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The Stability and Structure of Career Decision-Making Profiles: A 1-Year Follow-Up

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Abstract

The Career Decision-Making Profile (CDMP) questionnaire is a multidimensional measure of the way individuals make career decisions, developed as an alternative to the single, most-dominant trait approach. Using a sample of freshmen students, the 2-week reliability ($N = 273$) and 1-year stability ($N = 182$) of the CDMP was tested for each of the 12 CDMP dimensions. The median Pearson correlation of the 12 dimensions was .81 for the 2-week test–retest and .62 for the 1-year test–retest. The structure of the 12 CDMP dimensions was compatible with the underlying model and stable across administrations. The median within-individual Pearson correlation across the 12 dimensions, reflecting the 2-week reliability and 1-year stability of the participants' profiles, were .90 and .81, respectively. The career-decision adaptability (CDA) of individuals, referring to the quality of the way individuals approach and make career decisions, was derived from 6 of the 12 dimensions. The CDA was also found reliable ($r = .99$) and stable ($r = .75$). Implications for the assessment of the way individuals make career decisions are discussed.

Keywords

career decision-making profile, career indecision, test–retest reliability, temporal stability, career decision-making adaptability

Career choice is one of the most important decisions individuals face during life (e.g., Uthayakumar, Schimmack, Hartung, & Rogers, 2010). Indeed, it has numerous implications for the individual. For example, this decision could affect where the individual lives and works (Masumba, Yanhong, & James, 2009), what abilities the individual needs to develop (Judge, Klinger, & Simon, 2010; Ng & Feldman, 2010), and the individual's sense of well-being (Hartung, 2011; Uthayakumar et al., 2010). Being aware of the importance of the career decision-making process, many individuals seek career counselors for professional guidance or use career decision-making self-help tools (Gati, Saka, & Krausz, 2001; Sagiv, 1999).

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Career counselors and career decision-making self-help tools usually involve an initial assessment of the individual's career-related characteristics (Campbell, 2000; Mastie, 1994). Various instruments have been developed to assess individual differences associated with career decision making (e.g., Harren, 1979; Phillips & Pazienza, 1988; Whitfield, Feller, & Wood, 2009). These assessments often focus on the *content* of the individual's career-related characteristics, such as vocational interests (Holland, 1997) and work values (Schulenberg, Vondracek, & Kim, 1993). Other assessments focus on aspects of the *process* of career decision making, for example, assessing individuals' dysfunctional beliefs or thoughts (Krumboltz, 1994; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996), difficulties in making career decisions (Gati, Krausz, & Osipow, 1996; Saka & Gati, 2007), or problem-solving skills (Heppner, 2008).

An important characteristic of career decision making is the manner in which individuals typically approach the career decision-making process (Phillips & Pazienza, 1988), often referred to as career decision-making *style*. Harren (1979) defined this as a distinct set of attitudes and behaviors used in career decision-making tasks and claimed that individuals can be characterized by their dominant style: *rational*, *intuitive*, or *dependent*. Following Harren's work, Scott and Bruce (1995) developed the General Decision Making Style (GDMS) Inventory, which can be used to characterize individuals' decision-making style as one of the following: *rational*, *intuitive*, *dependent*, *avoidant,* or *spontaneous*. Walsh (1986) developed the Vocational Decision Style Indicator (VDSI), in which the individual's decision-making style is evaluated along two dimensions: external–internal and thinking–feeling. Consequently, there are four VDSI decision-making styles: external thinking, external feeling, internal thinking, and internal feeling.

Recently, it has been argued that the decision-making-style approach does not address the complex characteristics of individuals' career decision-making process (Gati, Landman, Davidovitch, Asulin-Peretz, & Gadassi, 2010). Gati et al. (2010) joined previous researchers (e.g., Driver, Brousseau, & Hunsaker, 1990; Payne, Bettman, & Johnson, 1993; Singh & Greenhaus, 2004) arguing that using a single dominant trait for characterizing the way individuals make career decisions is an oversimplification. Gati et al. proposed an alternative, multidimensional model for describing individuals' decision making, constructed with two major premises: (1) that several parallel characteristics (called dimensions) are required to fully address individuals' career decision-making process and (2) that whereas some of the dimensions characterizing individual's decision-making profile are personality-related, others are more influenced by situational factors.

To facilitate a multidimensional characterization of the way individuals approach career decisions, Gati et al. (2010) developed the Career Decision-Making Profile (CDMP) questionnaire, with 11 dimensions describing the way individuals make career decisions, where each dimension represents a continuum on a bipolar scale (e.g., *desire to please others* [from high to low]). The 11 dimensions of the CDMP are *information gathering* (comprehensive vs. minimal), *information processing* (analytic vs. holistic), *locus of control* (internal vs. external), *effort invested* (much vs. little), *procrastination* (high vs. low), *speed of making the final decision* (fast vs. slow), *consulting with others* (frequent vs. rare), *dependence on others* (high vs. low), *desire to please others* (high vs. low), *aspiration for an ideal occupation* (high vs. low), and *willingness to compromise* (high vs. low).

Exploratory and confirmatory factor analyses supported the hypothesized 11-dimensional structure underlying the CDMP in an Israeli and an American sample (Gati et al., 2010) and its concurrent validity (Ginevra, Nota, Soresi, & Gati, 2012, pp. 375–389). However, based on theoretical considerations and empirical research, Gati, Gadassi, and Mashiah-Cohen (2011) added a 12th dimension to the CDMP model—*using intuition* (much vs. little). Their study provided support for the superior convergent and incremental validity of the 12-dimensional model over the Scott and Bruce (1995) and the Walsh (1986) typologies.

One of the major characteristics of assessments in general, and multidimensional instruments in particular, is their test–retest reliability and temporal stability. Whereas test–retest reliability is

always a necessary precondition, stability depends on the particular assessment and context. For a multidimensional career assessment that is assumed to be at least partly personality-related like the CDMP, test–retest reliability refers both to the short-term test–retest reliability and the long-term stability of each of the dimensions. In addition, multidimensional assessments facilitate assessing the short-term reliability of individuals' responses as well as the long-term stability of the individuals' score profiles across dimensions.

The Present Study

The goal of the present study was to test the psychometric properties of the revised, 12-dimensional CDMP, in particular the 2-week test–retest reliability and 1-year temporal stability of the scores of each CDMP dimension, as well as the reliability and stability of the individual CDMP profiles. Specifically, we focused on the reliability and stability of each of the 12 dimensions of the CDMP, as well as the stability of their structure. We tested the consistency of the structure of the 12 dimensions across three different time points and the degree to which the observed structure is compatible with the theoretical structure supported by previous research (Gati et al., 2010; Ginevra et al., 2012, pp. 375–389). Since no changes are likely to occur in a person's profile during the 2-week test–retest time period, the CDMP dimension scores should be very reliable, replicating the results of a previous study (Gati et al., 2011). In addition, since we believe that the way individuals make career decisions (as reflected in their CDMP profile scores) is at least partly personality-related, we should find moderate ($r \geq .60$) to high 1-year stability of the dimension scores.

Testing the reliability and temporal stability of the dimensional structure (i.e., scores of the CDMP dimensions) is a necessary condition for the diagnostic use of the individual CDMP profiles. If the present study yields such support, another goal is to investigate the reliability and stability of individual CDMP profiles. Because the CDMP is based on a multidimensional theoretical model, it allows us to explore within-individual consistency and thereby assess the reliability and stability of the individual CDMP profiles. We hypothesize that the reliability of individual CDMP profiles will be high in the 2-week test–retest and lower (though still quite high, i.e., $r^2 \geq .50$) in the 1-year test–retest, reflecting the temporal stability of individual CDMP profiles.

Our last goal was to assess the reliability and stability of another characteristic of individuals that can be derived from the CDMP—their career-decision adaptability (CDA), as derived from their career decision-making profile. Savickas (1997) suggested that informed decision making is one of the major components of adaptability. Accordingly, CDA refers to whether the way individuals approach and make career decisions is one that leads to making better decisions based on theoretical and empirical grounds (Gadassi, Gati, & Dayan, 2012). For example, *procrastination* in entering the career decision-making process is obviously ineffective. Indeed, using the criteria of association with variables known to be connected to career-choice adaptability (i.e., the Emotional and Personality-related Career decision-making Difficulties scale (EPCD) [Saka, Gati, & Kelly, 2008], the Career Decision-Making Self Efficacy scale (CDMSE) [Taylor & Betz, 1983], and the Neuroticism-Extroversion-Openness (NEO) Personality Inventory [Costa & McCrae, 1992]) and status in the career decision-making process (Gati, Kleiman, Saka, & Zakai, 2003), Gadassi et al. (2011) found that certain poles of the CDMP dimensions are more adaptive than others. Based on the findings regarding the dimensions' adaptability, in the present study we derived an indicator of CDA that included 6 of the 12 dimensions (*information gathering*, *locus of control*, *procrastination*, *speed of making the final decision*, *dependence on others*, and *desire to please others*). In the present study, we also tested the 2-week test–retest reliability and 1-year temporal stability of CDA. Assuming that individuals' career decision-making adaptability does not change in a short time period of 2 weeks, there should be high test–retest reliability. Naturally, the 1-year temporal stability of CDA was likely to be less than the 2-week reliability, but still high because of the personality-related basis of the CDMP.

Method

Participants

Three hundred and ten undergraduate students from the Hebrew University of Jerusalem agreed to participate in a study on career decision making in return for course credit. The data of 273 of these participants were included in the 2-week test–retest analyses, and the data of 182 participants were included in the 1-year test–retest analyses. The data of 37 participants were excluded from the analyses of the 2-week test–retest: (a) 8 (2.6%) because they were older than 50, (b) 13 (4.2%) because of the questionable credibility of their responses (based on their responses to the validity items of the CDMP), and (c) 16 (5.2%) because they did not fill out the CDMP with proper attention (specifically, in less than 150 s in either the first or the second administration). Of the 273 participants whose data were included in the 2-week test–retest, 186 were women (68%) and 87 men; their mean age was 23.06 ($SD = 3.58$; interquartile range 22–24); 112 studied Psychology as a major, 75 Business Administration or Accounting, and 86 studied other majors.

To encourage participation in the 1-year retest, participants were offered a chance to be included in a raffle with one prize equivalent to $100 and one of $50 for filling out a third questionnaire. Of the original 310, the data of 128 participants were not included in the analyses: (a) 110 (35.5%) participants did not respond to our invitation, (b) 5 (1.6%) offered questionable responses (based on their responses to the validity items), (c) 10 (3.2%) filled out the questionnaire in less than 150 s, and (d) 3 (1.0%) joined the research team as research assistants. Of the 182 participating students, 122 (67%) were women and 60 were men; their mean age at the first administration was 23.20 ($SD = 3.29$; interquartile range 22–24); 75 majored in psychology, 48 in business administration or accounting, and 59 in other fields.

Instruments

The Career Decision-Making Profile questionnaire (CDMP, Gati et al., 2010). The CDMP is a self-report questionnaire based on the theoretical model (Gati et al., 2010) presented in the *Introduction*. In the present study, we used the 39-item version of the CDMP (Gati, Gadassi, & Mashiah-Cohen, 2012), which comprises 36 core statements representing the 12 dimensions of the CDMP (3 items for each dimension), a warm-up item, and 2 validity items. Each of the 36 core statements represents one of the two poles anchoring each dimension. For example, the statement ''When I make a decision, I rely mainly on my intuition,'' represents the higher pole of the *using intuition* dimension. Participants were asked to rate, on a 7-point Likert-type scale, the degree to which they agree with each statement (1 – *do not agree at all*, 7 – *highly agree*). Based on two samples, Gati, Gadassi, and Mashiah-Cohen (2011) reported a median Cronbach's α internal consistency reliability of .81 and .82 for the 12 dimensions (range .77 to .92 and .75 to .88). In the present study, the median Cronbach's α internal consistency reliability estimates of the 12 dimensions were .86, .87, and .84 (with a range of .77 to .90, .83 to .92, and .78 to .91), for Time 1, Time 2, and Time 3, respectively. The reliabilities for all the dimensions are presented in Table 1.

Procedure

The study's home page and general information (i.e., focus on career decision making, possibility of receiving course credit) were advertised in the computerized experiments registration system of the university, in mandatory freshman classes, and through ads distributed on campus. On the study's home page, participants were informed that the questionnaire was part of a research project aimed at developing tools to assist individuals in making better career decisions, and that the experiment includes two parts (12–15 min each). Participants who agreed to participate by clicking on the link to

Table 1. Means, Standard Deviations, Cronbach's Internal-Consistencies, Correlations, and *t*-tests for CDMP Dimensions in the 2-week and 1-year Periods

	Two weeks ($N = 273$)						One year ($N = 182$)					
	Time 1		Time 2				Time 1		Time 3			
Dimensions	*M* (*SD*)	Cα	*M* (*SD*)	Cα	*r*	*t*	*M* (*SD*)	Cα	*M* (*SD*)	Cα	*r*	*t*
IG	5.27 (1.20)	.80	5.32 (1.16)	.83	.81	−1.29	5.30 (1.15)	.78	5.16 (1.24)	.78	.62	1.78
IP	4.84 (1.30)	.86	4.85 (1.36)	.90	.84	−0.13	4.90 (1.29)	.86	4.77 (1.27)	.88	.58	1.44
LC	5.38 (1.14)	.78	5.50 (1.15)	.85	.75	−2.45	5.32 (1.22)	.80	5.32 (1.20)	.81	.60	−0.02
EI	5.17 (1.18)	.84	5.13 (1.18)	.88	.79	0.87	5.18 (1.14)	.84	4.97 (1.11)	.82	.61	2.82
PR	4.77 (1.68)	.90	4.61 (1.70)	.92	.86	2.97*	4.71 (1.68)	.89	4.50 (1.63)	.89	.67	2.06
SP	3.52 (1.59)	.90	3.53 (1.64)	.92	.83	−0.17	3.47 (1.56)	.91	3.45 (1.59)	.91	.73	0.24
CO	5.57 (1.35)	.85	5.50 (1.31)	.85	.82	1.43	5.55 (1.38)	.84	5.45 (1.20)	.79	.61	1.16
DO	5.80 (1.26)	.86	5.78 (1.18)	.86	.83	0.68	5.88 (1.28)	.87	5.80 (1.24)	.86	.75	1.28
DP	5.14 (1.29)	.88	5.10 (1.28)	.90	.85	0.72	5.24 (1.28)	.90	5.04 (1.29)	.88	.70	2.74
AI	4.63 (1.37)	.77	4.84 (1.40)	.84	.80	−4.03**	4.56 (1.35)	.79	4.61 (1.34)	.79	.66	−0.64
WC	4.59 (1.41)	.89	4.43 (1.44)	.92	.77	2.70	4.50 (1.43)	.92	4.36 (1.35)	.89	.62	1.58
IN	4.31 (1.22)	.79	4.32 (1.26)	.83	.75	−0.32	4.36 (1.20)	.82	4.38 (1.11)	.83	.61	−0.29

Note. *$p < .004$.
** $p < .001$ after the Bonferroni correction.

the questionnaire were asked to fill out the CDMP (Time 1) and were told that a request to fill out an additional questionnaire would be sent to them via e-mail 2 weeks later. After filling out the CDMP, participants were asked to report their name, age, major, and e-mail address. A request to fill out the CDMP again was e-mailed to the participants 10 days after the first administration (Time 2). The e-mail contained a link to the research questionnaire and the participant's personal code. The time difference between Time 1 and Time 2 varied from 10 to 24 days, with a median of 13 (interquartile range 12–14).

One year after the first administration, we sent e-mails to the 310 participants who filled out the CDMP at Time 1 and asked them to fill out the questionnaire again (Time 3). The participants were provided with their personal code, which they were asked to type in prior to filling out the CDMP. This code made it possible to match their responses between administrations. The time difference between Time 1 and Time 3 varied from 389 to 422 days, with a median of 412.

Preliminary Analyses

Estimating the reliability and stability of the CDMP dimension scores. The reliability and stability of the CDMP dimension scores were assessed with two indices (Roberts & DelVecchio, 2000). The first one, rank-order consistency—which refers to the relative placement of individuals within a group and is estimated by the Pearson correlation across participants—is the traditional index of test–retest reliability. The other index we used was mean-level consistency, which indicates how much the mean scores of the dimensions change over time (Low, Yoon, Roberts, & Rounds, 2005; Roberts & DelVecchio, 2000).

Estimating the reliability and stability of individual CDMP profiles. We measured the reliability and stability of the individual CDMP profiles with two indices (Roberts & DelVecchio, 2000). One index, ipsative consistency, shows whether the relative salience of the various CDMP dimensions changes over time for an individual. It is measured by the within-individual Pearson correlation across the 12

dimensions. The other index, intra-individual consistency, indicates the changes in individuals' responses over time and is measured by the mean absolute difference between the individual's dimension scores across the 12 dimensions. Note that individuals whose scores in the different dimensions do not change much, and hence have high intra-individual consistency, also have high ipsative consistency (i.e., the relative salience of CDMP dimensions does not change). However, individuals with high ipsative consistency may have less than perfect intra-individual consistency (because of a fairly consistent change in all 12 CDMP scores).

Estimating CDA. Based on theoretical considerations and the findings of Gadassi et al. (2011) regarding which pole of each dimension is more adaptive, we derived an indicator of CDA that included 6 of the 12 dimensions: 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.* Specifically, we estimated the overall CDA of the way each individual makes career decisions by computing the mean of these six dimension scores. The Cronbach's α internal consistency reliability estimates of CDA based on these six scores were .68, .68, and .70, for Times 1, 2, and 3, respectively.

Gender differences. A series of independent *t*-tests were performed to test for gender differences in the 12 CDMP dimensions. At Time 1, only one gender difference was significant (after the Bonferroni correction, corrected $\alpha = .004$): the women's mean score for *consulting with others* ($M = 5.78$, $SD = 1.26$) was significantly higher than the men's, $M = 5.10$, $SD = 1.43$; $t(271) = -3.97$, $p < .001$, $d = 0.50$. At Time 2, two gender differences were significant (after the Bonferroni correction): the women's mean score ($M = 5.67$, $SD = 1.27$) in *consulting with others* was again significantly higher than the men's, $M = 5.13$, $SD = 1.13$; $t(271) = 3.23$, $p = .001$, $d = 0.42$; similarly, for *using intuition*, the women's mean score ($M = 4.49$, $SD = 1.24$) was significantly higher than the men's, $M = 3.97$, $SD = 1.24$; $t(271) = 3.20$, $p = .002$, $d = 0.42$. No significant gender difference emerged after the Bonferroni correction for any of the dimensions at Time 3.

In addition, no gender differences were found in the rank-order consistency or mean-level consistency of the CDMP. The median within-individual correlations (representing rank-order consistency) were similar for men and women ($r = .91$ and .90, respectively) and the distributions of the correlations were very similar in a Mann-Whitney test ($U = 7663.00$, $Z = -0.70$). Likewise, there were no gender differences in the means of the absolute differences across dimensions (representing mean-level consistency) between the Time 1 and Time 2 administrations, $M = 0.60$ and 0.59, for men and women, respectively; $t(271) = 0.55$, *ns*.

Similarly, no gender differences emerged for the 1-year test–retest stability: the median within-individual correlations (representing rank-order consistency) were similar for men and women ($r = .79$ and .82, respectively); the distributions of the correlations were very similar in a Mann-Whitney test ($U = 3267.00$, $Z = -1.18$). Furthermore, no gender differences were found between the mean absolute difference across dimensions (representing mean-level consistency) at Time 1 and Time 3, $M = 0.82$ and 0.83, for men and women, respectively; $t(180) = -0.19$, *ns*. Due to the few gender differences in two test-retests and the lack of differences in the stability of the CDMP scores, the analyses in the Results section are reported across genders.

Results

The 2-Week Test–Retest Reliability of the CDMP Dimensions

Table 1 presents the means, standard deviations, and Cronbach's α internal consistency reliability estimates for each of the 12 CDMP dimensions in each administration. Table 1 also presents the

Table 2. Fit Indices for the Confirmatory Factor Analyses

Model	χ^2	*df*	χ^2/df	RMSEA	90%CI	NNFI	CFI	GFI	SRMR
Time 1 ($N = 273$)									
36-12	855.09	528	1.62	.048	[.042, .053]	.93	.94	.86	.051
36-12-1	1460.76	582	2.51	.075	[.070, .079]	.83	.84	.74	.135
36-1	4890.16	583	8.39	.165	[.160, .169]	.16	.23	.39	.180
Time 2 ($N = 273$)									
36-12	765.60	528	1.45	.041	[.034, .047]	.96	.97	.87	.047
36-12-1	1476.55	582	2.54	.075	[.070, .080]	.86	.87	.76	.150
36-1	5793.16	583	9.94	.181	[.177, .185]	.16	.22	.37	.198
Time 3 ($N = 182$)									
36-12	747.97	528	1.42	.048	[.040, .056]	.93	.94	.81	.060
36-12-1	1198.14	582	2.06	.076	[.070, .082]	.83	.84	.73	.142
36-1	3683.24	583	6.32	.171	[.166, .176]	.14	.20	.37	.185

rank-order consistency estimated by the Pearson correlation and the mean-level consistency as reflected by the *t*-test between the mean scores of the dimensions for the 2-week test–retest. As can be seen in Table 1, the 2-week test–retest rank-order consistency was high for all dimensions: the lowest correlations were in the dimensions *locus of control* and *using intuition* (.75), while the highest correlation was in *procrastination* (.86); the median correlation was .81. As for the mean-level consistency, only two statistically significant differences emerged after the Bonferroni correction (corrected $\alpha = .004$): (a) for *procrastination*, the participants' mean score at Time 1 ($M = 4.77$) was slightly higher, $t(272) = 2.97$, $p = .003$, $d = 0.09$, than at Time 2 ($M = 4.61$); and (b) for *aspiration for an ideal occupation*, the participants' mean score at Time 1 ($M = 4.63$) was lower, $t(272) = -4.03$, $p < .001$, $d = 0.15$, than at Time 2 ($M = 4.84$). Overall, the effect sizes of the differences between Time 1 and Time 2 were small (mean $d = 0.05$; range .01–.15). These results can be interpreted as supporting the test–retest reliability of the CDMP dimensions.

The 1-Year Temporal Stability of the CDMP Dimensions

Table 1 also presents the rank-order consistency and the mean-level consistency of the dimensions for the 1-year test–retest. The 1-year rank-order consistency was again high for all dimensions: the lowest correlation was for *information processing* (.58) and the highest for *dependence on others* (.75); the median correlation was .62 (which was, as expected, lower [$Z = 4.17$, $p < .001$] than the median of the 2-week correlation [$r = .81$]). No statistically significant differences in *mean-level consistency* were found in the 1-year test–retest after the Bonferroni correction (mean $d = 0.08$; range .00–.19), reflecting the stability of the CDMP dimension scores.

The Stability of the CDMP Structure

We conducted confirmatory factor analyses to test the reliability and the stability of the CDMP structure. Table 2 presents the results of these analyses separately for each of the three administrations. As can be seen in Table 2, for all three testing times the hypothesized 12-dimension model (36-12) according to which the 36 items cluster into 12 dimensions, but the 12 dimensions cannot be combined into to a single overall score, fits the data the best ($\chi^2/df = 1.62$, 1.45, 1.42, and root mean square error of approximation [RMSEA] = 0.48, .041, and .048, for Times 1, 2 and 3, respectively). The 36-12 model was significantly better, in terms of having a lower χ^2, than the first alternative (36-12-1) model, according to which the dimensions can be combined into a single overall score,

Table 3. The Ipsative Consistency (r) and the Intra-Individual Differences in Consistency (|Δ|) of Participants' CDMP Scores over Two Time Periods

	Two weeks ($N = 273$)		1 year ($N = 182$)	
	r	|Δ|	*r*	|Δ|
M (*SD*)	—	0.59 (0.21)	—	0.83 (0.28)
Maximum	.99	1.36	.98	2.00
Minimum	.38	0.17	-.14	0.00
Percentile				
10	.75	0.36	.42	0.53
25	.85	0.44	.63	0.61
50	**.90**	**0.56**	**.81**	**0.81**
75	.94	0.72	.87	0.97
90	.97	0.83	.91	1.22

$t(54) = 24.46, 27.36, 19.66$, $p < .001$, for Times 1, 2, and 3, respectively[1]). Furthermore, the hypothesized model (36-12) was significantly better in terms of lower χ^2 than the second alternative model (36-1), which rejects the claim that there are 12 dimensions, $\chi^2(1, N = 273) = 3429.40$, 4496.61, and 2485.10, $p < .001$, for Times 1, 2, and 3, respectively. These results support the 2-week reliability and the 1-year stability of the structure of the 12 dimensions.

The 2-Week Test–Retest Reliability of Individuals' CDMP Profiles

The left-hand side of Table 3 presents the two individual CDMP profiles test–retest reliability estimates: the ipsative consistency (i.e., Pearson correlation across dimensions for each participant) and the intra-individual consistency (i.e., the sum of absolute differences across dimensions) for the 2-week follow-up. As can be seen in Table 3, at the 2-week test–retest the median ipsative consistency was .90 and the interquartile range was .85 to .94 (this correlation was statistically significant, $p < .05$, for all but one participant). The mean of participants' intra-individual consistency was 0.59 ($SD = 0.21$), and the interquartile range was 0.44 to 0.72. These results show that the individuals' CDMP scores were quite consistent.

The 1-Year Temporal Stability of Individuals' CDMP Profiles

The right-hand side of Table 3 presents the ipsative consistency and the intra-individual consistency for the 1-year test–retest. At the 1-year test–retest, the median ipsative consistency was .81, and the interquartile range was .63 to .87 (for 89.0% of participants the correlation was statistically significant, $p < .05$). The mean 1-year intra-individual consistency, which refers to the gap between the scores ($M = 0.83$, $SD = 0.28$, interquartile range 0.61–0.97), was significantly higher for the 1-year test–retest, $t(453) = 10.41$, $p < .001$, $d = 0.97$, than for the 2-week one ($M = 0.59$, $SD = 0.21$, interquartile range 0.44–0.72), showing that the consistency was, as expected, greater for the 2-week test–retest than for the 1-year one.

To test the similarity of results obtained from the two measures of reliability and stability of individuals' CDMP profiles (ipsative consistency and intra-individual consistency), we computed the Spearman rank-order correlation between the two measures across participants separately for Time 1 versus Time 2, and Time 1 versus Time 3. This correlation was negative, as predicted, for both the 2-week and the 1-year test–retest ($-.77$, $p < .001$ and $-.74$, $p < .001$, respectively), showing that individuals with a higher correlation across the 12 dimensions have smaller changes in their

responses. These results reflect the similarity of the two indicators of the reliability and stability of individuals' CDMP profiles.

In addition, we computed the Spearman rank-order correlation between the ipsative consistency score of Time 1 versus. Time 2 and the ipsative consistency score of Time 1 versus Time 3 across participants. This correlation was moderate and positive ($r_S = .38$, $p < .001$). We also computed the across-participants correlation in intra-individual consistency scores between Time 1 versus Time 2 and Time 1 versus Time 3. The Pearson correlation was positive but small ($r = .26$, $p < .001$). These findings indicate that, in general, individuals whose responses reflect greater 2-week test–retest reliability also have greater 1-year temporal stability.

The Reliability and Stability of CDA

We computed the mean CDA score for each of the three administrations. A paired-sample *t*-test showed that the mean CDA score at Time 1 ($M = 4.98$, $SD = 0.85$) was not significantly different than at Time 2, $M = 4.99$, $SD = 0.85$; $t(272) = 1.29$, *ns*. The mean CDA score at Time 3 ($M = 4.88$, $SD = 0.87$) was lower than at Time 1, $M = 4.99$, $SD = 0.87$; $t(181) = 2.38$, $p < .05$, $d = 0.35$. In addition, the 2-week test–retest reliability ($r = .99$) was significantly higher ($Z = 17.25$, $p < .001$) than the 1-year temporal stability ($r = .75$). Nonetheless, both were high as predicted, indicating that individuals with a more adaptive decision-making approach at Time 1 have such an approach not only 2 weeks later but 1 year later as well.

Discussion

The present study tested the 2-week reliability and the 1-year temporal stability of individuals' CDMP profiles. Specifically, we investigated the reliability and the stability of the 12 CDMP dimension scores as well as that of their structure. Then, using within-individual measures of response consistency, we mapped individual differences in the stability of the participants' CDMP scores, and the reliability and stability of their CDA.

One of the unique characteristics of the present study is its use of two measures of the test–retest reliability and stability of the CDMP dimension scores across participants as well as that of individuals' CDMP profiles. Previous studies of test–retest reliability or temporal stability in vocational psychology often tested these properties using only one index of reliability (Pearson *r*) and focused on estimating the reliability of the total score. Indeed, a recent meta-analysis of 232 studies reported that only a few studies had examined test–retest reliability or temporal stability using more than one index (Low et al., 2005). In the present study, we also tested reliability and stability by looking at the differences between the respective scores in the test–retest comparisons.

The 2-Week Test–Retest Reliability and 1-Year Temporal Stability of the CDMP Dimensions and Their Structure

Using rank-order consistency, we were able to show that the relative placement of individuals in their group along the various CDMP dimensions does not change much over two weeks and that the mean-level consistency scores also do not tend to change during this period. Moreover, although changes over a 1-year period do occur, they are negligible for mean-level consistency and small for the rank-order consistency. In specific cases, using both measures allowed us to refute hypotheses regarding potential differences emerging from the observed results. For example, the dimensions *procrastination* and *aspiration for an ideal occupation* had lower mean-level consistency estimates but nonetheless high, above median, rank-order consistency scores. Considering the high rank-order consistencies, the statistically significant differences in mean-level consistency for two of the

dimensions (*procrastination* and *aspiration for an ideal occupation*) may be coincidental; this claim is supported by the 1-year stability results, as the mean-level differences were not statistically significant for any of the dimensions.

To test the reliability and the stability of the structure of the 12 dimensions of the CDMP, we conducted confirmatory factor analyses. For all three time points, the hypothesized model of 12 dimensions that cannot be combined into a single overall score was found to fit the data well and significantly better than the alternative models, replicating previous findings (Gati et al., 2010; Ginevra et al., 2012, p. 375–389). These results also support the 2-week reliability and the 1-year stability of the structure of the 12 dimensions.

The 2-Week Test–Retest Reliability and 1-Year Temporal Stability of Participants' Scores on the CDMP

We employed two measures to evaluate individuals' CDMP profiles' test–retest reliability and temporal stability. Each measure explored a different facet of stability. The observed ipsative consistency scores showed that the relative placement of individuals along the CDMP dimensions generally does not change. The marginal intra-individual consistency estimates further supported this temporal stability, indicating that on average participants' scores did not change between administrations. The high Spearman correlation between the two measures ($r_S = -.77$ and $-.74$, for the 2-week and the 1-year span, respectively) reflects the similarity in the pattern of consistency of the results for the two measures, and hence supports the generalizability of the conclusions.

The results of the present study show that the within-individual estimates (ipsative consistency and intra-individual consistency) were more consistent than the within-CDMP dimensions estimates (rank-order consistency and mean-level consistency). In other words, individuals' CDMP profiles had greater 2-week test–retest reliability and 1-year temporal stability than the CDMP dimensions. This finding suggests that each individual's CDMP is consistent, even if the dimensions slightly vary in their relative consistency, which may reflect the personality-related roots of the individual's CDMP. This conclusion is compatible with that of Gadassi et al. (2011), who found associations between the CDMP scores and personality measures, including the NEO-PI (Costa & McCrae, 1992) and the EPCD (Saka et al., 2008).

The 2-Week Test–Retest Reliability and 1-Year Temporal Stability of Participants' CDA

Another goal of the present study was to test the reliability and stability of CDA as reflected in the CDMP. Using an index of CDA based on 6 of the 12 CDMP dimensions, we found, as predicted, that both the reliability and the stability of CDA were great ($r = .99$ and .75, respectively), which indicates that those individuals who have a more adaptive approach toward career decision making at Time 1 than their peers continue to hold a more adaptive approach than others a year later as well. However, the across-participants mean CDA was lower a year later, which may indicate that adaptability peaks during the career decision-making process itself and decreases with time when no decisions are required. If this is indeed the case, it implies that the assessment of career decision making profiles and career decision adaptability should be carried out close to the time when the career decision is likely to occur.

Nevertheless, the stability of CDA is of interest, as it suggests that the individual differences in CDA do not change much even over a year's time, and supports the claim that certain dimensions of the CDMP are more personality-related than situational (Gati et al., 2010). Thus, the CDMP may be used in future research: (a) as an independent subscale to predict decision-quality-related variables (e.g., change of major); (b) as a dependent variable that can be predicted by various general and career development–related measures (e.g., personality traits [NEO-PI; Costa & McCrae, 1992],

or optimism [CFI; Rottinghaus, Day, & Borgen, 2005]); and (c) as a measure of the effectiveness of counseling interventions.

Limitations and Future Research

Before discussing the implications of the present study, its limitations have to be acknowledged. First, the present study investigated test–retest reliability and stability on a sample of students who already decided on their major/majors, as opposed to individuals still deliberating about a career decision. Further research is needed to explore the properties of the CDMP at additional life stages (e.g., just before or upon graduation or during a midlife career change). Second, it should be acknowledged that only two thirds of the participants included in the 2-week analyses were also included in the 1-year analyses. Although the mean CDMP scores for Time 1 in the Time 1–Time 2 and the Time 1–Time 3 comparisons were very similar for all 12 dimensions, it is possible that the attrition was not random, so future research is needed to support the findings of the present study. Third, we used an index of CDA that included only 6 of the 12 dimensions. Future research should focus on testing the adaptability of the other dimensions, including the possibility that the middle level of certain dimensions (and not one of the poles) is the most adaptive level (e.g., for the dimensions of *consulting with other* and *willingness to compromise*).

In addition, a recent study attempted to distinguish between situational and personality-related CDMP dimensions (Gadassi et al., 2011). Compared to situational dimensions, personality-related ones are assumed to have greater temporal stability, but because of the differences between the samples, the results for the relative stability of the dimensions could not be compared directly with those of Gadassi et al. (2011); future research should look for factors that might account for the differences in stability among the dimensions. In addition, future studies should investigate the efficiency of various career counseling interventions (e.g., personal counseling, group sessions, and online self-help tools) for individuals with different career decision-making profile or CDA scores.

Counseling Implications

The present study has two major career counseling implications. First, it supports the psychometric properties of the CDMP (i.e., test–retest reliability, temporal stability, and structure) and CDA that was derived from it. Thus, career counselors can use the CDMP to better understand the way their clients make career-related decisions. Assessing clients' career decision-making profile with a 12-dimensional model rather than describing them with a single dominant style provides career counselors with important information about the way their clients make decisions (e.g., their willingness to compromise, desire to please others) and thus makes it possible to tailor the content of the counseling sessions for the specific needs of each client.

Second, the findings of the present study show that it is possible to assess individuals' career decision-making adaptability level with a subgroup of six dimensions. Future research might focus on the validity of CDA by testing its associations with individuals' career decision-making difficulties (Gati et al., 1996). Furthermore, this CDA index can be implemented for the planning of specific interventions for individuals with different CDA scores. It is possible that individuals with low CDA scores require a completely different approach than those with above-average scores, such as longer counseling sessions or individual rather than group counseling sessions. Specifically, individuals with low CDA scores could probably benefit from counseling interventions aimed at improving their readiness for the decision-making process.

Finally, although the dimensions of the CDMP were generally stable, supporting the claim that they are personality-related, it can be speculated that an individual's profile can change in some of the dimensions. For example, great *desire to please others*, which is apparently less adaptive, can be

discussed during counseling. Similarly, *procrastination* can be dealt with, possibly with Cognitive Behavioral Therapy (CBT) techniques (Mandel, 2004). Of course, counselors have to be aware of multicultural differences, as in certain cultures the influence of the family is among the accepted social norms. Likewise, previous research suggests that people in some cultures are more interdependent than those in other cultures (Shea & Yeh, 2008; Russell, Chu, Crockett, & Lee, 2010). Thus, it is likely that in such cultures some CDMP dimensions will have higher mean levels (e.g., *desire to please others* or *consulting with others*).

In sum, the present study provided support not only for the reliability but also for the stability of the CDMP dimensions and their structure. Furthermore, using within-participant measures of reliability and stability, participants' pattern of career decision making was also found reliable and highly stable over at least 1 year. Moreover, individuals' CDA (based on their CDMP) was also reliable and stable. These results suggest that the CDMP can be used to assess individuals' ways of making career decisions not only for research purposes but also for counseling.

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Note

1. We used *t*-test to compare the models following Guilford (1973, p. 517), according to which for *df* larger than 30, the value from the expression $\sqrt{2\chi^2} - \sqrt{2df - 1}$ may be interpreted as a *t* ratio.

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