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Facets of adaptability in career decision-making

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Abstract
We investigated the conceptual similarity and empirical overlap between the Career Adapt-Abilities Scale (CAAS) and the career decision-making adaptability (CDA) indicator, and their contribution to the prediction of (1) decisional difficulty and distress and (2) decision status. The associations between CAAS and CDA dimensions in a sample of 2146 Americans were medium. The CAAS *control* and the CDA *procrastination* and *speed of making the final decision* were significant predictors of decisional difficulty and distress (R^2 = .40). The CAAS *concern* and the CDA *procrastination* were significant predictors of decision status (R^2 = .25). Implications for research and practice are discussed.

Keywords Career adaptability · Career decision-making adaptability · Career decision-making profiles

Résumé
Les facettes de l'adaptabilité dans la prise de décision de carrière Nous avons étudié la similarité conceptuelle et le recouvrement entre l'échelle d'adaptabilité de carrière (CAAS) et l'indicateur d'adaptabilité à la prise de décision de carrière (CDA), et leur contribution à la prédiction (1) de la difficulté décisionnelle et de la détresse (2) du statut de la décision. Les associations entre les dimensions CAAS et CDA dans un échantillon de 2'146 Américains étaient moyennes. La dimension du *contrôle* du CAAS et les dimensions de *procrastination* et de *rapidité de la prise de décision finale* du CDA ont été des prédicteurs significatifs de la difficulté décisionnelle et de la détresse (R^2 = .40). La dimension *concern* du CAAS et la dimension *procrastination* du CDA étaient des prédicteurs significatifs du statut de la décision (R^2 = .25). Les implications pour la recherche et la pratique sont discutées.

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Zusammenfassung

Facetten der Adaptabilität bei Laufbahnentscheidungen Wir untersuchten die konzeptionelle Ähnlichkeit und empirische Überlappung zwischen den Skalen der Laufbahn-Adaptabilität (Career Adapt-Abilities Scale, CAAS) und dem Indikator der Laufbahnentscheidungs-Adaptabilität (Career Decision-Making Adaptability, CDA), sowie deren Beitrag zur Vorhersage von (1) Entscheidungsschwierigkeiten und -stress und (2) Entscheidungsstatus. Die Zusammenhänge zwischen CAAS- und CDA-Dimensionen in einer Stichprobe von 2.146 Amerikaner*innen waren mittelgroß. Die Skalen CAAS Kontrolle und CDA Prokrastination und Geschwindigkeit der endgültigen Entscheidung waren signifikante Prädiktoren für Entscheidungsschwierigkeiten und -stress ($R^2 = .40$). Die Skalen CAAS Interesse und CDA Prokrastination waren signifikante Prädiktoren für den Entscheidungsstatus ($R^2 = .25$). Implikationen für Forschung und Praxis werden diskutiert.

Resumen

Facetas de la adaptabilidad en la toma de decisiones profesionales Investigamos la similitud conceptual y el solapamiento empírico entre la Escala de Adaptabilidad de la Carrera (Career Adapt-Abilities Scale -CAAS) y el indicador de la Adaptabilidad en la Toma de Decisiones Profesionales (Career Decision-Making Adaptability -CDA), y su contribución a la predicción de: 1) la dificultad y la angustia en la toma de decisiones y 2) el estado de la decisión. Se midieron las asociaciones entre las dimensiones CAAS y CDA en una muestra de 2.146 estadounidenses. El *control* de la CAAS y la *demora* y *la rapidez para tomar la decisión final* de la del CDA, fueron predictores significativos de la dificultad y la angustia en la toma de decisiones ($R^2 = .40$). La *preocupación* del CAAS y la *demora* del CDA fueron predictores significativos del estado de la decisión ($R^2 = .25$). Se discuten las implicaciones de los resultados para la investigación y la práctica.

Introduction

Among the most noticeable features of the world of work in the twenty-first century is a broader range of career opportunities, fragmented career paths, and increased economic instability (Savickas, 2021). Making satisfying career decisions in these often-stressful circumstances has become increasingly complex and demanding (Gati & Levin, 2015; Lipshits-Braziler et al., 2017), requiring individuals to demonstrate more resourcefulness and adaptability (Lent & Brown, 2013; Savickas, 2013). Recent years have seen an increase in studies focusing on behaviors associated with a better ability to adapt to career transitions (Gati & Levin, 2015; Rottinghaus et al., 2012; Xu, 2020).

The ability to adapt to changing circumstances (i.e., adaptability) have been theorized in the vocational context as the process of bringing inner needs and outer opportunities into harmony (Savickas, 2021). Several conceptualizations of *adaptability* have been developed in vocational research, including those highlighting psychosocial resources (Savickas, 2021), career decision-making tendencies (Gati

& Levin, 2012), coping capacities (Rottinghaus et al., 2012), and self-regulation strategies (Creed et al., 2009). However, as Rottinghaus et al. (2012) pointed out, despite some progress, research on adaptability in the vocational context has been lacking an accepted operational definition and affiliated measures. To overcome this limitation, Lent and Brown (2013) argued that new directions for research could be revealed by comparing and possibly integrating various constructs of adaptability.

The present research seeks to contribute to the literature on adaptability in the vocational context by analyzing the conceptual similarity and empirical overlap of two vocational frameworks and their respective measures: the Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012) and the career decision-making adaptability indicator (CDA; Gati & Levin, 2012). Thus, our empirical approach includes analyzing the associations among the dimensions underlying these two measures as well as their relative contribution to the prediction of two adaptation results: (1) perceived career decisional difficulty and distress, and (2) career decision status.

Adaptability in the vocational context

The concept of adaptability in the vocational context has been characterized in the literature by two main strands of thought. The first, dominant one, originates from Super and Knasel's (1981) conceptualization of career adaptability as how individuals cope with and adjust to changes in the world of work. Savickas (1997) later expanded this definition and referred to adaptability as "the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions" (p. 254). This notion has been integrated into and expanded within career construction theory (Savickas, 2013, 2021). A similar but yet distinct approach to adaptability was developed by Rottinghaus et al. (2005), viewing adaptability as the ways individuals perceive their capacity to plan and adjust to changing career plans. Some have argued that these definitions of adaptability highlight the self-regulatory processes that individuals employ to manage and overcome career problems arising from the interaction between their needs and their environment (e.g., Creed et al., 2009; Savickas, 2021).

A second, recently emerging, and often overlooked concept of adaptability refers to the decision-making strategies individuals use to achieve better career decisions. Underlying this recent development is the concept of career decision-making strategies, defined as the habitual response patterns individuals use to reach career decisions (Harren, 1979; Scott & Bruce, 1995). Building on this line of research, Phillips (1997) introduced an explicit notion of *adaptive decision-making* addressing various strategies associated with better decision-making. Phillips suggested that both rational as well as non-rational strategies can inform the process of making better career choices. Previous research has confirmed this *beyond-rationality hypothesis* (e.g., Gadassi et al., 2012, 2013). As an outgrowth of this approach, an indicator of *career decision-making adaptability* (CDA; Gati & Levin, 2012) was introduced. The CDA comprises a composite score of six decision-making strategies that have been demonstrated as adaptive for the career decision-making process (e.g., Gadassi

et al., 2012). This second strand of thought is grounded in decision theory and has been discussed primarily in the context of career decision-making (Gati, 2013).

The present study investigates the conceptual similarity and empirical overlap of *career adaptability* and *career decision-making adaptability*. We propose that these frameworks could be viewed as providing complementary perspectives from which career-related processes and outcomes may be investigated.

Career adaptability

The concept of *career adaptability* is one of the central tenets of career construction theory (Savickas, 2021), which also distinguishes this concept from adaptiveness, adapting, and adaptation (Savickas, 2021; Savickas & Porfeli, 2012). *Adaptiveness* denotes one's willingness or readiness to respond to vocational tasks, whereas *adaptability* refers to the self-regulation resources for coping with vocational tasks, transitions, and traumas. Individuals who are willing (*adaptiveness*) and possess the coping resources needed to deal with difficult vocational tasks (*adaptability*) are likely to enact *adapting responses*, namely specific coping behaviors. Better outcomes (*adaptation results*) are then achieved when individuals are ready, able, and perform the required coping behaviors.

Career adaptability is conceptualized as comprising four self-regulatory resources that underlay individuals' ability to regulate their goal-directed behaviors (Savickas & Porfeli, 2012). *Concern* refers to one's awareness of and preparedness for a vocational future. *Control* involves intrapersonal self-discipline, self-governance, and decisiveness concerning one's vocational future. *Curiosity* includes attitudes and dispositions favoring exploration and openness to experiences that increase competence in self-knowledge and occupational information. *Confidence* refers to feelings of self-efficacy in overcoming career difficulties by executing the necessary courses of action and implementing suitable career decisions.

The Career Adapt-Abilities Scale (CAAS) was developed to operationalize career adaptability, yielding a higher-order career adaptability total score and four dimension scores (Savickas & Porfeli, 2012). Extensive research has been conducted on the CAAS, the majority of which summarized in two meta-analyses that focused on the construct validity of the CAAS total score (Rudolph et al., 2017a, b) and its dimensions (Rudolph et al., 2017a, b). Xu (2020) recently raised the need for further investigations of the associations of CAAS with other adaptability measures.

Career decision-making adaptability

Gati et al. (2010) developed a multidimensional framework to characterize individuals' career decision-making behaviors using 12 dimensions. Previous research has found that six of the 12 dimensions were associated with greater decidedness (Gadassi et al., 2012, 2013), higher levels of career decision self-efficacy (Gadassi et al., 2013), and lower levels of career indecisiveness (Gadassi et al., 2012). Based on these findings, Gati and Levin (2012) introduced an indicator of *career decision-making adaptability* (CDA), which included the dimensions of *information gathering* (comprehensive), *locus of control* (internal), *procrastination* (low), *speed of*

making the final decision (faster), *dependence on others* (low), and *desire to please others* (low).

The CDA indicator has been found to be positively associated with occupational self-efficacy, career optimism, life satisfaction, proactive personality, knowledge of the job market (Ebner et al., 2018), and greater use of productive coping strategies (Lipshits-Braziler et al., 2017). The CDA indicator was also shown to be negatively associated with career indecision (Perez & Gati, 2017; Willner et al., 2015), the use of support-seeking and nonproductive coping strategies (Lipshits-Braziler et al., 2017), the inclination to seek help in career decision-making (Vertsberger & Gati, 2015), and cognitive irritation (Ebner et al., 2018). Furthermore, CDA indicator scores were found to be higher for decided young adults than those partially decided or undecided (Perez & Gati, 2017) and lower for those having changed their major than for those who had not (Vertsberger & Gati, 2015).

Career decision-making adaptability was conceptualized as making career decisions after sufficiently collecting and considering the relevant information without unnecessary delays in entering or completing the decision-making process (Gadassi et al., 2012; Gati & Levin, 2012). Kulcsár et al. (2020) considered the dimensions underlying *career decision-making adaptability* as part of assessing how individuals approach career decision-making—specifically, one's decision-making tendencies (styles/profiles) or how one copes with the pressure of having to make a career decision. Kulcsár et al. (2020) viewed *career adaptability* also as a measure of orientation, relating to individuals' resources applied to vocational tasks, in line with career construction theory. In Kulcsár et al.'s model, therefore, career adaptability and career decision-making adaptability were seen as similar but distinct constructs, referring to resources in the case of career adaptability and to tendencies and behaviors in the case of career decision-making adaptability.

Dimensions of career adaptability and career decision-making adaptability

To date, research on *career adaptability* and *career decision-making adaptability* has been mostly discrete. Nota et al. (2012), in their development of the Career and Work Adaptability Questionnaire (CWAQ), measuring Savickas's (1997) theorized dimensions of career adaptability, examined its associations with the CDMP dimensions. However, the Nota et al. (2012) study was conducted prior to the identification of the adaptive CDMP dimensions and the development of the CDA indicator. Ebner et al. (2018) examined the associations of the CDMP with career adaptability, as measured by the German version of the Career Future Inventory (CFI; Spurk & Volmer, 2013). Although these two studies did not use the CAAS, their findings informed our predictions regarding the expected associations between the CAAS, the CDA, and their respective dimensions.

The CAAS dimension of *concern* refers to being aware and plan for one's future career. *Concerned* individuals hold attitudes of planfulness and optimism, which foster thinking about careers, planning how to achieve goals, and being behaviorally active (Savickas, 2021). Conceptually, *concern* is partially antonymous to the CDA dimension of *procrastination*. However, Nota and her colleagues (2012) found that

concern correlated positively with *information gathering*, *speed of making the final decision* and lower *dependence on others*, but not with *procrastination*. Furthermore, given Savickas's view of optimism as an aspect of *concern*, *career optimism* (as a CFI dimension) was found to correlate negatively with *procrastination* and *dependence on others*, and positively with *speed of making the final decision* (Ebner et al., 2018). In this regard, the findings of these two studies were not fully congruent with the theoretical definition of *concern,* nor were the findings fully replicated. Thus, consistent with theoretical considerations, we predicted that *concern* would correlate negatively with *procrastination*.

The CAAS dimension of *control* indicates being responsible for career planning and decision-making and involves exercising self-discipline, effort, and persistence. Individuals with a sense of *control* feel they can make decisions independently and assume responsibility for their choices. Savickas (2021) emphasized that the converse of *control* is confusion rather than dependence, equating this dimension with *procrastination* and *impulsivity*. Previous empirical work is, however, inconsistent with this theoretical formulation. Nota et al. (2012) found that *control* was strongly associated only with *information gathering*. Finally, if *control* indeed measures dimensions related to dependence, it is likely to be correlated with *locus of control* and *dependence on others*.

The CAAS dimension of *curiosity* is manifested by exploring one's self and environment. Curious individuals seek opportunities to grow and investigate options before making decisions. Thus, conceptually, *curiosity* would seem to be most similar to the CDA dimension of *information gathering*. Indeed, Nota et al. (2012) found *curiosity* to be correlated positively with *information gathering*.

Finally, the CAAS dimension of *confidence* represents a belief that one can pursue one's aspirations successfully and solve career problems effectively. This definition leaves no CDA dimension to be conceptually similar to *confidence.* Interestingly, Nota et al. (2012) found that greater *confidence* correlated positively with the *speed of making the final decision*, negatively with *procrastination*, and negatively with *dependence on others*. Previous research that included self-efficacy measures revealed self-efficacy to be strongly correlated with most of the CDA dimensions (e.g., Chuang et al., 2020; Gadassi et al., 2013). Consequently, we were unable to make specific predictions regarding the associations of *confidence* with the CDA dimensions.

The overall pattern of associations among the dimensions of *career adaptability* and *career decision-making adaptability* suggests that their empirical overlap requires further clarification. Specifically, previous findings and theoretical considerations revealed that four of the six CDA dimensions—namely, *information gathering*, *procrastination*, *speed of making the final decision*, and *dependence on others*—are likely to correlate strongly with most of the CAAS dimensions. For this reason, we predicted that the aggregates of CAAS and CDA would positively correlate, a prediction consistent with previous findings concerning the associations between the CDA total score and other measures of *career adaptability* (Ebner et al., 2018; Nota et al., 2012). Furthermore, to further investigate the similarities and differences of CAAS and the CDA, we also sought to examine their relative contributions to the prediction of two adaptation outcomes.

Decisional difficulty and career indecision

Previous research demonstrated the negative associations of *career adaptability* as well as *career decision-making adaptability* with sources of career indecision (e.g., Gadassi et al., 2013; Peretz & Gati, 2017; Xu, 2020), negative affect and job stress (e.g., Rudolph et al., 2017a, b), and career identity and decision status (e.g., Gati et al., 2012; Rudolph et al., 2017a, b). Nevertheless, previous studies have not directly compared the relative contributions of the CAAS and CDA dimensions—comprising two adaptability measures—as predictors of adaptation results.

In the present study, we focused on the two adaptation results of perceived career decisional difficulty and distress (Lipshits-Braziler et al., 2016) and career decision status (Gati et al., 2012). Negative affective experience has been shown to be associated with impediments in the career decision-making process (e.g., Bonaccio et al., 2014; Wang & Yan, 2018). Savickas (2021) argued that lack of *career concern* is related to indifference. Previous research, however, has shown that it is the CAAS dimension of *control*, which emerged as the strongest predictor of negative affect and job stress (Rudolph et al., 2017a, b). Whereas no previous research has directly examined the relationship between the CDA dimensions and negative affect, decisional *procrastination* has been shown to be associated with negative affect (Fernie et al., 2016). Given these theoretical considerations and previous findings, we anticipated that the CAAS *concern* and the CDA *procrastination* would emerge as the strongest predictors of decisional difficulty.

Career decision status, measured in terms of the range of alternatives under consideration (Gati et al., 2011, 2012), constitutes a second career outcome related to career indecision. Savickas (2021) argued that *career control* is often called indecision. Previous studies have shown that the CAAS dimension of *concern* emerged as the strongest predictor of career identity, which relates to the clarity of individuals' career goals and interests (Rudolph et al., 2017a, b). Among the CDA dimensions, *procrastination* and *speed of making the final decision* have repeatedly proved to be the strongest predictors of career decision status (Gadassi et al., 2012, 2013; Gati et al., 2012). In light of these findings, we hypothesized that the CAAS *concern* and the CDA *procrastination* and *speed of making the final decision* would emerge as the strongest predictors of career decision status.

The present study

The first goal of the present study was to examine the associations between *career adaptability,* measured by CAAS, and *career decision-making adaptability*, measured by the CDA. We hypothesized that the global scores of both measures would correlate positively. At the level of their dimensions, we anticipated that the CAAS dimension of *concern* would correlate negatively with the CDA *procrastination* dimension and that *curiosity* would correlate positively with the CDA *information gathering* dimension.

The second goal of the present study was to examine the relative contribution of CAAS and CDA in predicting two adaptation results: (1) perceived career decisional

difficulty and distress, and (2) career decision status. As both outcomes relate to the career decision-making process, we anticipated that the CDA dimensions would emerge as stronger predictors of both perceived career decisional difficulty and distress and career decision status than would the CAAS dimensions. However, when considering the dimensions discretely, previous findings led us to anticipate that *control* and *procrastination* would emerge as the strongest predictors of career decisional difficulty and distress, and *concern*, *procrastination*, and *speed of making the final decision* as the strongest predictors of career decision status.

Method

Participants

We collected data from a sample of 2,323 Americans, ranging in age from 16 to 40, who visited a career website and chose to complete online, self-help career assessments that included the CAAS and the CDA to obtain immediate personalized feedback. Of the sample, 177 participants were excluded for the following reasons: 75 (3.2%) respondents completed the assessments in less than three minutes, and 102 (4.4%) lent insufficient attention to two embedded validity items. Of the 2,146 individuals included in the data analyses, 1619 (75.4%) were women. Their mean age was 25.67 (SD = 6.22). Most participants (95.6%) reported having completed at least 12 years of education.

Instruments

The Career Adapt-Abilities Scale (CAAS; Savickas & Porfeli, 2012). CAAS is a 24-item self-report questionnaire measuring four dimensions underlying career adaptability: *concern*, *control*, *curiosity*, and *confidence*. Respondents are asked to indicate the extent to which they developed the adaptability resources represented in each statement. Items were presented on a 5-point Likert-type scale, ranging from 1 (*not strong*) to 5 (*strongest*). Porfeli and Savickas (2012) reported alpha coefficients of .82, .80, .84, and .80 for the *concern*, *control*, *curiosity*, and *confidence* dimensions, respectively, and an alpha coefficient of .94 for the CAAS total score. As shown in Table 1, for the current sample, alpha coefficients were .77, .75, .77, and .82 for *concern*, *control*, *curiosity*, and *confidence*, respectively, and .92 for the CAAS total score.

The Career Decision-Making Profiles Questionnaire (CDMP; Gati & Levin, 2012; Gati et al., 2010). CDMP is a 39-item self-report questionnaire measuring 12 career decision-making dimensions. For six of the 12 CDMP scales, one pole has been shown to be more adaptive for career decision-making (Gadassi et al., 2012, 2013): *information gathering* (comprehensive), *locus of control* (internal), *procrastination* (low), *speed of making the final decision* (fast), *dependence on others* (low), and *desire to please others* (low). Gati and Levin (2012) employed these six dimensions to formulate the Career

Decision-Making Adaptability (CDA) indicator. Thus, for the present study, we extracted and analyzed the data pertaining to the six CDA dimensions. Participants were asked to rate the extent to which they agree with each statement, presented on a 7-point Likert-type scale, ranging from 1 (*do not agree at all*) to 7 (*highly agree*). The internal-consistency, test–retest reliabilities, and 1-year stability of the CDA indicator and its six dimensions were supported in previous research (Gadassi et al., 2013; Gati & Levin, 2012; Gati et al., 2012; Willner et al., 2015). Gati and Levin (2012) reported a median alpha coefficient internal-consistency reliability of .87 for the six CDA dimensions (range .78 to .90). Lipshits-Braziler et al. (2017) reported a reliability estimate of .85 for the CDA indicator. For the current sample, the median reliability of the six CDA dimensions was .84, and that of the CDA indicator was .87.

Perceived Career Decisional Difficulty and Distress (CDDD; Lipshits-Braziler et al., 2016). Two questions were used to measure the degree to which participants perceived their career decisions as difficult ("How difficult is it for you to make a career decision?") and stressful ("How stressful do you find the need to choose a major or a career?"). The items were presented on a 9-point Likert-type scale, ranging from 1 (*not difficult/stressful at all*) to 9 (*very difficult/stressful*). As the responses to these questions were highly correlated ($r = .75$, $p < .001$), we derived a single score by computing their mean. The Cronbach alpha internal-consistency reliability of the combined score for the current sample was .86.

Career Decision Status (Gati et al., 2011) was measured by the Range of Considered Alternatives (RCA) question. Participants are asked to select which of six alternatives describes their career decision status: (1) "I do not even have a general direction"; (2) "I have only a general direction"; (3) "I am deliberating among a small number of specific occupations"; (4) "I am considering a specific occupation, but I would like to explore other options before I make my decision"; (5) "I know which occupation I am interested in, but I would like to feel sure of my choice"; and (6) "I am already sure of the occupation I want." The RCA has been found useful in measuring individuals' progress toward making a career decision (Gati et al., 2011) and assessing the effectiveness of interventions (Gadassi et al., 2013).

Procedure

The data for the present study were derived from www.cddq.org, a free, anonymous, public website (www.cddq.org), aimed at facilitating career decision-making. Participants choose on their own initiative to complete the assessments as part of their career decision-making process and received immediate, individualized feedback concerning their career decision-making behavior. After providing demographic information, participants were asked to report their perceived career decisional difficulty and distress and respond to the Range of Considered Alternatives (RCA) question. Of the participants, 1,649 (76.8%) completed the CAAS first, whereas 497 (23.2%) completed the CDMP questionnaire first.

Preliminary analyses

Order effects

To test the effect of the order of administration in the four CAAS and six CDA dimensions, we conducted a series of independent *t*-tests. After applying the Bonferroni correction for multiple comparisons ($\alpha = .005$), no order effect emerged for any of the 10 scales. Two additional *t*-tests revealed no significant order effects, neither for the CAAS total score, $t(2,144) = -.42$, $p = .68$, nor for the CDA indicator, $t(887.67) = -.81$, $p = .42$. Thus, data analysis proceeded across both order groups.

Gender differences

Appendix A presents the means and standard deviations of the CAAS and CDA dimensions, separately for men and women, as well as the results of a series of *t*-tests assessing gender differences. After applying the Bonferroni correction for multiple comparisons ($\alpha = .005$), women yielded higher scores than men in two CAAS dimensions, albeit small ($d = .36$, for *concern*) and negligible ($d = .19$, for *confidence*) effect sizes. The mean effect size of the four CAAS dimensions was negligible, $d = .12$. In addition, women yielded a slightly higher CAAS total score than men, $t(2,144) = -3.41$, $p = .001$, $d = .17$. Considering the CDA scores, women's scores were higher than men's in *information gathering* and *locus of control*, and lower than men's in *procrastination* and *desire to please others*. Nevertheless, all differences were small or negligible (*d* ranged from .16 to .35). Women's mean CDA score was significantly higher than that of men, $t(2,144) = -4.15$, $p < .001$, but this difference was small in effect size, $d = .21$.

We computed the Spearman rank-order correlation between the intercorrelations for women's and men's CAAS and CDA scores (see Appendix B). This correlation was high, $r_s = .99$, $p < .001$, reflecting the great similarity between women's and men's response patterns. In light of these findings, subsequent analyses were conducted across gender.

Results

Means, standard deviations, and correlations for all variables are presented in Table 1. As expected, the correlation between the CAAS total score and the CDA indicator was medium ($r = .36$). Furthermore, the CAAS total score exhibited medium correlations with two CDA dimensions ($r_s = .38$ and -.35 for *information gathering* and *procrastination*, respectively). The remaining four CDA dimensions exhibited only small correlations with the CAAS total score ($|r_{range}| = .10$-$.26$). In comparison, the CDA indicator demonstrated medium correlations with three CAAS dimensions ($r_s = .30$, .40, and .30 for *concern*, *control*, and *confidence*, respectively). *Curiosity* exhibited only a small correlation with the CDA indicator ($r = .23$). Overall, these results suggest that whereas the global adaptability indices of CAAS and CDA partially overlap, they tap distinct facets of adaptive behavior.

Table 1 Means, standard deviations, and correlations among variables

	M	*SD*	α	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Concern	3.73	.73	.77													
2. Control	3.73	.68	.75	**.58**												
3. Curiosity	3.65	.70	.77	**.60**	**.65**											
4. Confidence	3.79	.69	.82	**.59**	**.70**	**.67**										
5. CAAS	3.72	.59	.92	**.82**	**.86**	**.86**	**.87**									
6. IG-much	5.34	1.20	.74	**.36**	.25	**.35**	**.31**	**.38**								
7. LC-internal	5.32	1.22	.72	.09	.13	.03	.09	.10	.26							
8. PR-high	3.21	1.63	.89	**− .36**	**− .35**	− .19	− .28	**− .35**	**− .32**	− .27						
9. SP-fast	4.15	1.64	.87	.14	**.32**	.09	.23	.23	.10	.22	**− .65**					
1. DO-high	2.83	1.32	.75	− .17	**− .33**	− .18	− .20	− .26	− .24	**− .33**	**.43**	**− .43**				
11. DP-high	3.00	1.39	.83	− .05	− .18	− .09	− .07	− .11	− .18	− .26	.22	− .23	**.53**			
12. CDA	4.96	.93	.87	**.30**	**.40**	.23	**.30**	**.36**	**.50**	**.56**	**− .77**	**.72**	**− .75**	**− .60**		
13. CDDD	5.14	2.17	.86	− .25	**− .35**	− .20	− .29	**− .32**	− .20	− .13	**.57**	**− .54**	**.31**	.15	**− .52**	
14. Decision status	4.33	1.50	–	.29	.27	.14	.22	.27	.19	.11	**− .47**	**.32**	− .19	− .06	**.36**	**− .50**

$N = 2{,}146$. Correlations above |.05| are significant at the $p < .01$ level. Correlations above |.30| appear in bold

CAAS Career Adapt-Abilities Scale, *IG* information gathering, *LC* locus of control, *PR* procrastination, *SP* speed of making the final decision, *DO* dependence on others, *DP* desire to please others, *CDA* career decision-making adaptability (the dimensions of PR, DO, and DP are entered reversed), *CDDD* career decisional difficulty and distress

The associations among the dimensions of CAAS and CDA

To further investigate the empirical overlap between CAAS and CDA, we examined the correlations among the four CAAS and six CDA dimensions. As seen in Table 1, the CAAS *concern* dimension exhibited, as predicted, a medium-sized correlation with the CDA *procrastination* dimension ($r = -.36$), indicating that individuals who are more concerned and are preparing for their vocational future tend to procrastinate less. *Concern* also yielded a medium-sized correlation with the CDA *information gathering* dimension ($r = .36$), showing that concerned individuals engage more in information gathering. The remaining CDA dimensions yielded only low-to-negligible correlations with *concern* ($|r_s| < .18$).

The CAAS *control* dimension yielded a medium-sized correlation with the CDA dimension of *dependence on others* ($r = -.33$), indicating that individuals who assume responsibility for planning their vocational future are also less dependent on others. Furthermore, *control* exhibited medium correlations with the CDA dimensions of *procrastination* ($r = -.35$) and *speed of making the final decision* ($r = .32$), reflecting that individuals who exercise self-discipline and persistence are less likely to procrastinate or hesitate when making their final decisions. The remaining three CDA dimensions yielded only low correlations with *control* ($|r_s| < .26$).

The CAAS *curiosity* dimension exhibited, as hypothesized, a medium correlation with the CDA *information gathering* dimension ($r = .35$), indicating that individuals who demonstrate curiosity to explore their possible selves and future scenarios gather more information in the process of career decision-making. The remaining CDA dimensions presented only low correlations with *curiosity* ($|r_s| < .20$).

Finally, the CAAS dimension of *confidence* exhibited a medium-sized correlation with the CDA *information gathering* ($r = .31$), indicating that individuals with greater self-efficacy are more likely to engage in information gathering. The remaining five CDA dimensions presented low-to-negligible correlations with *confidence* ($|r_s| < .29$).

Adaptability and adaptation results

To further explore the empirical overlap of CAAS and CDA, we examined their relative contribution to the prediction of two adaptation results: (1) perceived career decisional difficulty and distress, and (2) career decision status. Considering the number of predictors and the sample size, we adopted a conservative estimate ($\alpha < .001$) to determine the significance of predictors.

Career decisional difficulty and distress

The left side of Table 2 presents the statistics of the regression analyses for the prediction of decisional difficulty and distress. First, we entered the four CAAS dimensions as predictors, with decisional difficulty and distress as the criterion. All four CAAS dimensions emerged as significant predictors and collectively accounted for 13% of the variance. As expected, *control* emerged as the strongest predictor

Table 2 Beta coefficients for the regression analyses predicting perceived career decisional difficulty and distress, and career decision status

	Decisional difficulty and distress			Career decision status		
	CAAS	CDA	CAAS + CDA	CAAS	CDA	CAAS + CDA
Concern	− .08		.01	**.24**		**.13**
Control	**− .30**		**− .10**	**.19**		.09
Curiosity	**.12**		.01	**− .17**		− .09
Confidence	**− .11**		− .06	.06		.02
IG-much		**− .06**	− .04		.05	.03
LC-internal		.05	.05		− .01	− .01
PR-high		**.36**	**.34**		**− .44**	**− .38**
SP-fast		**− .30**	**− .28**		.05	.05
DO-high		.04	.02		.00	.01
DP-high		− .01	− .01		.06	.05
F	81.79***	223.80***	142.90***	66.71***	105.00***	70.57***
df	4, 2141	6, 2139	10, 2135	4, 2141	6, 2139	10, 2135
Adjusted R^2	.13	.39	.40	.11	.23	.25

$N = 2146$. Beta coefficients significant at the $p < .001$ level appear in bold

CAAS Career Adapt-Abilities Scale, *IG* information gathering, *LC* locus of control, *PR* procrastination, *SP* speed of making the final decision, *DO* dependence on others; DP = desire to please others, *CDA* career decision-making adaptability (the dimensions of PR, DO, and DP are entered reversed)

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

of decisional difficulty and distress ($\beta = -.30$), indicating that endorsing self-governance and decisiveness is associated with perceiving less difficulty and distress in career decisions.

Second, we entered the six CDA dimensions as predictors, with decisional difficulty and distress as the criterion. Three CDA dimensions emerged as significant predictors, accounting together for 39% of the variance. Specifically, as expected, *procrastination* ($\beta = .36$) emerged as the strongest predictor, indicating that avoiding engagement with career decision-making is associated with greater decisional difficulty and distress. In addition, *speed of making the final decision* ($\beta = -.30$) was also a significant predictor, indicating that more hesitation before making a final decision may be associated with greater decisional difficulty and distress. *Information gathering* also emerged as a significant predictor of decisional difficulty and distress ($\beta = -.06$).

Finally, we entered all four CAAS and all six CDA dimensions as predictors, with decisional difficulty and distress as the criterion. Partially in line with our expectations, the CAAS *control* ($\beta = -.10$) and the CDA *procrastination* ($\beta = -36$) and *speed of making the final decision* ($\beta = -.28$) remained significant predictors of decisional difficulty and distress, accounting for 39% of the variance.

Career decision status

The right side of Table 2 presents the statistics of the regression analyses for the prediction of career decision status. First, we included the four CAAS dimensions. Three dimensions emerged as significant predictors, accounting for 11% of its variance. As predicted, *concern* emerged as the strongest predictor of career decision status ($\beta = .24$), indicating that being aware and planning a vocational future is associated with being more decided. Furthermore, *control* ($\beta = .19$) and *curiosity* ($\beta = -.17$) also emerged as significant predictors of career decision status. Second, we entered the six CDA dimensions as predictors and career decision status as the criterion. As hypothesized, *procrastination* ($\beta = -.44$) emerged as a significant predictor, indicating that deferring engagement with career decision-making is associated with being less decided. Contrary to our prediction, *speed of making the final decision* did not emerge as a significant predictor of career decision status. In total, the CDA dimensions accounted for 23% of the variance. Finally, we included the four CAAS and six CDA dimensions as predictors of career decision status. The CAAS dimension of *concern* ($\beta = .13$) and the CDA dimensions of *procrastination* ($\beta = -.38$) emerged as significant predictors of career decision status, accounting for 25% of its variance.

Discussion

The present study investigated the conceptual similarity and empirical overlap of two adaptability frameworks that are relevant to the vocational context and their respective measures: the Career Adapt-Abilities Scale (CAAS)—a measure based on a developmental approach to vocational behavior (Savickas, 1997, 2021)—and the Career Decision-Making Adaptability (CDA) indicator, which is derived from the Career Decision-Making Profiles (CDMP)—a measure applying a decision-making approach to vocational choice (Gati & Levin, 2012; Gati et al., 2010; Kulcsár et al., 2020). In addition, we examined the relative contributions of the CAAS and CDA to the prediction of two adaptation results: (1) perceived career decisional difficulty and distress, and (2) career decision status.

The associations between CAAS and CDA

We examined the empirical overlap between CAAS and CDA by testing the associations among their global scores as well as their dimensions. At the global level, the two total scores exhibited only a medium association. One explanation for this finding is that while both measures tap dimensions related to adaptability, the CAAS dimensions assess self-regulatory resources, whereas the CDA dimensions assess actual behavioral tendencies (i.e., *adapting responses* such as exploration behaviors). This explanation is consistent with the differentiation between CAAS as a measure of career adaptability and the CDA as measuring career decision strategies

and coping behaviors (e.g., Kulcsár et al., 2020). An alternative explanation for this finding is that CAAS constitutes a general measure of career adaptability, whereas CDA comprises a context-specific measure of career decision-making adaptability. A third explanation is that the overlap in the underlying dimensions of adaptability measured by each construct is only partial. To further analyze the similarity between CAAS and CDA, we examined the associations among their dimensions.

The observed correlations between the CAAS *concern* and *curiosity* with the CDA *procrastination* and *information gathering* dimensions were in line with their conceptual definitions. Our findings showed that *concern* involves being engaged in career planning (i.e., displaying a lack of *procrastination*). Whereas Savickas (2013) termed lack of *concern* as indifference, we noted no previous study that directly examined the relationship between *concern* and *procrastination*. Our findings also showed that greater *concern* leads to increased *information gathering*, thus aligning with previous studies (Li et al., 2015; Nota et al., 2012). However, this association appears inconsistent with the theoretical definitions of these two dimensions. We suggest that this association may derive from the co-occurrence of *concern* and *information gathering* rather than their measuring the same underlying construct. In the present study, we also found that *curiosity*, which indicates the degree of openness to explore oneself and the environment, was associated, as expected, with *information gathering*, in line with previous work (Ebner et al., 2018; Li et al., 2015; Nota et al., 2012). For the remaining two CAAS dimensions—*control* and *confidence*—we could not make specific predictions regarding their associations with the CDA dimensions.

The CAAS dimension of *control*—the degree of self-reliance and discipline—was moderately correlated with *dependence on others*. In fact, among the CAAS dimensions, *control* manifested the strongest associations with this dimension. This finding is inconsistent with the theoretical formulation of *control* as, according to Savickas (2021), it is not the converse of dependence but rather of confusion. Furthermore, in the present study, *control* was also strongly associated with the CDA dimensions of *procrastination* and *speed of making the final decision*. These findings are consistent with the formulation of *control* as relating to delaying behaviors such as procrastination and hesitancy (Savickas, 2021).

Moreover, it could be argued that if *control* taps the degree to which individuals rely on themselves rather than on external influences, this dimension can be expected to strongly correlate with the CDA dimension of *locus of control*. However, this association was not empirically supported in the present study. This low association between *control* and *locus of control* may be partially due to *locus of control's* item content, which highlights the reliance on luck or fate rather than self-reliance in career decision-making (e.g., "Factors outside of my control [like fate] will greatly influence my career choice and its outcomes"). However, previous studies have also reported low correlations between *control* and other locus of control measures (Öncel, 2014; Pouyaud et al., 2012).

Finally, the CAAS dimension of *confidence*, which refers to a belief in one's ability to pursue goals and overcome obstacles, yielded the strongest correlation with *information gathering*. In contrast with previous findings (Nota et al., 2012), *concern* did not strongly correlate with the CDA dimensions of *procrastination*, *speed*

of making the final decision, or *dependence on others*. These findings support our claim that *confidence* has no direct CDA parallel but rather is associated with *information gathering* strategies.

Adaptability and career decision-making adaptation outcomes

The CAAS *control* and *concern* dimensions emerged as significant predictors of career decisional difficulty and distress, and career decision status, respectively. The remaining CAAS dimensions of *curiosity* and *confidence* contributed only negligibly to the prediction of these two outcomes. Specifically, among the CAAS dimensions, *control*—a sense of responsibility and self-reliance—emerged as the strongest predictor of decisional difficulty and distress, a negative affective indicator of indecision (Lipshits-Braziler et al., 2016). This finding is consistent with the robust finding that *control* was identified as the strongest predictor of negative affect and job stress (Rudolph et al., 2017a, b). Thus, the CAAS *control* dimension seems to be related to the affective components of career decision-making to a greater extent than any other CAAS dimensions. In contrast, among the CAAS dimensions, *concern*—being engaged in planning and decision-making—emerged as the strongest predictor of career decision status. These results are consistent with previous reports of *concern* being the strongest predictor of career identity (Rudolph et al., 2017a, b), a related construct to career decision status.

However, the contributions of *control* and *concern* to the predictions of career decisional difficulty and distress as well as career decision status, were partially suppressed by the CDA *procrastination* and *speed of making the final decision*. These findings were expected, given that the CDA and these two outcomes are contextualized within the decision-making framework more so than the CAAS. They are also consistent with the notion that the CDA appears to assess *adapting responses* rather than *adaptability*.

Procrastination and *concern* remained strong predictors of career decision status. Gadassi et al. (2013) found that in addition to *procrastination*, both *speed of making the final decision* and *information gathering* emerged as the strongest predictors of career decision status. Career decision status, which reflects a state of career indecision, was operationalized as respondents' position on a continuum of alternatives regarding how close they are to a career decision. Previous studies have consistently shown that career indecision, measured in terms of its underlying causes, is highly associated with both *procrastination* as well as all the other five CDA dimensions (e.g., Gadassi et al., 2013; Peretz & Gati, 2017; Willner et al., 2015). Indeed, Willner et al. (2015) found that *procrastination* offered an incremental contribution to predicting career indecision beyond the CDA indicator, thus further highlighting the important role *procrastination* plays in predicting career indecision.

Limitations and future research

This study bears several limitations that should be addressed in future studies. First, given the nature of our sample, the validity of our results may be limited to the US

population. Future studies should seek to further investigate the associations of CAAS and CDA among other nationalities. Second, our participants were all actual users of a career self-help website. They completed the investigated career assessments on their initiative to receive immediate personalized feedback. Thus, whereas our sample represents actual seekers of career information, it may have been subject to a bias by not reliably representing individuals who are less motivated or proactive in the career decision-making process. Future studies should seek to investigate facets of adaptive behavior among individuals in other stages of the career decision-making process (e.g., prior to initial engagement in the process or after completing it) as well as among those seeking other means of help (e.g., personal or group counseling). Third, two adaptation outcomes—perceived career decision difficulty and distress and career decision status—are both contextualized in and directly tied to the career decision-making process. Future studies should examine the extent to which the CAAS and the CDA could predict other outcomes related to other indicators of vocational behavior (e.g., career satisfaction, work engagement, career success). Finally, though both predictors and outcomes were administered during a single session on the website utilized in the present study, participants responded to the two outcome measures before responding to the two predictor questionnaires. Future studies could nonetheless adopt a longitudinal design to examine cross-lagged effects of potentially mutual influences between CAAS and CDA, on the one hand, and adaptation outcomes, on the other.

Research implications

The results of the present study generally support the notion that *career adaptability,* as measured by CAAS, and *career decision-making adaptability,* as measured by the CDA, are only moderately similar. Both frameworks measure constructs related to exploration activities (i.e., *curiosity* and *information gathering*) and degree of engagement in career planning and decision-making (i.e., *control* and *procrastination*). However, it seems that the two frameworks also highlight divergent constructs relating to adaptability. On the one hand, the CAAS measures individuals' degree of *confidence* and self-efficacy, which the CDA does not tap; however, the CDA directly measures external sources of adaptability, such as social support, which may lead to excessive *dependence on others* and *desire to please others*. Thus, these findings shed light on how and to what extent these two frameworks are empirically similar. Indeed, the dimensions underlying these frameworks were critical in explaining the variance in the adaptation results included in the present study.

Moreover, *career decision-making adaptability* has not been previously incorporated within adaptability theories, such as the career construction theory. Based on its original conceptualization as referring to strategies and behaviors, it appears reasonable to view career decision-making adaptability as representing *adapting responses*. Indeed, exploration (i.e., *information gathering*) and *procrastination* are viewed in career adaptability research as *adapting responses*. The results of the present study, which indicated a stronger link between career decision-making

adaptability and the two adaptation results than with career adaptability, further supports the notion that its dimensions should be regarded in this way.

Furthermore, the CDA *procrastination* dimension emerged in the present study as the most significant predictor of perceived career decisional difficulty and distress as well as career decision status. Some scholars in the field of vocational behavior have conceptualized procrastination as a strong predisposition of being incapable of making decisions on time (e.g., Ferrari et al., 2018; McGarity-Palmer et al., 2019). McGarity-Palmer et al. (2019), for example, defined procrastination as a maladaptive deferment of decision-making. Steel (2007) suggested distinguishing between procrastination expressed at the beginning of an activity and procrastination manifested in the final execution stages of a course of action, a distinction reflected in the disparity between the CDA dimensions of *procrastination* and *speed of making the final decision*, respectively. Indeed, *procrastination* and *speed of making the final decision* were found to be highly correlated in the present study as well as in previous research (e.g., Tian et al., 2014). Both dimensions were also shown to be more highly correlated with measures of career indecision (Willner et al., 2015) and career indecisiveness (Gadassi et al., 2012) than with other CDA dimensions. The differences between procrastination and indecision remain to be further clarified in future research.

Practical implications

Specific facets of adaptability—the CAAS *concern* and *control* dimensions as well as the CDA *procrastination* and *speed of making the final decision* dimensions—have been shown to be the strongest predictors of perceived career decisional difficulty and distress as well as career decision status. These findings offer several career counseling implications. First, some clients may express a negative emotional state and a low willingness to engage in the process, preferring to receive recommendations from the counselor passively. Career counselors may stimulate their clients by applying behavioral activation. As in shaping any new behavior, career counselors can encourage clients to take small, easily achievable actions, thereby helping to diminish their distress. Such an approach has been increasingly adopted by cognitive behavioral therapy practitioners (see Huguet et al., 2016).

Second, career counselors could foster reflection about the future and counteract procrastination by deploying career interventions that focus on future time orientation. Highlighting the long-term implications of career decision-making may shift clients' focus from the short-term benefits of deferring the career decision-making process to the longer-term benefits of reaching a satisfying career decision despite the efforts needed to accomplish this. Marko and Savickas (1998) found that an intervention focused on future time orientation improved participants' career planning attitudes.

Finally, career counselors should seek to directly address both their clients' level of career indecision as well as their inclination to procrastinate. Specifically, career counselors could discuss with their clients the ways in which procrastination has proven effective or ineffective for them in the past. Practitioners can also benefit

from better assessing the nature and extent of the procrastination their clients may be presenting, such as how long they have been troubled by career decision-making, the affective quality underlying their approach, and the extent to which they are aware of their indecision. As McGarity et al. (2019) found, procrastination may be associated with self-critical thoughts, and thus, counselors should take precautions not to reinforce these negative thoughts when discussing their client's procrastination behaviors.

Appendix A: Means and SDs of the CAAS and CDA dimensions by gender

		Men		Women			
	Scale	*M*	*SD*	*M*	*SD*	*t* (2,144)	Cohen's *d*
CAAS	Concern	3.53	.76	3.79	.70	7.15***	.36
	Control	3.70	.68	3.74	.67	.98	.05
	Curiosity	3.66	.72	3.64	.69	− .49	.02
	Confidence	3.69	.73	3.83	.67	3.83***	.19
	Total Score	3.65	.62	3.75	.58	3.41***	.17
CDA	IG-much	5.06	1.21	5.43	1.19	6.18***	.31
	LC-internal	5.17	1.28	5.37	1.20	3.24**	.16
	PR-high	3.55	1.59	3.09	1.64	− 5.55***	.28
	SP-fast	4.14	1.56	4.16	1.67	.16	.01
	DO-high	2.74	1.22	2.85	1.35	1.76	.08
	DP-high	3.17	1.39	2.94	1.39	− 3.37***	.17
	CDA	4.82	.91	5.01	.93	4.15***	.21

$N = 2146$

IG information gathering, *LC* locus of control, *PR* procrastination, *SP* speed of making the final decision, *DO* dependence on others, *DP* desire to please others, *CDA* career decision-making adaptability (the dimensions of PR, DO, and DP are entered reversed)

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

Appendix B: Intercorrelations among the CAAS and CDA Scores for Men (*n* = 527; above the diagonal) and for Women (*n* = 1619; below the diagonal)

	1	2	3	4	5	6	7	8	9	10	11	12
1. Concern		**.57**	**.67**	**.58**	**.83**	**.34**	.09	**− .39**	.19	− .23	− .02	**.32**
2. Control	**.59**		**.63**	**.72**	**.85**	.18	.11	**− .38**	**.34**	− .29	− .12	**.37**
3. Curiosity	**.58**	**.66**		**.69**	**.87**	**.32**	.01	− .26	.15	− .18	− .09	.26

	1	2	3	4	5	6	7	8	9	10	11	12
4. Confidence	**.59**	**.69**	**.66**		**.87**	.24	.06	**– .30**	.23	– .17	– .03	.27
5. CAAS	**.82**	**.86**	**.86**	**.86**		**.32**	.07	**– .39**	.26	– .26	– .07	**.35**
6. IG	**.36**	.28	**.37**	**.33**	**.39**		.27	– .29	.12	– .26	– .16	**.50**
7. LC	.08	.13	.03	.10	.10	.25		**– .34**	**.30**	**– .37**	– .26	**.63**
8. PR	**– .33**	**– .34**	– .17	– .27	**– .33**	**– .32**	– .24		**– .67**	**.44**	.16	**– .77**
9. SP	.12	**.31**	.08	.23	.21	.10	.19	**– .64**		**– .41**	– .19	**.72**
10. DO	– .16	**– .34**	– .18	– .21	– .26	– .25	**– .33**	**.44**	**– .44**		**.51**	**– .74**
11. DP	– .04	– .20	– .10	– .08	– .12	– .17	– .26	.23	– .24	**.54**		**– .57**
12. CDA	.28	**.41**	.23	**.31**	**.36**	**.49**	**.54**	**– .77**	**.72**	**– .76**	**– .61**	

Correlations above |.14| and |.06| are significant at the $p < .01$ level, for men and women, respectively. Correlations above |.30| appear in bold

CAAS Career Adapt-Abilities Scale, *IG* information gathering, *LC* locus of control, *PR* procrastination, *SP* speed of making the final decision, *DO* dependence on others, *DP* desire to please others, *CDA* career decision-making adaptability (the dimensions of PR, DO, and DP are entered reversed)

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