

The criterion validity of career adapt-abilities scale with cooperation among Chinese workers

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Abstract

Purpose – This work contributes to the literature on career adaptability by examining the criterion validity of the Cooperation dimension, supporting the inclusion of cooperation into the career adaptability construct and informing the nomological network of career adaptability (Nye *et al.*, 2018; Savickas and Porfeli, 2012). The authors also evaluate the improvements in cross-cultural generalizability argued for by Nye *et al.* (2018) by conducting a criterion validity study of the CAAS including cooperation using a non-Western sample.

Design/methodology/approach – Survey responses from a Chinese adult working sample ($N = 208$, 53.4% male) were analyzed via relative weights analysis, facilitating the comparison of the Cooperation dimension to other career adaptability dimensions and general adaptability.

Findings – Results demonstrate the added value of the Cooperation dimension across several work outcomes (i.e. work engagement, career commitment, occupational well-being, occupational stress) and highlight Cooperation in predicting interpersonal outcomes (i.e. supervisor and coworker satisfaction).

Originality/value – The inclusion of Cooperation, a dimension originally conceptualized as a career adaptability factor but only recently subjected to additional psychometric evaluation, within the career adaptability paradigm should promote both predictive validity and cross-cultural generalizability.

Keywords Career adaptability, Career adapt-abilities scale, Cooperation, Criterion validity

Paper type Research paper

The criterion validity of cooperation and the CAAS among working adults in China

Recent investigation of the Career Adapt-Abilities Scale (CAAS; Savickas and Porfeli, 2012) has demonstrated the omission of an interpersonal factor reflecting one's adaptability while working alongside others (Nye *et al.*, 2018). This dimension (labeled "Cooperation," or one's effectiveness in working with others) was included in the original development of the CAAS and was ultimately omitted, but recent work has challenged this omission given evidence in support of the factor's inclusion (Nye *et al.*, 2018). Given the state of the literature, the present study makes several contributions. Our work contributes to the literature on career adaptability by examining the criterion validity of the Cooperation dimension, supporting the inclusion of cooperation into the career adaptability construct and informing the nomological network of career adaptability (Nye *et al.*, 2018; Savickas and Porfeli, 2012). We also evaluate the improvements in cross-cultural generalizability argued for by Nye *et al.* (2018) by conducting a criterion validity study of the CAAS including cooperation using a non-Western



sample, specifically, a Chinese working sample. Accordingly, the purpose of this research is to balance the cross-cultural representation in the career adaptability literature, correcting for an overly Western focus (Yao *et al.*, 2020), while further advancing the theoretical five-factor conceptualization of career adaptability in a time when the construct has received increased popularity and empirical attention (Johnston, 2018).

Review of career adaptability

Career adaptability has been conceptualized as an individual's readiness and resources to cope with current and imminent vocationally relevant developmental tasks, transitions and traumas (Savickas and Porfeli, 2012). Regarding the construct's predictive value, career adaptability has been found to predict general and professional well-being (Maggiore *et al.*, 2013), learning goal orientation, proactive personality and career optimism (Tolentino *et al.*, 2014). However, acknowledging that most prior work has used Western samples (e.g. Swiss and Australian samples in the respective referenced works; for a consolidated review, see Johnston, 2018), the risk of an overly Western understanding of career adaptability's criterion validity is possible; indeed Sullivan and Baruch (2009) specifically put forth research on non-Western countries as a need for career-relevant research, and the present study accordingly seeks to address this call.

The CAAS was introduced with four subdimensions of concern, control, curiosity and confidence (Savickas and Porfeli, 2012). This model of career adaptability and associated measure has played a key role in organizing and propelling career adaptability research, as evidenced by the rapid rise of this domain in the past decade (Rudolph *et al.*, 2017). Regarding the four dimensions, concern refers to ability to plan for an occupational future. Control represents self-discipline and motivation to shape oneself and one's environment to reach career aspirations. Curiosity reflects resources for seeking relevant information and exploring the environment to make informed vocational decisions. Confidence refers to one's belief in his or her ability to achieve one's career goals. What has not been widely known is that the measure was originally conceptualized as including a fifth dimension, known as Cooperation (Nye *et al.*, 2018; Einarsdóttir *et al.*, 2015). The Cooperation dimension represents the interpersonal aspects of career adaptability, such as one's ability to compromise with and work successfully alongside others (Nye *et al.*, 2018). This dimension was initially omitted by Savickas and Porfeli (2012) due to a lack of empirical support (Einarsdóttir *et al.*, 2015). Specifically, Einarsdóttir *et al.* (2015) note that configural and metric invariance could only be demonstrated for the CAAS across the various international samples studied by Savickas and Porfeli (2012) when cooperation was not included. However, recent evidence challenges these past findings.

Nye *et al.* (2018) provided empirical support for the inclusion of a Cooperation factor in a structural validity study including American, Chinese and Taiwanese respondents and argued for a fifth dimension of career adaptability. These researchers argue that the Cooperation factor could remedy the individualistic bias of contemporary conceptualizations of career adaptability and account for the increasing importance of work teams (Mathieu *et al.*, 2017). This is aligned with past arguments suggesting that cooperation is a dimension of career adaptability and may be more apparent in collectivistic cultural contexts (Einarsdóttir *et al.*, 2015). Important efforts were made by Savickas and Porfeli (2012) to internationalize the development of the CAAS, in terms of both assembling a diverse team of researchers from 18 countries to undertake the project and collecting data from a variety of countries. However, we argue that conceptual and empirical evidence suggests that representation of collectivistic cultural values may still have been insufficient in the development of the CAAS (Einarsdóttir *et al.*, 2015; Nye *et al.*, 2018). Furthermore, given the measure was developed by an international team of researchers, thus the decisions made by Savickas and Porfeli (2012)

should not be the final word on the development of the CAAS (for further description of the project, see [Leong and Walsh, 2012](#)). Therefore, the goal of this study was to examine the criterion validity of career adaptability when cooperation is included.

Though it is also important to note that criterion validity studies have been conducted using samples with collectivistic value orientations, these studies examine the four career adaptability dimensions of the CAAS ([Savickas and Porfeli, 2012](#)). For instance, multiple studies have used Chinese employee samples to demonstrate that career adaptability predicts salary, career satisfaction and both citizenship behaviors and fatigue ([Chan and Mai, 2015](#); [Liu and Yu, 2019](#)). Additionally, [Woo \(2018\)](#) found that career adaptability helped explain intrapreneurship (i.e. entrepreneurial behavior in an existing organization) in a Korean sample. These studies adopt a predominantly Western view of career adaptability by utilizing the four-dimensional CAAS ([Savickas and Porfeli, 2012](#)). Thus, current understanding of the criterion validity of career adaptability in this work is underdeveloped by omitting cooperation, which would be expected to play a prominent role in collectivistic cultures ([Einarsdóttir et al., 2015](#); [Nye et al., 2018](#)).

Cooperation as an interpersonal dimension of career adaptability

Three arguments support the expectation that the inclusion of cooperation into measures of career adaptability is useful, especially among collectivistic cultures. First, conceptualizations of general adaptability have included an interpersonal factor, and consequently one might expect similarity in structure when considering career adaptability. Specifically, this structure consists of specific dimensions of adaptability, the focus of the present work being an interpersonal dimension, subsumed under a general adaptability higher-order dimension ([Nye et al., 2018](#); [Ployhart and Bliese, 2006](#); [Savickas and Porfeli, 2012](#)). General adaptability has been defined as an individual's ability, skill disposition, willingness and/or motivation to alter oneself to accommodate varying environmental features ([Ployhart and Bliese, 2006](#)). With respect to the interpersonal aspect of the construct, [Pulakos et al. \(2000\)](#) highlighted "interpersonal adaptability" as a key dimension in their taxonomy of adaptive job performance. Further, Individual Adaptability theory (I-ADAPT) supports the inclusion of an interpersonally oriented factor, as interpersonal adaptability was included as a lower-order dimension subsumed within a higher-order adaptability factor ([Ployhart and Bliese, 2006](#)). Greater appreciation of the interpersonal nature of psychological constructs is not unique to adaptability. Theoretically, cooperation is also an important component of Organizational Citizenship Behaviors (OCB), which includes helping and supporting others at work beyond the prescribed work tasks within one's role. OCB has become an increasingly important aspect of organizational functioning and effectiveness ([Organ, 2018](#)). Moreover, major theories of personality consist of an interpersonal dimension (e.g. Agreeableness in the Five-Factor Model; [McCrae and Costa, 1997](#)). Accordingly, the inclusion of cooperation within the career adaptability construct would mirror the conceptual representation of interpersonal adaptability within general adaptability.

A second argument in support of including cooperation as a component of career adaptability concerns cross-cultural generalizability. Acknowledging that the original cross-cultural validation of the CAAS featured several highly Westernized countries, it is possible then that constructs relevant to Eastern cultures garnered less focus. Indeed, [Yao et al. \(2020\)](#) noted in their recent review the overall Western focus in career-relevant research. Noting [Hofstede's \(1980\)](#) differentiation between individualistic and collectivistic cultures, [Nye et al. \(2018\)](#) suggested the addition of the interpersonally oriented Cooperation factor could improve the external validity (i.e. the degree to which obtained results hold across individuals and settings, [Sackett and Larson, 1990](#); see [Landers and Behrend, 2015](#) for a review of the concept in organizational psychology) of the CAAS among collectivistic populations.

Such arguments have been similarly employed for both the Career Maturity Inventory and the Chinese Personality Assessment Inventory, as examples of measures researchers have attempted to correct for Western bias. For example, [Hardin et al. \(2001\)](#) suggested that the Career Maturity Inventory may display inherent Western bias, as the conceptualization of “interdependence in decision making” as career immature produced lower scores for Asian participants. Further, [Cheung and colleagues \(Cheung et al., 1996; Cheung et al., 2001\)](#) suggest that Western models of personality focus heavily on individualistic components at the expense of collectivistic dimensions, such as Interpersonal Relatedness in the Chinese Personality Assessment Inventory. Along this line, the inclusion of cooperation within career adaptability was argued to correct for neglect of an interpersonal focus in favor of an individual focus.

Finally, it has been argued that an individual’s ability to successfully interact with others has become increasingly relevant, given present trends of global competition, consolidation and team-based structures at work ([Kozłowski and Bell, 2013; Mathieu et al., 2017](#)). The increased attention toward complex workflow systems comprised of individuals working in coordination suggests that the structure of work now requires greater interpersonal contact ([Kozłowski and Ilgen, 2006; Salas et al., 2018](#)). Accordingly, including cooperation could aid in addressing the needs of the changing workplace, as an employee’s ability to effectively cooperate with others and participate in teams becomes more and more crucial ([Espinosa et al., 2007; Kozłowski and Bell, 2013; Marlow et al., 2018](#)).

[Nye et al. \(2018\)](#) examined the psychometric properties of the five-factor CAAS as the first effort to present validity information for the fifth Cooperation dimension. To ensure cross-cultural representation in analyses, responses from American, Chinese and Taiwanese samples were examined. These researchers presented confirmatory factor analytic results supporting cooperation’s inclusion within the career adaptability construct and demonstrated that this model generalized well across the samples in their study. However, that research was limited to the examination of the internal structure of the CAAS, confirming the Cooperation dimension as one of five dimensions subsumed under a higher-order career adaptability dimension. Additional work is needed to examine the external validity of the five-factor measure. Accordingly, the present research attempts to address this gap by examining how the CAAS, including cooperation, relates to theoretically associated constructs.

Hypotheses

We examined the relationships between the CAAS and several outcomes. These outcomes can be broadly categorized as: (1) affective outcomes, such as work engagement and career commitment; (2) health outcomes, such as occupational well-being and occupational stress; and (3) interpersonal satisfaction outcomes, such as satisfaction with supervisors and coworkers. Examples of outcomes within these categories have been explored in past work and represent the breadth of career adaptability’s nomological network that may be impacted by interpersonal interactions ([Rudolph et al., 2017](#)). However, past work has not featured the Cooperation dimension or tested the criterion validity of career adaptability via the particularly rigorous methodology presented here. Specifically, we test the incremental validity of career adaptability over general adaptability using relative weights analysis (described further, see [Johnson, 2000](#)).

Beyond solely reporting these associations, we sought to examine the CAAS’s incremental predictive power over and above general adaptability. While previous research has indeed examined the outcomes of career adaptability (see [Johnston, 2018](#)), few studies have tested the distinct predictive power of the general and domain-specific adaptability constructs. It is worthwhile to demonstrate that career adaptability is a domain-specific and differentiated

aspect of adaptability. This approach aligns with work clarifying the benefits of specificity matching with respect to predictor variables (e.g. career adaptability) and criterion variables (e.g. occupational stress and occupational well-being; Hogan and Roberts, 1996). Therefore, we aimed to improve the conceptualization of career adaptability through the addition of cooperation in predicting meaningful work and life outcomes. We further aimed to demonstrate that the inclusion of cooperation can increase career adaptability's incremental validity over general conceptualizations of adaptability in the prediction of our examined outcomes. In sum, the career-specific outcomes under investigation here highlight the breadth of outcomes potentially predicted by cooperation and the importance of assessing cooperative behavior specific to one's career.

Affective career outcomes. To investigate the positive experience of work, we examined the affective career outcomes of work engagement and career commitment. Work engagement refers to experiences of energy and connection to work activities (Schaufeli *et al.*, 2002). Rudolph *et al.* (2017) meta-analyzed studies relating career adaptability to work engagement, showing that the dimensions of concern, control and confidence predicted engagement, whereas curiosity did not. Demonstrating the importance of the cross-cultural examination of career adaptability, Yang *et al.* (2019) showed among Chinese employees that career adaptability predicted employee well-being and that this effect was mediated by work engagement. Further, they found that the cultural value of guanxi (i.e. the concept of drawing on one's connections to secure favors in personal and organizational relations, Park and Luo, 2001) moderated this effect, such that high levels of guanxi weakened the relationship between career adaptability and engagement. Yang *et al.* (2019) interpreted this finding as evidence that those with high levels of guanxi engage in their work due to those around them, not necessarily personal characteristics. As discussed earlier, we view current conceptualizations of career adaptability as biased toward individualistic cultural values. Thus, Yang *et al.*'s (2019) findings could also be interpreted as an empirical demonstration of a western bias, which could be addressed through the addition of the Cooperation dimension.

Career commitment refers to one's overall attitude toward and identification with their career (Mueller *et al.*, 1992, with "career" defined as a sequence of related work experiences and activities over one's life (Hall, 2002), and has been linked to career adaptability in past work (Blau, 1989; Rudolph *et al.*, 2017). We argue that commitment would likely be influenced by the interpersonal experience of work among individuals in collectivistic cultures (Hofstede 1980; Yang *et al.*, 2019). As such, we view career commitment as an important outcome that may demonstrate the importance of navigating the relational aspects of work, as captured by the Cooperation dimension of career adaptability.

- H1. Cooperation uniquely and positively predicts affective career outcomes of work (a) engagement and (b) career commitment, over and above the other dimensions of career adaptability, as well as a general measure of adaptability.

Health outcomes. Beyond doing well in work, we also examined the health outcomes of occupational stress and well-being as a product of career adaptability. Rudolph *et al.* (2017) demonstrated the relationship between career adaptability and both stress and well-being. Their meta-analysis provided primarily individualistic accounts of why those high in career adaptability may experience more favorable health outcomes. Specifically, they argued that the dimension of control may describe how individuals better manage their time and decisions, both in and out of work, resulting in avoiding negative work experiences that hamper health. This individualistic explanation of the relationship between career adaptability and health fails to capture the positive health benefits that may occur when one successfully navigates the interpersonal aspects of work. Further, failure to navigate relationships adequately may be especially detrimental among those in collectivistic cultures

(Hofstede, 1980). Thus, we propose that cooperation helps capture dealing well with others in the workplace and should be related to heightened well-being and less occupational stress.

H2. Cooperation uniquely predicts health outcomes, (a) negatively for occupational stress and (b) positively for well-being, over and above the other dimensions of career adaptability as well as a general measure of adaptability.

Interpersonal satisfaction. To specifically probe how career adaptability relates to success in interpersonal areas of work, we focused on satisfaction with supervisors and coworkers. Career adaptability relates to broad measures of satisfaction, such as work, school and career (Rudolph *et al.*, 2017). Therefore, we view interpersonal aspects of satisfaction as outcomes that match the specificity of cooperation and would illustrate the value of this interpersonal aspect of career adaptability (Hogan and Roberts, 1996; Nye *et al.*, 2018). Further, in efforts to broaden career adaptability research cross-culturally, we view these work outcomes as relevant indicators of success among individuals in collectivistic cultures who may be more likely to find satisfaction from the relational aspects of work (Hofstede, 1980; Triandis, 2001).

H3. Cooperation will uniquely and positively predict satisfaction with (a) supervisors and (b) coworkers over and above the other dimensions of career adaptability as well as a general measure of adaptability.

The hypotheses posed in the present study are evaluated by analyzing survey responses from a sample of working adults in China.

Method

Participants

A total of 208 Chinese workers participated in our study ($M_{\text{age}} = 32.80$ years, $SD_{\text{age}} = 6.43$, 53.4% Male). Participants were employed in a variety of ways, including professional skilled workers (47.6%), clerical roles (26.0%), service industry roles (11.1%) government positions (9.6%) and other miscellaneous roles (5.7%). Participants varied in terms of educational attainment, included holding an undergraduate degree (77.4%), having some college experience (12.0%), holding a graduate degree (9.1%) or at most achieving a high school diploma (1.4%). A survey website commonly used by Chinese researchers (<https://www.wjx.cn>) and functionally comparable to Amazon Mechanical Turk was used to recruit participants. The platform implemented data quality controls automatically, including unreasonably quick survey completion or failed attention checks resulting in participant exclusion from the final sample. A total of 300 participants were requested from the site, with 208 meeting all data quality checks (69.33% of participants retained for analysis). The cost of acquiring this sample was roughly \$3.35 per participant. However, participants were compensated via entry into a lottery operated by the survey platform in exchange for their study involvement. Regarding this use of an online panel, Landers and Behrend (2015) have noted the importance of such platforms in accessing populations beyond the WEIRD (i.e. Western, Education, Industrialized, Rich and Democratic; Henrich *et al.*, 2010) samples presently overrepresented in the literature, as well as acknowledging the platform's ability to garner a more representative sample of a given country than would be obtained from a single organization.

Measures

Predictors used in the present study include each dimension of career adaptability and the construct of general adaptability. All other measures were used as outcomes. We also followed the recommendations by Podsakoff *et al.* (2003) to reduce common method variance,

including maintaining participant anonymity and varying response anchors across scales. Reliability estimates for all measures can be found in Table 1. In addition, validity and reliability evidence for these measures among Chinese participants is provided where possible, given that most measures used here were developed using Western samples.

Career adaptability. The CAAS including the Cooperation dimension was used to measure career adaptability (Savickas and Porfeli, 2012). The dimensions of career adaptability include concern (efforts to plan career experiences), control (resources for shaping a career), curiosity (exploration of new career experiences), confidence (self-assurance in meeting career demands) and cooperation (working well with others). Participants rated their own ability in completing actions such as “sticking up for my beliefs (Control dimension)” or “acting friendly (Cooperation dimension)” using a five-point Likert type scale (1 = “Not Strong” to 5 = “Strongest”). Each of the original four dimensions was assessed using six-item scales identified by Savickas and Porfeli (2012). Alternatively, cooperation was assessed using the original 11 items developed by Savickas and Porfeli (2012) but ultimately not used in the final CAAS measure (Nye et al., 2018). Nye et al. (2018) provide construct validity evidence for career adaptability being composed of five dimensions, including cooperation, in their observation of configural equivalence of this model across American, Taiwanese and Chinese respondents. Using samples of Chinese respondents, Hou et al. (2012) and Guan et al. (2015) both found that the four-factor version of the CAAS exhibited good model fit via confirmatory factor analysis, further supporting the construct validity of this measure. The observed reliability for the dimensions of career adaptability was all high, ranging from $\alpha = 0.83$ to 0.87.

General adaptability. General adaptability was measured using Ployhart and Bliese’s (2006) I-ADAPT scale. This measure is comprised of 55 items assessing eight dimensions of adaptability: crisis, work stress, creativity, uncertainty, learning, interpersonal, cultural and physical. Participants indicated the extent of their agreement on a five-point Likert-type scale (1 = “Strongly Disagree” to 5 = “Strongly Agree”). Example items included “I think clearly in times of urgency” (crisis dimension), “I utilize my muscular strength well” (physical dimension) and “I try to be flexible when dealing with others” (interpersonal dimension). Recently, Hua et al. (2019) found that individual adaptability as measured by the I-ADAPT predicted cross-cultural adjustment among international students at an American university, 81% of whom were Chinese. Hua et al. (2019) also provide confirmatory factor analytic evidence demonstrating that the factor structure of I-ADAPT among these students was consistent with the theorizing of Ployhart and Bliese (2006). The I-ADAPT measure exhibited high reliability in our study ($\alpha = 0.95$).

Work engagement. Work engagement was measured using the 17-item Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). Items described the experience of one’s work such as “At my work, I feel bursting with energy,” where participants rated the frequency of on a seven-point Likert-type scale (1 = “Almost Never-A few times a year or less” to 7 = “Always-Every day”). Zeng et al. (2019) recently investigated engagement using the UWES among teachers in China, finding that growth mindset, well-being and perseverance of effort were predictors of engagement. These findings are consistent with work engagement theory (Schaufeli et al., 2002). Further, Zeng et al. (2019) observed that this scale exhibited high reliability ($\alpha = 0.96$). This measure of work engagement was also highly reliable in this study ($\alpha = 0.94$).

Career commitment. Career commitment was measured using Blau’s (1989) seven-item measure including items describing one’s work such as, “I like this vocation too well to give it up.” Participants rated the extent to which they agreed to these items on a five-point Likert-type scale (1 = “Strongly Disagree” to 5 = “Strongly Agree”). Huang et al. (2019) recently surveyed Chinese information technology professionals using this measure, observing high reliability for measure itself ($\alpha = 0.87$). Further, Huang et al. (2019) found that career

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Concern	3.52	0.79	(0.88)												
2. Control	3.88	0.66	0.67**	(0.83)											
3. Curiosity	3.56	0.74	0.80**	0.72**	(0.85)										
4. Confidence	3.76	0.73	0.75**	0.80**	0.78**	(0.87)									
5. Cooperation	3.60	0.64	0.68**	0.68**	0.73**	0.78**	(0.87)								
6. CAAS	3.65	0.62	0.87**	0.85**	0.90**	0.92**	0.90**	(0.96)							
7. I-ADAPT	3.67	0.41	0.67**	0.68**	0.67**	0.73**	0.68**	0.77**	(0.95)						
8. Work engagement	4.81	1.03	0.59**	0.56**	0.58**	0.59**	0.50**	0.63**	0.71**	(0.94)					
9. Career commitment	28.13	5.85	0.42**	0.47**	0.42**	0.49**	0.36**	0.48**	0.65**	0.73**	(0.87)				
10. Occupational well-being	112.53	19.34	0.40**	0.50**	0.42**	0.49**	0.40**	0.49**	0.72**	0.81**	0.76**	(0.96)			
11. Occupational stress	5.17	1.46	-0.15*	-0.20**	-0.16*	-0.19**	-0.13**	-0.18**	-0.25**	-0.41**	-0.40**	-0.49**	(0.95)		
12. Supervisor satisfaction	41.10	13.02	0.31**	0.42**	0.30**	0.39**	0.34**	0.39**	0.56**	0.63**	0.70**	0.75**	-0.45**	(0.95)	
13. Peer satisfaction	41.18	12.85	0.36**	0.45**	0.36**	0.45**	0.38**	0.44**	0.62**	0.58**	0.64**	0.68**	-0.39**	0.81**	(0.93)

Note(s): CAAS refers to the Career Adapt-Abilities Scale (Savickas and Porfeli, 2012) including the fifth dimension of cooperation. I-ADAPT refers to the Individual Adaptability scale (Ployhart and Bliese, 2006). * $p < 0.05$; ** $p < 0.01$. Scale reliabilities presented in parentheses along the diagonal

Table 1.
Descriptive statistics,
intercorrelations and
reliabilities of studied
variables

commitment moderated the relationship between person–job fit and the outcomes of job involvement and innovation behavior. [Blau's \(1989\)](#) measure of career commitment was also found to be highly reliable in this study ($\alpha = 0.87$).

Occupational well-being. Occupational well-being was measured using [Van Katwyk et al.'s \(2000\)](#) 30-item scale assessing occupational pleasure and displeasure. Participants rated job-related experiences they had in the past 30 days such as “My job made me feel at ease.” Frequency of these experiences was indicated on a five-point Likert-type scale (1 = “Never” to 5 = “Extremely often or always”). [Ha \(2018\)](#) recently used this measure among Chinese banking employees, finding that the positive and negative subscales exhibited good reliability ($\alpha = 0.82$ and 0.96 , respectively). Further, [Ha \(2018\)](#) found that emotional labor and cynicism were negatively related to overall occupational well-being. This measure demonstrated high reliability among the participants studied here as well ($\alpha = 0.96$).

Occupational stress. [Vagg and Spielberger's \(1998\)](#) 20-item measure of occupational stress was used to assess lack of organizational support and job pressure. Participants rated work activities such as “Assigned increased responsibility” in terms of experienced stress on a nine-point Likert-type scale (1 = “Least Stressful” to 9 = “Most Stressful”). This measure was highly reliable in the present study ($\alpha = 0.93$).

Supervisor and coworker satisfaction. Two subscales of the Job Descriptive Index (JDI; [Smith et al., 1969](#)) were selected due to their interpersonal emphasis: supervisor satisfaction and coworker satisfaction. Participants indicated whether adjectives and phrases described their supervisors or coworkers using “yes,” “no” or “unsure.” Supervisors were described using statements such as “supportive” and “hard to please,” whereas coworker descriptions included “stimulating” and “boring” among other descriptors. Prior meta-analytic work supports the five-dimensional model of satisfaction as measured by the JDI, as well as demonstrates that variety of workplace characteristics and experiences can impact satisfaction ([Kinicki et al., 2002](#)). Supervisor ($\alpha = 0.93$) and coworker ($\alpha = 0.93$) satisfaction scales both exhibited high reliability in this study.

Analytic strategy

We conducted relative weights analysis (RWA) to evaluate the relative importance of the CAAS dimensions and I-ADAPT (RWA; [Johnson, 2000](#)). This analysis estimates the percent of predicted variance in each outcome attributable to each predictor, also referred to as the rescaled relative weights. The benefit of this approach over common regression approaches is that RWA provides effect estimates that accurately reflect the predictive contributions among multicollinear predictors ([Johnson, 2000](#)), which would be expected among related measures of adaptability. Without taking steps to account for multicollinearity, regression weight estimates can be impacted by sample idiosyncrasies potentially leading to poorly generalizable estimates and suffer from inflated standard errors, hampering evaluation of statistical significance ([Aiken and West, 1991](#)). With RWA, multicollinearity is addressed through transforming observed predictors into a new set of variables that are orthogonal to each other while maintaining as high of a correlation as possible with the corresponding observed predictors ([Johnson, 2000](#); [Tonindandel and LeBreton, 2015](#)). In these analyses, the overall scale score for I-ADAPT is included as a predictor to distinguish career adaptability from general adaptability. Further, the original four dimensions of the CAAS are included as separate scale scores to facilitate the evaluation of cooperation's value against an appropriate referent (i.e. a dimension to dimension comparison). Readers should compare the rescaled relative weights of each predictor in conjunction with the overall predicted variance in each outcome to better evaluate the magnitude of the findings presented here. These analyses were conducted using the RWA-Web package in *R*, developed by [Tonindandel and LeBreton \(2015\)](#).

Results

Descriptive statistics, scale reliabilities and intercorrelations are provided in Table 1. Of note, the overall I-ADAPT and CAAS scores were highly correlated ($r = 0.77$). Thus, the I-ADAPT score was included as a general measure of adaptability to compare against the specific CAAS dimensions in terms of criterion validity. In addition to the results provided in Table 1, the following hypotheses were evaluated using the RWA results presented in Table 2.

The first hypothesis suggested that cooperation should uniquely predict the evaluative career outcomes of (1) work engagement and (2) career commitment. H1a was supported, as cooperation attributed 8.32% of the explained variance in work engagement ($R^2 = 0.54$). Additionally, cooperation contributed to 6.89% of the variance explained in career commitment ($R^2 = 0.44$), providing support for H1b. These results support the distinct role cooperation plays from the other dimensions of career adaptability and general adaptability in predicting the affective career outcomes studied here. Further, the large R^2 values of these models suggest that unique weight attributed to cooperation is a meaningful amount of variance in the outcome itself. This is also supported by the observed correlations, as all predictors correlated with work engagement above $r = 0.50$ and with career commitment above $r = 0.36$. Thus, Cooperation maintained a meaningful relationship with both affective outcomes despite predictors that held moderate to strong bivariate relationships with each outcome.

H2 posed that cooperation should predict health-related outcomes of (1) occupational well-being and (2) occupational stress, over and above the other dimensions of career adaptability, as well as a general measure of adaptability. H2a was supported as cooperation contributed to 7.27% of the explained variance in occupational well-being ($R^2 = 0.55$). Although over half of the variance in this outcome was explained by all of the predictors, the percentage of explained variance attributed to cooperation represented a meaningful amount of variance in the outcome itself. Similar to the affective outcomes, Cooperation was a useful predictor despite all included predictors holding a moderate to strong bivariate relationship with occupational well-being (r 's > 0.40). H2b was not supported, as cooperation was not found to be a significant predictor of occupational stress. These results suggest that the health benefits of cooperation are present, but perhaps limited in scope.

The third hypothesis suggested that cooperation should help predict satisfaction with the interpersonal aspects of work, specifically satisfaction with (1) supervisors and (2) coworkers. Of the predictors of supervisor satisfaction ($R^2 = 0.35$), cooperation was attributed 8.08% of

Variable and statistic	Occupational outcomes					
	Work engagement	Career commitment	Occupational well-being	Occupational stress	Supervisor satisfaction	Coworker satisfaction
Cooperation	8.32	6.89	7.27	6.96 _{n.s.}	8.08	8.11
Concern	15.35	9.22	7.09	7.31 _{n.s.}	6.81 _{n.s.}	7.18
Control	13.12	13.15	13.78	18.88 _{n.s.}	16.63	14.52
Curiosity	13.34	8.71	7.23	9.22 _{n.s.}	6.24 _{n.s.}	6.77
Confidence	12.99	13.61	11.19	14.36 _{n.s.}	11.11	12.92
I-ADAPT	36.88	48.43	53.44	43.28 _{n.s.}	51.13	50.50
R^2	0.54	0.44	0.55	0.07	0.35	0.41

Note(s): Values in this table are the rescaled relative weights and represent the percentage of predicted variance accounted for. Statistical significance of weights evaluated using bias-corrected confidence intervals described by Tonidandel *et al.* (2009). Though all rescaled relative weights have observed confidence intervals that do not include 0 (i.e. appear statistically significant), n.s. denotes weights that are not statistically significant when using incorporating bias correction

Table 2.
Rescaled results of the relative weights analysis for predicting occupational outcomes using CAAS dimension and I-ADAPT scale scores

the explained variance. Of note, the career adaptability dimensions of concern and curiosity did not help explain satisfaction with supervisors. Cooperation also helped with 8.11% of the explained variance in coworker satisfaction ($R^2 = 0.41$). Like prior outcomes, the overall amount of variance explained is substantial, suggesting that the proportion attributed to cooperation reflects a meaningful amount of variance in each satisfaction outcome. Again, the utility of Cooperation was demonstrated in the context of predictors that held moderate to strong relationships with Supervisor Satisfaction (r 's > 0.31) and Peer Satisfaction ($r > 0.36$). In sum, these results suggest that those who demonstrate cooperative aspects of career adaptability tend to be more satisfied with the interpersonal aspects of work and that cooperation adds to the criterion validity of career adaptability in a case where concern and curiosity fail to do so.

Discussion

Most existing research on career adaptability has used the original four-factor version of the CAAS (Savickas and Porfeli, 2012; see Johnston, 2018), which consists of Concern, Control, Curiosity and Confidence. What has been less reported is that the original international research team that formulated the CAAS had also conceptualized a Cooperation dimension (Nye *et al.*, 2018). While the Cooperation dimension did not fit with the data in the original model (Savickas and Porfeli, 2012), we argue that further study of the Cooperation dimension in the CAAS is warranted, as it represents a highly critical aspect of career adaptability (Nye *et al.*, 2018). Because the Cooperation dimension encompasses interpersonal and relational aspects of career adaptability, we suggest a five-factor model of the CAAS should be further evaluated for its validity and utility for use in career adaptability research.

Overall, our analyses in the current study indicate that an expanded view of career adaptability with a Cooperation factor can improve the prediction of important workplace outcomes above a general conceptualization of adaptability. Importantly, our findings were demonstrated using an Eastern sample among whom cooperation would be expected to be of increased utility. This is an important consideration given the Western populations who comprise samples of comparable studies. Further, cooperation was found to outperform two established dimensions of career adaptability (i.e. concern and curiosity) when predicting satisfaction with supervision. Although we found cooperation to be of broad utility, the relationship between cooperation and satisfaction with supervision demonstrates the value of including a Cooperation dimension of career adaptability, especially when career outcomes are interpersonal in nature. Accordingly, the present work contributes to the literature as a step toward greater cross-cultural consideration of career adaptability's predictive value.

However, it is worth acknowledging unexpected findings. For instance, while cooperation was found to uniquely predict several examined outcomes, the relative weight attributed to cooperation was generally low. From a methodological standpoint, because the Cooperation factor did not fit with the original CAAS scale data (Savickas and Porfeli, 2012), less effort has gone into selecting and refining items to assess cooperation. This places cooperation at a disadvantage relative to the other career adaptability dimensions. From a conceptual standpoint, it may also be the case that as a function of collectivistic cultural values (Hofstede, 1980; Triandis, 2001), there may be clear cultural norms that help guide interpersonal behavior in the workplace. As a result, it may be the case that although an individual's level of cooperation is important, it may be relatively less important than other adaptability dimensions when there may be weaker cultural norms to guide behavior. However, it is likely most prudent to address methodological limitations before making attributions about the cooperation construct.

Counter to expectations, cooperation was not the strongest predictor of interpersonal outcomes; instead, control emerged as the most important career adaptability dimension

for supervision and coworker satisfaction. Additionally, control was one of the strongest predictors among the career adaptability dimensions across all outcomes. Such findings are unexpected given the broader rationale of demonstrating the value of an interpersonal career adaptability dimension among workers with a collectivistic cultural orientation. Continuing with the possible role of cultural norms, the control dimension of career adaptability is particularly individualistic, describing the motivation to shape oneself and their environment to achieve goals (Hofstede, 1980; Savickas and Porfeli, 2012). If weaker cultural norms exist when one must act independently, then it may be the case that a high standing on the control dimension would be of relatively high utility. However, our results also align with the meta-analytic results of Rudolph *et al.* (2017) whereby the control dimension of career adaptability was the strongest predictor of job satisfaction, but not career or school satisfaction. This suggests some common mechanism between the current sample and those of past studies whereby control leads one to be satisfied with enacting their job role specifically, which could be related to feelings of competence or self-efficacy (e.g. Bandura, 1977). Finally, none of the examined constructs was found to predict occupational stress, which is surprising given this relationship has been demonstrated in the past (Maggiori *et al.*, 2013). This may be due to the sample we recruited and the broad array of occupations held by participants. The occupational stress survey assesses perceptions of stressful events on the job (Vagg and Speilberger, 1998), thus large variability in the base rate of stressful events across occupations may serve to obscure the relationship between individual characteristics and their perceptions of stress.

Theoretical implications

With the inclusion of the Cooperation dimension in the CAAS, future research could explore distinct effects of this important dimension of career adaptability as it relates to career interventions and beyond. As has been argued, the four dimensions of the original CAAS consist of mainly individualistic characteristics of career adaptability, whereas cooperation taps into relational aspects central to teamwork, superior-subordinate relations, organizational citizenship behaviors and cross-cultural differences such as individualism-collectivism. Theoretically, a measure of career adaptability without a cooperation or relationally oriented dimension would be incomplete, and future research can continue to demonstrate the unique value that this factor offers.

Practical implications

Our present results indicate that the CAAS, with the inclusion of cooperation, significantly predicts both work and life outcomes such as job satisfaction, work engagement and occupational well-being. Therefore, we suggest that the five-factor model of career adaptability can be of value in career interventions. Specifically, the unique role of each of the five dimensions of career adaptability can inform career counseling and career coaching, as clients with career adaptability problems can be evaluated at the dimension-level of specificity. If a client's score is particularly low on cooperation or confidence, for example, then interventions tailored to those specific factors should aid in effectively increasing career adaptability and may subsequently influence the client's standing on other relevant outcomes. Similarly, the CAAS could be used as a developmental tool to identify areas for personal development of employees.

Additionally, the incremental validity of career adaptability above and beyond general adaptability provides evidence of its domain specificity and construct validity, lending greater confidence to the use of the CAAS within career-relevant contexts. Such confidence would be lacking if the CAAS and the I-ADAPT had been highly correlated (as was observed here) and if the former did not provide additional variance above that of the latter measure in the prediction of work and life outcomes. Practically speaking, this suggests that adaptability should be thought of as it pertains to one's career specifically when designing effective assessments and interventions.

Limitations and future research

As mentioned previously, the Cooperation factor was omitted early in the development of the CAAS (Nye *et al.*, 2018). As a result, the items included in the CAAS have undergone relatively less refinement than the other dimensions of career adaptability. We suggest that this may have impacted the relative weight attributed to cooperation in our analyses and that additional work refining the cooperation scale may impact the results of future studies.

Additionally, a cross-sectional design was employed and raises concerns of common method variance and establishing causality (Spector, 2019). As a result, a weakness of the current study is the potential for these artifacts to impact the results observed here. However, as Spector (2019) describes, cross-sectional designs are an efficient means to establish covariation in new areas of research and among field samples with limited access, both of which describe the present work. Future researchers may form evidence-based expectations based on the findings from the present study, as they employ more rigorous methods such as time-lagged designs to reduce common method variance (Podsakoff *et al.*, 2003).

Further, we only analyzed data among Chinese participants, prohibiting a cross-cultural comparison within the present study. However, given the overly Western focus of career adaptability research, our work forms a meaningful cross-cultural comparison when combined with the extant literature (Savickas and Porfeli, 2012; Maggiori *et al.*, 2013; Tolentino *et al.*, 2014). Future research should directly examine cross-cultural differences in efforts to accurately assess issues of generalizability in the study of career adaptability, especially in relation to the Cooperation dimension.

Finally, the online subject pool used in the current study (<https://www.wjx.cn/>) has not been as rigorously assessed as the Amazon Mechanical Turk service, and future research will be needed to cross-validate this pattern of findings. Collaboration with scholars who have direct access to diverse samples or finding alternative participant recruitment strategies may offset the impact the online subject pool used in this study may have on an overall understanding of cooperation and career adaptability. Given the 75-year history of communist rule in China, there are questions regarding the degree to which Chinese citizens have maintained traditional Chinese values of collectivism. Therefore, cross-validating these findings with other Chinese samples in Taiwan, Hong Kong and Singapore would also be helpful.

Conclusion

Nye *et al.* (2018) demonstrated the cross-cultural structural validity of including a Cooperation dimension of the career adaptability construct. The results of the present study among Chinese respondents support the inclusion of cooperation by

demonstrating criterion validity and cross-cultural generalizability of the CAAS. Accordingly, the current work encourages continued evaluation of our understanding of career adaptability's conceptualization, as future research can bring us closer toward a cross-culturally valid assessment and one that includes the interpersonal aspects of adaptation at work.

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