

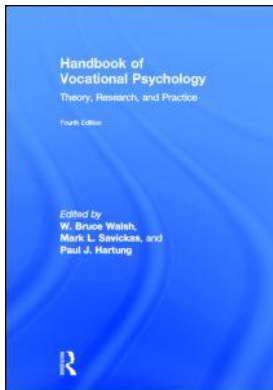
This article was downloaded by: 10.3.97.143

On: 08 Dec 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



## **Handbook of Vocational Psychology Theory, Research, and Practice**

W. Bruce Walsh, Mark L. Savickas, Paul J. Hartung

### **Advances in Career Decision Making**

Publication details

<https://www.routledgehandbooks.com/doi/10.4324/9780203143209.ch8>

Itamar Gati

**Published online on: 31 May 2013**

**How to cite :-** Itamar Gati. 31 May 2013, *Advances in Career Decision Making from: Handbook of Vocational Psychology, Theory, Research, and Practice* Routledge

Accessed on: 08 Dec 2023

<https://www.routledgehandbooks.com/doi/10.4324/9780203143209.ch8>

**PLEASE SCROLL DOWN FOR DOCUMENT**

Full terms and conditions of use: <https://www.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

# Advances in Career Decision Making<sup>1</sup>

Itamar Gati

Career decisions are among the most complex and significant decisions individuals make during their lifetime. Many people face difficulties in making such decisions, and hence seek help. Indeed, career indecision is regarded as one of the most important constructs in vocational psychology (Kelly and Lee, 2002; Osipow, 1999), and helping individuals overcome indecision and make better career decisions is at the core of career counseling (Gati, 1986, 1996; Gati and Tal, 2008; Phillips and Jome, 2005). This focal goal of career counseling involves two complimentary aspects of career decisions: (a) facilitating the *process* of making the decision, and (b) maximizing the *outcomes* of the choice, namely, choosing the career path that fits the individual best. A review of theories and practices of career counseling reveals that while traditional approaches have often focused on the *outcomes* of career choice, namely, defining what “a good career choice” is, more recent approaches in the field have focused on improving the *process* of career decision making.

Several factors have led to this growing attention to the processes involved in career decision making. One is the information and technology revolutions of the last three decades, which sharply expanded the variety of occupational and educational alternatives to choose from, the abundance of factors and considerations to be taken into account during the decision-making process, uncertainties about the world of work, and the amounts of information available (cf., Gati and Tal, 2008). Another reason for this trend is the important discoveries made in research on decision-making processes in general during the second half of the twentieth century (e.g., Simon, 1955; Tversky and Kahneman, 1974). Because career decisions involve information gathering and processing, career decision making can be regarded as a special case of general decision making (Katz, 1966; Pitz and Harren, 1980); thus, the goal of career counseling is facilitating the client’s decision making and improving its outcomes. The emerging attention to this approach has affected the definition of the goals, the means, the procedures, and the desired outcomes of career counseling.

<sup>1</sup> I thank Nimrod Levin and Shiri Tal-Landman for valuable discussions, and Yasmin Abo-Foul, Elad Afrima, Adi Amit, Reuma Gadassi, Naomi Goldblum, Jenna Hanson, Yuliya Lipshits-Brazilier, Maya Perez, Michal Phillips-Bernstein, Dana Vertsberger, and Tirza Willner for their comments on previous versions of this chapter. The preparation of this manuscript was supported by the Samuel and Esther Melton Chair of the first author. Correspondence concerning this chapter should be addressed to Itamar Gati, Department of Psychology, The Hebrew University, Jerusalem 91905, Israel. E-mail: itamar.gati@huji.ac.il.

Interestingly, however, in spite of its apparent relevance, to date decision theory has not yet been fully embraced as a framework for career counseling. The reluctance to do so may be attributed to several factors, including the fact that decision-theory-based models are often regarded as “too rational,” “too quantitative,” or “too complex,” and therefore allegedly inapplicable when the number of occupational alternatives under consideration is large (Gati and Tal, 2008, Katz, 1993; Pitz and Harren, 1980). In spite of these problems, the present chapter reviews changes and advancements in career decision making under the assumption that decision theory has the potential to shape the career counseling process and provide means and guidelines for making the counseling process more effective in terms of its outcomes and more efficient in balancing its costs and benefits.

In the following sections the trends and advances in career decision-making theory and practices are reviewed from five viewpoints. The first section reviews decision theory and its potential applicability to career decisions, taking their unique features into consideration. The next section focuses on assessments preceding the career decision-making process. The third section describes content variables, namely preferences and abilities (the core factors considered at each stage of the career decision-making process). The fourth section focuses on additional components of the process (e.g., coping with uncertainty and dealing with compromises) as well as its conscious and unconscious components. The fifth and final section concludes by suggesting a move from rational to adaptive career decision making and outlines implications for counseling and promising future directions. Finally, it is important to acknowledge that this review, as is often the case, is influenced by my personal inclinations and informed by my own research.

### **ADOPTING DECISION-MAKING THEORY AND ADAPTING IT TO CAREER DECISION MAKING**

The Person–Environment fit approach dominated vocational psychology for over a century, focusing on the congruence between individuals and the characteristics of various occupational alternatives (Spokane, Meir, and Catalano, 2000). This approach assumes that greater congruence will lead to better vocational outcomes reflected in satisfaction, persistence, and success (Holland, 1997). Indeed, given that the world of work is characterized by a great variety of complex alternatives, the desirable framework for maximizing P-E fit had to be linked to the process of analyzing the relevant data and comparing the relevant alternatives so as to identify the best one. A century ago, Parsons (1909) proposed three main principles for career choices: (a) a clear understanding of oneself, (b) knowledge of different lines of work, and (c) true reasoning about the relations between these facets. Zytowski (2008), celebrating 100 years of career guidance, noted, however, that Parsons never spelled out what he meant by “true reasoning.” Zytowski therefore suggested that research on career decision making should be considered the modern equivalent of Parsons’ “true reasoning.”

The decision-making perspective on career choices is not new. Fifty years ago, Gelatt (1962) and Hilton (1962) started exploring career decisions from the viewpoint of classical decision theory, while Katz (1966) and Kaldor and Zytowski (1969) offered quantitative models for comparing occupational alternatives and choosing the best one. These and other early attempts (e.g., Hsu, 1970; Tiedeman and O’Hara, 1963) were reviewed and systematically analyzed and compared by Jepsen and Dilley (1974), who concluded that the specific decision-theory-based models hold different assumptions about the decision maker as well as the conditions under which the decision is made. As a result, Jepsen and Dilley (1974)

suggested that these models are applicable to different types of decisions and as such should be viewed as complementary rather than competing.

Pitz and Harren (1980) discussed the challenges involved in applying decision-theory-based models to career decision making. From a decision-making perspective, people are much better in making decisions that involve only a few alternatives, each having only a few attributes. The modern world of work, in contrast, has practically endless alternatives: a very extensive variety of occupations, majors, jobs, and employers. This is further complicated by the numerous attributes that distinguish the alternatives and thus serve as factors to be considered during decision making. What seems at first glance to be a blessing (i.e., the freedom of choice among so many options) actually impairs individuals' ability to make decisions (Schwartz, 2005). This suggests that adopting decision-theory-based models as a framework for career counseling is not enough; it is important to adapt these models to the unique characteristics of career decisions as well. Disassembling a complex decision problem into its basic components may enable the individual to focus on each component separately and thus more adequately, presumably leading to a better choice (Pitz and Harren, 1980).

### MODELS OF CAREER DECISION MAKING: FROM *NORMATIVE* AND *DESCRIPTIVE* TO *PRESCRIPTIVE* MODELS

There are three major types of decision-theory-based models: normative, descriptive, and prescriptive (Bell, Raiffa, and Tversky, 1988). These three types are distinguished according to the basic assumptions underlying the way career decisions are analyzed. *Normative models* refer to procedures for making optimal choices while evaluating each of the considered alternatives according to two facets: perceived utility and estimated probability (Brown 1990; Mitchell and Krumboltz, 1984; Pitz and Harren, 1980). The typical procedure for estimating the overall desirability of an alternative is represented by the "compensatory model," which assumes that there is a trade-off between the advantages and the disadvantages of each alternative, and that the former can compensate for the latter (e.g., Katz, 1966; Pitz and Harren, 1980; Zakay and Barak, 1984).

Such normative models entail some significant psychological assumptions about human nature. First, they are based on the assumption that humans are perfectly rational in decision making. Unfortunately, empirical evidence has repeatedly contradicted this assumption (e.g., Kahneman and Tversky, 1979; Tversky and Kahneman, 1981). Normative models thus might at best serve as a reference point for a theoretical analysis or an ideal decision-making process, but they are less relevant for actual everyday decisions or effective career-decision counseling. Second, compensatory models implicitly assume that the decision maker has unlimited computational resources available that could be used without cost (Pitz and Harren, 1980). A full-scale decision analysis, however, is quite time consuming and involves comprehensive data collection and sophisticated aggregation of all the information. It is not surprising, then, that career counselors do not tend to guide clients to use compensatory computations based on normative decision theory.

*Descriptive models* refer to the way people actually make decisions and focus on the gap between ideal, normative models, and actual decision-making processes in real-life situations. Considering the various types of decisions individuals make, and the significance of individual differences, it is not surprising that there is no single accepted theory describing the way people make decisions. Among the more prominent theories that provide descriptive

models are (a) Herbert Simon's *satisficing theory* (1955), which states that people often settle for a "good enough" alternative rather than investing in thorough information collecting and complex information processing; and (b) Montgomery's *search for dominance theory* (1983, 1989), which focuses on locating the alternative that is dominant over the others (i.e., as good as the other alternatives in some aspects and better in at least one aspect). Descriptive models often document the deviations in the way individuals make decisions from what might be expected from a rational individual (e.g., their preferences are intransitive [Tversky, 1969], and their judgments are biased in predictable ways [Tversky and Kahneman, 1974]). However, since they basically only document the pitfalls in human judgment, descriptive models have not been embraced by most career theoreticians or career counselors.

*Prescriptive models* are aimed at minimizing the disadvantages of both the normative models (i.e., their inapplicability to decision situations due to partial information and limited cognitive resources) and descriptive models (i.e., documented biases leading to less than optimal decisions), while embracing their advantages (Bell et al., 1988). They outline a framework for making better decisions while acknowledging human limitations, corresponding with the intuitive ways in which individuals make decisions. Prescriptive models are assessed for their pragmatic value, namely their ability to facilitate individuals' decision making. For example, prescriptive models encourage relinquishing the unattainable goal of making an optimal rational decision and instead aiming at the realistic goal of making satisfying choices (Phillips, 1994). The goal of prescriptive models, in the career decision-making context, is thus providing a framework for a *systematic* process for making *better* career decisions, instead of striving for the optimal or most rational decision (Bell et al., 1988; Gati and Tal, 2008). In the next section we review two models representing the prescriptive approach.

### **STAGES IN CAREER DECISION MAKING: FROM COGNITIVE INFORMATION PROCESSING (CIP) TO PRESCREENING, IN-DEPTH EXPLORATION, AND CHOICE (PIC)**

According to the person–environment fit approach, the goal of career counseling should be maximizing the congruence between individuals and the characteristics of various occupational alternatives (Holland, 1997). Achieving this goal requires a model that adopts the P-E fit framework, while adapting it to produce systematic, analytical decisions in the current fast-paced vocational world. Since the world of work is characterized by a great variety of complex alternatives, a desirable model should assist in the process of systematically analyzing the relevant data and then synthesizing it to locate the most suitable alternative. In light of the complexity involved in the career decision-making process, dividing the career decision-making process into distinct stages can facilitate its completion.

#### **Cognitive Information Processing (CIP)**

Adopting the cognitive viewpoint, Peterson, Sampson, and Reardon (1991) proposed the *Cognitive Information Processing (CIP)* model for making career decisions. They suggested a pyramid of information processing domains, with self-knowledge and occupational knowledge forming the base, decision-making skills at the middle level, and the executive processing domain, which focuses on metacognition, at the top. The middle level is comprised

of five decision-making skills known as CASVE: (1) Communication (identifying a career problem), (2) Analysis (of problem components), (3) Synthesis (creating likely alternatives), (4) Valuing (prioritizing alternatives), and (5) Execution (implementing the choice). If the problem is not solved adequately, then the cycle should be repeated. Additional five-, six-, or seven-step models resembling the CASVE cycle were also proposed by Van Esbroeck, Tibos, and Zaman (2005), Germeijs and Verschuere (2006), Hirschi and Läge (2007), and Krumboltz and Hamel (1977).

### **The PIC (Prescreening, In-depth exploration, Choice) Model**

Gati and Asher (2001) proposed the *PIC* model for facilitating career decision making, which focuses on the three core stages of the career decision-making process: *Prescreening*, *In-depth exploration*, and *Choice (PIC)*. The goal of the *Prescreening* stage is to locate a small, manageable set of promising or feasible occupations out of all the relevant alternatives. For *prescreening* a systematic search, considering a wide range of factors and aspects involved in career choice (and not only vocational interests; Holland, 1997) is recommended. There are two main reasons for this. First, vocational interests are only some of the many factors relevant to many clients (additional factors are discussed in the following section). Other relevant factors include length of training, expected income, work environment, teamwork, professional advancement, and the like (Gati, 1998). Second, recommendations based on interest inventories often result in a too large set of occupations for further exploration. For example, there are 59 occupations compatible with a Holland three-letter code of IRE (and educational level 5–6; Holland, 1994), and it is clearly not realistic to explore so many alternatives in depth.

The goal of the *In-depth exploration* stage is to thoroughly examine the promising options and locate alternatives that fit each individual's preferences and abilities. It involves collecting relevant information about each of the promising alternatives to test the four compatibility conditions (Gati and Tal, 2008): (a) whether it fits the client's preferences in the factors that are most important to the client, as well as (b) the factors that are moderately important to the client. Then, (c) the fit between the core characteristics of the occupation under consideration (Gati, Garty, and Fassa, 1996) and the client's willingness to accommodate these characteristics is evaluated (e.g., working in shifts for a paramedic). Finally, (d) the likelihood of actualizing each promising alternative is assessed in terms of the chance of being admitted to the relevant training or field of study.

The third and last stage in the *PIC* model is *Choice*, in which the goal is to locate the most suitable alternative(s), or to rank the best alternatives by desirability (when the realization of the best option is not assured). This stage is based on the assumption that the alternatives that emerged as promising in the prescreening stage were investigated thoroughly during the in-depth exploration stage, and only those that were found suitable are included in the final shortlist. Only rarely does one of the alternatives dominate all the others (i.e., it is better in some factors and equal in others; Montgomery, 1989), so the choice stage typically involves a systematic weighting of the relative advantages and disadvantages of each of the alternatives. Then the alternative with the highest ratio of advantages vs. disadvantages is identified as the best. Finally, if the individual (or the counselor) has intuitions about which alternative on the shortlist should be chosen, the outcome of the systematic analysis can be compared with these intuitions. If they match, this should lead to greater confidence that the right

alternative was selected; if they lead to different conclusions, it is important to discover the reasons for this difference.

Thus, the *PIC* model integrates decision-making theory with the P-E fit in a way that facilitates matching individuals' abilities and preferences with the characteristics of different career alternatives, using a systematic, analytical, and dynamic decision-making process. Applying the *PIC* model makes it possible to prevent cognitive overload, thus leading to better career decisions; it can therefore be considered a prescriptive model. Furthermore, the three core stages of *PIC* are included in all the five-, six-, or seven-step models, whether explicitly or implicitly.

To sum up, while the P-E fit approach focuses mainly on the outcome, namely, the degree of match between individuals and their respective environments, the decision-making approach focuses mainly on the processes involved in collecting and processing the information relevant for the decision, hopefully leading to career choices with desirable outcomes. The *PIC* model adopts and adapts decision-theory models to increase the prospects for achieving congruence—the desirable outcome of the P-E fit approach. This shift in the focus of attention also leads to a shift from focusing on assessing vocational interests and work abilities to focusing on assessing the individual facing the challenge of making career decisions. The assessment of the individual's characteristics that exist prior to entering the career decision-making process is reviewed in the next section.

### ASSESSMENTS PRECEDING CAREER DECISION MAKING

Research supports counselors' informal reports that most individuals seek career counseling because they need help in making career decisions, namely, in understanding how to integrate the relevant information and make a satisfying choice (Balin and Hirschi, 2010; Gati, Osipow, Krausz, and Saka, 2000; Osipow, 1999; Tinsley, 1992). Indeed, because counselors initially try to identify the barriers which impede their clients' career decision making, they typically devote the first session to assessing their clients' needs. Needs assessment refers to the learning about clients both in terms of their career decision-making process and in terms of content-related facets (i.e., the factors the clients take into consideration at each stage of the career decision-making process). The next section will elaborate on the latter (content-related assessments), while the present section focuses on assessment preceding the career decision-making process, including locating clients' current stage in the decision-making process, the focuses of their career decision-making difficulties, and the way each client makes career decisions.

#### **Assessing decision status: from the *occupational alternatives question* to the *range of considered alternatives***

The first aspect of the individual's needs assessment is often his or her decision status. Decision status has two distinct facets. First, it may refer to the individual's stage in the career decision-making process in terms of the *PIC* stages (e.g., having finished the prescreening stage but not having begun the in-depth exploration stage). Second, decision status also refers to the present state or outcome of the process—the set of alternatives being considered by the individual at a given time. Focusing on the outcome, the Occupational Alternatives Question (OAQ; Zenner and Schnuelle, 1976, Slaney, 1980) elicits the individual's decision

status with the directive “List all the occupations you are considering right now” and the question “Which occupation is your first choice?” Combining the responses yields four possibilities: (1) no alternatives are listed, (2) alternatives are listed but without a first choice, (3) a first choice is reported, but with additional alternatives” and (4) “a first choice is reported, with no additional alternatives”. Slaney (1988) concluded that the OAQ is a useful though limited measure of individuals’ decision status.

The *Range of Considered Alternatives (RCA)* (Saka and Gati, 2007, Gadassi, Gati, and Dayan, 2013) is an extended version of the OAQ. It is a self-report measure aimed at assessing the individual’s degree of decidedness in terms of the degree to which individuals have narrowed down the range of occupational alternatives under consideration. The individual is asked to choose the one statement that best describes his or her career decision status: (1) “I do not even have a general direction”; (2) “I have only a general direction”; (3) “I am deliberating among a small number of specific occupations”; (4) “I am considering a specific occupation, but would like to explore other options before I make my decision”; (5) “I know which occupation I am interested in, but I would like to feel sure of my choice”; and (6) “I am already sure of the occupation I will choose.” The RCA has been found useful in measuring advancement towards making a career decision (Saka and Gati, 2007) and assessing the effects of a career intervention (Gati, Kleiman, Saka, and Zakai, 2003). Being at a more advanced status (i.e., with a narrower range of considered options) can be regarded as an advantage in certain situations and has been used as a criterion of career decision-making adaptability (Gadassi, Gati, and Wagman-Rolnick, 2013).

The combination of decision status in terms of the set of considered options (e.g., RCA) and stage in terms of the PIC stages provides the basic information about the individual’s decision status and thus his or her present position in the process and its outcomes. However, it is important to investigate the individual’s path to the reported RCA position and PIC stage: are these based on spontaneous responses elicited from the individual or on previous contemplation using systematic or intuitive processes?

### **From assessing career decision-making styles to assessing career decision-making profiles**

One of the central facets of career decision making relates to individuals’ typical mode of approaching, interpreting, carrying out, and responding to decision-making tasks (Driver, 1979; Harren, 1979; Phillips and Paziienza, 1988). This facet involves individuals’ behavior throughout the entire career decision-making process and not only during the final choice stage (Phillips and Paziienza, 1988). Models of career decision-making styles were often used to characterize the way an individual typically approaches and makes career decisions (Harren, 1979). Such information allows tailoring the intervention to the individual. For example, according to Harren’s model, each individual can be assigned to one of three types based on his or her dominant career decision-making style: the *rational* style refers to a logical and systematic approach to decisions, the *intuitive* style denotes reliance upon internal affective states in decision making, whereas the *dependent* style refers to an approach in which an individual’s decisions are contingent upon the reactions of friends, family, and peers. Scott and Bruce (1995) added two additional styles: the *avoidant* and the *spontaneous* styles. Additional measures for strategies and typologies include those proposed by Arroba (1977), Johnson, Coscarelli, and Johnson (1978), Krumboltz (1979), and Nevo (1989).

This abundance of career decision-making styles could be regarded as an indicator of the



scope and variety of characteristics that should be used to describe individuals. Indeed, it was argued that it is important to consider not only the most dominant style but also scores of less pronounced styles (Driver, Brousseau, and Hunsaker, 1990; Harren, 1979; Payne, Bettman, and Johnson, 1993; Singh and Greenhaus, 2004). Furthermore, in light of findings showing that the *style* approach only partially explains individual differences in career decision making, researchers have acknowledged that focusing only on the most salient style in order to capture individuals' typical career decision-making behavior is an oversimplification (Driver et al., 1990; Payne et al., 1993; Shiloh, Salton, and Sharabi, 2002; Singh and Greenhaus, 2004).

To overcome the problems resulting from the single, dominant-style approach, Gati, Landman, Davidovitch, Asulin-Peretz, and Gadassi (2010) suggested an alternative, multi-dimensional model for characterizing individuals' typical career decision-making behavior. Instead of career decision-making *style*, Gati et al. (2010) referred to career decision-making *profiles* to indicate a complex construct characterizing an individual's decision-making behavior, with several distinct dimensions. Following a systematic analysis of previous research, in which 40 identified types were collapsed into 16 prototypes, a 12-dimensional model was proposed for describing an individual's career decision-making behavior, comprising the following continuous dimensions (Gati et al., 2010; Gati and Levin, 2012): *information gathering* (minimal vs. comprehensive), *information processing* (holistic vs. analytic), *locus of control* (external vs. internal), *effort invested in the process* (little vs. much), *procrastination* (high vs. low), *speed of making the final decision* (slow vs. fast), *consulting with others* (rare vs. frequent), *dependence on others* (high vs. low), *desire to please others* (high vs. low), *aspiration for an ideal occupation* (low vs. high), *willingness to compromise* (low vs. high), and *using intuition* (little vs. much). Each dimension sheds light on the individual's way of making career decisions from a unique angle.

Subsequent research on the *Career Decision-Making Profile (CDMP)* questionnaire, developed based on the multidimensional model, supported its internal consistency, test-retest reliability and one-year stability (median within-individual correlation of .90 and .81, respectively), as well as its concurrent, convergent, divergent, and structural validity (Gati, Gadassi, and Mashiah-Cohen, 2012; Gati et al., 2010; Gati and Levin, 2012; Ginevra, Nota, Soresi, and Gati, 2012). In addition, Gati et al. (2012) demonstrated the incremental validity of the 12-dimensional model over the typologies of Scott and Bruce (1995) and Walsh (1986) in predicting career decision status.

Although the 12 dimensions are fairly independent, a stable, reliable indicator of career decision-making adaptability can be defined using six dimensions (Gati and Levin, 2012). Specifically, one of the poles emerged as more adaptive in six of the 12 dimensions, based on associations with personality dimensions regarded as adaptive, more advanced decision status, and fewer emotional and personality-related decision-making difficulties (Gadassi, Gati, and Dayan, 2012; Gadassi et al., 2013). The more adaptive poles are comprehensive *information gathering*, a more internal *locus of control*, less *procrastination*, greater *speed of making the final decision*, less *dependence on others*, and less *desire to please others*.

These empirical results support the theoretical arguments for the advantage of the multi-dimensional-profile approach over the dominant-style approach. However, the question of the stability of individuals' typical career decision-making behavior (i.e., whether it is a personality-related or a situational-based construct) is still open. Traditionally, it has been argued that career decision-making style is a relatively stable personality disposition (Harren, 1979; Jepsen, 1974, Johnson, 1978; Sagiv, 1999). Other approaches have

claimed that career decision-making style is not a personality trait but rather a habit-based propensity to respond in certain ways to different situations (e.g., Arroba, 1977). The high one-year within-individual stability of the *CDMP* scores reported by Gati and Levin (2012) seems to support the personality-related approach. In contrast, Gati, Gadassi, and Rolnick (2010) suggested that some dimensions are more situational while others are more personality related. Further research is needed to unravel the relative roles of situation and personality in individuals' typical career decision-making behavior.

### **ASSESSING INDECISION: FROM GLOBAL INDECISION TO LOCATING THE SPECIFIC FOCUSES OF CAREER DECISION-MAKING DIFFICULTIES**

Career indecision refers to the problems and difficulties individuals encounter in the career decision-making process, which often results in an inability to reach a career decision (Slaney, 1988). Gordon (1998) referred to seven types of indecision: very decided, somewhat decided, unstable decided, tentatively undecided, developmentally undecided, seriously undecided, chronically indecisive.

The idea that most individuals face difficulties before or during their career decision-making process, but that the scope of these difficulties differ among individuals, led researchers to develop measures for the assessment of the overall severity of career indecision. The Career Decision Scale (*CDS*; Osipow, Carney, and Barak, 1976) was among the first measures, and one of the most popular. In the original study, four possible causes of career indecision emerged: (a) lack of structure and confidence, (b) external barriers to preferred choice, (c) approach-approach conflict between equally attractive alternatives, and (d) personal conflict on how to make the decision. Further studies, however, did not support this structure (e.g., Laplante, Coallier, Sabourin, and Martin, 1994; Shimizu, Vondracek, Schulenberg, and Hostetler, 1988). As a result, Osipow (1999) noted that "most users of the *CDS* ... do not rely on the factor structure, but rather use the total indecision score of the measure as an overall index of one's level of career indecision" (p. 150).

Holland and Holland (1977) suggested that vocational indecision is a multidimensional construct. Indeed, newer measures of career indecision represent a multidimensional structure of indecision. For instance, the Career Decision Profile (*CDP*; Jones, 1989) has three dimensions (decidedness, comfort, and reasons), and the Career Factors Inventory (*CFI*; Chartrand, Robbins, Morrill, and Boggs, 1990) has two information factors (Need for career information and Need for self-knowledge) and two personal-emotional factors (Career choice anxiety and Generalized indecisiveness). These measures of career indecision, however, were developed independently of theoretical conceptualizations (Tinsley, 1992).

In an attempt to meet Tinsley's challenge of a theoretically derived assessment, Gati et al. (1996) proposed a new framework of career indecision. Their taxonomy was derived from a decision-theory-based model which was empirically tested and refined. Adopting the decision-making framing, Gati et al. (1996) distinguished between difficulties that may arise prior to the need to make a career decision, which are typically related to *Lack of Readiness*, and those that typically arise during the process itself. Difficulties during the process can be related to *Lack of Information* or to the use of the available information that is typically due to *Inconsistent Information*. Each of the three major clusters includes specific difficulty categories. *Lack of Readiness* comprises difficulties that are caused by (a) *lack of motivation*, (b) *general indecisiveness*, and (c) *dysfunctional beliefs*. Difficulties

classified in the *Lack of Information* cluster are related to lack of knowledge or information about (a) the *career decision-making process* (i.e., the stages involved), (b) the *self* (e.g., what are the client's preferences and abilities), (c) *occupations (or majors or jobs)*, and (d) *ways of obtaining additional information and help*. The third cluster, *Inconsistent Information*, includes difficulties related to (a) *unreliable information*, (b) *internal conflicts*, and (c) *external conflicts*.

The *Career Decision-Making Difficulties Questionnaire (CDDQ)* (Gati et al., 1996) was developed on the basis of this taxonomy and includes ten scales corresponding to the ten difficulty categories. In addition to its English version, to date the CDDQ has been translated and adapted into 32 languages, including Arabic (Hijazi, Tatar, and Gati, 2004), Chinese (Creed and Yin, 2006), Greek (Koumoundourou, Tsaousis, and Kounenou, 2011), and Italian (Di Fabio and Kenny, 2011). These and additional studies have supported the concurrent, construct, structural, and cross-cultural validity of the CDDQ (e.g., Albion and Fogarty, 2002; Gati et al., 1996; Gati and Saka, 2001; Mau, 2004; Tien, 2005).

From evaluating reduction in career indecision globally to reduction in specific career decision-making difficulties, Osipow and Gati (1998) showed that individuals' CDDQ and CDS scores converge, but claimed that the multidimensional theoretical model underlying the CDDQ lends support to its incremental utility over the CDS. Specifically, in comparison with the CDS, which allows only a global assessment of career indecision, the CDDQ makes it possible to map the focuses of an individual's difficulties in terms of the three major clusters, and in terms of the ten specific difficulty categories. This multidimensional assessment can facilitate addressing treatments directly on the specific difficulties of the client.

Slaney and Lewis (1986) showed that career undecided re-entry women's MVS (My Vocational Situation) (Holland, Daiger, and Power, 1980) scores were reduced following either a Strong-Campbell Interest Inventory (SCII) or a Vocational Card Sort (VCS) treatment program. This reduction in the MVS score does not make it possible to understand how the interventions help undecided individuals. Peng (2001) measured college freshmen's CDS scores and found that the CDS scores of the two treatment groups fell, whereas that of the control group did not. Peng (2001) was unable to differentiate between the specific effects of each of the treatments by the overall CDS score. In contrast, by using the CDDQ to assess and treat career decision-making difficulties, it is possible to appraise which specific career decision-making difficulties are reduced by the various treatments. For example, Fouad, Cotter, and Kantamneni (2009) reported that students' CDDQ global score decreased between the first and last weeks of an academic career decision-making course. Their results also showed that the decrease in career decision-making difficulties was evident only in subscales of the *Lack of Information* cluster (but not in the *Lack of Readiness* and *Inconsistent Information* clusters). Similarly, Di Fabio and Kenny (2011) showed that a training program focused on increasing emotional intelligence resulted in a decrease in participants' career decision difficulties related to lack of information. The differential effect of two computer-assisted career guidance systems (CACGSs) on reducing career decision-making difficulties was reported by Gati, Saka, and Krausz (2001). In seven of the ten difficulty categories the decrease was statistically significant; in three the effect was large (Cohen's  $d > .50$ ), including the four categories comprising the *Lack of Information* cluster. Perdrix, Stauffer, Masdonati, Massoudi, and Rossier (2012) reported a very large decrease in difficulties related to *Lack of Information*, a medium decrease in difficulties related to *Inconsistent Information*, but no decrease in *Lack of Readiness*-related difficulties. These studies demonstrate the advantage

of using a multidimensional assessment in evaluating the differential effects of a career intervention.

### Uncovering the different facets of career indecisiveness

*Developmental indecision* refers to a normative phase experienced by many individuals during the early stages of the career decision-making process (Dysinger, 1950; Guay, Ratelle, Senécal, Larose, and Deschênes, 2006). *Chronic indecision*, in contrast, relates to more persistent difficulties impairing individuals' career decision making for a longer period (Dysinger, 1950; Holland and Holland, 1977; Osipow, 1999; Salomone, 1982). Crites (1969) described indecisive persons as "individuals who seem to have difficulty in making all sorts of life decisions, whether they are of great or little significance" (pp. 305–306). Respectively, it is assumed that chronic indecision, often referred to as *career indecisiveness*, stems from deeper roots, such as emotional and personality-related factors (Callanan and Greenhaus, 1992; Germeijs and Verschueren, 2006; Kelly and Pulver, 2002; Santos, 2001).

Cluster analysis is a common research methodology for distinguishing among developmentally undecided individuals, chronically undecided individuals, and decided individuals. Larson, Heppner, Ham, and Dugan (1998) found four subtypes of undecided students: (a) planless avoiders, (b) informed indecisives, (c) confident but uninformed, and (d) uninformed. Indeed, most cluster-analytic studies lend support to this distinction between developmental and chronic indecision (Chartrand, Martin, Robbins, McAuliffe, Pickering, and Calliotte, 1994; Cohen, Chartrand, and Jowdy, 1995; Fuqua, Blum, and Hartman, 1988).

Guay et al. (2006) however, point to the shortcomings of using cluster analysis for the assessment of career indecisiveness. First, clustering procedures do not make it possible to examine the temporal stability of career indecisiveness, which is assumed to be a stable personality-related characteristic. Second, many studies used career indecision-related variables for clustering analysis. In such circumstances, distinguishing between developmental and chronic indecision based on individuals' indecision scores leads to inconclusive results. Therefore, Guay et al. (2006) concluded that new measures of career indecisiveness are needed.

As in the case of career indecision (i.e., developmental indecision), typically only a global score is obtainable from many measures of indecisiveness. For example, Frost and Shows' (1993) Indecisiveness Scale is assumed to be unidimensional, and provides only a global appraisal of an individual's degree of indecisiveness. Germeijs and De Boeck (2002) constructed a similar general Indecisiveness Scale. Furthermore, one of the ten difficulty categories in Gati et al.'s (1996) taxonomy of *Career Decision-Making Difficulties (CDDQ)* provides a general assessment of each individual's degree of indecisiveness. These measures implicitly assume that general indecisiveness is unidimensional, and thus have not attempted to uncover the factors that underlie individuals' difficulty in making decisions in general.

A comprehensive taxonomy of career indecisiveness, integrating the central emotional and personality-related variables that are theoretically thought or empirically shown to underlie career indecisiveness, was proposed by Saka and her colleagues (Saka and Gati, 2007; Saka, Gati, and Kelly, 2008). Their taxonomy of the possible underlying sources of career indecisiveness is composed of three major clusters—*Pessimistic Views*, *Anxiety*, and *Self-Concept and Identity*—that are further subdivided into 11 specific categories. The first cluster, *Pessimistic*

*Views*, is related to the more cognitive facets of indecisiveness such as negative biases and perceptions and it includes three categories of difficulties: (1) *pessimistic views about the world of work*; (2) *pessimistic views about the process*; and (3) *pessimistic views about one's control over the decision-making process and its outcomes*. The second cluster focuses on *Anxiety* and its potential defective consequences on career decision making, namely (1) *anxiety about the process*; (2) *anxiety about the uncertainty involved in choosing*; (3) *anxiety about commitment to one's choice*, and (4) *anxiety about the outcome*. The third cluster, *Self-Concept and Identity*, involves developmental and personality-related aspects, such as (1) *trait anxiety*; (2) *low self-esteem*; (3) *uncrystallized identity*; and (4) *conflictual attachment and separation*.

To empirically test this theoretical model, Saka et al. (2008) developed the *Emotional and Personality-related Career Decision-making Difficulties (EPCD)* questionnaire. Previous studies supported the psychometric properties of the *EPCD* (Gati et al., 2011; Saka and Gati, 2007; Saka et al., 2008). Gati et al.'s (2011) results support the claim that general indecisiveness stems from emotional and personality-related factors. A recent study lent support to the three-year temporal stability as well as concurrent and predictive validity of the *EPCD*, by showing that *EPCD* scores predict the decision status of individuals three years later (Gati, Asulin-Peretz, and Fisher, 2012).

Characterizing individuals as “indecisive” may suffice for research purposes but not for actually helping individuals. *General indecisiveness*-related difficulties are regarded by career counselors as most severe (after *lack of motivation*), and the difficulty that requires the longest intervention (Gati, Amir, and Landman, 2010). Locating the specific sources of individuals' emotional and personality-related indecisiveness provides career counselors with essential information to focus their precious time on the core causes of their clients' general indecisiveness-related difficulties.

## Conclusion

Career-related assessment research in recent years can be characterized by a trend to advance and focus on multidimensional assessment of relevant constructs instead of a global, unidimensional appraisal. Such a multidimensional assessment makes it possible to obtain more refined and detailed information about the clients' specific characteristics (e.g., their career decision-making profile) and needs (e.g., the sources of their general indecisiveness). Multilevel assessment makes it possible to get not only a global appraisal (e.g., the overall level of indecision) but also an intermediate and more detailed assessment (e.g., the specific focuses of the client's difficulties at the level of clusters or specific difficulty categories). Finally, using a multidimensional profile to characterize individuals, instead of labeling them by a single dominant style or trait (e.g., “spontaneous”), seems more informative not only for research but also for counseling purposes.

The use of multidimensional assessments has positive implications also on the evaluation of career intervention. When a global measure is used to evaluate an intervention (e.g., the Career Decision Scale [Osipow, Carney, and Barak, 1976]), there is often an alternative potential explanation for the positive effect reflected in the decrease in difficulty (e.g., social desirability, rationalization because of the time and effort invested). However, when a multidimensional measure is used (e.g., the *CDDQ* [Gati et al., 1996]) with a differential decrease of difficulties (i.e., noticeable decrease in some difficulty categories but only negligible decrease in others [e.g., Gati et al., 2001]), such alternative explanations can be ruled out.

This is particularly true when the observed decrease occurs in difficulties that can be directly connected to the specific focuses of the particular intervention.

### FACTORS TO BE CONSIDERED DURING CAREER DECISION MAKING

In addition to the many options (majors, occupations, jobs, employers), most career decisions involve a large number of factors that should be taken into account in the decision-making process. These factors can be roughly classified as involving either individuals' preferences or abilities (Darcy and Tracey, 2003; Holland, 1997; Tracey and Hopkins, 2001). Indeed, when contemplating their future career paths, individuals should think about what they want to do (preferences) as well as what they can do (abilities). Research has repeatedly shown that these factors predict career choice, satisfaction, and success (e.g., Brown, 2002; Holland, 1997; Gottfredson, 2005). In this section, emerging facets of preferences and abilities are discussed and their role in the career decision-making process is explored.

#### The role of preferences: from *vocational interests* to *career aspects*

One of the two major types of factors considered in career decision making is preferences. Preferences refer to what the individual is looking for (e.g., working outdoors, teamwork, independence, short training, above average income), and they include vocational interests and work values. Preferences also refer to what individuals want to avoid (e.g., working only indoors, working in shifts). Traditionally, vocational interests have been used to narrow down the set of occupational alternatives in order to locate those worth further, in-depth exploration (e.g., Holland, 1966; Roe, 1956). This approach stems from the implicit assumption that using vocational interests is an effective way to locate career alternatives compatible with individuals' vocational personality.

Career preferences, nevertheless, include additional factors as well. Katz (1973) proposed work values (e.g., independence, prestige, economic security) as guideposts in the search for suitable occupations. Pryor (1982) introduced the notion of work-aspect preference, referring to individuals' sensitivity to the presence or absence of particular features that distinguish occupations. Gati (1986) proposed the term *aspects* for all factors individuals consider in their career decision making. Aspects refer to the universe of all possible characteristics that distinguish individuals and occupations relevant to the individual's decision (Gati, 1998). In addition to vocational interests (e.g., *enterprising*) and work values (e.g., *helping people*), these aspects include, for instance, *length of training*, *work environment* (indoors or outdoors), and *teamwork*. Aspects can be regarded as an extension and refinement of vocational interests (Gati, Fassa, and Mayer, 1998).

Using aspects makes it possible to distinguish the three facets of preferences (Gati, 1986; Gati, Shenhav, and Givon, 1993): (a) the relative importance of an aspect or factor (e.g., of *work environment*); (b) the optimal (i.e., most desirable) within-aspect level (e.g., *only indoors*); and (c) the willingness to compromise by regarding additional within-aspect levels as acceptable (e.g., *mostly indoors, about equal indoors and outdoors*). Within-aspect preferences are consistent; Gati and Gutentag (2012) reported that the median within-individual two-week reliability of preferences was .85, and the two-year temporal stability was .75. In addition, research has shown that these three facets are distinct but not independent:

individuals' most preferred level of the more important aspects is often extreme (e.g., *only indoors* or *only outdoors*) and they are less willing to compromise about these aspects (Gati et al., 1993).

### *Prescreening*

Vocational interests can be used for prescreening. Holland (1997) proposed that individuals' vocational interests, as represented by the three-letter code derived from their responses to inventories, such as the Self-Directed Search (SDS) or the Vocational Preference Inventory (VPI), may be used to locate suitable occupations with the same three-letter code that represents the individual's vocational interests. However, this approach may lead to location of a very large set of occupations that matches the individual's vocational type (e.g., there are 199 occupations that match all permutations for the RSE Holland code in the Occupational Finder; Holland, 1997).

In the aspect-based approach, preferences are used for prescreening using sequential elimination (Gati, 1986). In the sequential elimination process, the most important aspect is considered first, and alternatives whose characteristics do not overlap with the range of levels considered desirable or acceptable are eliminated. This process progresses with the aspect second in importance, and so on, until the number of options is small enough (e.g., seven or less). The occupations in this "list of promising occupations" are those matching the individuals' preferences and are hence worth further, in-depth exploration. Thus, the sequential-elimination process is shaped primarily by what the individual wants to avoid.

### *In-depth exploration*

The goal of in-depth exploration is to verify whether alternatives that emerged as promising are indeed suitable. The vocational interest approach does not provide explicit suggestions for the in-depth exploration stage, except, perhaps, to "verify fit to the environments that match your interests." In terms of the aspect-based approach, in-depth involves checking the alternatives' fit with the individual's preferences not only in the most important aspects but also in the moderately important ones. For both groups of aspects, this comparison focuses on the gaps, if any, between the individual's preferences as expressed in the range of acceptable levels of each aspect and the respective characteristics of the alternative considered.

### *Choice*

The goal of the choice stage is to identify the best option or rank order the options by their attractiveness in case the actualization of the best option is not assured. Vocational interests cannot be of much help at this stage, as all alternatives on the shortlist at the choice stage have passed prescreening and in-depth exploration. Using aspect-based preferences during the choice stage, however, can help. In this stage the focus is on the fit between the individual's most desirable or optimal level (e.g., *only indoors*) and the most characteristic or representative level of the alternative (e.g., *mostly indoors*), in each aspect. The smaller the gap, the better the fit; the gaps, if any, are weighted by their importance. However, this time weighting should be done by considering the key significance of the aspects in the occupation under consideration. Gati et al. (1996) found that occupational choice satisfaction is critically

affected by the fit between the individual's preferences and the occupations' *core aspects*, which represent the essence of the occupation (e.g., using verbal ability, unconventional working hours, travelling, and teamwork, for a news reporter); the fit with the other aspects has only a negligible effect.

**The role of abilities in career decision making: from *tested and self-estimates of abilities to the desire or willingness to use them***

Abilities are "what the person can do now, or will be potentially able to do in the future" (Betz, Fitzgerald, and Hill, 1989, p. 28). Indeed, in light of their effect on one's likelihood to be accepted to one's desired training or job and to succeed in it, abilities also play a central role in career decision making (Gottfredson, 1986). Measured or "tested" abilities are thus frequently taken into consideration during career counseling (Gottfredson, 2005; Osipow and Fitzgerald, 1996). Nevertheless, despite the apparent importance of measured abilities, researchers have raised doubts about their predictive validity. Prediger (1999a) questioned whether ability test batteries, typically assessing up to six abilities, can in fact provide a sufficient, comprehensive view of individuals' abilities. As an alternative to the measurement of abilities, he suggested relying on individuals' self-estimates of their abilities.

Self-estimates of abilities are an expression of individuals' self-concept (Harrington and Schafer, 1996). The importance of deliberating individuals' perceptions of their abilities is generally recognized (e.g., Barak, Librowski, and Shiloh, 1989; Katz, 1993; Lent, Brown, and Hackett, 1994; Super, Savickas, and Super, 1996). Furthermore, since traditional paper-and-pencil ability tests tap only some abilities, individuals must also use self-estimates when considering, for example, organizational, artistic, and social abilities, in career decision making. Prediger (1999a) claimed that domain-specific self-estimates of abilities have more relevance to career choice than the general ability (intelligence) factor; furthermore, self-estimates are more valid than measured abilities (Prediger, 1999b).

In career decision making, however, an additional facet of abilities is also relevant: the individual's willingness or desire to use an ability. An individual's self-estimated ability (e.g., about her manual dexterity) may be high and this self-estimate may also be valid (based on a relevant test), but this does not necessarily imply that the individual is interested in using this ability in her future career. Gati, Fishman-Nadav, and Shiloh (2006) found that an individual's preference for using an ability in a future occupation is correlated with the individual's self-estimated ability. However, whereas this correlation is moderate (.57 for general ability), the correlation between preference for using an ability and measured general ability is negligible (.10). This illustrates the point that one's desire to use an ability is distinct from one's self-estimated or measured ability. The three facets of abilities (measures of abilities, self-estimates of abilities, and preferences for using abilities) play a major role in the three stages of *PIC*.

*Prescreening*

There is a problem with using measured abilities for prescreening because it is impossible to define a minimal cut-off point because of the high intra-individual difference in abilities within occupations (Gottfredson, 1986). Because of the inaccuracy of self-estimated abilities, they also cannot be recommended as criteria for prescreening. However, one's



desire or willingness to use (or avoid using) a particular ability is often explicitly considered during prescreening. For example, an individual may want to focus on occupations that are compatible with his or her preference to use a high level of verbal ability but avoid using artistic ability. Considering oneself competent in a particular domain does not necessarily imply that one wishes to use that ability in one's occupation, and conversely, preferring not to use a particular ability is not equivalent to a low self-estimate of that ability. For instance, an individual may perceive his or her organizational ability as high but may not be interested in pursuing a career in which using this ability is crucial. Thus, the search for alternatives during prescreening in this case is based on a filter that screens out alternatives involving using organizational ability intensively.

### *In-depth exploration*

During in-depth exploration, two facets of abilities are considered. First, the degree of compatibility between required abilities and individuals' respective self-estimated abilities is assessed. Alternatives with ability requirements that exceed the individual's self-estimated ability are regarded as incompatible. An individual may also regard an alternative as unsuitable if it has a significantly lower ability requirement than that considered desirable. In addition, the comparison between the required abilities in an occupation and the individual's abilities should involve not only compatibility in general ability, but also in specific abilities that are typically used in the occupation (e.g., technical ability). Finally, in certain cases, particularly borderline ones (i.e., when there is a doubt whether the individual's actual abilities are good enough), it is also important to consider measured or tested abilities, and not to rely only on self-estimated ones, as the latter are often biased (e.g., Gati et al., 2006; Kruger and Dunning, 1999).

### *Choice*

Of the three facets of abilities, the most preferred level of an ability is the most relevant at the choice stage. This is because fit in terms of self-estimated or measured ability was already considered during the in-depth exploration stage and thus all the alternatives that were advanced to the choice stage were already found suitable in terms of abilities. The degree of fit is affected by the gap, if any, between the individual's desire to use or avoid using an ability (e.g., to avoid using organizational ability) and the typical level of use in the occupation under consideration. An individual's desired level of using an ability may significantly exceed that required in the occupation, and such a gap may decrease the overall degree of fit.

## ADDITIONAL CONSIDERATIONS

In the previous sections we focused on factors that are directly relevant for comparing career alternatives in term of their fit to each individual's characteristics—preferences and abilities. In many decisions, however, additional factors are considered either explicitly or implicitly. Such additional factors—for example, the influence of one's family (e.g., Chope, 2006) or significant others (Gati, 1993)—have to be translated to specific factors or aspects in order to be considered. Specifically, significant others' influence may be expressed in terms of the alternatives (e.g., choose A or do not choose B) or in terms of aspects (e.g., either “avoid choosing a job which will not provide you economic security,” or “choose an occupation that

will allow professional advancement”). In addition, perceived or actual social group, racial, or gender barriers may affect the perceived attractiveness of alternatives or one’s aversion to them (e.g., McWhirter, 1997; Patton, Creed, and Watson, 2003; Swanson and Woitke, 1997). Finally, economic constraints may also affect the individual’s choice. These factors may lead to discarding a more suitable alternative in favor of a less suitable one.

To sum up, the various factors considered during the career decision-making process involve the two major facets of the fit between the individual and any potential career alternative: fit in terms of preferences or desirable characteristics (“Will I like and enjoy it?”), and fit in terms of abilities (“Can I do it?”, “Will I succeed in it?”). Both preferences and abilities play a significant role in each of the three *PIC* stages. However, the role of the different facets of preferences and of abilities depends on the specific stage of the career decision-making process in which the individual is located.

With respect to preferences, the individual’s preferences are considered at all three stages of *PIC*, but their role depends on the specific stage. During prescreening, the focus is on what is regarded as unacceptable by the individual. During in-depth exploration, the focus is on verifying overlap between what is considered as acceptable by the individual and the characteristics of the occupations on the shortlist. Finally, during the choice stage, the focus is on the fit between the level considered as optimal by the individual and the characteristics of the occupation under consideration. The individual’s abilities are also considered at all three stages of *PIC*, but their role again depends on the specific stage. During prescreening, the focus is on one’s desire to use or to avoid using (or to use a low level of) an ability. During in-depth exploration the focus is on verifying that the individual’s self-estimated as well as actual (i.e., tested) abilities are adequate for the requirements of the occupation under scrutiny. Finally, during the choice stage, the focus is on the degree of fit between the desired ability level and the respective typical level in the occupation being considered.

### SPOTLIGHTS ON THE CAREER DECISION-MAKING PROCESS

The core of the career decision-making process is the comparison of alternatives using criteria considered relevant and important for the decision maker, so as to identify the one that best suits the individual’s goals. In this section we explore the changing view of the role played by compromise, the increase in uncertainty related to career decisions, and the functions of conscious and unconscious processes. Then, research on the career decision-making process is reviewed, and the challenges involved in assessing the quality of the process and the outcomes of the decision are discussed.

#### **Career compromises: from *global/developmental* to *local/aspect-wise***

Compromise is the process of bridging gaps between what is desirable or preferred, on the one hand, and the reality—what exists or is attainable—on the other. To make a compromise means being aware of the gap and understanding that the option perceived as best cannot be actualized, and then being willing to proceed with another option, even though it is less than optimal. In the career decision-making domain, compromise is an inherent component of almost all decisions because the ideal alternative (i.e., the option that perfectly matches all one’s preferences and aspirations) rarely exists, and the optimal alternative (i.e., the best option) is often not attainable (Gati, 1993). Therefore, career decision making can be viewed

as a process of searching for an alternative that involves minimal compromise (Pitz and Harren, 1980).

The potential effects of compromise on the career decision-making process are of crucial importance (Pryor, 1987); Super (1953) called compromise the crux of career decision making. Crites (1978) referred to compromise as a dimension of career maturity, and the ability to deal with compromise has been regarded as one of the indicators of decision-making competence (Mann, Harmoni, and Power, 1989). Recognizing the need to compromise may lead to confusion and frustration, while the actual compromise may lead to regret once the decision has been made. Indeed, the inevitable need to compromise is among the salient focuses of difficulties that may prevent an individual making career decisions (Gati et al., 1996).

Gottfredson (1981) proposed that individuals circumscribe the range of career alternatives considered as relevant on the basis of the fit to their gender, perceived prestige, and then their vocational interests. She argued that if there is a need to compromise, the individual will compromise first on the field of interest, then on prestige, and, only if there is no other option, on the sex-type of the occupation. Gottfredson's theory has received considerable support, mainly for the circumscription component (Gottfredson, 2005), whereas the compromise component has only been partially supported (e.g., Hesketh, Durant, and Pryor, 1990).

It has been claimed, however, that although sex-type, prestige, and the field of interests are among the factors considered in the career decision-making process by many individuals, there are many additional factors individuals also take into account in the process of circumscription (labeled "sequential elimination"; Gati, 1986). First, the factors that are less important at a given point are those the individual will compromise on (Gati, 1993). Second, compromise can occur not only in the relative importance of the factors, by lowering a factor's importance (which affects what factors are considered), but also in within-factor or aspect preferences. Specifically, an individual can compromise and expand the range of levels considered as acceptable (e.g., to include *mostly indoors* in the range of acceptable levels) in addition to the optimal level (e.g., *only indoors*).

In fact, the two facets of compromising on aspects—lowering relative importance and broadening the range of acceptable levels—are not independent. Gati et al. (1993) found, using within-subject analyses, that one's readiness to compromise depends on one's preferences within each aspect (i.e., the perceived utility of the various within-aspect levels), and that the perceived importance of an aspect is negatively correlated with one's readiness to compromise with respect to it.

Still, many questions about career compromises need answers. Further research may shed light on which facet of the compromise affects its perceived extent more: the number of aspects in which the individual has to compromise on or the extent of the within-aspect compromise (e.g., whether three "small" compromises are regarded as greater than one "large" compromise)? Another question is whether the willingness to compromise is adaptive. Although flexibility, as reflected in willingness to compromise, may be regarded as desirable, recent research suggests that those who were less willing to compromise were in fact more advanced in their career decision status (Gadassi et al., 2012). What facilitates the willingness to compromise, whether and when it should be encouraged, are thus still open questions for research.

### Dealing with compromise at the three stages of PIC

Because compromise is inevitable, it should be explicitly considered during the three stages of PIC. During prescreening, using a range of levels to elicit the individual's preferences creates a more flexible characterization of one's aspirations, incorporating possible changes in the optimal within-aspect level over time. During in-depth exploration, compromise can be manifested in decreasing the relative importance of certain aspects in which there is a gap between the individual's most desirable level and the characteristics level(s) of the occupation(s). Such a decrease may result in regarding an alternative as suitable in spite of gaps between the individual's preferences and the alternative's characteristics in some aspects. Since the alternatives under consideration at the choice stage are all acceptable, compromise plays a role in the trade-off between the desirable and the undesirable features of the alternatives (the essence of compensation). An alternative may appear acceptable when compromise is considered for each aspect separately, but when the overall compromise involved in choosing an alternative is considered (i.e., the "sum" of the aspect-wise compromises), then it may be deemed too great, leading the alternative to be regarded as unacceptable (Gati, Houminer, and Fassa, 1997).

### From *certainty* to *uncertainty* or embracing chance

In contrast to our usual metaphor for depicting time as space, there is an alternative metaphor that sees the future as actually behind us, because we cannot see it, whereas the past is in front of us, because we know what already happened (Anderson, 2012). One of the most dramatic changes in the world of work in the last 50 years is the shift from certainty to uncertainty. Individuals who were born in the first half of the twentieth century could often commit to a single career decision and actualize it; since then, individuals' career futures have evolved to be much less assured. This change is manifested in the set of occupations to choose from, the typical characteristics of occupations, changes in individuals' preferences, and in the observed increase in the number of individuals who switch jobs, employers, and occupations.

With the changing face of the world, it has been necessary to update vocational theories. Indeed, about a quarter of century ago, Gelatt (1989) claimed that we no longer live in times in which the past is known and the future is predictable, while the present changes at a comprehensible pace. In such circumstances, with certainty about one's career development decreasing and being replaced by growing uncertainty, Gelatt proposed *positive uncertainty* as a new career decision-making framework. This framework was designed to encourage individuals to consider uncertainty as something positive and demonstrate flexibility in response to change, and to help clients cope with change and ambiguity, embrace uncertainty, and choose new adaptive, non-rational strategies for decision making.

Since Gelatt (1989), uncertainty in career decision making has been increasingly acknowledged. Bright and Pryor (2005) adopted the notion of uncertainty and claimed that career decision making should draw on chaos theory, highlighting the complexity of the range of influences on career development and the incompleteness of our knowledge at the time a decision is made. Building upon studies that show that unplanned events influence career behavior more than previously thought, and the understanding that individuals are complex, ever-changing, and dynamic systems, Bright and Pryor highlighted the value of dynamic adaptations and continual change throughout individuals' career development. Likewise,

Krumboltz and his colleagues (Krumboltz, 2009; Mitchell, Levin, and Krumboltz, 1999) advanced the Happenstance Learning Theory, according to which individuals should engage in activities that will expose them to different occupational alternatives throughout their careers, and thus shape their occupational futures in an ongoing process. This theory views career decision not as a single one-time big decision but rather as a series of numerous smaller decisions and adaptations that need to be made.

Thus, both the Chaos Theory of Careers (Pryor and Bright, 2003) and Krumboltz' (2009) Happenstance Learning Theory propose that career development is strongly affected by unplanned events. Indeed, empirical research has confirmed that many people report that chance events affected their career development (e.g., Bright, Pryor, and Hapham, 2005). Happenstance theory promotes engagement in exploratory activities that increase the probability of being faced with unexpected opportunities and the willingness to take action in the face of uncertain outcomes (Mitchell et al., 1999). Nevertheless, the unplanned events do not free individuals from the need to make decisions at particular points of time (e.g., "Which of the three colleges I was accepted to should I actually attend?"; "Which courses should I take in my freshmen year?"; "Which major should I choose?"; "Which job offer should I accept after graduation?").

Uncertainty is involved in several components of the career decision-making process. First, there is uncertainty concerning the individual's preferences—the relative importance of the aspects, the optimal level, as well as one's willingness to compromise (as reflected in the range of levels regarded as acceptable), may (and probably will) be different in the future. Second, the occupations will be different—certain occupations will disappear, and others, unimagined at present, may emerge. Moreover, the typical jobs in many occupations will change their characteristics (e.g., ICT may decrease the need for traveling).

Chance events (e.g., moving to another location because one's partner received a job offer that cannot be refused, unexpected loss of a significant other) cannot be taken into account when one has to make a decision at a given point of time. This is so because the number of possible chance events is practically infinite. Uncertainties (e.g., "Will I be admitted to the law school at my university?"), on the other hand, can and should be considered. Yet, in spite of these uncertainties, individuals still have to decide which college to apply to or which training to begin. As uncertainty is inherent in most career decisions, the question is how it can be taken into account. For example, when taking steps to realize an occupational aspiration which is uncertain (e.g., admission is not assured), it is important to consider alternative(s) as plan B. Thus, although uncertainty cannot be eliminated in most career decisions, the individual and his or her career counselors, if any, can explore ways to increase the probability of actualizing one's choice.

### **Dealing with uncertainty at the three stages of PIC**

As with compromise, uncertainty is an integral part of most career decisions. Uncertainty is generally regarded as undesirable but unavoidable; hence, individuals tend to take measures to minimize it as much as possible. During prescreening, uncertainty concerning one's future preferences can be taken into account by considering not only the optimal level (e.g., *no travel*), but also additional acceptable levels (e.g., *little or moderate travel*). During in-depth exploration, the information gathered can be used to decrease uncertainty about one's fit with a promising alternative. Finally, during the choice stage, uncertainty in actualization can be dealt with by selecting a second best alternative(s) and, if possible, planning to

implement several suitable alternatives simultaneously (e.g., applying to several universities or jobs).

To sum up, some researchers have discussed the notion of uncertainty in career decision making involving chance, non-rational decision making, and chaos. Although there is much more uncertainty involved in career development and career choices today, reality is far from reflecting chaos. For instance, Schoon and Polek (2011) found that teenagers' job aspirations predicted their chosen occupations 17 years later. Similarly, Gati, Gadassi, and Shemesh (2006) showed that the recommendation individuals obtained from *Making Better Career Decisions (MBCD)*, an Internet-based career planning system, predicted almost half of the participants' occupations six years later, as well as their satisfaction with their occupational choice. Finally, while chance events cannot be predicted or controlled, decisions have to be made at certain points in time; the uncertainty involved in many decisions can be reduced (although rarely eliminated) by collecting relevant information. Unpredictable events and unexpected changes in the world of work should not be viewed as a result of complete chaos; they merely demonstrate that life is more complex than it used to be and that decisions should be dealt with more meticulously.

### **From processes that are only *conscious* to those that are also *unconscious***

One recent controversial issue associated with career decision making is the extent to which decision making is an unconscious intuitive process or a conscious, mostly rational one. Krieshok (1998, 2001) claimed that most processing performed by the human mind for decision making and behavior initiation is not performed at a conscious level. Therefore, decision models that require individuals to articulate their preferences and values often lead to errors, confusion, and even a false description of one's preferences, resulting in the exploration of inappropriate alternatives during the decision process. A more efficient method for improving career decisions, according to this approach, would be collecting information through active experience, thus enriching the subject matter on which individuals' judgments rely and helping them become more informed decision makers.

Krieshok, Black, and McKay (2009) reviewed problems in the rational approach to career decision making and discussed the role of unconscious processes. Claiming that rational and intuitive processes are dialectically intertwined in effective decision making, they proposed a trilateral model of adaptive career decision making. The model combines reason (the conscious, System II), intuition (the unconscious, System I), and engagement (enrichment and exploration). Occupational engagement consists of exploratory behaviors and enrichment, which is a process of increasing awareness via experiential activities that increase one's information about oneself. Still, the challenge is how to combine intuition with the outcome of a *systematic* process, when the individual has to make a specific decision at a given point of time.

Indeed, intuition and systematic exploration can be viewed as complementary rather than contradictory. Although career decisions should be made actively, systematically, and consciously, intuition still has an important role to play in several phases of the process. Intuition affects individuals' sensitivity to the importance of each aspect, preferred levels in the aspect, and willingness to compromise. Intuition can also serve as a yardstick for the overall evaluation of one's final decision (i.e., one's confidence in it).

In fact, intuition is particularly important at the choice stage. Congruence between the outcomes of the systematic decision process and the intuitively appealing occupational

alternatives can strengthen one's confidence in one's choice, while incongruity should call for a re-examination of the decision process and the intuitive choice so as to discover the reason(s) for the incompatibilities, reconcile reason and intuition, and arrive at a confident decision.

Criticism of the decision-making framework (e.g., Krieshok, 1998, 2001) can be regarded as reflecting the challenges and intricacies involved in adopting decision models as a framework for career decisions. While purely rational decision processes are insufficient for the purpose, it is suggested that career guidance should encourage a *systematic* process of career decision making. The challenge is to explore and refine the prescriptive models and tailor career counseling interventions to each individual's unique characteristics and decision-making style.

### **Research into the process: from *observation* to *instruction***

Research into the processes involved in the choice among alternatives sheds light on the way individuals collect and process information, as well as on how they compare alternatives and choose one. Beach (1998) found that prescreening and choice are distinct stages of decision making. Payne (1976), using the "information board" paradigm (i.e., a set of alternatives described in terms of a set of attributes), found that when the number of alternatives was small, subjects collected the same amount of information about each of the alternatives, which is compatible with a compensatory model. However, when faced with many alternatives, the decision involved eliminating some alternatives on the basis of only a few aspects. Paquette and Kida (1988) found that when greater task complexity was involved (9 vs. 5 alternatives), elimination by aspects or a mixed strategy (a combination of elimination and compensation) required less time than the more complex compensatory strategy while not resulting in reduced accuracy. Gati and Kibari (2000) analyzed the pattern of occupational-information search using 40 career alternatives and 34 career aspects, and also found that the pattern of information seeking was compatible with that expected according to the *PIC* model—first prescreening and eliminating alternatives based on the aspects regarded as the most important to the individual, followed by an in-depth exploration of a few promising alternatives. Gati and Tikotzki (1989) provided empirical support for the descriptive validity of the prescreening stage in the way career clients collected information: 96% of the clients employed a non-compensatory strategy during at least a part of the dialogue. Gati et al. (2006) reported that clients who followed the recommendations of a sequential elimination-based search were much more satisfied with their choices than those who did not. The findings and conclusions of these studies support the *PIC* model (cf., Gati and Asher, 2001; Gati and Tal, 2008).

### **Comparisons among career decision-making strategies**

Mau and Jepsen (1992) taught students either the sequential elimination strategy or the multi-attribute, compensatory strategy. They found that students with a rational decision-making style who used the former strategy evinced less anxiety and greater confidence in their choice than those who used the latter. Lichtenberg, Shaffer, and Arachtingi (1993) compared the sequential-elimination and expected-utility strategies, and found that the choices made using a sequential-elimination strategy or without using a formal strategy were

similar. These results suggest that the sequential-elimination strategy may be more natural to decision makers than the expected-utility strategy. Zakay and Tsal (1993) found that even when the number of alternatives was small (i.e., three), only 32% of the subjects used a compensatory strategy, in comparison with 37% who used a non-compensatory strategy. Gati et al. (2006) found that while following the list of recommended occupations based on sequential elimination led to significantly greater satisfaction with one's occupational choice six years later, following the list of recommended occupations based on the compensatory model did not.

Individuals' stage in the process, in terms of the *PIC* stages or the range of considered alternatives, combined with the focuses of their decision-making difficulties and their career decision-making profile or style, probably interact with the specific model used to guide their career decision making. Forcing a strategy or model that is incompatible with the individual's intuitive way of making career decisions has undesirable outcomes (Amit and Gati, 2012; Zakay and Tsal, 1993). Future research should try to uncover the specific interactions between individuals and guidance interventions, as well as their implications.

### **From assessing the *quality of the outcome* to assessing the *quality of the process***

The issue of how one should evaluate the quality of a career decision is central to the study of career decision making. A wide range of criteria has been used in the study of career decision making and the evaluation of career counseling (e.g., Oliver, 1979; Oliver and Spokane, 1988). However, many of the recommendations (e.g., control group, random assignment) cannot be used for evaluating the quality of a specific decision made by a particular individual. Two major approaches to evaluating the quality of career decisions have been proposed (Gati and Tal, 2008). The first argues that a decision model should be evaluated according to the degree of satisfaction with the outcomes of the decision, namely, the individual's occupational choice satisfaction. The second approach claims that the criteria should be the quality of the process that led to these outcomes.

Pitz and Harren (1980) argued that the content of a person's choice (i.e., what is chosen) is a less defensible criterion than the process of choosing. In an uncertain world, it is impossible to make decisions that can assure later satisfaction, and so an undesirable outcome is not necessarily the result of a poor decision. Furthermore, evaluating the long-term outcomes of career decisions is not only difficult but presumptuous (Katz, 1979). Therefore, since an individual's eventual occupational satisfaction is affected by many unpredictable and uncontrollable factors, decision models should not be evaluated by their outcomes but rather by the quality of the process that led to these outcomes (Katz, 1973, 1979; Mitchell and Krumboltz, 1984; Phillips and Jome, 2005). Furthermore, as Katz, Norris, and Pears (1978) argued, if we believe that career decision making is a desirable skill, we should determine whether that skill has been actually acquired by an individual, independent of any long-range criterion such as job choice or eventual job success and satisfaction. Acquiring career decision-making competencies can therefore serve as a desirable short-term outcome criterion (Katz, 1979). The assessment of these competencies (e.g., as represented in Crites' [1973] Career Maturity Inventory), however, is not trivial (e.g., Katz, 1978).

Since prescriptive models are process-centered, a process-oriented evaluation seems to be the better approach. However, assuming that the right process increases the probability of making the right choice, a comprehensive evaluation of the validity and utility of a model



can involve three complementary questions: (a) does the model facilitate and improve individuals' decision-making processes?; (b) does it lead to greater occupational satisfaction in the future?; and (c) do individuals generalize the model and apply it to future career decisions? A review of the research supporting the *PIC* model from these three perspectives can be found in Gati and Asher (2001).

In light of the arguments reviewed above which highlight the problems associated with using the outcome as a measure of the quality of the decision made, the desirable goal of career decision making should be changed. Specifically, the goal should not be making the right decision, but rather making the decision right (Gati and Tal, 2008).

### Conclusion

The process of career decision making is undoubtedly complex: it involves dealing with both internal and external fuzzy factors—negotiating compromises both within the individual and with others, making decisions in spite of only partial information due to uncertainty about the future, and combining gut feelings that cannot be explained with deliberate, conscious reasoning. Nevertheless, the challenges involved in the process itself and in the assessment of the quality of the decision made should not affect the goal—facilitating making better career decisions.

## CONCLUSIONS AND IMPLICATIONS

Career development is a continuous lifelong process of developmental experiences that focuses on seeking, obtaining, and processing information about self, occupational and educational alternatives, life styles, and role options (Super, 1953; Hansen, 1976). Thus, career development focuses on the developmental tasks confronting the individual at each stage or period in life, and the changes in the way individuals perceive themselves, the world of work, and their role in it. Career decision-making models describe the processes involved in collecting and organizing information about the self and the alternatives, comparing and evaluating the alternatives, and choosing the one that seems best at a given time. These models must therefore be distinguished from career development models, which are generally broader in scope and pay less attention to the specific processes used for making career decisions. Indeed, Osipow (1983) highlighted the importance of understanding the decision-making process involved in an individual's career development.

The review in this chapter reflects a move from a description of the individual as a *rational decision maker* to one as an *adaptive decision maker*. Originating in Parsons' (1909) "true reasoning," the implicit assumption in the field was that decision makers ought to adopt a rational approach. Regardless of the different factors highlighted by the various theories adopting this assumption (e.g., informed progression in the decision-making process [Tiedeman and O'Hara, 1963], careful evaluation of relevant information [Janis and Mann, 1977], or meticulous assessment of the expected utility of each career alternative [Pitz and Harren, 1980]), these early theories presupposed that career decision making should be carried out with a clear, consistent picture of one's preferences and abilities. The rational decision maker was conceptualized as one who exercises a methodological and systematic approach in the process, locates and compares the different occupational alternatives, and identifies the alternative that best matches his or her needs.

Indeed, the assumption that being dependent, avoidant, or spontaneous (i.e., anything but rational) will lead to poorer career decisions has been empirically supported. Using Harren's (1979) typology, Phillips, Paziienza, and Ferrin (1984) found that only the rational strategy for career decision making was associated with greater confidence. Similarly, Blustein (1987) reported that only a rational decision-making style was associated with vocational maturity, and Mau (1995) found that a rational decision-making style was associated with greater career decidedness and less career indecision, choice anxiety, and reason complexity. Thus, from a career-decision-making-style point of view, being rational was largely seen as equivalent to being adaptive.

More recent studies, however, suggest that there is more to adaptability than rationality. First, it was shown that additional styles contribute to making better career decisions. Singh and Greenhaus (2004) found that individuals adopting both rational and intuitive approaches to career decision making reported a higher degree of person–job fit. In addition, the finding that most decisions are not actually made in a rational manner (Payne et al., 1993) raises the question of whether apparently rational decision makers indeed manifest their styles in real-life decisions. Finally, Galotti, Ciner, Altenbaumer, Greets, Rupp, and Woulfe (2006) showed that individuals with different career decision-making styles choosing a college major reported gathering and considering the same amount of information, thereby raising the possibility that career decision-making styles affect not the decision-making process but rather the way individuals perceive it. These findings indicate that being adaptive in career decision making goes even further beyond the confines of rationality. As Hartung and Blustein (2002) suggested, the alternative models that highlight and acknowledge the roles of intuition, emotion, the unconscious, and uncertainty should be integrated into career decision-making theory.

Adopting the approach of considering career decision-making *profiles* rather than *styles* could further unravel the behavioral patterns that contribute to making better career decisions. The 12 dimensions of the *CDMP* (Gadassi et al., 2013) make it possible to map both adaptive as well as maladaptive strategies and behaviors. Consider, for example, an individual who exhibits a high level of procrastination (i.e., delays entering the career decision-making process), which indicates a maladaptive approach, and a high level of information gathering (i.e., once actively engaged in the career decision-making process, he or she explores various sources of information), which indicates adaptive behavior. Such a disposition illustrates the complexity involved in assessing career decision making (as well as the shortcoming of the dominant typologies of styles). Recent studies have shown that some poles of the *CDMP* are more adaptive than others; specifically, comprehensive information gathering, a more internal locus of control, less procrastination, greater speed of making the final decision, less dependence on others, and less desire to please others all lead to being more adaptive in career decision making (Gadassi et al., 2012; Gadassi et al., 2013).

### Implications

People approach career counselors for various reasons. Although it is correct to say that people seek out career counselors because they feel they are undecided in their career decision making, there are diverse factors that can cause people to be undecided and consequently seek professional help. Some are not sure of what is involved in making such a decision (e.g., lack of information about the career decision-making process) or do not

possess the relevant information to make it (e.g., information about themselves or about the occupational alternatives). Others' challenges may be related to emotional and personality-related difficulties, such as general anxiety or indecisiveness (Saka and Gati, 2007; Salomone, 1982). In light of the diversity in the reasons for approaching career counselors, the goal of the initial assessment is to provide the career counselor with information that makes it possible to tailor a career intervention plan to the unique needs and characteristics of each client.

Adopting a decision-making framework has implications for the goal of career counseling. First, it may involve a shift from promoting person–environment fit using interest-based assessment to a more dynamic, decision-making-based process. Furthermore, the goal of the career decision-making process has shifted from maximizing (Katz, 1966), via satisfying (Phillips and Jome, 2005; Simon, 1955), to making *better* career decisions (Gati and Tal, 2008). Maximizing refers to choosing the best alternatives in terms of the normative, compensatory model. Satisficing refers to choosing an alternative which is good enough, acknowledging that practical constraints do not allow for carrying out the extensive decision analysis dictated by the normative model. In contrast, *making better career decisions* focuses on improving the *process*, with the goal of making the decision in a way that increases the probability of choosing the option that best matches the client's goals from among the various satisficing ones. Indeed, as Fouad (2007) argued, "understanding factors influencing work choices and helping individuals effectively make career decisions is the focus of vocational psychologists" (p. 543).

Because compromise is an inherent component of most career decisions, one of the challenges faced by career counselors is when and how to help clients accept the idea of compromising (Gati et al., 1997). Gati, Houminer, and Aviram (1998) found that viewing compromises not in terms of alternatives (e.g., giving up studying medicine) but in terms of aspects (e.g., increasing the range of acceptable levels of income and prestige and lowering the relative importance of these factors) decreases the perceived extent of compromise involved as well as the difficulty in making the decision. Counselors can help their clients overcome the challenges of implementing career aspirations by reframing these impediments as hurdles that can be overcome rather than as insurmountable barriers. Finally, counselors have to decide when to support compromise and help clients "reshape their dreams," and when to support the effort to realize a dream in spite of the challenges (Schlossberg and Porter Robinson, 1993).

Today's technology allows access to vast quantities of information and computational power. These resources could and should be harnessed to facilitate career decision making and incorporated into individual career counseling as additional means for achieving goals. At present, it seems that the major challenge is to find ways to elicit expert knowledge from counselors and professionals and incorporate it into interactive, dynamic systems that can facilitate individuals' career decision making. This will help to enhance the quality of such decision making, as well as the counseling process, and hence increase the probability of reaching satisfying outcomes.

## REFERENCES

- Albion, M. J. and Fogarty, G. J. (2002). Factors influencing career decision making in adolescents and adults. *Journal of Career Assessment*, 10, 91–126. doi: 10.1177/1069072702010001006.

- Amit, A. and Gati, I. (2012). Table or circles? A comparison of two methods for choosing among career alternatives. *Career Development Quarterly*.
- Anderson, E. (2012, June). *The future is actually behind us: Why chaos and happenstance theories are counterintuitive*. Presented at the 2012 National Career Development Association Global Career Development Conference, Atlanta, Georgia.
- Arroba, T. (1977). Styles of decision making and their use: An empirical study. *British Journal of Guidance and Counselling*, 5, 149–58. doi: 10.1080/03069887708258110.
- Balin, E. and Hirschi, A. (2010). Who seeks career counselling? A prospective study of personality and career variables among Swiss adolescents. *International Journal for Educational and Vocational Guidance*, 10, 3, 161–76. doi: 10.1007/s10775-010-9183-y.
- Barak, A., Librowski, I., and Shiloh, S. (1989). Cognitive determinants of interests: An extension of a theoretical model and initial empirical examinations. *Journal of Vocational Behavior*, 34, 318–34. [http://dx.doi.org/10.1016/0001-8791\(89\)90023-7](http://dx.doi.org/10.1016/0001-8791(89)90023-7).
- Beach, L. R. (1998). *Image theory: Theoretical and empirical foundations*. Mahwah, NJ: Lawrence Erlbaum.
- Bell, D. E., Raiffa, H., and Tversky, A. (1988). Descriptive, normative and prescriptive interactions in decision making. In D. E. Bell, H. Raiffa, and A. Tversky (Eds.), *Decision making* (pp. 9–30). New York: Cambridge University Press.
- Betz, N. E., Fitzgerald, L. F., and Hill, R. E. (1989). Trait-factor theories: Traditional cornerstone of career theory. In M. B. Arthur, D. T. Hall, and B. S. Lawrence (eds.), *Handbook of career theory* (pp. 26–40). Cambridge: Cambridge University Press.
- Blustein, D.A. (1987). Decision-making styles and vocational maturity: An alternative perspective. *Journal of Vocational Behavior*, 30, 1, 61–71. doi: 10.1016/0001-8791(87)90026-1.
- Bright, J. E. H. and Pryor, R. G. L. (2005). The chaos theory of careers: A users guide. *Career Development Quarterly*, 53, 4, 291–305. doi: 10.1002/j.2161-0045.2005.tb00660.x.
- Bright, J. E. H., Pryor, R. G. L., and Hapham, L. (2005). The role of chance events in career decision making. *Journal of Vocational Behavior*, 66, 561–76. <http://dx.doi.org/10.1016/j.jvb.2004.05.001>.
- Brown, D. (1990). Models of career decision making. In D. Brown, L. Brooks, and Associates (eds.), *Career choices and development* (2nd edn; pp. 395–421). San Francisco, CA: Jossey-Bass.
- (2002). The role of work and cultural values in occupational choice, satisfaction, and success: A theoretical statement. *Journal of Counseling and Development*, 80, 48–56. doi: 10.1002/0471142735.im1110s51.
- Callanan, G. A. and Greenhaus, J. H. (1992). The career indecision of managers and professionals: An examination of multiple subtypes. *Journal of Vocational Behavior*, 41, 212–31. [http://dx.doi.org/10.1016/0001-8791\(92\)90023-S](http://dx.doi.org/10.1016/0001-8791(92)90023-S).
- Chartrand, J. M., Martin, W. F., Robbins, S. B., McAuliffe, G. J., Pickering, J. W., and Calliotte, J. A. (1994). Testing a level versus an interactional view of career indecision. *Journal of Career Assessment*, 2, 55–69. doi: 10.1177/106907279400200106.
- Chartrand, J. M., Robbins, S. B., Morrill, W. H., and Boggs, K. (1990). Development and validation of the Career Factors Inventory. *Journal of Counseling Psychology*, 37, 491–501. doi: 10.1037/0022-0167.37.4.491.
- Chope, R. C. (2006). *Family matters: The influence of the family in career decision making*. Austin, TX: Pro-ED.
- Cohen, C. R., Chartrand, J. M., and Jowdy, D. P. (1995). Relationships between career indecision subtypes and ego identity development. *Journal of Counseling Psychology*, 42, 4, 440–7. doi: 10.1037/0022-0167.42.4.440.
- Creed, P. A. and Yin, W. O. (2006). Reliability and validity of a Chinese version of the Career Decision-making Difficulties Questionnaire. *International Journal for Educational and Vocational Guidance*, 6, 47–63. doi: 10.1007/s10775-006-0003-3.
- Crites, J. O. (1969). *Vocational psychology*. New York: McGraw-Hill.
- (1973). *Theory and research handbook for the Career Maturity Inventory*. Monterey, CA: McGraw-Hill.
- (1978). *Career Maturity inventory theory and research handbook*. Monterey, CA: CTB/McGraw-Hill.
- Darcy, M. A. U. and Tracey, T. J. G. (2003). Integrating abilities and interest in career choice: Maximal versus typical assessment. *Journal of Career Assessment*, 11, 219–37. doi: 10.1177/1069072703011002007.
- Di Fabio, A. and Kenny, M. E. (2011). Promoting emotional intelligence and career decision making among Italian high school students. *Journal of Career Assessment*, 19, 21–34. doi: 10.1177/1069072710382530.
- Driver, M. J. (1979). Individual decision making and creativity. In S. Kerr (ed.), *Organizational behavior*. Columbus, OH: Grid Publishing.
- Driver, M. J., Brousseau, K. R., and Hunsaker, P. L. (1990). *The dynamic decision maker*. New York: Harper and Row.
- Dysinger, W. S. (1950). Maturation and vocational guidance. *Occupations*, 29, 198–201.
- Fouad, N. A. (2007). Work and vocational psychology: Theory, research, and applications. *Annual Review of Psychology*, 58, 543–64. doi: 10.1146/annurev.psych.58.110405.085713.
- Fouad, N. A., Cotter, E. W., and Kantamneni, N. (2009). The effectiveness of a career decision-making course. *Journal of Career Assessment*, 17, 338–47. doi: 10.1177/1069072708330678.
- Frost, R. O. and Shows, D. L. (1993). The nature and measurement of compulsive indecisiveness. *Behaviour Research and Therapy*, 31, 683–92. doi: 10.1016/0005-7967(93)90121-A.

- Fuqua, D. R., Blum, C. R., and Hartman, B. W. (1988). Empirical support for the differential diagnosis of career indecision. *Career Development Quarterly*, 36, 364–73. doi: 10.1002/j.2161-0045.1988.tb00511.x.
- Gadassi, R., Gati, I., and Dayan, A. (2012). The adaptability of Career Decision-Making Profiles. *Journal of Counseling Psychology*, 59, 612–22. doi: 10.1037/a0029155.
- Gadassi, R., Gati, I., and Wagman-Rolnick, H. (2013). The adaptability of Career Decision-Making Profiles: Associations with self-efficacy, emotional difficulties, and decision status. *Journal of Career Development*. Advance online publication. doi: 10.1177/0894845312470027.
- Galotti, K. M., Ciner, E., Altenbaumer, H. A., Greets, H. J., Rupp, A., and Woulfe, J. M. (2006). Making a “major” life framing decision: Individual differences in performance and affective reactions. *Personality and Individual Differences*, 41, 629–39. doi: 10.1016/j.paid.2006.03.003.
- Gati, I. (1986). Making career decisions: A sequential elimination approach. *Journal of Counseling Psychology*, 33, 408–17. doi: 10.1037/0022-0167.33.4.408.
- (1993). Career compromises. *Journal of Counseling Psychology*, 40, 416–24. doi: 10.1037/0022-0167.40.4.416.
- (1996). Computer-assisted career counseling: Challenges and prospects. In M. L. Savickas and B. W. Walsh (eds.), *Handbook of career counseling theory and practice* (pp. 169–90). Palo Alto, CA: Davies-Black Publishing.
- (1998). Using career-related aspects to elicit preferences and characterize occupations for a better person–environment fit. *Journal of Vocational Behavior*, 52, 343–56. <http://dx.doi.org/10.1006/jvbe.1997.1623>.
- Gati, I., Amir, T., Landman, S. (2010). Career counsellors’ perceptions of the severity of career decision-making difficulties. *British Journal of Guidance and Counselling*, 38, 393–408. doi: 10.1080/03069885.2010.503700.
- Gati, I. and Asher, I. (2001). Prescreening, In-Depth Exploration, and Choice: From decision theory to career counseling practice. *Career Development Quarterly*, 50, 140–57. doi: 10.1002/j.2161-0045.2001.tb00979.x.
- Gati, I., Asulin-Peretz, L., and Fisher, A. (2012). Emotional and personality-related career decision-making difficulties: A three-year follow-up. *Counseling Psychologist*, 40, 1, 6–27. doi: 10.1177/0011000011398726.
- Gati, I., Fassa, N., and Mayer, Y. (1998). An aspect-based approach to person–environment fit: A comparison between the aspect structure derived from characteristics of occupations and that derived from counselees’ preferences. *Journal of Vocational Behavior*, 53, 28–43. <http://dx.doi.org/10.1006/jvbe.1997.1609>.
- Gati, I., Fishman-Nadav, Y., and Shiloh, S. (2006). The relations between preferences for using abilities, self-estimated abilities, and measured abilities among career counseling clients. *Journal of Vocational Behavior*, 68, 24–38. <http://dx.doi.org/10.1016/j.jvb.2005.04.002>
- Gati, I., Gadassi, R., Hadadi, Y., Ansenberg, N., Friedman, R., and Asulin-Peretz, L. (2011). Emotional and personality-related aspects of career decision-making difficulties: Facets of career indecisiveness. *Journal of Career Assessment*, 19, 3–20. doi: 10.1177/1069072710382525.
- Gati, I., Gadassi, R., and Mashiah-Cohen, R. (2012). Career Decision-Making Profiles vs. Styles: Convergent and incremental validity. *Journal of Vocational Behavior*, 81, 2–16. doi: 10.1016/j.jvb.2012.03.004.
- Gati, I., Gadassi, R., and Rolnick, H. (2010). *The dimensions of Career Decision-Making Profiles: Personality traits or situational factors?* Poster presented at the 2010 Annual Convention of the American Psychological Association, San Diego, California.
- Gati, I., Gadassi, R., and Shemesh, N. (2006). The predictive validity of a computer-assisted career decision-making system: A six-year follow-up. *Journal of Vocational Behavior*, 68, 205–219. <http://dx.doi.org/10.1016/j.jvb.2005.08.002>
- Gati, I., Garty, Y., and Fassa, N. (1996). Using career-related aspects to assess person–environment fit. *Journal of Counseling Psychology*, 43, 196–206. doi: 10.1037/0022-0167.43.2.196.
- Gati, I. and Gutentag, T. (August 2012). Career preference reliability and stability, and its consequences on career decision making. Poster presented at the 2012 Annual Convention of the American Psychological Association, Orlando, Florida.
- Gati, I., Houminer, D., and Fassa, N. (1997). Framings of career compromises: How career counselors can help. *Career Development Quarterly*, 45, 390–399. doi: 10.1002/j.2161-0045.1997.tb00543.x.
- Gati, I., Houminer, D., and Aviram, T. (1998). Career compromises: Framings and their implications. *Journal of Counseling Psychology*, 45, 505–514. doi: 10.1037/0022-0167.45.4.505.
- Gati, I. and Kibari, L. (2000). *Strategies used to search for information for making a career decision*. Unpublished manuscript. Department of Psychology, Hebrew University, Jerusalem.
- Gati, I., Kleiman, T., Saka, N., and Zakai, A. (2003). Perceived benefits of using an internet-based interactive career planning system. *Journal of Vocational Behavior*, 62, 272–286. [http://dx.doi.org/10.1016/S0001-8791\(02\)00049-0](http://dx.doi.org/10.1016/S0001-8791(02)00049-0).
- Gati, I., Krausz, M., and Osipow, S. H. (1996). A taxonomy of difficulties in career decision making. *Journal of Counseling Psychology*, 43, 510–526. doi: 10.1037/0022-0167.43.4.510.
- Gati, I., Landman, S., Davidovitch, S., Asulin-Peretz, L., and Gadassi, R. (2010). From career decision-making styles to career decision-making profiles: A multidimensional approach. *Journal of Vocational Behavior*, 76, 277–91. <http://dx.doi.org/10.1016/j.jvb.2009.11.001>
- Gati, I. and Levin, N. (2012). The stability and structure of career decision-making profiles: A one-year follow-up. *Journal of Career Assessment*, 20, 4.

- Gati, I., Osipow, S. H., Krausz, M., and Saka, N. (2000). Validity of the Career Decision-making Difficulties Questionnaire: Counselor versus career counselor perceptions. *Journal of Vocational Behavior*, 56, 99–113. <http://dx.doi.org/10.1006/jvbe.1999.1710>
- Gati, I. and Saka, N. (2001). High school students' career related decision-making difficulties. *Journal of Counseling and Development*, 79, 331–40. doi: 10.1002/j.1556-6676.2001.tb01978.x.
- Gati, I., Saka, N., and Krausz, M. (2001). "Should I use a computer-assisted career guidance system?" It depends on where your career decision-making difficulties lie. *British Journal of Guidance and Counselling*, 29, 301–21. doi: 10.1080/03069880124945.
- Gati, I., Shenhav, M., and Givon, M. (1993). Processes involved in career preferences and compromises. *Journal of Counseling Psychology*, 40, 53–64. doi: 10.1037/0022-0167.40.1.53.
- Gati, I. and Tal, S. (2008). Decision-making models and career guidance. In J. Athanasou and R. Van Esbroeck (eds.), *International Handbook of Career Guidance* (pp. 157–85). Berlin, Germany: Springer. doi: 10.1007/978-1-4020-6230-8\_8.
- Gati, I. and Tikotzki, Y. (1989). Strategies for collection and processing of occupational information in making career decisions. *Journal of Counseling Psychology*, 36, 430–9. doi: 10.1037/0022-0167.36.4.430.
- Gelatt, H. B. (1962). Decision-making: A conceptual frame of reference for counseling. *Journal of Counseling Psychology*, 9, 240–5. doi: 10.1037/h0046720.
- (1989). Positive uncertainty: A new decision-making framework for counseling. *Journal of Counseling Psychology*, 36, 252–6. doi: 10.1037/0022-0167.36.2.252.
- Germeijs, V. and De Boeck, P. (2002). A measurement scale for indecisiveness and its relationship to career indecision and other types of indecision. *European Journal of Psychological Assessment*, 18, 113–22. doi: 10.1027//1015-5759.18.2.113.
- Germeijs, V. and Verschuere, K. (2006). High school students' career decision-making process: Development and validation of the Study Choice Task Inventory. *Journal of Career Assessment*, 14, 449–71. doi: 10.1177/1069072706286510.
- Ginevra, M. C., Nota, L., Soresi, S., and Gati, I. (2012). Career decision-making profiles of Italian adolescents. *Journal of Career Assessment*. Advance online publication. doi: 10.1177/1069072712448739.
- Gordon, V. N. (1998). Career decidedness types: A literature review. *Career Development Quarterly*, 46, 386–403. doi: 10.1002/j.2161-0045.1998.tb00715.x.
- Gottfredson, L. S. (1981). Circumscription and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology*, 28, 549–579. doi: 10.1037/0022-0167.28.6.545.
- (1986). Occupational aptitude patterns map: Development and implications for a theory of job aptitude requirements. *Journal of Vocational Behavior*, 29, 254–291. [http://dx.doi.org/10.1016/0001-8791\(86\)90008-4](http://dx.doi.org/10.1016/0001-8791(86)90008-4)
- (2005). Applying Gottfredson's theory of circumscription and compromise in career guidance and counseling. In S. D. Brown and R. T. Lent (eds.), *Career development and counseling: Putting theory and research to work* (pp. 71–100). Hoboken, NJ: John Wiley & Sons.
- Guay, F., Ratelle, C. F., Senécal, C., Larose, S., and Deschênes, A. (2006). Distinguishing developmental from chronic career indecision: Self-efficacy, autonomy, and social support. *Journal of Career Assessment*, 14, 235–251. doi: 10.1177/1069072705283975.
- Janis, I. L. and Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. London: Cassel and Collier Macmillan.
- Hansen, L. S. (1976). Career developmental education: Humanizing focus for educators. *Journal of Career Development*, 3, 42–48. doi: 10.1177/089484537600300107.
- Harren, V. A. (1979). A model of career decision making for college students. *Journal of Vocational Behavior*, 14, 119–33. [http://dx.doi.org/10.1016/0001-8791\(79\)90065-4](http://dx.doi.org/10.1016/0001-8791(79)90065-4)
- Harrington, T. F. and Schafer, W. D. (1996). A Comparison of self-reported abilities and occupational ability patterns across occupations. *Measurement and Evaluation in Counseling and Development*, 28, 4, 180–90.
- Hartung, P. J. and Blustein, D. L. (2002). Reason, intuition, and social justice: Elaborating on parsons' career decision-making model. *Journal of Counseling and Development*, 80, 41–47. doi: 10.1002/j.1556-6678.2002.tb00164.x.
- Hesketh, B., Durant, C., and Pryor, R. G. L. (1990). Career compromise: A test of Gottfredson's (1981) theory using a policy-capturing procedure. *Journal of Vocational Behavior*, 36, 1, 97–108. [http://dx.doi.org/10.1016/0001-8791\(90\)90017-V](http://dx.doi.org/10.1016/0001-8791(90)90017-V)
- Hijazi, Y., Tatar, M., and Gati, I. (2004). Career decision-making difficulties among Israeli and Palestinian Arab high-school seniors. *Professional School Counseling*, 8, 64–72.
- Hilton, T., L. (1962). Career decision-making. *Journal of Counseling Psychology*, 9, 291–8. doi: 10.1037/h0048309.
- Hirschi, A. and Läge, D. (2007). The relation of secondary student's career choice readiness to a six-phase model of career decision-making. *Journal of Career Development*, 34, 2, 164–191. doi: 10.1177/0894845307307473.
- Holland, J. L. (1966). *The psychology of vocational choice: A theory of personality types and model environments*. Waltham, MA: Blaisdell.
- (1994). *The Self-Directed Search*. Odessa, FL: Psychological Assessment Resources.
- (1997). *Making vocational choices: A theory of vocational personalities and work environments* (3rd edn). Odessa, FL: Psychological Assessment Resources.

- Holland, J. L., Daiger, D. C., and Power, P. G. (1980). Some diagnostic scales for research in decision-making and personality: identity, information and barriers. *Journal of personality and social psychology*, 39, 1191–200. doi: 10.1037/h0077731.
- Holland, J. L. and Holland, J. E. (1977). Vocational indecision: More evidence and speculation. *Journal of Counseling Psychology*, 27, 469–77. doi: 10.1037/0022-0167.24.5.404.
- Hsu, C. C. (1970). A conceptual model of vocational decision-making. *Experimental Publication System*, 8, 270–6.
- Jepsen, D. A. (1974). Vocational decision-making strategy types. *Vocational Guidance Quarterly*, 23, 17–23. doi: 10.1002/j.2164-585X.1974.tb02133.x.
- Jepsen, D. A. and Dilley, J. S. (1974). Vocational decision-making models: A review and comparative analysis. *Review of Educational Research*, 44, 3, 31–349.
- Johnson, R. (1978). Individual styles of decision-making: A theoretical model for counseling. *Personnel and Guidance Journal*, 56, 530–6. doi: 10.1002/j.2164-4918.1978.tb05305.x.
- Johnson, R., Coscarelli, W., and Johnson, J. (1978). *Decision making inventory*. Columbus, OH: Marathon Counseling and Press.
- Jones, L. K. (1989). Measuring a three-dimensional construct of career indecision among college students: A revision of the Vocational Decision Scale: The Career Decision Profile. *Journal of Counseling Psychology*, 36, 4, 477–86. doi: 10.1037/0022-0167.36.4.477.
- Kahneman, D. and Tversky, A. (1979). Prospect Theory: An analysis of decision under risk. *Econometrica*, 47, 263–92.
- Kaldor, D. R. and Zytowski, D. G. (1969). A Maximizing Model of Occupational Decision-Making. *Personnel and Guidance Journal*, 47, 8, 781–8. doi: 10.1002/j.2164-4918.1969.tb03006.x.
- Katz, M. (1966). A model of guidance for career decision-making. *Vocational Guidance Quarterly*, 15, 2–10. doi: 10.1002/j.2164-585X.1966.tb01148.x.
- (1973). The name and nature of vocational guidance. In H. Borow (ed.), *Career guidance for a new age* (pp. 83–133). Boston, MA: Houghton-Mifflin.
- (1978). Review of Career Maturity Inventory. In O. Buros (ed.), *The eight mental measurements yearbook* (pp. 1558–67). Highland Park, NJ: The Gryphon Press.
- (1979). Assessment of career decision making: Process and outcome. In A. Mitchell, G. Jones, and J. Krumboltz (Eds.), *Social learning and career decision making* (pp. 81–101). Cranston, RI: Carroll Press.
- (1993). *Computer-assisted career decision making: The guide in the machine*. Hillsdale, NJ: Lawrence Erlbaum.
- Katz, M., Norris, L., and Pears, L. (1978). Simulated occupational choice: A diagnostic measure of competencies in career decision making. *Measurement and Evaluation in Guidance*, 10, 222–39.
- Kelly, K. R. and Lee, W. C. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behavior*, 41, 302–26. <http://dx.doi.org/10.1006/jvbe.2001.1858>.
- Kelly, K. R. and Pulver, C. A. (2002). Refining measurement of career indecision types: A validity study. *Journal of Counseling and Development*, 81, 445–54. doi: 10.1002/j.1556-6678.2003.tb00271.x.
- Koumoundourou, G., Tsaousis, I., and Kounenou, K. (2011). Parental influences on Greek adolescents' career decision making difficulties: The mediating role of core self-evaluations. *Journal of Career Assessment*, 19, 165–82. doi: 10.1177/1069072710385547.
- Krieshok, T. S. (1998). An anti-introspectivist view of career decision making. *Career Development Quarterly*, 46, 210–29. doi: 10.1002/j.2161-0045.1998.tb00697.x.
- (2001). How the decision-making literature might inform career center practice. *Journal of Career Development*, 27, 207–16. doi: 10.1023/A:1007839110404.
- Krieshok T. S., Black, M. D., and McKay, R. A. (2009). Career decision making: The limits of rationality and the abundance of non-conscious processes. *Journal of Vocational Behavior*, 75, 275–90. doi:10.1016/j.jvb.2009.04.006.
- Kruger, J. and Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology*, 77, 1121–34. doi: 10.1037/0022-3514.77.6.1121.
- Krumboltz, J. D. (1979). A social learning theory of career decision making. In A. M. Mitchell, G. B. Jones, and J. D. Krumboltz (eds.), *Social learning and career decision making* (pp. 19–49). Cranston, RI: Carroll Press.
- (2009). The happenstance learning theory. *Journal of Career Assessment*, 17, 135–54. doi: 10.1177/1069072708328861.
- Krumboltz, J. D. and Hamel, D. A. (1977). *Guide to career decision making skills*. New York: College Entrance Examination Board.
- Laplante, B., Coallier, J.-C., Sabourin, S., and Martin, F. (1994). Dimensionality of the Career Decision Scale: Methodological, cross-cultural, and clinical issues. *Journal of Career Assessment*, 2, 19–28. doi: 10.1177/106907279400200103.
- Larson, L. M., Heppner, P. P., Ham, T., and Dugan, K. (1998). Investigating multiple subtypes of career indecision through cluster analysis. *Journal of Counseling Psychology*, 35, 439–46. doi: 10.1037/0022-0167.35.4.439.
- Lent, R. W., Brown, S. D., and Hackett, G. (1994). Toward a unifying social cognitive theory of career and academic interest, choice, and performance [Monograph]. *Journal of Vocational Behavior*, 45, 79–122. doi: 10.1037/0022-0167.33.3.265.

- Lichtenberg, J. W., Shaffer, M. A., and Arachtingi, B. M. (1993). Expected utility and sequential elimination models of career decision making. *Journal of Vocational Behavior*, 42, 237–52. <http://dx.doi.org/10.1006/jvbe.1993.1017>.
- Mann, L., Harmoni, R., and Power, C. (1989). Adolescent decision making: The development of competence. *Journal of Adolescence*, 12, 265–78. [http://dx.doi.org/10.1016/0140-1971\(89\)90077-8](http://dx.doi.org/10.1016/0140-1971(89)90077-8).
- Mau, W. C. (1995). Decision-making style as a predictor of career decision-making status and treatment gains. *Journal of Career Assessment*, 3, 1, 89–99. doi: 10.1177/106907279500300107.
- (2004). Cultural dimensions of career decision-making difficulties. *Career Development Quarterly*, 53, 67–78. doi: 10.1002/j.2161-0045.2004.tb00656.x.
- Mau, W. C. and Jepsen, D. A. (1992). Effects of computer-assisted instruction in using formal decision-making strategies to choose a college major. *Journal of Counseling Psychology*, 39, 185–192. doi: 10.1037/0022-0167.39.2.185.
- McWhirter, E. H. (1997). Perceived barriers to education and career: Ethnic and gender differences. *Journal of Vocational Behavior*, 50, 124–40. <http://dx.doi.org/10.1006/jvbe.1995.1536>
- Mitchell, L. K. and Krumboltz, J. D. (1984). Research on human decision making: Implications for career decision making and counseling. In D. D. Brown and R. W. Lent (eds.), *Handbook of counseling psychology* (pp. 238–82). New York: John Wiley & Sons.
- Mitchell, L. K., Levin, A. S., and Krumboltz, J. D. (1999). Planned happenstance: Constructing unexpected career opportunities. *Journal of Counseling and Development*, 77, 115–24. doi: 10.1002/j.1556-6676.1999.tb02431.x.
- Montgomery, H. (1983). Decision rules and the search for a dominance structure: Towards a process model of decision making. In P. Humphreys, O. Svenson, and A. Vari (eds.), *Analyzing and aiding decision processes* (pp. 343–69). Budapest: North-Holland Publishing Company.
- (1989). From cognition to action: The search for dominance in decision making. In H. Montgomery and O. Svenson (eds.), *Process and structure in human decision making* (pp. 23–59). New York: John Wiley & Sons.
- Nevo, O. (1989). *Everything you wanted to know about career choice, but you were afraid to ask*. Jerusalem: National Institute for Testing and Evaluation (in Hebrew).
- Oliver, L. W. (1979). Outcome measurement in career counseling research. *Journal of Counseling Psychology*, 26, 217–26. doi: 10.1037/0022-0167.26.3.217.
- Oliver, L. W. and Spokane, A. R. (1988). Career intervention outcome: What contributes to client gain? *Journal of Counseling Psychology*, 35, 447–62. doi: 10.1037/0022-0167.35.4.447.
- Osipow, S. H. (1983). *Theories of career development* (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall Inc.
- (1999). Assessing career indecision. *Journal of Vocational Behavior*, 55, 147–54. <http://dx.doi.org/10.1006/jvbe.1999.17>
- Osipow, S. H., Carney, C. G., and Barak, A. (1976). A scale of educational-vocational undecidedness: A typological approach. *Journal of Vocational Behavior*, 9, 233–43. [http://dx.doi.org/10.1016/0001-8791\(76\)90081-6](http://dx.doi.org/10.1016/0001-8791(76)90081-6)
- Osipow, S. H. and Fitzgerald, L. F. (1996). *Theories of career development* (4th edn). Boston, MA: Allyn and Bacon.
- Osipow, S. H. and Gati, I. (1998). Construct and concurrent validity of the career decision-making difficulties questionnaire. *Journal of Career Assessment*, 6, 345–63. doi: 10.1177/106907279800600305.
- Paquette, L. and Kida, T. (1988). The effect of decision strategy and task complexity on decision performance. *Organizational Behavior and Human Decision Processes*, 41, 128–42. doi: 10.1016/0749-5978(88)90051-9.
- Parsons, F. (1909). *Choosing a vocation*. Boston, MA: Houghton-Mifflin.
- Patton, W., Creed, P. A., and Watson, M. B. (2003). Perceived work related and non-work related barriers in the career development of Australian and South African adolescents. *Australian Journal of Psychology*, 55, 2, 74–82. doi: 10.1080/00049530412331312924.
- Payne, J. W. (1976). Task complexity and contingent processing in decision making: An information search and protocol analysis. *Organizational Behavior and Human Decision Processes*, 16, 366–387. [http://dx.doi.org/10.1016/0030-5073\(76\)90022-2](http://dx.doi.org/10.1016/0030-5073(76)90022-2)
- Payne, J. W., Bettman, J. R., and Johnson, E. J. (1993). *The adaptive decision maker*. Cambridge: Cambridge University Press.
- Peng, H. (2001). Comparing the effectiveness of two different career education courses on career decidedness for college freshmen: An exploratory study. *Journal of Career Development*, 28, 1, 29–41. doi: 10.1023/A:1011137914570.
- Perdrix, S., Stauffer, S., Masdonati, J., Massoudi, K., and Rossier, J. (2012). Effectiveness of career counseling: A one-year follow-up. *Journal of Vocational Behavior*, 80, 565–78. <http://dx.doi.org/10.1016/j.jvb.2011.08.011>.
- Peterson, G. W., Sampson, J. P., Jr., and Reardon, R. C. (1991). *Career development and services: A cognitive approach*. Pacific Grove, CA: Brooks/Cole.
- Phillips, S. D. (1994). Choice and change: Convergence from a decision making perspective. In M. L. Savickas and R. W. Lent (eds.), *Convergence in career development theories* (pp. 155–63). Palo Alto, CA: Consulting psychologists Press.
- Phillips, S. D. and Jome, L. M. (2005). Vocational choices: What do we know? What do we need to know? In W. B. Walsh and M. L. Savickas (eds.), *Handbook of vocational psychology* (3rd ed.; pp. 127–153). Mahwah, NJ: Lawrence Erlbaum.
- Phillips, S. D. and Paziienza, N. J. (1988). History and theory of the assessment of career development and decision making. In W. B. Walsh and S. H. Osipow (eds.), *Career decision making* (pp. 1–31). Hillsdale, NJ: Erlbaum.



- Phillips, S. D., Paziienza, N. J., and Ferrin, H. H. (1984). Decision-making styles and problem-solving appraisal. *Journal of Counseling Psychology*, 31, 497–502. doi: 10.1037/0022-0167.31.4.497.
- Pitz, G. F. and Harren, V. A. (1980). An analysis of career decision making from the point of view of information processing and decision theory. *Journal of Vocational Behavior*, 16, 320–46. [http://dx.doi.org/10.1016/0001-8791\(80\)90059-7](http://dx.doi.org/10.1016/0001-8791(80)90059-7)
- Prediger, D. J. (1999a). Basic structure of work-relevant abilities. *Journal of Counseling Psychology*, 46, 173–184. doi: 10.1037/0022-0167.46.2.173.
- (1999b). Integrating interests and abilities for career exploration: General considerations. In M. L. Savickas and A. R. Spokane (eds.), *Vocational interests: Meaning, measurement and counseling use* (pp. 295–325). Palo Alto, CA: Davies-Black.
- Pryor, R. G. L. (1982). Values, preferences, needs, work ethics and orientations to work: Toward a conceptual and empirical integration. *Journal of Vocational Behavior*, 20, 40–52. [http://dx.doi.org/10.1016/0001-8791\(82\)90062-8](http://dx.doi.org/10.1016/0001-8791(82)90062-8)
- (1987). Compromise: The forgotten dimension of career decision-making. *British Journal of Guidance and Counselling*, 15, 2, 158–68. doi: 10.1080/03069888708253529.
- Pryor, R. G. L. and Bright, J. E. H. (2003). The chaos theory of careers. *Australian Journal of Career Development*, 12, 2, 12–20. doi: 10.1002/j.2161-1920.2011.tb01104.x.
- Roe, A. (1956). *The psychology of occupations*. New York: John Wiley & Sons.
- Sagiv, L. (1999). Searching for tools versus asking for answers: A taxonomy of counselee behavioral styles during career counseling. *Journal of Career Assessment*, 7, 19–34. doi: 10.1177/106907279900700102.
- Saka, N. and Gati, I. (2007). Emotional and personality-related aspects of persistent career decision-making difficulties. *Journal of Vocational Behavior*, 40, 340–58. <http://dx.doi.org/10.1016/j.jvb.2007.08.003>.
- Saka, N., Gati, I., and Kelly, K. R. (2008) Emotional and personality-related aspects of career-decision-making difficulties. *Journal of Career Assessment*, 16, 403–24. doi: 10.1177/1069072708318900.
- Salomone, P. R. (1982). Difficult cases in career counseling: II. The indecisive client. *Personnel and Guidance Journal*, 60, 496–500. doi: 10.1002/j.2164-4918.1982.tb00703.x.
- Santos, P. J. (2001). Predictors of generalized indecision among Portuguese secondary school students. *Journal of Career Assessment*, 9, 381–96. doi: 10.1177/106907270100900405.
- Schlossberg, N. K. and Porter Robinson, S. (1993). Another name for heartbreak. *American Counselor*, 2, 4, 21–5.
- Schoon, I. and Polek, E. (2011). Teenage career aspirations and adult career attainment: The role of gender, social background and general cognitive ability. *International Journal of Behavioral Development*, 35, 3, 210–17. doi: 10.1177/0165025411398183
- Schulenberg, J. E., Shimizu, K., Vondracek, F. W., and Hostetler, M. (1988). Factorial invariance of career indecision dimensions across junior high and high school males and females. *Journal of Vocational Behavior*, 33, 1, 63–81. [http://dx.doi.org/10.1016/0001-8791\(88\)90034-6](http://dx.doi.org/10.1016/0001-8791(88)90034-6)
- Schwartz, B. (2005). *The paradox of choice*. New York: HarperCollins Publishers.
- Scott, S. G. and Bruce, R. A. (1995). Decision-making style: The development and assessment of a new measure. *Educational and Psychological Measurement*, 55, 818–831. doi: 10.1177/0013164495055005017.
- Shiloh, S., Salton, E., and Sharabi, D. (2002). Individual differences in rational and intuitive thinking styles as predictors of heuristics responses and framing effects. *Personality and Individual Differences*, 32, 415–429. [http://dx.doi.org/10.1016/S0191-8869\(01\)00034-4](http://dx.doi.org/10.1016/S0191-8869(01)00034-4)
- Shimizu, K., Vondracek, F. W., Schulenberg, J. E., and Hostetler, M. (1988). The factor structure of the Career Decision Scale: Similarities across selected studies. *Journal of Vocational Behavior*, 32, 2, 213–225. [http://dx.doi.org/10.1016/0001-8791\(88\)90015-2](http://dx.doi.org/10.1016/0001-8791(88)90015-2)
- Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, 69, 171–91. doi: 10.2307/1884852.
- Singh, R. and Greenhaus, J. H. (2004). The relation between career decision-making strategies and person–job fit: A study of job changer. *Journal of Vocational Behavior*, 64, 198–221. [http://dx.doi.org/10.1016/S0001-8791\(03\)00034-4](http://dx.doi.org/10.1016/S0001-8791(03)00034-4)
- Slaney, R. B. (1980). Expressed vocational choice and vocational indecision. *Journal of Counseling Psychology*, 27, 122–129. doi: 10.1037/0022-0167.27.2.122.
- (1988). The assessment of career decision making. In B. W. Walsh and S. H. Osipow (eds.), *Career decision making*. Hillsdale, NJ: Lawrence Erlbaum.
- Slaney, R. B. and Lewis, E. T. (1986). Effects of career exploration on career undecided reentry women: An intervention and follow-up study. *Journal of Vocational Behavior*, 28, 7–109. [http://dx.doi.org/10.1016/0001-8791\(86\)90043-6](http://dx.doi.org/10.1016/0001-8791(86)90043-6).
- Spokane, A. R., Meir, E. I., and Catalano, M. (2000). Person–environment congruence and Holland’s theory: A review and reconsideration. *Journal of Vocational Behavior*, 57, 137–87. doi: 10.1006/jvbe.2000.1771/.
- Super, D. E. (1953). A theory of vocational development. *American Psychologist*, 8, 185–90. doi: 10.1037/h0056046.
- Super, D. E., Savickas, M. L., and Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown and L. Brooks (eds.), *Career choice and development* (3rd edn; pp. 121–78). San Francisco, CA: Jossey-Bass.
- Swanson, J. L. and Woitke, M. B. (1997). Theory into practice in career assessment for women: Assessment and interventions regarding perceived career barriers. *Journal of Career Assessment*, 5, 4, 443–62. doi: 10.1177/106907279700500405.

- Tiedeman, D. V. and O'Hara, R. P. (1963). *Career development: Choice and adjustment*. New York: College Entrance Examination Board.
- Tien, H. L. S. (2005). The validation of the career decision making difficulties scale in a Chinese culture. *Journal of Career Assessment*, 13, 114–27. doi: 10.1177/1069072704270327.
- Tinsley, H. E. A. (1992). Career decision making and career indecision. *Journal of Vocational Behavior*, 41, 209–11. doi: 10.1016/0001-8791(92)90022-R.
- Tracey, T. J. G. and Hopkins, N. (2001). The correspondence of interests and abilities with occupational choice. *Journal of Counseling Psychology*, 48, 178–89. doi: 10.1037/0022-0167.48.2.178.
- Tversky, A. (1969). Intransitivity of preferences. *Psychological Review*, 76, 31–48. doi: 10.1037/h0026750.
- Tversky, A. and Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185, 1124–31. doi: 10.1126/science.185.4157.1124.
- (1981). The framing of decisions and the psychology of choice. *Science*, 211, 453–458. doi: 10.1126/science.7455683.
- Van Esbroeck, R., Tibos, K., and Zaman, M. (2005). A dynamic model of career choice development. *International Journal of Educational and Vocational Guidance*, 5, 5–18. doi: 10.1007/s10775-005-2122-7.
- Walsh, D. J. (1986). The construction and validation of vocational decision-making style measure. *Dissertation Abstracts International*, 46, 2862.
- Zakay, D. and Barak, A. (1984). Meaning and career decision making. *Journal of Vocational Behavior*, 24, 1–14. [http://dx.doi.org/10.1016/0001-8791\(84\)90062-9](http://dx.doi.org/10.1016/0001-8791(84)90062-9)
- Zakay, D. and Tsal, Y. (1993). The impact of using forced decision-making strategies on post-decisional confidence. *Journal of Behavioral Decision Making*, 6, 53–68. doi: 10.1002/bdm.3960060104.
- Zener, T. B. and Schnuelle, L. (1976). Effects of the Self-Directed Search on high school students. *Journal of Counseling Psychology*, 23, 353–9. doi: 10.1037/0022-0167.23.4.353.
- Zytowski, D. (2008). 100 years of career guidance – honoring Frank Parsons. *Kuder News*, 6, Issue 3. [http://www.kuder.com/news/vol6\\_no3/Parsons.html](http://www.kuder.com/news/vol6_no3/Parsons.html)

This page intentionally left blank