio, Palazzeschi, Asulin-Peretz, and Gati (2013) reported the correlation between the CDDQ and indecisiveness (Frost & Shows, 1993) was .51 and they discussed subtle differences in the correlations of career indecision and career indecisiveness with emotional stability and extraversion. Although the results obtained with the various scales reviewed above are consistent with generally accepted definitions of career indecision and career indecisiveness, it may still be a bit difficult to operationally discriminate between career indecision and career indecisiveness (Nauta, 2012).

It appears that subtle differences between career indecision and career indecisiveness persist because studies of the two constructs are often based only on data collected for cross-sectional research designs, and also because items of scales to measure these constructs contain both state-like and trait-like aspects. To overcome these limitations, traditional psychometric methodology for scale construction and validity studies should be innovated for the unique concepts of career indecision and career indecisiveness.

Trait-State distinction approach for career indecision and indecisiveness

There is an argument that career indecisiveness is different from career indecision in the decision making process (Osipow, 1999). As mentioned above, from this perspective the scales for career indecisiveness should be intentionally constructed independently from any career indecision scale (or subscales). According to another argument, career indecisiveness is regarded as chronic career indecision (Crites, 1969; Fuqua & Hartman, 1983; Hartman, Fuqua, & Hartman, 1983). Longitudinal methodologies for research design and data analysis are needed to investigate the substantive features of indecisiveness from this perspective. For example, Vondracek, Hostetler, Schulenberg, and Shimizu (1990) reported that using repeated measures analysis of variance for three waves of data collection at an interval of one year resulted in significantly different change patterns for the multiple subscales of career indecision with regard to measurement properties. They compared the results of the repeated measures analysis of variance for the total score of the CDS and for the four subscales of the CDS, and suggested that the “diffusion” factor might be useful in differentiating career indecisiveness from career indecision.

Adapting the latent state-trait analysis (Steyer, Schmitt, & Eid, 1999), Jaensch, Hirschi, and Freund (2015) defined three first-order state factors of career indecision and a second-order factor of career indecisiveness for three waves of longitudinal data. Although they also discussed the trait-like nature of career indecisiveness with reference to considerations by Hartman, Fuqua, and Hartman (1983) and Osipow (1999), these state-like factors and trait-like factors were correlated with each other and with self-evaluation and occupational self-efficacy. Jaensch

et al. (2015) did not decompose the variance of state-like and trait-like, but built the indecisiveness factor on the indecision factors at corresponding measurement occasions.

Nesselroade (1988) discussed such problems in the context of human development as trait-state distinction. He proposed that observed variables can have both, a latent variance of trait and a latent variance of state (also see, Hertzog & Nesselroade, 1987). Traditionally, it is assumed that items load chiefly on one common factor and that such simple structure is desirable for scale construction. Nesselroade's proposal is that an item as an observed variable loads on two latent factors; one is the trait factor, the other is the state factor. Geiser, Keller, Lochart, Eid, Cole, and Koch (2015) described such a trait-state distinction model. In this model, multistate factors were defined at each occasion of longitudinally repeated observations and singletrait factors were defined as a common latent factor. The developmental trajectory of trait was defined for singletrait through application of latent curve modeling (McArdle & Nesselroade, 2014). In the context of exploratory factor analysis, it is also noted that bifactor rotation is suitable for containing two kinds of factors (general factor and trait factors) in a single item (Jennrich & Bentler, 2011).

Thirty years ago, Vondracek, Lerner, and Schulenberg (1986) laid out a forward-looking methodological agenda for career development research. In particular, they emphasized the importance of longitudinal analysis for studying career related behavior. In the present century we have witnessed tremendous methodological and conceptual progress in longitudinal data analysis with structural equation modeling (McArdle & Nesselroade, 2014). Nevertheless, the accumulation of additional longitudinal design research, using state-of-the-art methods, is required for more definitive studies of the career indecisiveness-indecision distinction.

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