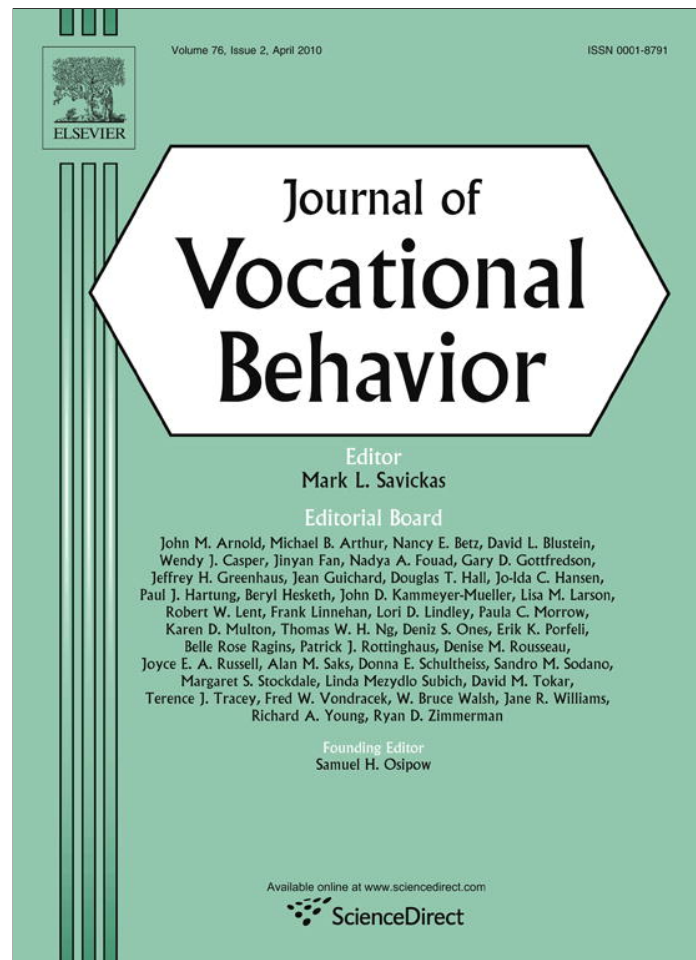




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From career decision-making styles to career decision-making profiles: A multidimensional approach

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ABSTRACT

Previous research on individual differences in career decision-making processes has often focused on classifying individuals into a few types of decision-making *styles* based on the most dominant trait or characteristic of their approach to the decision process (e.g., rational, intuitive, dependent; [Harren, 1979](#)). In this research, an alternative approach, which offers a multidimensional profile characterization of individuals' career decision-making processes based on a simultaneous consideration of 11 dimensions, is presented. Thus, the proposed model refers to career decision-making *profiles* rather than career decision-making *styles*. The model, which emerged from a systematic analysis of previous research, was refined on the basis of preliminary empirical tests (five samples, $N = 2764$) using the *Career Decision-Making Profile (CDMP)* questionnaire. Study 1 reports the psychometric properties and the results of an exploratory factor analysis of the CDMP questionnaire, in a sample of young adults deliberating their career decisions ($N = 285$). Study 2 presents the results of a confirmatory factor analysis, based on Israeli ($N = 431$) and US ($N = 208$) samples of young adults. The results of both studies supported the hypothesized 11 dimensions. The implications for future research and for counseling are discussed.

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1. Introduction

Decision-theory can be used as an infrastructure for understanding the processes involved in making career decisions (e.g., [Gati, 1986](#); [Phillips & Paziienza, 1988](#); [Pitz & Harren, 1980](#)). From a decision-theory perspective, one of the main roles of career counselors is to guide the client through a process that leads to making better career decisions ([Gati & Tal, 2008](#)). Today, decision-oriented career counseling employs a variety of interventions which aim at providing deliberating individuals with the guidance that best matches their unique needs. Typically, the first steps in the career counseling process include identifying the focuses of the counselees' difficulties in making career decisions ([Brown & Rector, 2008](#); [Gati, Krausz, & Osipow, 1996](#)), their information processing capabilities ([Pitz & Harren, 1980](#)), and their decision goals ([Sauermann, 2005](#)).

Another highly important factor, although not always explicitly considered, is characterizing the manner in which individuals approach their career decisions ([Phillips & Paziienza, 1988](#)). Tailoring interventions to clients' characteristic ways of making decisions can facilitate their decision-making process ([Phillips & Jome, 2006](#)) and presumably lead to better decisions ([Phillips & Paziienza, 1988](#)).

In recent years, there has been an increasing interest in the importance of individual differences in decision making. The number of measures that aim at distinguishing among the various ways people make decisions are numerous (over 160); however, most of the measures focus on decision making in general, and only a few on career decisions (<http://www.dmidi.net/> retrieved November 17, 2009). Decision-making style has been defined as an individual's typical mode of interpreting and

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responding to decision-making tasks (Driver, 1979; Harren, 1979). Previous research on decision-making styles typically categorized individuals into one of a few types, according to the most dominant characteristic of their approach to the decision-task. In the present research we propose that individuals may be better characterized by a combination of styles, and that considering the set of behaviors used by the individual is more informative than the “dominant type” approach for characterizing of the way individuals make career decisions. Thus, the goal of the present research was to develop and test a comprehensive, multidimensional model for describing individual differences in career decision-making *profiles* rather than *styles*.

Career decision-making styles. Career decision-making style is the term used to describe the way individuals collect, perceive, and process information throughout their career decision-making process, that is, their approach to making career decisions and the way they engage in the process (Phillips & Paziienza, 1988). It denotes a distinct set of attitudes and behaviors used in decision-making tasks (Harren, 1979), or the habitual pattern individuals implement when making decisions (Driver, 1979). Career decision-making style is among the central constructs involved in vocational behavior and career development, and it is one of the most significant variables for distinguishing career clients (e.g., Harren, 1979; Johnson, 1978; Mau, 2000; Walsh, 1987).

Previous studies have typically yielded taxonomies describing decision-making styles, based on the assumption that a decision-making style is a relatively stable personality disposition (e.g., Harren, 1979; Jepsen, 1974; Johnson, 1978; Sagiv, 1999). Scott and Bruce (1995, p. 820) referred to career decision-making style as a “learned habitual response pattern exhibited by an individual when confronted with a decision situation. It is not a personality trait, but a habit-based propensity to react in a certain way in a specific decision context”. Indeed, others have focused more on the possible effect of a given decision situation on the way individuals make the decision (e.g., Arriba, 1977; Dinklage, 1968). In both approaches, however, research has typically focused on classifying individuals into a few types based on their most dominant characteristics.

While some researchers have focused on a rather restricted repertoire of characteristics (e.g., Harren, 1979 proposed the *rational*, *intuitive*, and *dependent* styles; Johnson, 1978 referred to two dimensions – *systematic* vs. *spontaneous* and *internal* vs. *external*; similarly, Walsh, 1987 referred to two dimensions – *thinking* vs. *feeling* and *introvert* vs. *extrovert*), others have used a wider repertoire of styles (e.g., Arriba, 1977; Dinklage, 1968; Nevo, 1989). Indeed, the number and variety of characteristics that can be used to describe individuals' decision-making styles has continued to be of interest. Scott and Bruce (1995), for example, added the *avoidant* and the *spontaneous* decision styles to Harren's (1979) *rational*, *intuitive*, and *dependent* styles. Nevo (1989) described 13 decision styles, each characterized by a different dominant trait (e.g., the *quick* decision-maker and the *perfectionist* decision-maker).

The use of a single dominant trait to characterize an individual's decision-making style provides a parsimonious method of doing so, and is useful for classifying individuals into presumably homogeneous groups for research purposes (e.g., Mau, 1995). However, the findings reveal that this approach only partially accounts of individual differences in decision-making (Shiloh, Salton, & Sharabi, 2002), and may be insufficient for diagnosing individuals in a way that can help them advance in their career decision-making process.

The abundance of career decision-making styles attests to researchers' awareness of the scope and variety of characteristics that can be used to describe an individual's decision-making style, as well as the complexity and multidimensionality of these styles. Indeed, some researchers (Driver, Brousseau, & Hunsaker, 1990) have argued that, in addition to their primary decision-making style, individuals also have a secondary style. That is, whereas an individual's approach to a given decisional task may be characterized by one dominant style, elements of other styles can also be present (Harren, 1979). Individuals have a repertoire of strategies to choose from, and tend to use combinations of strategies in particular situations (Singh & Greenhaus, 2004). Furthermore, Payne, Bettman, and Johnson (1993) argued that individuals adopt different strategies when they face different decisions.

If indeed individuals use more than a single style in a given situation, and use different strategies in different decisions, than characterizing individuals by a single, dominant style may be an oversimplified description of the manner in which they make career decisions. We propose an alternative, multidimensional model for characterizing career decision-making. Specifically, we refer to career decision-making *profiles* instead of career decision-making *styles*. We use *profile* instead of *style* for two main reasons: (a) to indicate that we are dealing with a complex, multidimensional construct rather than a single dominant trait, and thus several characteristics are required to adequately characterize the way the individual makes decisions (i.e., individuals may differ in many dimensions even though their most dominant trait is the same); and (b) because *career decision-making style* implies focusing on personality characteristics, whereas *career decision-making profile* refers to both personality and situational influences on the decision-making behavior. Taking into account the multidimensional *profile* according to which individuals tend to make career decisions can facilitate individuals' decision making and career counseling, by allowing a more comprehensive and refined assessment of the individual's natural approach to the process.

2. The proposed multidimensional model for career decision-making profiles

The development of the multidimensional model. The proposed multidimensional model was developed on the basis of the following seven assumptions: (a) individuals differ in their approach to of making career decisions and thus in their characteristic *profile* of career decision-making; (b) individuals' career decision-making process can be better described by a multidimensional *profile* rather than by a single dominant characteristic; (c) each dimension describes a continuum between two extreme poles, along which the individual can be characterized; (d) although the dimensions are not independent, each

has a unique contribution; (e) like personality-related measures (and unlike career decision-making difficulties) the dimensions cannot be combined to produce a single total score; (f) depending on the dimension, one pole is often more adaptive for decision making than the other; and (g) whereas some dimensions are mainly personality-related and more consistent across situations, others are more situational and may depend on the specific decision-task the individual is facing or the stage of the decision-making process the individual is at.

The 11 dimensions for describing individuals' career decision-making were derived from a systematic analysis of previous research and were refined on the basis of preliminary empirical tests. First, the authors located 40 labels used to describe career decision-making styles in previous research (see Table 1, left column). After analyzing and comparing these types, we classified each of these 40 styles or types into one of 16 prototypes that seemed to fit best (see Table 1, central column). Specifically, the classification was based on: (a) the names given to similar types in previous research, (b) the similarities in the descriptions of the characteristics attributed to each style, and (c) the previous researchers' own comparison of their types with those included in previous typologies. For example, the "rational" prototype includes *logical* (Arroba, 1977), *rational* (Harren, 1979), *thinking* (Walsh, 1986), and *economic man* (Simon, 1957). This clustering allowed us to reduce the 40 types into 16 prototypes: *perfectionist*, *satisfying*, *avoidant*, *fatalist*, *rational*, *intuitive*, *hesitant*, *impulsive*, *compliant*, *resistant*, *systematic*, *involved*, *easygoing*, *help-seeker*, *individualist*, and *dependent*.

Next, we analyzed the common and distinctive characteristics of the 16 prototypes so as to further reduce the list and uncover the basic characteristics, namely, dimensions, which distinguish them. This analysis resulted in 11 basic dimensions

Table 1

From 40 labels to the 11 dimensions (derived from the 16 prototypes).

Types	Prototype	CDMP's dimension
1. Perfectionist (Nevo, 1989)	Perfectionist	<i>Aspiration for an ideal occupation</i>
2. Satisfied man (Simon, 1957)	Satisfying	<i>Willingness to compromise</i>
3. Avoidant (Scott & Bruce, 1995)	Avoidant	<i>Procrastination</i>
4. Paralysis (Dinklage, 1968; Gelatt, Varenhorst, & Carey, 1972; Watts & Elsom, 1974)		
5. Cowardly (Nevo, 1989)		
6. Delaying (Dinklage, 1968; Gelatt et al., 1972)		
7. Fatalistic (Dinklage, 1968; Gelatt et al., 1972; Krumboltz et al., 1979; Watts and Elsom, 1974)	Fatalist	<i>Locus of control</i>
8. Singular fatalist (Jepsen, 1974)		
9. "Annette Roulette" (Nevo, 1989)		
10. Rational (Harren, 1979; Krumboltz et al., 1979)	Rational	<i>Information processing</i>
11. Logical (Arroba, 1977; Watts and Elsom, 1974)		
12. Economic man (Simon, 1957)		
13. Thinking (Walsh, 1986)		
14. Intuitive (Arroba, 1977; Dinklage, 1968; Harren, 1979; Krumboltz et al., 1979; Nevo, 1989; Scott and Bruce, 1995; Watts and Elsom, 1974)	Intuitive	
15. Intuitive/inner harmony (Gelatt et al., 1972)		
16. Emotional (Arroba, 1977)		
17. Feeling (Walsh, 1986)		
18. Hesitant (Arroba, 1977)	Hesitant	<i>Speed of making the final decision</i>
19. "Till the last minute" (Nevo, 1989)		
20. "Changing his mind" (Nevo, 1989)		
21. Impulsive (Dinklage, 1968; Gelatt et al., 1972; Krumboltz et al., 1979; Nevo, 1989)	Impulsive	
22. Spontaneous (Johnson, 1978)		
23. Quick (Nevo, 1989)		
24. Compliant (Arroba, 1977; Dinklage, 1968; Gelatt et al., 1972; Watts and Elsom, 1974)	Compliant	<i>Desire to please others</i>
25. "The good girl" (Nevo, 1989)		
26. Rebellious (Nevo, 1989)	Resistant	
27. Systematic (Johnson, 1978)	Systematic	<i>Information gathering</i>
28. Planning (Dinklage, 1968; Gelatt et al., 1972)		
29. Active-planning (Jepsen, 1974)		
30. Agonizing (Dinklage, 1968; Gelatt et al., 1972)	Involved	<i>Effort invested</i>
31. "No thought" (Arroba, 1977)	Easygoing	
32. Decide by feelings (Nevo, 1989)		
33. Searching for tools (Sagiv, 1999)	Help seeker	<i>Consulting with others</i>
34. External (Johnson, 1978)		
35. Extrovert (Walsh, 1986)		
36. Internal (Johnson, 1978)	Individualist	
37. Introvert (Walsh, 1986)		
38. Dependent (Harren, 1979; Krumboltz et al., 1979; Scott and Bruce, 1995)	Dependent	<i>Dependence on others</i>
39. Asking for answers (Sagiv, 1999)		
40. "You tell me" (Nevo, 1989)		

relevant for characterizing career decision-making (see Table 1, right column). For instance, from an analysis of the characteristics of the *dependent* prototype, we derived the dimension of *dependence on others*, defined as the degree to which individuals accept full responsibility for making their decision, as opposed to expecting others to make the decision for them. Each of the 11 dimensions represents a continuum on a bipolar scale, along which individuals can be positioned. For example, in the dimension of *desire to please others*, individuals can be characterized along a continuum ranging from “high” to “low.”

To test the multidimensional model empirically, we developed the *Career Decision-Making Profile (CDMP)* questionnaire, in which each of the 11 dimensions is represented by several statements. Analyses of the *CDMP* data (five samples of young adults deliberating about their future career; $N = 2764$, as described in Study 1) were used to refine the multidimensional model and improve the *CDMP* questionnaire. After revisions, the 11 dimensions proposed for characterizing individual's career decision-making are as follows:

Information gathering (comprehensive vs. minimal) – the degree to which individuals are meticulous and thorough in collecting and organizing information.

Information processing (analytic vs. holistic) – the degree to which the individual analyzes information into its components, and processes the information according to these components.

Locus of control (internal vs. external) – the degree to which individuals believe they control their occupational future and feel that their decisions affect their career opportunities, or that these are mainly determined by external forces such as fate or luck.

Effort invested in the process (much vs. little) – the amount of time and mental effort individuals invest in the decision-making process.

Procrastination (high vs. low) – the degree to which the individual avoids or delays beginning or advancing through the career decision-making process.

Speed of making the final decision (fast vs. slow) – the length of time individuals need to make their final decision once the information has been collected and compiled.

Consulting with others (frequent vs. rare) – the extent to which individuals consult with others during the different stages of the decision process.

Dependence on others (high vs. low) – the degree to which individuals accept full responsibility for making their decision (even if they consult with others), as opposed to expecting others to make the decision for them.

Desire to please others (high vs. low) – the degree to which the individual attempts to satisfy the expectations of significant others (e.g., parents, partner, friends).

Aspiration for an ideal occupation (high vs. low) – the extent to which individuals strive for an occupation that is perfect for them.

Willingness to compromise – the extent to which individuals are willing to be flexible about their preferred alternative when they encounter difficulties in actualizing it.

The goals of the present research. The present research was intended to refine the proposed multidimensional model for describing individual differences in career decision-making, and test it empirically with the *Career Decision-Making Profile* questionnaire (*CDMP*), administered to individuals actually deliberating their career decisions. Specifically, Study 1 describes the development of the *CDMP* and its initial test using item and exploratory factor analyses. Next, Study 2 tested the *CDMP* with confirmatory factor analyses of the data from an Israeli and an American sample.

3. Study 1 – Development and initial testing of the *CDMP*

In this study we report the stages of developing of the *CDMP* and present the results regarding its psychometric properties, based on a sample of young adults who filled out its paper-and-pencil version. First, we generated an initial pool of 97 items representing one or both poles of each of the 11 dimensions presented in the Section 1. The items were inspected by the five authors, and 21 of them, for which there was less than perfect agreement about which dimension they represent, were deleted from the list. The remaining 76 statements served as the basis for the first version of the questionnaire, which was uploaded to *Future Directions*. *Future Directions* (www.kivunim.com, retrieved November 17, 2009) is a free, anonymous, and non-commercial Israeli self-help site, aimed at increasing deliberating individuals' readiness to make a career decision, and facilitating their career decision-making process. The website is visited mainly by young adults seeking help in their career decision-making process. Among other services, the visitors are offered the opportunity to fill out different questionnaires in return for personal feedback guiding them through various aspects and phases of their decision-making process.

Pilot studies with the CDMP. First, based on the responses of 230 individuals who entered the site *Future Directions* and filled out the questionnaire, and using various item-analysis methods (including exploratory factor analysis, item-scale – item-other scale correlations, internal-consistency reliability, and cluster analysis), we deleted the ten items with the lowest psychometric properties. A second sample was then collected from 404 individuals who entered the site and filled out the second version of the questionnaire (consisting of six items for each of the 11 dimensions). Based on the analysis of their responses, we then deleted the two items from each scale that least contributed to each scale's internal-consistency reliability. In addition, four of the remaining items were revised. The third sample included 411 visitors to the site who used the third version of the *CDMP* which included 44 items (4×11 dimensions), for which we added a “warm-up” item and two validity items. At the fourth stage of the questionnaire's refinement, we further reduced the number of items per dimension

to 3, based on the results from 479 additional individuals who entered the website. Finally, using the results from a fifth sample of 1240 participants, we made slight revisions to three of the items.

In the following sections, we report the results based on the sixth version of the *CDMP*, with 36 items (33 items representing the 11 dimensions, one “warm-up” item, and two validity items).

3.1. Methods

3.1.1. Participants

The responses of 285 students at a pre-academic preparatory program in an Israeli University were included in the analyses. The data from ten additional students were excluded from the analyses for the following reasons: one because of skipping the first page, 2 because their age was below 18, and 7 because of indications that they did not fill out the questionnaire with the required attention (their responses to the validity items were dubious). Of the 285 participants whose data was included in the analyses, 155 (54%) were men and 130 (46%) were women. The participants' mean age was 22.68 ($SD = 1.95$, median 23, interquartile range 22–24); all participants had 12 years of education.

3.1.2. Instruments

The Career Decision-Making Profile questionnaire (CDMP). The *CDMP* included 36 statements. For each statement, the participants were asked to rate on a 7-point Likert-type scale the degree to which they agreed with each statement (1 – *don't agree at all*, 7 – *highly agree*). The first item of the *CDMP* is a “warm-up” item: “*I am currently concerned about my future field of study or occupation*”. Two validity items were embedded in the questionnaire to ensure that individuals replied only after reading the items attentively and considering their responses (i.e., “*I try to choose the option that is best for me*”, “*It makes no difference to me what career I will have in the future*”).

Each of the 33 statements represented one of the two poles that anchor each dimension. For example, the statement “*I ultimately make the decision that people expect me to make*” represented the high pole on the *willingness to please others* dimension. The 36 items of the *CDMP* are listed in [Appendix A](#) and the online version may be seen at www.cddq.org (retrieved 16 September, 2009). The paper-end-pencil and the Internet versions of the *CDMP* are identical; previous research demonstrated that the paper-and-pencil and the Internet versions of this kind of questionnaire are equivalent ([Kleiman & Gati, 2004](#)). The median Cronbach alpha internal-consistency reliability estimate of the 11 dimensions in the 33-item version in the present sample was .81. In a separate sample with 281 participants, the 2-week test–retest median reliability of the *CDMP* dimensions was .82 (range .76–.86). Details of the psychometric properties of the *CDMP* are reported in the Section 3.2.

3.1.3. Procedure

The participants were students at a pre-academic preparatory program in a research University, which is intended to increase the chances of admission to higher education with intensive courses focusing on mathematics, sciences, languages, and social science studies. With the permission of the director of the pre-academic center, students were asked to participate in a study about career decision-making by filling out the research questionnaire during one of the classes. Three students refused to participate, and two returned the questionnaire without filling it out.

3.1.4. Preliminary analyses

First we reversed the items so that a higher rating on all items of the same scale represents the same pole of the dimensions (e.g., “high” on procrastination). Then we computed the mean ratings of the three items representing each dimension.

3.2. Results and discussion

3.2.1. Psychometric properties of the CDMP

The means, standard deviations, and Cronbach-alpha internal-consistency reliabilities of the 33-item version of the *CDMP* are presented in [Table 2](#). As can be seen, the means of the 11 scales representing the dimensions vary, and the standard deviations indicate appropriate within-dimension variance. In addition, the reliabilities of the scales were within the acceptable range, considering the small number of items (three) per dimension: they varied from .72 to .92, with a median of .81.

3.2.2. The internal structure of the CDMP items and the 11 dimensions

Exploratory factor analysis. Principal component analysis, with a Varimax Rotation, resulted in ten factors with an Eigenvalue above 1 (the total percentage of variance accounted for was 72.58); the first factor included the three items of the dimension *information processing* and the three items of the dimension *effort invested*. We therefore repeated the analysis with 11 factors; this time each of the 11 factors included three items from one of the dimensions, reflecting a perfect match. The percentage of variance explained by the factors varied from 8.02% to 5.92%, showing that all 11 factors contributed significantly to the variance accounted for (75.11%). All 33 items loaded highest on the factor they were expected to load on: the item loadings varied from .61 to .90 (median .81, interquartile range .74–.86). The loading of all items on the factors they did not belong to was less than .36.

Item analyses. In addition, we computed the correlations between each item and the 11 scale scores (with the item excluded from its scale score). This analysis revealed that all items correlated higher with their own scale than with the other

Table 2

Means, standard deviations, and cronbach alpha internal-consistency reliabilities for the 11 scales of the *Career Decision-Making Profile (CDMP)* questionnaire for the Hebrew paper-and-pencil version ($N = 285$).

Dimension//scale	Mean ^a	SD	C _α
Information gathering	4.64	1.48	.79
Information processing	4.70	1.27	.73
Locus of control	5.26	1.41	.79
Effort invested	4.91	1.21	.81
Procrastination	4.38	1.56	.81
Speed of making the final decision	3.69	1.60	.84
Consultation with others	5.06	1.49	.81
Dependence on others	2.11	1.14	.72
Desire to please others	2.64	1.34	.86
Aspiration for an ideal occupation	5.05	1.34	.72
Willingness to compromise	3.46	1.60	.92

^a The response scale ranged from 1 to 7.

ten scales (median .74, interquartile range .67–.80); the correlations between an item and any of the other scales were lower than .47.

To further explore the item structure, we carried out a cluster analysis on the intercorrelations among the 33 items using ADDTREE (Sattath & Tversky, 1977). The results are presented in Appendix B. The linearly-accounted-for variance was 78.4%, which indicates that the clustering structure appropriately summarizes the empirical relations among the items. The obtained clustering structure reveals that the expected 11 clusters with three items per scale perfectly emerged; this reflects the internal homogeneity of the three items representing each dimension and the distinctions among the 11 dimensions.

The relations among the 11 dimensions. To test the degree of independence of the 11 dimensions, we computed the intercorrelations between the 11 scale scores; these correlations are presented in Table 3. The median of these correlations was .07, interquartile range –.09 to .23 (range –.28 to .50). The highest correlation (.50) was between *information processing* and *effort invested*, reflecting that the common and distinctive characteristics of the alternatives cannot be analyzed and compared unless some effort is invested in the process. The generally low correlations among the 11 dimensions reflect the relative independence of the dimensions, and explain why the overall internal-consistency reliability of all 33 items (.72) was not higher than the lowest scale reliability (.72).

Gender differences among the dimensions. We carried out a mixed-design ANOVA with gender as the between-subject factor and the 11 CDMP dimension scores as the repeated measures. This analysis revealed, as hypothesized, differences in the mean scores among the 11 dimensions ($F [10, 2830] = 161.02, p < .001, \eta^2 = .36$). No main effect for gender emerged ($F [1, 283] = .74, ns$), and the distributions of the mean scale scores of men and women were similar; the Pearson correlation between the mean dimension scores of men and women across the 11 dimensions was .93. To test the similarity in the structure of the dimensions among men and women, we computed the Spearman rank-order correlation between the correlations among the scales; this correlation was .83, reflecting great similarity between in structures of the 11 dimensions for men and women.

However, a MANOVA revealed a significant interaction between the 11 dimensions and gender ($F [10, 2830] = 3.89, p < .001, \eta^2 = .014$). Further inspection of the dimensions' means revealed that the lowest score was for *dependence on others* for both men and women (2.03 and 2.21, respectively); however, the highest score for men was for *locus of control* (5.35), whereas for women it was for *consulting with others* (5.31). Additionally, in three dimensions the gender differences were statistically significant. Specifically, women's scores were higher than those of men for *effort invested* ($M = 5.10, SD = 1.26$

Table 3

The intercorrelations among the 11 dimensions of the career decision-making profile questionnaire ($N = 285$).

	IG	IP	LC	EI	PR	SP	CO	DO	DP	AI	WC
IG ^a	–										
IP	.37	–									
LC	.24	.07	–								
EI	.37	.50	.04	–							
PR	.42	.08	.24	.24	–						
SP	.09	–.19	.18	–.22	.45	–					
CO	.07	.14	.02	.11	–.01	–.18	–				
DO	.17	.01	.23	.12	.28	.23	–.02	–			
DP	.19	–.02	.23	.01	.24	.17	–.08	.34	–		
AI	–.17	–.13	–.01	–.16	–.15	–.11	.00	–.01	.13	–	
WC	–.19	.02	–.28	–.09	–.19	–.25	.15	–.23	–.09	.16	–

^a Abbreviations used: IG, information gathering; IP, information processing; LC, locus of control; EI, effort invested; PR, procrastination; SP, speed of making the final decision; CO, consultation with others; DO, dependence on others; DP, desire to please others; AI, aspiration for an ideal occupation; WC, willingness to compromise. Correlations above |.15| are statistically significant $< .01$.

and $M = 4.75$, $SD = 1.15$, for women and men, respectively; $t [283] = 2.47$, $p < .05$, $d = .29$); and for *consulting with others* ($M = 5.32$, $SD = 1.39$ and $M = 4.84$, $SD = 1.55$, for women and men, respectively; $t [283] = 2.77$, $p < .05$, $d = .33$). Men's scores were higher than women's scores for *speed of making the final decision* ($M = 3.98$, $SD = 1.53$ and $M = 3.34$, $SD = 1.61$, for men and women, respectively; $t [283] = 3.44$, $p < .001$, $d = .41$). These differences suggest that women tend to invest more effort in the decision-making process and to consult more with others, whereas men tend to make the final decision faster.

To test whether the observed gender differences in the *speed of making the final decision* are accounted for by the tendency of women to invest more in the decision-making process and to consult more with others, we carried out an ANCOVA, with the speed of making the decision as the dependent variable, gender as the independent variable and effort invested and consulting with others as the two covariates. This analysis revealed that gender differences in the speed of making the decision were smaller ($\eta^2 = .02$ instead of $.04$) but still statistically significant, even when the gender differences in effort invested and consulting with others were controlled for ($F [1, 281] = 6.85$, $p < .05$).

In conclusion, these results show that the CDMP is a reliable measure of individuals' career decision-making profile, and support its multidimensional structure. In Study 2 we explored the multidimensionality of the CDMP by confirmatory factor analyses, using its Hebrew and English Internet versions.

4. Study 2 – Confirmatory factor analyses of the CDMP

The goal of Study 2 was to test the multidimensional structure of the CDMP using confirmatory factor analysis on the responses of the two groups who filled out the Hebrew and English Internet versions of the questionnaire, and to investigate the cross-cultural fit of the CDMP. We compared three models for the internal structure of the CDMP. The first model (labeled H: 33-11) represents the hypothesis that the 11 dimensions are required to adequately characterize an individual's career decision-making profile, but that the 11 scales cannot be combined into a single total score (i.e., there are 11 first-level factors). We compared this model to two alternative models. The second model (labeled A1: 33-11-1) represents an alternative hypothesis that the 33 items can be clustered into the 11 scales and that the 11 scales represents a single factor; namely, the 11 first-level factors can be combined into a single second-order factor. The third model (labeled A2: 33-1) represents the hypothesis that all 33 items correspond to a single factor. We hypothesized that the 33-11 model would fit the data better than the alternative models. This hypothesis reflects our assumption that the 11 dimensions, although not entirely orthogonal, do not share a broad common base, and hence cannot be combined into a single score. This is in contrast with the case with career decision-making difficulties, where the scores of the ten difficulty categories can be aggregated to a single total difficulty score representing the individual's overall career decision-making difficulties (Gati, Krausz, & Osipow, 1996).

4.1. Methods

4.1.1. Participants

The Israeli sample. The responses of 431 participants who visited the *Future Directions* website were included in the analyses. They filled out the 36-item version of the CDMP, one of the options at the website, out of their own initiative in return for feedback describing their career decision-making profile, with relevant explanations. The data from additional 42 individuals were excluded from the analyses for the following reasons: 22 because their age was below 18 or above 50, 14 because this was the second time they had filled out the questionnaire, 5 because their reported number of years of education was less than 11, and 1 because of indications that the questionnaire had not been filled out with the required attention (his response to one of the validity items was dubious and the time to fill out the questionnaire was less than 180 s, the minimum we set). Of the 431 participants whose data was included in the analyses, 164 (38%) were men and 267 (62%) were women. The participants' mean age was 24.13 ($SD = 5.44$, median = 23, interquartile range 21–25), and their mean years of education was 12.62 ($SD = 1.74$, 83% had 12 years of education).

The American sample. The responses of 208 participants who entered the www.cddq.org (retrieved November 17, 2009) website, the English version of *Future Directions*, were included in the analyses. Filling out the CDMP questionnaire was one of the options on this self-help, career decision-making-oriented website. The data from additional 83 individuals was excluded from the analyses for the following reasons: 40 because their age was below 18 or above 50, 3 because their reported years of education was less than 11, and 40 because of indications that they had not filled out the questionnaire with the required attention (their responses to the validity items were dubious or the response time to the questionnaire was less than 180 s). Of the 208 participants whose data were included in the analyses, 73 (35%) were men and 135 (65%) were women. The participants' mean age was 28.2 ($SD = 8.82$, median = 25, interquartile range 22–33), and their mean years of education was 16.05 ($SD = 2.29$). Based on their self-reported country, most of them were from the US (93%), and the others were from Canada or Australia. Thus, considering the reported age and number of years of education, the samples were not equivalent: while the Israeli sample included individuals who had not yet begun their higher education, the majority of the participants in the American sample had completed their undergraduate studies.

4.1.2. Instruments

The Hebrew Internet version is equivalent to the paper-and-pencil version of the CDMP described in Study 1. The English Internet version also includes 33 items (3 for each of the scales). This version was derived from a previous 44-item version of

the English CDMP that was translated from the Hebrew 44-item version and verified by back-translation. The 44-item version was administered to 207 young adults. Based on an item analysis, we deleted from each scale one the item (out of four) that contributed least to the scale's internal-consistency reliability. The median reliability of the 11 scales in the 33-item version in the English sample was .79; details are presented below in the Section 4.2.

Procedure. The participants in both samples filled out the questionnaire on the Internet out of their own initiative. The participants were provided with feedback about their career decision-making (specifically, about the dimensions on which their score was either relatively high or relatively low, and with a brief description of the meaning of each of the dimensions). Finally, they were provided with brief general guidance about career decision-making.

Preliminary analyses. As is often the case for non-cognitive measures, and in particular with a new measure, there is no objectively “better” pole for the dimensions; the question of which pole of each dimension is more adaptive for career decision-making is one that should be empirically tested in future research. Nevertheless, for the purpose of the confirmatory factor analysis, we chose one of the poles as more adaptive, based on a priori theoretical considerations: comprehensive information gathering (rather than minimal), analytical (rather than holistic), much information processing (rather than little), internal locus of control (rather than external), much effort invested in the process (rather than little), low procrastination (rather than high), high speed of making the final decision (rather than slow), frequent consultation with others (rather than rare), low dependence on others (rather than high), low desire to please others (rather than high), low aspiration for an ideal occupation (rather than high), high willingness to compromise (rather than low).

Confirmatory factor analysis. To test the fit of the three models (one hypothesized and two alternative), we conducted a Confirmatory Factor Analysis (CFA) using the EQS statistical package (version 6.1; Bentler, 2002), with the maximum likelihood estimation method. Specifically, we tested the fit of the hypothesized model (H: 33-11) and that of the two alternative models (A1: 33-11-1 and A2: 33-1), and the significance of the difference between the hypothesized and the two alternative models.

4.2. Results and discussion

The means, standard deviations, and Cronbach-alpha internal-consistency reliabilities of the 33-item version of the Hebrew CDMP are presented in the middle columns of Table 4, and those of the English version are presented in the three right-hand side columns. As can be seen in Table 4, the internal-consistency reliabilities of the 11 scales of the Hebrew Internet version varied from .74 to .91, with a median of .81, similarly to the reliabilities of the Hebrew paper-and-pencil version. The internal-consistency reliabilities of the 11 scales of the English version varied from .70 to .89, with a median of .79, slightly lower than the Hebrew paper-and-pencil and Internet versions.

Confirmatory factor analyses. The results of the confirmatory factor analysis are presented in Table 5. The top three rows summarize the analyses of the Israeli sample, and the next three rows summarize the analyses of the American sample. Hu and Bentler (1999) suggested that models with CFI and NNFI indices close to .95, and RMSEA equal to or less than .06, provide reliable evidence of acceptable fit (Hu & Bentler, 1999).

As can be seen in Table 5, for both samples, the hypothesized “33-11” model fits the data best. This is reflected in the lowest χ^2 and lowest χ^2/df (1.80 and 1.60), the highest CFI (.95 and .91), and the lowest RMSEA (.043 and .059) for the Hebrew and English versions, respectively. For both samples the hypothesized model (H: 33-11) fits the data significantly better than the “33-11-1” alternative model: $\Delta\chi^2 (44) = 549.30, p < .001$, and $\Delta\chi^2 (44) = 396.99, p < .001$, for the Hebrew and English versions, respectively. For both samples the “33-1” alternative model had the lowest fit.

Thus, the results of the confirmatory factor analyses of both the Hebrew and the English version support the claim that the 33 items indeed cluster into the 11 scales, and that the 11 scales represent fairly independent dimensions and should not

Table 4

Means, standard deviations, and cronbach alpha internal-consistency reliabilities for the 11 scales (3 items each) of the Career Decision-Making Profile (CDMP) questionnaire for the Israeli and American internet samples.

Scale	Israeli sample (N = 431)			American sample (N = 208)			<i>d</i> ^a
	Mean	SD	<i>C_α</i>	Mean	SD	<i>C_α</i>	
Information gathering	4.75	1.52	.79	5.04	1.58	.82	.31
Information processing	4.82	1.24	.74	5.19	1.13	.70	
Locus of control	5.26	1.33	.76	5.07	1.67	.85	
Effort invested	5.44	1.19	.79	4.89	1.20	.79	.46
Procrastination	4.02	1.66	.81	3.40	1.48	.74	.39
Speed of making the final decision	3.14	1.64	.83	4.31	1.54	.85	.73
Consultation with others	5.36	1.45	.84	4.53	1.46	.79	.57
Dependence on others	2.58	1.38	.75	2.80	1.63	.89	.39
Desire to please others	2.70	1.38	.85	3.29	1.61	.85	
Aspiration for an ideal occupation	4.90	1.57	.91	4.19	1.59	.78	
Willingness to compromise	3.95	1.58	.89	4.10	1.40	.78	.45

^a The effect size *d* is displayed only for the statistically significant ($p < .001$) differences between the Israeli and the American samples.

Table 5

Fit indices for Confirmatory Factor Analyses of the CDMP in the Israeli and the American Samples.

Sample	Model	χ^2	df	CFI	GFI	NNFI	RMSEA	SRMR
Israeli (N = 431)	H: 33-11	790.82	440	.95	.90	.94	.043	.038–.048
	A ₁ : 33-11-1	1340.12	484	.87	.83	.86	.064	.060–.068
	A ₂ : 33-1	5576.05	485	.25	.49	.18	.156	.152–.160
American (N = 208)	H: 33-11	760.43	440	.91	.83	.90	.059	.052–.066
	A ₁ : 33-11-1	1157.42	484	.82	.75	.80	.082	.076–.088
	A ₂ : 33-1	2556.59	485	.44	.50	.39	.144	.138–.149

Note: CFI, comparative fit index; GFI, goodness-of-fit index; NNFI, Bentler–Bonett non-normed fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean-squared residual.

be combined into a single overall score. The goodness-of-fit indices, together with the internal-consistency reliabilities of the 11 scales, provide further evidence of the psychometric appropriateness of the CDMP questionnaire and the model it is based upon. However, while the confirmatory factor analyses supported the 33-11 model in both language versions, the fit for the English version was slightly lower than that of the Hebrew version. This result, and the slightly lower internal-consistency reliabilities, show that the English version may benefit from another revision of the items.

To test the degree of independence of the 11 dimensions, we computed the intercorrelations between the 11 scale scores, in each of the samples. For the Hebrew version, the median of these correlations was .06, interquartile range –.07 to .25 (range –.26 to .51); this pattern of the correlations between the dimensions highly resembles that found in Study 1. In this sample, the highest correlation (.51) was between *information gathering* and *procrastination*. For the English version, the median of the correlations between the dimensions was .11, interquartile range –.03 to .25 (range –.29 to .69); in this sample the highest correlation (.69) was between (systematic) *information gathering* and (internal) *locus of control*.

Finally, we looked for gender differences. First, we computed the Spearman rank-order correlation between the correlations among the dimensions to test the similarity in the structure of the 11 dimensions for men and women. The observed correlations, .95 and .83, for the Hebrew and the English versions, respectively, reflect the similarity between the men's and the women's structure of the 11 dimensions, for both the Hebrew and the English versions.

Then, as in Study 1, we carried out a mixed-model ANOVA with gender as the between-subject factor and with the 11 dimension scores as the repeated measure factor, separately in the two samples. This analysis revealed again, as hypothesized, differences among the 11 dimension means in both the Israeli and the American samples ($F [10, 4290] = 209.28$, $p < .001$, $\eta^2 = .33$ and $F [10, 2060] = 51.46$, $p < .001$, $\eta^2 = .20$, respectively). No main effect for gender emerged in either sample ($F [1, 429] = 3.50$, ns and $F [1, 206] = 1.90$, ns , for the Israeli and the American samples, respectively). The distributions of the mean scale scores of men and women were similar – the Pearson correlations between the mean dimension scores of men and women across the 11 dimensions were .93 and .96, for the Israeli and the American samples, respectively.

However, in the Israeli sample the ANOVA revealed a small interaction between the 11 dimensions and gender ($F [10, 4290] = 2.12$, $p < .05$, $\eta^2 = .01$). Inspection of the dimensions' means revealed that the lowest dimension score was for *dependence on others* for both men and women (2.50 and 2.62, respectively); however, the highest score for men was in *locus of control* (5.23), whereas for women it was in *effort invested* (5.59), as in the results of the analysis in Study 1. Additionally, there were significant gender differences in three dimensions. As in Study 1, for *effort invested* women's mean score ($M = 5.59$, $SD = 1.17$) was higher than men's ($M = 5.20$, $SD = 1.20$), $t (429) = 3.33$, $p < .001$, $d = .30$. Furthermore, as in Study 1, for *consultation with others* women's mean score ($M = 5.45$, $SD = 1.48$) was higher than the men's ($M = 5.21$, $SD = 1.39$), $t (431) = 2.00$, $p < .05$ one-tailed, $d = .17$. And, as in Study 1, for *speed of making the final decision*, men's mean score ($M = 3.38$, $SD = 1.60$) was higher than women's ($M = 3.00$, $SD = 1.64$), $t (429) = 2.34$, $p < .05$, $d = .23$.

Although no interaction between the 11 dimensions and gender emerged ($F ([10, 2060] = 1.20$, ns) in the American sample, gender differences were observed along the same three dimensions as in the two Israeli samples (Study 1 and the present study). For *effort invested*, women's mean score ($M = 5.04$, $SD = 1.14$) was higher than that of men ($M = 4.60$, $SD = 1.24$), $t (206) = 2.58$, $p < .05$, $d = .37$. Similarly, for *consultation with others* women's mean score ($M = 4.67$, $SD = 1.44$) was higher than that of men ($M = 4.25$, $SD = 1.47$), $t (206) = 2.00$, $p < .05$, $d = .29$. Finally, for *speed of making the final decision* the men's mean score ($M = 4.58$, $SD = 1.32$) was higher than that of women ($M = 4.16$, $SD = 1.64$), $t (206) = 1.87$, $p < .05$ one-tailed, $d = .28$.

To test whether the gender differences in the *speed of making the decision* are accounted for by the tendency of women to invest more in the decision-making process and to consult more with others, we carried out an ANCOVA as in Study 1, with the *speed of making the final decision* as the dependent variable, gender as the independent variable and *effort invested* and *consulting with others* as the two covariates. This analysis revealed that, for both the Hebrew and the English versions, gender differences for *speed of making the decision* diminished when the gender differences for *effort invested* and *consulting with others* were controlled for ($F [1, 427] = 1.96$, ns , and $F [1, 204] = 2.00$, ns , for the Hebrew and the English versions, respectively).

Combining the results of the two samples, we conclude that gender differences in the CDMP are relatively small, with the consistent finding being that women tend to invest slightly more effort in the decision-making process and consult with others more than men, while men make the final-choice faster.

Cross-cultural equivalence. The structural equivalence of the CDMP in the two samples was supported by their fit with the hypothesized model according to the confirmatory factor analyses described above. To additionally compare the Israeli and

the American samples, we carried out a mixed-model ANOVA with sample (Israeli vs. American) as the between-subjects factor and the 11 dimension scores as the repeated measures. This analysis again reflected the differences among the 11 dimensions already reported above ($F [10, 6370] = 202.38, p < .001, \eta^2 = .24$). No main effect for sample emerged ($F [1, 637] = .09, ns$), and the distributions of the mean scale scores of two samples were similar – the Pearson correlation between the mean dimension scores of the two samples across the 11 dimensions was .81.

Although there was no main effect for sample, the ANOVA revealed a significant interaction between the dimensions and the sample ($F [10, 6370] = 25.29, p < .001, \eta^2 = .04$). Inspection of the dimensions' means revealed that, across the three samples, the lowest dimension score was for *dependence on others* in both samples (2.58 and 2.80, for the Israeli and the American sample, respectively); however, the highest score in the Israeli sample was for *effort invested* (5.44), whereas in the American sample it was *information processing* (5.19). As may be seen in the right column in Table 4, significant group differences ($p < .001$) emerged along seven dimensions. In four dimensions the Israeli sample had higher scores: *effort invested*, *procrastination*, *consultation with others*, and *aspiration for an ideal occupation*, whereas in three dimensions the American sample had higher scores: *information processing*, *speed of making the final decision*, and *desire to please others*.

5. General discussion

The goal of the present research was to introduce and test a multidimensional model for describing individual differences in the manner in which career decisions are made. This multidimensional model is proposed as an alternative to the prevalent approach to characterizing individuals by the most dominant characteristic of their decision-making approach, namely, their decision-making style.

The model was derived from a systematic analysis of the various career decision-making styles presented in previous research. First, we described the rationale of the proposed integrative model for characterizing individual differences in career decision-making. Then, we tested the model using the *Career Decision-Making Profile* (CDMP) questionnaire. In Study 1, we tested the proposed multidimensional model using the CDMP by means of item and exploratory factor analysis in a sample of young adults about to make a decision regarding their higher education; in Study 2, we tested the model using confirmatory factor analyses of CDMP data from two Internet samples, using a Hebrew and an English version of the CDMP. Both exploratory and confirmatory factor analyses supported the claim that the 11 dimensions included in the model are indeed distinct, even though they are not independent. The similar percentage of the variance accounted for by the 11 factors representing the dimensions (ranging from 8.0% to *willingness to compromise* and 5.9% for *dependence on others*) can be interpreted as reflecting the similar salience of the 11 dimensions. Thus, the results support the proposed multidimensional model.

The proposed 11-dimensional model provides further refinement and elaboration of previous career decision-making style models; for example, instead of labeling an individual “dependent” with respect to the relations with and the role of significant others (e.g., Harren, 1979; Scott & Bruce, 1995), the particular characteristics of the relationship with the significant others are explicated. Specifically, we distinguish among relations with others that involve consultation (i.e., significant others as a resource), wanting to please others (i.e., significant others as authority), and transferring responsibility for the decision to others (i.e., significant others as a responsible source that reduces anxiety). Although these dimensions may appear interrelated, only *dependence on others* and *desire to please others* correlated significantly. Thus, even if *dependence on others* is the individual's most dominant career decision-making style, the multidimensional model allows for a more refined description of the individual's manner of incorporating the influence of significant others.

The following cases from Study 1 demonstrate the benefit of distinguishing among *consulting with others*, *desire to please others*, and *dependence on others*. Case #21044 is a 22-year-old woman who reported that she tends to *consult with others* (5.00), has a high *desire to please others* (6.33), and is highly *dependent on others* (5.00), indicating that she would like others to make decisions for her. Case #12054 is a 21-year-old woman who tends to *consult with others* (6.33), but does not have a *desire to please others* (1.33), and has a low *dependence on others* (1.67). There were no individuals in this sample who wanted to please others and transfer the decision to others without consulting with them. Thus, while the dimensions of *consulting with others*, *desire to please others*, and *dependence on others* are not independent, as these cases demonstrate, these dimensions tap different aspects of the possible impact of significant others on the individual decision-making process. They also allow a counselor to distinguish the more adaptive features of dependency (e.g., consultation with others) from the less adaptive ones (e.g., shifting responsibility for the decision, or choosing the alternative that pleases significant others the most), and counsel the client accordingly.

The proposed multidimensional model is compatible with previous research suggesting that individuals may use more than a single characterizing style at the same time (Driver et al., 1990; Harren, 1979). The proposed model uses the 11 dimensions in parallel to describe the individual's career decision-making, thus explicitly acknowledging that individuals have a repertoire of behavioral patterns for dealing with the challenge of making a decision, and that they can combine these behaviors in different ways, depending on the given situation (Payne et al., 1993; Scott & Bruce, 1995; Singh & Greenhaus, 2004).

The results of the confirmatory factor analyses reported in Study 2 supported the hypothesis that the dimensions cannot be combined to a single total score for both samples. This finding indicates the resemblance of the *CDMP* to other personality measures (e.g., the NEO-PI), where the scores along the dimensions cannot be combined into a single total score. This is in contrast with other career measures that do sum up to a meaningful total score, for example, the Career Decision-Making Self-Efficacy scale (Betz, Klein, & Taylor, 1996) and the Career Decision-making Difficulty Questionnaire (Gati et al., 1996).

The finding of low correlations between many of the dimensions demonstrates that the 11 dimensions are distinct. This result is compatible with the conclusion that the 11 dimensions are independent but not mutually exclusive (Scott & Bruce, 1995; Singh & Greenhaus, 2004). Nevertheless, there were correlations among certain associated dimensions; for example, the correlations between *procrastination* and *speed of making the final decision* were .45, .42, and .55 in the three samples, respectively, showing that individuals who tend to delay entering the decision-making process also tend to delay making the final decision. However, the finding of clear-cut distinctions between the dimensions in both the exploratory and the confirmatory factor analyses show that the dimensions are indeed distinct.

The following examples demonstrate the importance of distinguishing between *procrastination* and the *speed of making the decision*. Case #11043 from Study 1 is a 19-years-old woman whose *procrastination* scale score (2.00) indicates that she is not procrastinating before starting the career decision-making process, but her low *speed of making the decision* score (2.00) indicates that she needs time to make her final decision. Her decision status – “considering a few specific alternatives” – is compatible with this profile. Case #12072 is a 21-year-old woman whose high *procrastination* score (7.00) indicates that she is delaying her entrance into the career decision-making process, and her low *speed of making the decision* score (1.33) indicates that she also needs time to make her decision. It is therefore not surprising that she defines her decision status as “not yet having even a general direction”. The third case, #22029, is an 18-years-old woman whose *procrastination* scale score (2.00) indicated that she is not procrastinating before starting the career decision-making process, while her high *speed of making the decision* score (6.00) indicates that she will not need much time to make her decision once she has the needed information. This participant defined her decision status as “I am sure which occupation I want to choose”. Although there were several cases with low *procrastination* score, evincing readiness to enter the decision-making process and low *speed of making the decision* scores, there were no cases in of high *procrastination* scores with high in *speed of making the decision* scores.

One of the assumptions underlying the proposed multidimensional model was that whereas some dimensions are mainly personality-related, and therefore fairly consistent across situations, others are more situational and may depend on the stage of the decision-making process the individual is at, or the specific decision-task he or she is dealing with. Based on the examples in the paragraph above, it may be hypothesized that different career decision-making dimensions are more or less pertinent depending on the specific career decision-making stage the individual is at – Prescreening, In-depth exploration, or Choice (Gati & Asher, 2001; Gati & Tal, 2008). For example, the level of *procrastination* may be more pertinent before the Prescreening stage, whereas the *speed of making the final decision* is more pertinent for the Choice stage. As another example, the dimension of *information gathering* is probably more pertinent at the In-depth exploration stage whereas *dependence on others* is probably more pertinent at the Choice stage.

Gender differences. In all three samples, a few small but consistent gender differences were observed, suggesting that the differences are robust. First, in all three samples, women's scores were higher than men's for the dimension of *effort invested in the decision-making process*; this difference may be associated with previous findings of higher consciousness of women in comparison to men (Costa, Terracciano, & McCrae, 2001). Second, *consulting with others* was higher among women than among men; this difference is compatible with the finding that women have a more positive approach towards help-seeking than men (Di Fabio & Bernaud, 2008), as well as the finding that women are more influenced by their environment and significant others when choosing an occupation (Sanz de Acedo Lizarraga, Sanz de Acedo Baquedano, Oliver, & Closas, 2009). Finally, in all three samples, men reported making the final decision faster than the women. This pattern can be attributed, at least partially, to the two previous differences: if women consult more and invest greater effort, then it takes them more time to make the decision. Additionally, it is possible that women make the final decision more slowly than men because they are more hesitant (Rassin & Muris, 2005); future studies should investigate whether controlling for levels of career indecision completely eliminates the gender difference in *speed of making the final decision*.

Cross-cultural equivalence. The great similarity of the findings of the two Internet samples in Study 2 suggests that there are no significant differences between the English and the Hebrew versions of the *CDMP*. The results of the Confirmatory Factor Analysis of the American sample also support the hypothesized distinct 11 dimension structure which was found in the Israeli samples in Studies 1 and 2. Interestingly, as described above, the pattern of gender differences which emerged for the same three dimensions, and in the same direction, was similar for the Israeli and the American samples, in spite of the differences in age and education between the samples, providing support for the cross-cultural equivalence from an additional aspect. The gender and the cross-cultural comparisons demonstrate the potential use of the model and the questionnaire for characterizing groups, and then tailoring interventions, if needed, to the unique needs of each. However, this conclusion should be qualified because previous studies have reported differences between cultures in decision-making styles (e.g., between Anglos and Chinese immigrants in Australia: Brew, Hesketh, & Taylor, 2001; between the USA, China, and Japan: Martinsons & Davison, 2007). Thus, future studies should test the equivalence of the *CDMP* model and questionnaire in additional cultures.

Limitations. Before discussing the implications for research and counseling, the limitations of the present study should be acknowledged. First, some of the CDMP dimensions have internal-consistency reliability under .80; however, considering that each dimension's score is based on only three items (due to practical considerations), any reliability above .70 seems acceptable (Nunnally, 1978). Nevertheless, future revisions should aim at improving the internal-consistency reliabilities, in particular for the English version. Second, based on the reported age and number of years of education of the participants, the two samples in Study 2 were not equivalent: the Israeli sample included many individuals who had not yet begun their higher education, whereas the American sample included many individuals who had already completed their undergraduate studies. However, the similarity in the findings of the two samples shows that the psychometric features of the CDMP were not affected much by this difference. Third, the two samples of Study 2 were Internet samples, with a majority of women. This apparently reflects the differential tendency for help-seeking among men and women (Di Fabio & Bernaud, 2008). Thus, it may be argued that the men in these samples are not representative of the general male population. However, the similarity of the findings of Study 2 and Study 1 (where the number of men and women was similar, and we approached them and asked for their participation in the research) suggests that this sample bias had a negligible effect.

6. Implications

The proposed multidimensional model opens an additional perspective for research and counseling about the way individuals make their career decisions. We believe that research and practice should go beyond classifying individuals into homogeneous groups of individuals for research purposes, as has typically been done in decision-making style research so far, and move onto analyzing individuals' unique way of making career decisions. The proposed multidimensional model and questionnaire (CDMP) makes the implementation of this innovative approach possible. A few research and counseling implications are explored in the next sections.

6.1. Implications for research

We argue that the proposed model better represents the way individuals make their career decisions than do previous typologies. One of the challenges for future research is to test this hypothesis, for instance, by comparing individuals' career decision-making profile to their career decision-making style (according to previous typologies). For example, using the multidimensional model, it is possible to test for differences among individuals identified as having the same career decision-making style according to, for instance, Scott and Bruce (1995). We claim that research and practice should aspire to analyze the individuals' career decision-making profile in terms of the proposed dimensions, rather than focus on categorizing individuals into groups according to a single, dominant career decision-making style.

Another question for future research involves differences among the 11 dimensions in terms of their adaptability. It has been claimed that certain decision-making styles are more adaptive than others (Phillips & Paziienza, 1988; Singh & Greenhaus, 2004; e.g., rational and intuitive styles are more adaptive than a dependent style). The multidimensional model makes it possible to test which pole of each of the dimensions is more adaptive (using, for example, progress in the career decision-making process, or career decision-making difficulties, as measures of adaptability), and then to test differential adaptability in the various dimensions within the individual. It remains for future research to explore which level of each dimension is the more adaptive for making career decisions. Furthermore, it may be that for certain dimensions, for example, *willingness to compromise*, the middle level, rather than one of the extremes, is the most adaptive. Finally, future research may also uncover which combinations of dimensions – profiles – are most adaptive.

Furthermore, the multidimensional model can contribute to dealing with the question of whether career decision-making style is mainly personality or situationally anchored. Specifically, certain dimensions (e.g., *locus of control*, *desire to please others*) may be more personality-related, whereas other dimensions (e.g., *consulting with others*, *effort invested*) are more situation-dependent. Furthermore, it can be hypothesized that those dimensions which are more personality-related will correlate higher with measures of personality (e.g., NEO-PI, Costa & McCrae, 2008 or the MBTI, Healy, 2001; Pulver & Kelly, 2008) than those dimensions that are more associated with a given decision situation.

6.2. Implications for counseling

If career counseling is viewed as decision counseling, one of the main roles of counselors is to guide the client through a process leading to making better career decisions (Gati & Tal, 2008). A multidimensional assessment based on the 11 dimensions of the CDMP model will allow for a more accurate, sensitive, and comprehensive appraisal of clients' approach to career decision-making. This, in turn, may: (a) help individuals become aware of their career decision-making profile, and if it is maladaptive, to adopt more a adaptive approach; (b) help individuals and counselors select self-help tools that are tailored to the individual's unique career decision-making profile; and (c) help counselors better tailor individual face-to-face counseling to the client's career decision-making profile so as to increase the effectiveness of the intervention (e.g., helping the client recognize the implications of lack of willingness to compromise).

Career decisions can be regarded as a special category of decision making in general (e.g., Gati, 1986; Krieshok, Black, & McKay, 2009; Sauermann, 2005). Therefore, it may be claimed that although the proposed multidimensional model for deci-

sion-making profiles was developed and tested for career decision-making, it may apply also to other decision situations. For example, [Scott and Bruce \(1995\)](#) developed their general decision-making style questionnaire based on [Harren's \(1979\)](#) typology, which was originally developed for career decisions; indeed, [Scott and Bruce' \(1995\)](#) typology is used in various decision situations (e.g., [Galotti et al., 2006](#); [Thunholm, 2004](#)). Similarly, future research may extend and generalize the proposed multidimensional model to other decision situations.

Acknowledgments

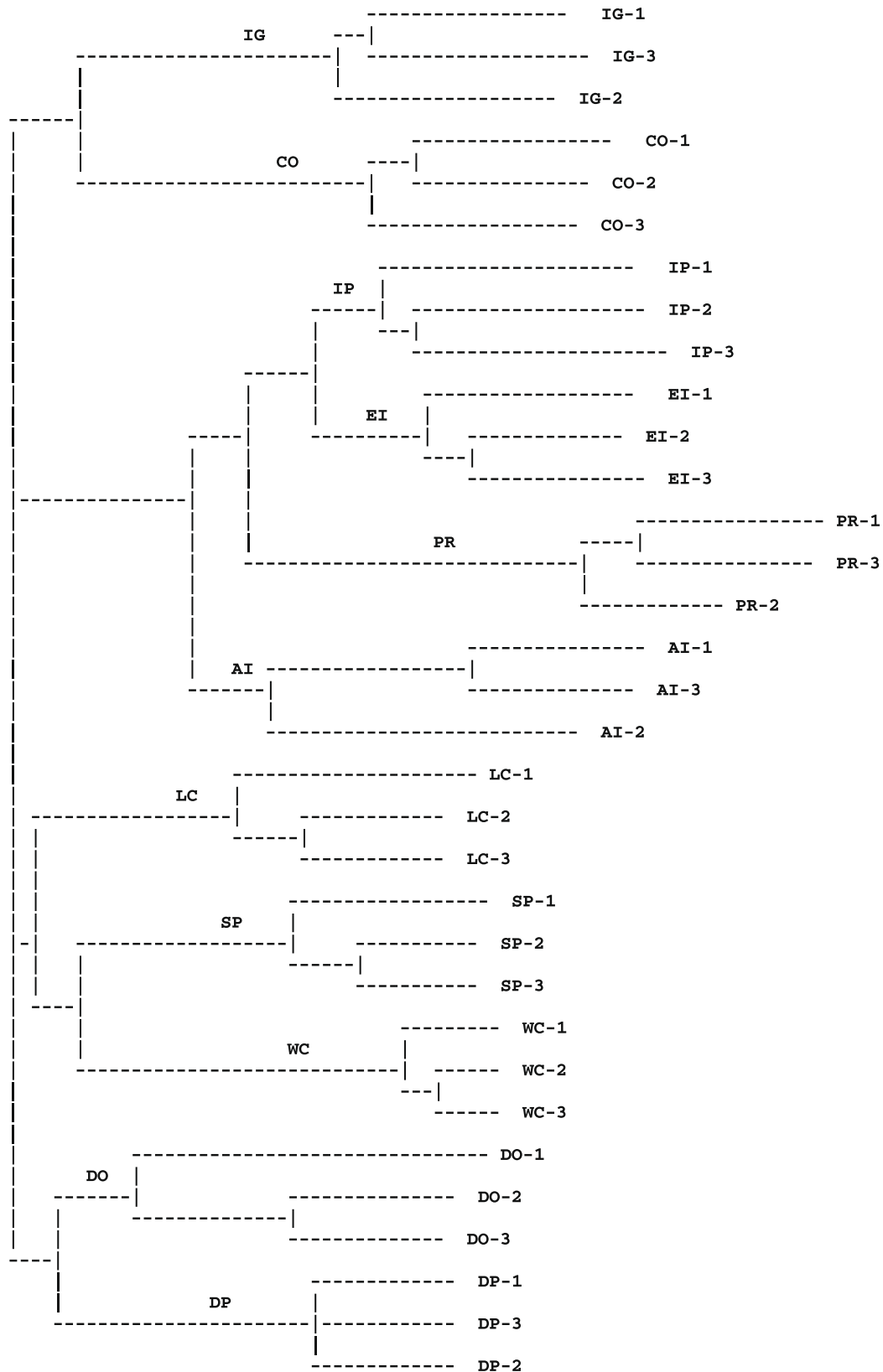
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Appendix A. List of the 36 items of the Career Decision-Making Profile (CDMP) questionnaire

1. I am concerned about choosing a major or an occupation.
2. After collecting the necessary information about the various alternatives, I analyse the characteristics of each one.
3. Generally, I am thorough in gathering information.
4. I am not solely responsible for the results of my decisions; fate and luck greatly affect my future career.
5. I invest a lot of effort in the decision-making process.
6. Even after I have all of the necessary information, I need a long time to make a decision.
7. I tend to postpone my career decision.
8. I usually consider my choices and make my decisions without consulting others.
9. In an important decision like choosing an occupation, I want someone else to decide for me.
10. I consider it important to choose the option that will satisfy my family and close friends.
11. I believe that I can find a perfect occupation that will satisfy all my wishes.
12. If I am not accepted for my first-choice major or training program, I will compromise and opt for my second-choice.
13. I try to choose the option that is best for me.
14. I usually make my decisions after comparing several characteristics of the alternatives.
15. I do not feel that I need to thoroughly examine all the alternatives before I make a decision.
16. Factors outside of my control (like fate) greatly influence my career choice and its outcomes.
17. I immerse myself entirely in the decision-making process.
18. Even after I have collected the relevant information, it takes me a lot of time to make my final decision.
19. I tend to put off my career decision-making.
20. I do not need to consult with others to make the right decision.
21. I do not want to make the decision alone; I want to share the responsibility with others.
22. I will eventually choose one of the options that will please the people closest to me.
23. I believe that I can find the occupation that will satisfy all my preferences.
24. If I can't realize my first-choice, I will be willing to compromise.
25. It makes no difference to me what career I will have in the future.
26. I usually compare the alternatives by considering their advantages and disadvantages.
27. I usually do not try to collect all available information about the occupations I am considering.
28. It really doesn't matter what I choose; fate will ultimately influence my future career anyway.
29. When I need to make a decision I invest a lot of time and effort in it.
30. When I get to the final stage of making a decision, I hesitate quite a bit.
31. I tend to postpone the decision-making process as much as I can.
32. I usually do not consult with other people when making my decision.
33. I prefer that other people share the responsibility for my decision.
34. The expectations of those closest to me are the most important factor in my decision.
35. I believe that I can find an occupation that will satisfy all my aspirations.
36. If I am not able to enter a degree program in my chosen field, I will compromise and look for another one that is right for me.

Appendix B. The cluster analysis of the 33 items of the CDMP (proportion of linearly-accounted-for variance – 78%)

Abbreviations used: IG, information gathering; IP, information processing; LC, locus of control; EI, effort invested; PR, procrastination; SP, speed of making the final decision; CO, consultation with others; DO, dependence on others; DP, desire to please others; AI, aspiration for an ideal occupation; WC, willingness to compromise. The numbers refer to the three items of each dimension.



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