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Psychometric Properties of the Career Futures Inventory (CFI-25) Among Undergraduate Students in Oman

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Abstract

Objectives: The Career Futures Inventory-25 (CFI-25) was tested for validity and psychometric properties in the Omani context. This study is the first to validate the CFI-25 in a Middle Eastern context.

Methods: The researchers tested the CFI-25 in a Middle Eastern context using a sample of 412 university students. Validity (content and construct), reliability, Confirmatory Factor Analysis, and Cronbach's Alpha scores were obtained using SPSS version 27. CFA analysis from a random half-split yielded a CFI-24 Oman (CFIO-24) version and a three-factor structure of the Omani version. The final version of the new CFIO-24 showed good fit indices (CMIN/DF = 2.008, TLI = 0.92, CFI = 0.92, RMSRE = 0.055).

Results: The result showed a total Cronbach's Alpha of α (α=.79 split half). For the three subscale areas (career adaptability CA, career optimism CO, perceived knowledge PK), reliability scores were CA α=.79, CO α=.77, and PK α=.66.

Conclusions: The findings indicate that the CFIO-24 is appropriate for use in the Omani context. Discussion of the results and their implications for practice is provided.

Keywords: CFI, adaptability, optimism, knowledge, validity, reliability.

الخصائص السيكومترية لقائمة المستقبل الوظيفي لدى طلبة الجامعات في سلطنة عمان

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ملخّص

الأهداف: أجريت الدراسة على قائمة المستقبل الوظيفي 25 [CFI-25] للتحقق من صدقها وخصائصها السيكومترية في السياق العماني. هذه الدراسة هي الأولى للتحقق من صحة CFI-25 في منطقة الشرق الأوسط .

المنهجية: استخدم التحليل العاملي التوكيدي لتفحص البناء العاملي للقائمة باستخدام عينة من 412 طالبًا جامعيًا. تم التحقق من الصدق (المحتوى والبناء) والثبات. أسفر التحليل العاملي نسخة مكونة من 24 فقرة موزعة على ثلاثة أبعاد.

النتائج: أظهر الإصدار الجديد من القائمة مؤشرات مناسبة (CMIN / DF = 2.008 ، TLI = 0.92 ، CFI = 0.92 ، RMSRE = 0.055). كما وبينت النتائج أن القائمة تتمتع بمؤشرات ثبات مرتفعة (الفا كرونباخ = 0.87، والتجزئة النصفية 0.79 . بالنسبة إلى المجالات الفرعية الثلاثة التكيف الوظيفي ، والتفاؤل الوظيفي، والمعرفة المدركة، كانت الفا كرونباخ .79 ،.77 ، و على التوالي. 0.66. .

خلاصة: تشير النتائج إلى أن CFIO-24 مناسب للاستخدام في السياق العماني.

الكلمات الدالة :قائمة المستقبل الوظيفي، التكيف، التفاؤل، المعرفة، الصدق والثبات..

INTRODUCTION

Individuals construct and develop their career lives in a dynamic process, which can follow a non-linear progression (Savickas et al., 2009). College students currently face increased competition upon graduation in that they must prove to employers their skills and worthiness. Students are also required to hone their employability skills that may not be acquired from attending classes such as interview skills, resume writing skills, and job search, and communication skills (McIlveen et al., 2013). In the 21st century, college degrees are not enough to secure a job. College students need to think creatively and hone their problem-solving skills that may not be taught in the classroom (Albediwi, 2020).

Over the past few years, college students and graduates in Oman and the middle east have been facing greater challenges in the job market due to decreased employment opportunities (Ali et al., 2017). Many graduates find themselves unable to secure a job due to lack of alignment between college majors and the job market demands (Ali et al., 2017 & Al-Ani, 2017). The mismatch between college majors, employment opportunities, and actual employment trends places pressure on college graduates/ students due to difficulty landing a job after graduation (Edwin & Sabura, 2019). Inability to secure a job post-graduation necessitates the need to plan one's career well in advance. While many Omani college students are open to career counseling (Almaawali, 2017), they have yet to realize how active seeking of career planning is significant for increased employability.

The client is the champion of change (Wampold, 2015). Unless clients feel confident enough to take charge, the impact of career counseling might be limited (Rottinghaus et al., 2017). College students need time and help to develop a degree of career maturity in which their career related practices lead to further growth (Maabrah & Al-kousheh, 2020). When college students are optimistic about their career goals, career interventions become more effective. In a study of career perspectives among recovering underachieving students, Hwang et al. (2014, p.81) reported that students "cope with and overcome academic difficulties when they set clear career goals, use effective learning strategies, consciously put forth more effort, and receive external support", all of which were important to students' willpower to finish their programs.

The CFI-25 was developed to understand the extent to which clients are optimistic and plan their career futures ahead (Rottinghaus et al., 2005). The Career Futures Inventory (CFI-25) is a measure "of positive career planning attitudes" (Rottinghaus et al., 2005, p.3). Career counselors must take into consideration what the clients' career futures look like if they aspire to help their clients. Optimism, for example, was found to be key for behavior change. For instance, pre-service teachers with high self-efficacy reported high levels of career optimism and career adaptability (McLennan, McIlveen, & Perera, 2017). Optimism can be a good indicator of career planning. Active career planning can predict persistence, motivation to complete university, and job seeking behaviors (Corr & Mutinelli, 2017). Understanding the extent to which students are actively taking charge of their career planning is paramount to career counseling interventions (Rottinghaus et al., 2012).

The CFI-25 (Rottinghaus et al., 2005) helps career counselors assess college students' levels of career optimism, career adaptability, and perceived knowledge. The final version of the original CFI included 25 items and was conducted among 663 college students (Rottinghaus et al., 2005). The first version of the CFI included three sub-scales: *Career Adaptability* (11 items), *Career Optimism* (11 items), and *Perceived Knowledge* (3 items). The reported reliability of Cronbach's alpha scores were as follows: CA $\boldsymbol{\alpha}$ =.85, CO $\boldsymbol{\alpha}$ =.87, and PK $\boldsymbol{\alpha}$ =. 73. The reported factor loading ranged between $\boldsymbol{\alpha}$=.38 to $\boldsymbol{\alpha}$=.72 (Rottinghaus, et al., 2005) across the 25 items.

More recently, a revised version CFI-R was developed to measure career adaptability, such as positive career planning attitudes and outcome expectations (Rottinghaus et al., 2012). The CFI-R included 28 items, with five subscales for career agency CA (10 items), occupational awareness OA (6 items), support S (4 items), work–life balance WLB (4 items), and negative career outlook NCO (4 items). Both CFI-25 and CFI-R- 28 are usable in clinical settings, though CFI-R is geared more towards clinical practice as it measures change in more than three variables. The decision to use CFI-25 in this study was made due to more research support behind CFI-25 than CFI-R (Park et al., 2019).

The job market was heavily impacted by COVID-19 pandemic and the sharp decrease in oil prices across the globe. Many middle eastern countries are going through the same global economic crisis. Many employees were laid off, were

forced to take unpaid leave, or had to undergo salary cuts. College students are directly impacted by the job market. College students who hold a bright career outlook may likely pursue their degrees with a clear sense of optimism and motivation. On the other hand, college students may also likely feel discouraged by the bleak prospects of the job market and may change their career plans. Hence, aspects of career optimism, career adaptability, and perceived career knowledge become even more important in a volatile job market (McIlveen et al, 2013).

Career adaptability (CA). With the changing demands of everyday life, being able to adapt to changes in decision-making is significant. Career adaptability was originally introduced as a replacement for career maturity that was proposed by Donald Super (Savickas, 1997, p.254). Savickas defines career 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". The level of an individual's career adaptability is important because it is an indicator of positive psychological traits such as resilience, hopefulness, and optimism (Buyukgoze-Kavas, 2016). College career counselors should aim to instill resilience, hope, and optimism through career programs and career counseling (Rottinghaus et al., 2005). These traits are indicators of career agency, or one's willingness to take charge of their career through goal setting and application (Rottinghaus et al., 2017).

Savickas et al (2018) developed the Student Career Construction Inventory (SCCI) to measure career thoughts adaption and behaviors. Results found that students' "adapting behaviors mediate the relationship between adaptability resources and adaptation outcomes" (p.138). With high adaptability skills, students are more likely to succeed in college and in their career future. For instance, career adaptability pertains to the choice of college majors and their alignment with the needs of the job market. When students understand the how a certain major could boost their prospects of getting a job, they may be more willing to either changing a major or work towards increasing their marketability. As McIlveen, Burton, and Beccaria (2013) put it, "Career adaptability subsumes notions pertaining to future-perspective and optimism, openness to exploring, a sense of control and confidence in the future" (p.129). Hence, career adaptability skills are good indicators of goal-orientation, career optimism, and career planning process (Corr & Mutinelli, 2017; Tolentino et al., 2014).

Career Optimism (CO). Career optimism is a psychological term denoting positive expectations about one's career growth (Rottinghaus et al., 2005). As an important psychological trait that relates to motivation, hope, and planning (Juntunen & Wettersten, 2006), CO can provide a good indication about students' hopeful career planning. Career optimism can help students take control of their careers through active career planning, such as major choice, academic achievement, and goal setting (Juntunen & Wettersten, 2006). According to Snyder (2002), hope strongly relates to concepts like optimism, self-efficacy, learned optimism, and self-esteem, all of which are important for sustaining behavioral commitments in academics, sports, therapy, health, and adjustment.

Perceived Knowledge (PK). Perceived knowledge is critical in helping individuals make decisions about important career endeavors such as choice of college, choice of major, and choice of career. Knowledge about college should be well-developed by the time students finish high school (Hooker & Brand, 2010). Rottinghaus et al. (2005) define PK as the extent to which "individual[s] understand and perceive job market and employment trends" (p.11). When students have a higher perception of their career knowledge, they are likely to make career decisions based on knowledge of the job market and career trends.

Students' career planning can be predicted through career adaptability skills, career optimism, and perceived knowledge. Most of the studies regarding students' career futures were conducted in western countries, such as (Corr & Mutinelli, 2017; McIlveen et al., 2013; & Rottinghaus et al., 2005) and two studies in Turkey (Buyukgoze-Kavas, 2016; Eryılmaz & Kara, 2018). Cultural and contextual influences could affect career adaptability and optimism (Savickas & Porfeli, 2012). The impact of the decreased job openings due to the ongoing economic crisis in the Middle East may have great impacts on college students' outlook on the job market. Little is known about the career adaptability skills of university students in the Middle East. Unless we investigate career adaptability skills among this population, it becomes difficult to understand their level of career optimism and adaptability.

There is no scale investigating career futures in a Middle Eastern context. To help measure the career future among

university students, this study will investigate psychometric properties of CFI-25 in Oman. This study aims at (1) providing confirmatory factorial analysis (CFA) scores for the CFI-25 inventory on a sample of 412 university students, and (2) providing evidence regarding the internal consistency and reliability of the scale among Omani college students. The English version of the CFI-25 (Rottinghaus et al., 2005) was used to explore students' career adaptability (CA), career optimism (CO), and perceived knowledge (PK).

The study is significant due to the following reasons. First, measuring career futures among college students can help understand how they think about their future careers and whether they engage in active career planning to increase their future employability. As such, the availability of an appropriate measurement tool is significant in helping career counselors, career guidance centers and counseling centers design the programs that suit the students' career aspirations. Using CFI-25 in counseling can help students understand the alignment between the need of the current job market and their career planning. Career counselors may also find hour results instrumental in understanding the baseline of students' career adaptability, career optimism, and perceived career knowledge. This study will add to our knowledge and understanding about career optimism, career adaptability, and perceived career knowledge in a changing job market.

METHOD

Study population

The population of the study includes all undergraduate students enrolled in Sultan Qaboos University in the years 2017-2018 and 2019-2020. The population is about 15,878 undergraduate students, 54.47% females and 45.53% males (Sultan Qaboos University, 2017).

Sample

The sample of this study included students in the college of education at Sultan Qaboos University. A total number of 412 full-time undergraduate students participated in this study. The sample age ranged between 18 to 24 years old, with a mean age of 21.5 years old. Of the 412 participants, 282 (68%) were female students, 130 (32%) male students. About 16% of the sample were first year, 15% were second year, 18% were third year, 17% fourth year, and 6.9% were fifth year or more. Participants were enrolled in the fall and spring semesters of the academic years 2017-2018 and 2019-2020. The sample included students from a variety of majors such as English, educational technology, arts education, physical education, math, chemistry, and biology. Researchers did not distribute the surveys to their students to avoid issues related to conflict of interest. A consent form was distributed along with the survey. Data was collected through paper and pencil surveys and Google forms.

Instrument

The Career Futures Inventory CFI (Rottinghaus et al, 2005) was used to measure the Career Futures of educational college students in Sultan Qaboos University. The instrument included three subscale scores in the following areas: Career Adaptability (CA) with 11 items, Career Optimism (CO) with 11 items, and Perceived Knowledge (PK) with 3 items. Participants were selected one option out of five (*1= strongly disagree, 2= disagree, 3= neutral, 4= agree, and 5= strongly agree*). Items 3, 4, 5, 7, 9, 10, 12, and 19 were code reversed.

The original CFI-25 content validity was obtained with a pilot sample of 611 participants and with an initial 69-items, with two different samples N1=305 and N2=306 (Rottinghaus et al., 2005). Using CFA, cross-validation resulted in three dimensions: CA (11 items), CO (11 items), and PK (3 items), which now comprise the subtests of the CFI-25 used in the study.

Translation of CFI scale to Arabic and pilot study

The scale development and adaptation category followed guidelines that arise in the process of adapting an instrument. For the translation process, three native Arabic-speaking counseling professionals fluent in English independently translated each item. The translators, then, compared their three separate translations to achieve a shared Oman version for each item. Next, the Arabic translations were back-translated to English by a professional Arabic–English translator to check for any meaning change. No significant wording change was detected.

Table 1 shows descriptive statistics (Means, Standard Deviations, and Spearman correlations for each item in the scale) of the CFI-25 when applied on pilot sample (n=30). The Arabic version of the scale was first administered to a pilot

sample of (N=30) students from College of Education (specialized in English and information technology). The English version of the scale was later administered to the same pilot sample of the study (N=30 students).

Table 1. CFI Arabic (pilot sample) and English versions & Spearman item correlations (N=30).

Version	Arabic		English		
Items	**M**	**SD**	**M**	**SD**	**Spearman correlation**
CA1	4.00	0.71	4.39	0.69	0.74**
CA2	3.86	0.92	4.07	0.70	0.73**
CA3	3.86	0.69	4.03	0.73	0.65**
CA4	4.21	1.05	4.29	0.81	0.58**
CA5	3.83	0.76	3.93	0.84	0.39**
CA6	3.59	0.91	3.81	0.92	0.82**
CA7	3.93	0.66	3.86	0.88	0.51**
CA8	4.31	0.93	4.34	0.94	0.52**
CA9	4.00	1.04	3.71	1.01	0.53**
CA10	2.31	0.93	2.45	1.02	0.47*
CA11	2.21	1.24	1.86	0.83	0.55**
CO1	4.24	1.06	4.31	1.00	0.76**
CO2	4.14	0.95	4.24	0.91	0.70**
CO3	1.93	1.16	1.97	1.09	0.62**
CO4	2.21	0.98	2.31	1.14	0.41*
CO5	2.38	1.08	2.69	1.07	0.15
CO6	4.00	1.10	4.11	0.88	0.40*
CO7	4.28	0.88	3.97	1.02	0.64**
CO8	2.31	0.97	2.36	1.31	0.52**
CO9	2.07	1.07	2.39	1.20	0.62**
CO10	3.71	0.94	3.93	0.96	0.71**
CO11	4.10	0.72	4.21	0.86	0.53**
PK1	4.03	0.68	4.14	0.83	0.63**
PK2	2.21	0.90	2.24	1.02	0.64*
PK3	3.55	0.87	3.72	0.96	0.26
Adaptability	39.97	4.72	40.07	4.80	0.82**
Optimism	35.24	3.17	36.17	3.02	0.10
Knowledge	9.80	1.05	10.10	1.50	0.35
Total	85.00	6.91	86.34	6.00	0.69**

Note. ** Correlation significant at p = .01, *Correlation significant at p = .05

Results of the Spearman correlation indicated significant positive correlations between items and scale dimensions in the two versions (Arabic, and English), except for items CO5 and PK3. These items negatively affected their dimensions (optimism, and knowledge). The Spearman correlations between the items in the pilot and main samples ranged between .39 to .82 ($p \leq .05$). Translation effect and context-specific variables could have slightly affected the correlations in items CO5 and PK3, possibly to the wording of statements. In addition, we found low positive correlation between the two versions for CO and PK subscales as seen in the above table. Again, items CO5 and PK3 could have seriously skewed the correlation in those two translated sub-scales as they were the only two items with no significant correlation. In general,

the findings indicated a strong correlation between the two versions (Arabic and English) and translation has minimal effect in altering understanding of statements.

Data analysis

Confirmatory factor analysis CFI was used to analyze the responses of the dataset to test and determine a prior structure of the instrument as it was originally designed by Rottinghaus et al (2005). Hence, items that belong to a certain factor are allowed to load to the same specific factor. Several fit indices were used in this study, including the ratio of chi-square to degrees of freedom, comparative fit index (CFI), and root mean square error approximation (RMSEA). Chi-square statistic is widely known to be sensitive to sample size. Inter subscales and total correlations were explored through Pearson product-moment correlations, which measured the convergent validity of the Career Futures Inventory Oman form (CFIO). The reliability of the Career Futures Inventory Oman form was assessed by estimating the internal consistency scores for each factor.

RESULTS

Descriptive Statistics

The mean, standard deviation, skewness, and kurtosis were estimated for scale items when applied on main sample (n=412). It can be noted that two items have severe skewness: I7, and I12. The item means ranged between M= 2.58 and M= 4.45, and SD= .787-1.368. Results show that responses fall within the acceptable range of normal distribution, except for items 7 and 12, which could be related to culture or wording error.

Table 2. Mean, Standard Deviation, Skewness, and Kurtosis for CFI items (N=412).

Item	M	SD	Skewness	Kurtosis
CA1	4.00	.88	-1.02	1.42
CA2	4.09	.85	-.92	.94
CA3	3.91	.95	-.83	.42
CA4	4.20	.94	-1.35	1.77
CA5	3.62	.96	-.53	-.07
CA6	3.84	.90	-.77	.52
CA7	3.48	1.30	-.25	-1.14
CA9	4.00	.87	-.88	.85
CA10	3.58	.96	-.66	.22
CA11	3.52	1.00	-.56	-.14
CO1	3.99	1.01	-.94	.37
CO2	4.13	.95	-1.18	1.35
CO3	4.02	1.12	-1.18	.72
CO4	3.65	.94	-.50	-.02
CO5	3.71	1.05	-.62	-.32

Item	M	SD	Skewness	Kurtosis
CO6	3.86	.95	-.80	.56
CO7	3.97	.96	-.83	.42
CO8	3.54	1.15	-.59	-.46
CO9	3.59	1.05	-.55	-.12
CO10	3.72	.96	-.60	.15
CO11	3.75	.94	-.43	-.11
PK1	3.63	.98	-.57	-.10
PK2	2.82	1.07	.26	-.54
PK3	3.10	1.00	-.04	-.42

Validity

Content Validity. Content validity is made up of two components: content coverage and content relevance. Content validity is not necessarily based on statistics or empirical testing. It is rather the degree to which the test items adequately represent and relate to the trait or function that is being measured. Content coverage means that the items or subtests "sample the full range of the abilities that the test is intended to measure" (Abu- Hilal, et al, 2011, p. 224).

Construct Validity. Construct validity is defined as "the degree to which scale measures the theoretical construct or trait that it was designed to measure" **(**Allen & Yen, 1979, 108). There are two types of construct validity**:** multi-traits-multimethod and factorial validity. To measure construct validity within the CFIO, we ran intercorrelations among subscales as well as total correlations. We also ran CFA to measure the overall structure of the original CFI-25 and whether there were items that affected the structure of CFI in the Omani context.

Inter subscales and total correlations

To measure the convergent validity of the Career Futures Inventory Oman form (CFIO), the intercorrelations between dimensions and total score were calculated. Scores ranged from r= 0.34 and r= 0.71 and were significant at the $p < .01$ level. Results show moderate to strong inter subscale correlations, particularly between CA and CO dimensions (r=.69, $p < .01$). However, the PK subscale correlated the weakest with CA, CO, and total scale (r=.35; r=.27; & r=.34, $p < .01$ respectively). These correlations are very similar to the original study in which the CFI-25 was developed. Rottinghaus and colleagues reported comparable Pearson's r correlations among subscales: r=.69 for CA and CO, r=.45 for CA and PK, and r=.63 for CO and PK, $p < .001$. The correlations reported in this study do not mean CA, CO, and PK are measuring the same constructs. This simply means that, for instance, the higher CA, the higher CO score is.

Table 3. Inter dimensions and total correlations.

Dimensions	Career Adaptability	Career Optimism	Knowledge
Career Adaptability	1		
Career optimism	0.69**	1	
Knowledge	0.35**	0.27**	1
Total	0.71**	0.67**	0.34**

Confirmatory Factor Analysis

Confirmatory factor analysis CFA was used to test the factor structure of the CFIO. We used maximum likelihood procedure in AMOS 20 to test for specific hypothesis and to determine a prior structure of the instrument as it was originally designed by Rottinghaus et al. (2005). Hence, items that belong to a factor are allowed to load on that specific factor.

Table 4. Standardized regression weights (loadings).

Career optimism		**Career Adaptability**		**Knowledge**	
CA1	0.672	CO1	0.713	PK1	0.855
CA2	0.629	CO2	0.634	PK2	0.471
CA3	0.575	CO3	0.602	PK3	0.730
CA4	0.546	CO4	0.400		
CA5	0.566	CO5	0.591		
CA6	0.607	CO6	0.624		
CA7	0.388	CO7	0.680		
CA8	0.186	CO8	0.460		
CA9	0.387	CO9	0.511		
CA10	0.418	CO10	0.465		
CA11	0.444	CO11	0.440		

Note. ** all Standardized Regression significant at p = .001

Standardized regression for CFIO items was greater than 0.38 except for item CA8. When item CA8 was excluded *"My career success will be determined by my efforts"*, the model fit slightly improved (CMIN/DF = 2.10, TLI=0.90, CFI= 0.90, RMSEA=0.057). Item loadings ranged from 0.385 to 0.663 for CA (when CA8 deleted), between 0.382 and 0.743 for CO, and between 0.469 and 0.859 for PK. Counter to the findings of McIlveen, Burton, and Beccaria (2013) in which items 5, 2, and 6 had the highest loadings, our findings indicated the highest loadings in items 1, 2, 5, and 6 in the CA factor. However, we found similar high loadings in items 5, 2, and 6. Mcllveen and colleagues reported the highest loadings on items 2,1, and 7 on an Australian sample. As for the PK variable, our findings were comparable Mcllveen and colleagues' findings in which PK1, PK2, and PK3 loaded at 0.859, 0.469, and 0.728 respectively.

As for inter-subscale correlations, our findings showed comparable correlations between CO and CA (r= .69, p < .01), but not for PK with CA (r=.35, p < .01 vs r=.45, p < .01 in the original CFI-25), and CO with PK (r= .27, p < .01 as compared to r= .63, p < .01 in the original CFI-25. These differences could be related to cultural differences between the two settings in which CFI-25 was administered. Figure 1 shows the item loadings and the explained variance of each item within each sub-scale of the CFI-24.

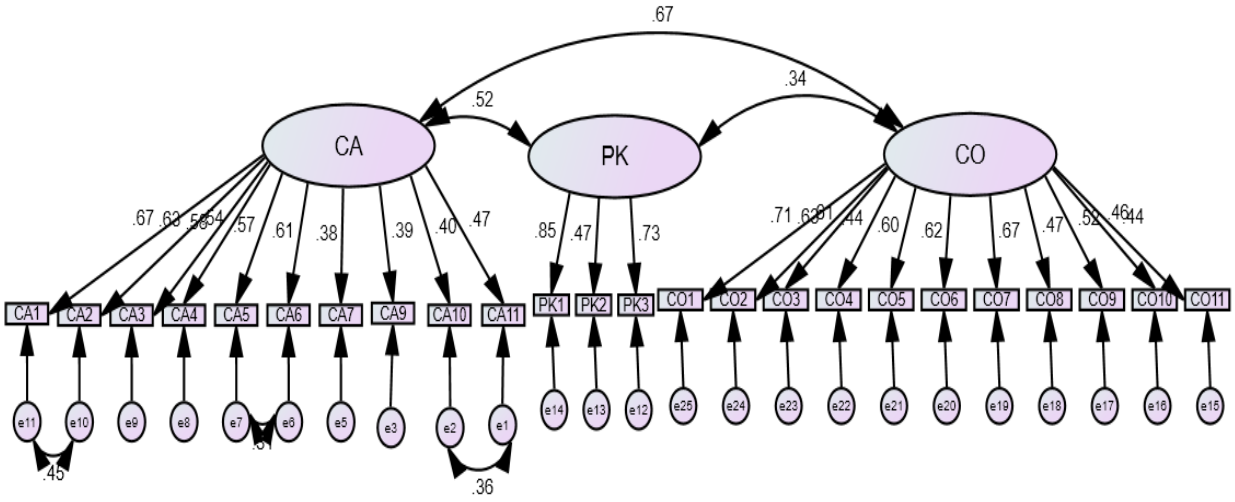

Fig. 1 Using AMOS 20.0, the final structural model for the three subscales of CFI item loadings and correlation shows factor loadings of each item on the latent variables, which are represented with arrows. The numbers above the items indicate how much of the variance was explained.

Reliability

Tables 5, 6, and 7 show dimension item-total statistics for CA, CO, and PK. Reliability of the Career Futures Inventory Oman form was assessed by estimating the internal consistency scores for each factor. The corrected item-total correlation ranged between (r= .41 and r = 0.69, p < .01) for CA dimension and ranged between (r = 0.35 and r = 0.62, p < .01) for CO dimension and ranged between (r= 0.28 and r= 0.34, p < .01) for the PK dimension. Results indicated stronger internal consistency scores for the CA subscale if item CA8 was deleted. Therefore, item CA8 was deleted to improve internal consistency.

As for CO subscale, deleting any of the items within the CO variable would not affect the dimension's overall Cronbach's alpha. No items were deleted from the CO subscale. Both CA and CO dimensions generally had strong internal consistency scores. However, the overall Cronbach's $\boldsymbol{\alpha}$ for PK subscale would improve if item 24 was deleted, but not items 23 and 25. However, if items 23 or 25 were deleted, Cronbach's alpha for PK would severely decrease, possibly due to low number of items within PK dimension.

Table 5. Career Adaptability (CA) dimension item-total statistics.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected item-total Correlation (*r*)	Cronbach's Alpha if item deleted
CA1	34.82	34.32	.64	.846
CA2	34.98	34.43	.65	.846
CA3	34.60	34.58	.69	.844
CA4	34.35	33.33	.66	.843
CA5	35.08	35.13	.51	.856
CA6	34.95	34.92	.53	.855
CA7	34.22	33.62	.61	.848
CA9	34.26	26.82	.48	.764
CA10	35.01	34.32	.56	.853
CA11	35.31	34.36	.41	.869

As shown in table 5, CA showed moderate to good item-total correlations, except for item 8 which had the lowest standardized regression weight (0.186). Cronbach's α also showed slight improvement if any of the items were deleted. Therefore, only item 8 was deleted to improve CA total subscale reliability score.

Table 6. Career Optimism (CO) item-total statistics.

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
CO1	37.42	48.10	.61	.83
CO2	37.58	47.28	.61	.83
CO3	38.14	44.98	.54	.84
CO4	38.59	50.39	.35	.85
CO5	38.60	48.11	.49	.84
CO6	37.97	46.71	.64	.83
CO7	37.51	47.18	.65	.83
CO8	38.43	46.22	.55	.83
CO9	38.47	48.50	.39	.85
CO10	38.14	48.87	.460	.84
CO11	37.87	47.35	.640	.83

Table 6 shows item-total statistics for Career Optimism (CO). As it appears, Cronbach's alpha would slightly improve if any of the items were deleted (α =.83 versus current α = .77). However, we decided to keep all items in the CO scale.

Table 7. Perceived Knowledge item-total statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PK1	6.67	3.05	.54	.33
PK2	6.71	3.55	.31	.68
PK3	6.86	3.44	.43	.50

Table 7 shows PK item-total statistics. As seen above, if either items PK1 and PK3 were deleted, the total reliability scores for the PK scale would be severely affected. If item PK2 was deleted, the total reliability scores would slightly improve. Therefore, we decided to keep all items because it was not feasible to delete any of the items.

Table 8 contains dimensions and total reliability statistics for the CFI-24 Oman version. The lowest reliability scores were found for PK dimension (α = 0.66, $p < .01$), and highest for CA dimension (α = 0.77, $p < .01$). The values for CA and CO were very good while PK reliability scores were acceptable (α = .66, $p < .01$). After deletion of item 8, the total CFIO-24 yielded an excellent Cronbach's α (α = .91, $p < .01$).

Results revealed that the reliability of Oman's form was quite satisfactory as compared to previous studies. Compared to the findings of Rottinghaus et al (2005), our findings were comparable to the original CFI-25 (CA α = .85, CO α = .87, $p < .01$), but are lower for PK (α =. 71, $p < .01$). Though this statistic was within the acceptable range, it was also within the acceptable range for the original study of Rottinghaus et al. (2005). This meant that PK dimension generally fell within acceptable reliability statistics, possibly due to the limited number of sub-scale items (3 items).

Table 8. Dimensions and total reliability statistics

Dimensions	N of Items	Cronbach's Alpha
Career Adaptability	10	0.79
Career optimism	11	0.77
Knowledge	3	0.66
Total	24	0.87

DISCUSSIONS AND CONCLUSIONS

The confirmatory factor analysis was used to confirm the theoretical construct of the CFIO-24 scale. To improve model fit (CMIN/DF = 1.65, TLI=0.89, CFI= 0.91, RMSRE=0.06), item CA8 was deleted, yielding a 24-item CFIO version. Results showed all the three factors of the Career Futures Inventory (CFI) in Oman were comparable to previous studies such as (McIlveen et al., 2013; Rottinghaus et al., 2005; Spurk & Volmer, 2013). The overall value of Cronbach's alpha was $\boldsymbol{\alpha}$ = 0.87, indicating high scale overall reliability. Reliability scores for the CA and CO subscales were also good, except for the third factor (PK) due to the small number of items.

Confirmatory factor analysis indicated that the Omani version of Career Futures Inventory (CFIO-24) had comparable construct validity to the original CFI-25, especially after deletion of item 8 to improve model fit (CMIN/DF = 1.65, TLI=0.89, CFI= 0.91, RMSRE=0.06). Results indicated good confidence in using the CFIO-24 scale to estimate the level of career adaptability, optimism, and perceived career knowledge of undergraduate students in Oman (Abu Shindi et al., 2020).

Findings of this study could help career counselors in measuring positive career planning attitudes through use of CFIO-24 in clinical settings. CFIO-24 can serve as a starting point for career counselors in Oman to assess the extent to which Omani undergraduate students think positively and hold a bright career outlook. Optimistic students might be more adaptable to career change and may be more motivated to increase their career knowledge (Savickas & Porfeli, 2012).

Since career futures indices are good indicators of career motivation (Rottinghaus et al., 2005), CFIO-24 can help career counselors identify levels of student agency and goal setting. Career counselors and career guidance specialists can form an intervention plan that takes into consideration students' ability to adapt, optimism level, and perceived career knowledge.

CFIO-24 measures the baseline of students' ability to adapt, level of optimism, and level of perceived knowledge, all of which are crucial in determining a career intervention. For example, if the client scores low in career adaptability, the career counselor may need to address beliefs and knowledge about importance of career adaptability, such as willingness to learn new skills and make educated decisions. Similarly, low career optimism can be detrimental to career development endeavors. Career professionals may also need to learn about clients' career optimism before and during career planning and help them reduce anxiety about career future through career planning (Maabreh & Alsafasfh, 2020). Optimism is key in perceived self-efficacy and happiness of college students (Al-Dababi etal., 2019). Higher career optimism can likely increase students' feeling of self-efficacy to achieve their career plans. Career professionals should be aware of and promote career optimism so that students achieve their career aspirations.

Knowledge about the data and information about career futures of university students could be a helpful resource. Towards the end of career counseling, CFIO-24 may also assess degree of change in CA, CO, and PK post-intervention. All sub-domains can be good indicators of career planning motivation (Rottinghaus et al., 2005). Career professionals may better plan for the needs of this population, such as ways to maintain career motivation through the development of career adaptability skills. Understanding the work environment, perceived adaptability skills, career optimism, career motivation, and interest are significant to a successful career future (Spurk & Volmer, 2013). Career development professionals would be able to choose the proper interventions that help university students successfully plan their careers and achieve their goals. As a metacognitive skill, planning skills and awareness of the importance of planning (Boraik, 2019) may result in higher career adaptability.

Snyder (2002) described the positive impact of hopeful thinking on career goal setting and on motivation. As Snyder put it, "Hopeful thinking necessitates both pathways and agency thought. A problem can be deflating … [and could] lessen a person's agency" (p.252). Within the CFI-25 and CFIO-24, hope is seen in the Career Optimism variable. Career development professionals may detect signs of decreased career agency through understanding of career optimism. They can also find CFIO-24 very helpful when working with students struggling with career goal setting as optimism is strongly correlated with career adaptability, not necessarily career knowledge (Rottinghaus, et al., 2005).

Corr and Mutinelli (2017) found that motivation and optimism helped young people become actively involved in their career planning. Research has also shown that career adaptability was predicted through positive psychological traits, such as career optimism (Buyukgoze-Kavas, 2016). Based on our findings and those in the literature, we suggested that career professionals use CFIO-24 in clinical settings as it would help in understanding clients' baseline optimism levels.

Another important implication for the findings of this study is related to career outlook. College students may feel demotivated or pessimistic about their career future due to lack of career opportunities. Feeling less optimistic and hopeful may negatively impact students' ability to adapt to career changes, such as knowing the types of careers that have a better outlook in the future. Low levels of optimism may also impact career planning because students may not clearly understand why they should plan their careers. Career professionals should help college students maintain hopeful thinking even during difficult times.

Higher career optimism can also mean higher career adaptability, as both subscales are highly correlated. Students higher in CO are more likely than students with low CO to be motivated to set career goals and to pursue them. Career planning can include a multitude of career-related activities such as ensuring grades are high enough for graduate school applications, engagement in student extra-curricular activities, improvement of communication skills, actively seeking career services, and doing internships or part-time jobs. All these career related activities can help students strengthen their resumes and hone their skills. Career professionals can use CFIO-24 as a measure to gauge students' career planning, motivation, and knowledge. Such an understanding is crucial for helping students at all levels since students may need to actively plan, adapt, and increase their career knowledge if they wish to compete in the job market.

Limitations and Recommendations

The CFIO-24 scale is limited to the Omani population. It may need to be further investigated among other samples from the Middle East. Though from diverse majors, most of our sample consisted of students from the college of education. Future research may need to investigate career futures among samples from STEM majors as the job market has a better outlook for STEM related careers.

A larger sample could also yield different results, which could alter the way we understand the reliability scores of the CFIO-24. We recommend validation and application of CFI-Revised since it may be more clinically relevant due to its ability to measure career change in five different domains. CFI-25 and our current CFIO-24 might be more research-oriented inventories but can be used to get a sense of where the client is at in terms of career adaptability skills, career optimism, and perceived career knowledge (Almaawali, personal communication, August 12th, 2020).

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