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Career Engagement Scale: Examination of Turkish Psychometric Properties*

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Abstract

The aim of this study is to adapt Career Engagement Scale (CES) developed by Hirschi, Freund, and Herrmann (2013) into Turkish. The data of the study were collected from 500 (64.7% female) university students. First of all, exploratory factor analysis was performed, and, unlike the original form, a two-factor structure with an eigenvalue greater than 1 and explaining 63.58% of the total variance was obtained. Confirmatory factor analysis (CFA) was performed to examine the validity of the two-factor structure obtained in Exploratory Factor Analysis (EFA). The model fit indices ($\chi^2 = 73.924$, $df = 25$, $\chi^2/df = 2.95$, $p < .001$; GFI = .97, AFGI = .97, CFI = .98, RMR = .038; TLI = .95, IFI = .98, NFI = .97 and RMSEA = .063 [0.046-.079]) obtained as a result of the analysis reveal that the two-factor structure of the measurement tool was confirmed on Turkish samples. The internal consistency coefficients of CES were calculated as .88 for the whole scale, .84 for the proactive career planning dimension, and .83 for the career proactive skill development dimension. To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), the Career Decision Regret Scale (CDRS), and the Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES ($r = .55$; $p < .01$) and SWLS ($r = .41$, $p < .01$). However, a significant negative correlation was found between CES and CDRS ($r = -.22$; $p < .05$). All these results show that the two-factor structure of CES has been validated on a Turkish sample and it is a valid and reliable scale.

Key Words

Adaptation • Career engagement • Career proactivity • Reliability • Validity

*This research is the extended version of the study presented as an oral presentation at II. International Learning Teaching and Educational Research Congress (5-7 September 2019, Amasya/Turkey), which was carried out by collecting new data.

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Introduction

Career is a concept that includes the professional development processes of individuals throughout their lives and includes choosing a profession, progress in this profession, pauses, and regression periods (Kuzgun, 2013). In other words, a career is a complex pattern formed by the interaction of the roles that individuals undertake throughout their lives (Super, 1953). For this reason, career development is considered an inseparable part of individuals' lifetimes (Ginzberg, 1957). Because the professions chosen by individuals comprise a large part of their life, career development continues throughout the individual's entire life (Super, 1980). Career choice is considered an important developmental task for individuals (Kuzgun, 2013). Therefore, many theories have tried to provide specific explanations for career choice and career decision-making processes. Some theories state that individuals characteristics should be matched with the features of professions (Parsons, 1989), some approaches should direct individuals to professions that are suitable for their personalities (Holland, 1997), and some theories state that career choices should be made according to the self-concept (Super, 1953).

With the changes in career development paradigms and job placement processes in recent years, it has started to be discussed that it is not enough to direct and place an individual in a certain profession (Strauss et al., 2012). When the career literature is examined, it is observed that they focus on situational processes such as career decision-making behaviors, career maturity, career choice, and professional outcome expectation (Büyükköze-Kavas, 2012; Eryılmaz & Kara, 2018; Fidan, Fidan & Öztürk, 2018; Kalafat, 2012; Light, 2013). These studies mostly examined the factors that affect individuals while reaching a professional decision in terms of placement in a particular profession, decision making, and developmental points of view. Today, however, it is not enough for individuals to make a career choice alone, as well as actively participate in the development of their chosen careers and exhibit positive career behaviors (Parker & Collins, 2010). Considering that it is important for individuals to have self-control about their careers in our age, it is stated that taking the responsibility for one's career development, preparing for business life, and making various researches about working life will play a significant role in the advancement of the individual's career steps. (Hall, 2002; Rottinghaus et al., 2005).

Due to the changes in career development processes in the last two decades, individuals are expected to take on more responsibilities in managing their careers successfully (De Vos et al., 2009; Rottinghaus et al., 2005; Strauss et al., 2012). Career engagement, a new concept that explains this process, is defined as an individual's proactive (constructive) behavior at all stages of career development (Hirschi & Freund, 2014). In other words, career engagement is expressed as individuals taking an active and constructive role in the planning, research and evaluation stages of careers processes. (Hirschi, 2013; Hirschi et al., 2013). Within this concept, individuals not only have the responsibility to receive the education of the profession they have chosen, but also to conduct research that will contribute to the career development of the individual, to create various networks, to plan their career goals, to search for career opportunities (including the period of university education) by themselves, has responsibilities such as taking on various tasks for career development autonomously (Thomas et al., 2010, Wolff et al., 2011).

Although the examination and evaluation of situational facts about individuals' career processes (career maturity, career decision, career regret, career self-efficacy, etc.) are useful for determining the career development levels of individuals, their contribution to the continuity of career development cannot be fully explained (Hirschi et al.,

2013). For this reason, it is important for individuals who have reached a career decision or who are considered to be at a sufficient level of career maturity, to play a conscious and active role in this process to continue their career development successfully. When the literature is examined, various measurement tools evaluate the career development processes of individuals. For example, the Career Research Self-Efficacy Scale (2017), the Career Decision Scale (Büyükköze-Kavas, 2012), the Discrepancies Between Individual-Set and Parent-Set Career Goals Scale (Köksal & Yam, 2023), the Professional Outcome Expectation (Işık, 2010), the Career Stress Scale (Özden & Sertel-Berk, 2017), the Career Goal Discrepancies Scale (Yam et al., 2020), and the Career Decision Regret Scale (Erdurcan & Kırdök, 2017). However, when the literature is examined, no measurement tool has been found that evaluates the career proactive behaviors of individuals. Therefore, this study is aimed at conducting a Turkish validity and reliability study of the Career Engagement Scale developed by Hirschi, Freund, and Herrmann (2013).

Method

Participants and Procedure

Data were collected from a total of 530 university students in the data collection process. Eighteen participants who filled in the data collection tools incompletely or incorrectly were excluded from the data set. In addition, the box plot graph was examined for the extreme values in the data set and it was seen that twelve data were outliers and these data were excluded from the data set. The research was continued with data from the remaining 500 university students (326 (65.2%) female, 174 (34.8%) male). The ages of the participants range from 18 to 28 ($\bar{x} = 21.24$; $S_s = 1.63$). The grade levels of the participants ranged from 1st grade to 4th. The data of the study were collected online. An informed consent form about the content of the study was sent to the participants. During the data collection process, no private data was collected that would violate the privacy of the participants. The data collection process was carried out on a voluntary basis.

Translation Study of the Scale into Turkish

In the first stage, permission was obtained for the adaptation via email with the first author, Andreas Hirschi, from the authors who developed the scale. In the second stage, the English form of the scale, for which permission was obtained, was sent to three English language experts and a translation study was carried out (Brislin, 1970). In the third stage, the feedback from three English language experts was brought together in a table and sent to two field experts. In the fourth stage, a draft scale form was created by bringing together the most appropriate item translations by the field experts. In the fifth stage, the draft form of the scale was sent to a Turkish language expert to be examined in terms of Turkish grammar and intelligibility. A pilot application was made to a group of ten students who knew both English and Turkish to test whether the scale form, which was created at the end of the feedback, was understandable in terms of language. Correlation ($r = .91$; $p < .001$) and dependent t-test analysis ($t = .723$; $p > .05$) were used to examine the relationship between the scores obtained from the two applications. These results indicated that the Turkish form of the scale was understandable.

Data Collection Tools

Career Engagement Scale (CES): The measurement tool, which will be adapted, consists of a single dimension of nine items developed by Hirschi, Freund, and Herrmann (2013). This measurement tool is a five-point scale (1 = not

much, 5 = a lot) type measurement tool that evaluates the active participation levels of individuals in their career development. Model fit indices obtained as a result of confirmatory factor analysis of the original form of the scale revealed that the structure of the scale was confirmed ($\chi^2 = 324.79$, $df = 27$, $p < .01$; TLI = .94; CFI = .96; RMSEA = .07). In addition, the researchers calculated the internal consistency coefficient (Cronbach's Alpha) of the scale as .87.

Vocational Outcome Expectations Scale (VOES): The measurement tool developed by [McWhirter, Rasheed, and Crothers \(2000\)](#) was adapted into Turkish by [Işık \(2010\)](#). The VOE assesses individuals' beliefs in their careers and the professional success they want to achieve in the future. The model fit values (GFI = .92, CFI = .96, RMSEA = .054, and SRMR = .053) obtained in the adaptation study by [Işık \(2010\)](#) revealed that the measurement tool was validated on the Turkish sample. In the adaptation study, the internal consistency coefficient (Cronbach's Alpha) of the scale was calculated as .87. Cronbach's alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient ($\alpha = .91$).

Career Decision Regret Scale (CDRS): CDRS, which was developed by [Brehaut et al \(2003\)](#) and adapted into Turkish by [Erdurcan and Kırdök \(2017\)](#), evaluates the regret levels of individuals regarding their preferred career choices. The CRDS consists of five items and one dimension. In the adaptation studies, the model fit values of the measurement tool ($\chi^2/df = 2.545$, RMSEA = .06, AGFI = .96, CFI = .99, IFI = .99; GFI = .99, SRMR = .013) were found to be on the Turkish sample. proved to be confirmed. In the adaptation study, the researchers found the internal consistency coefficient (Cronbach's Alpha) .91, which they calculated over the data obtained from the Turkish sample. Cronbach's alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient ($\alpha = .90$).

The Satisfaction With Life Scale (SWLS): The SWLS is a measurement tool developed by [Diener et al. \(1985\)](#) and adapted into Turkish by [Dağlı and Baysal \(2016\)](#) and evaluating the general satisfaction levels of individuals with their lives. The scale consists of five items and participants respond using a five-point Likert scale (1-strongly disagree, 5-strongly agree). The adaptation study revealed that the model fit indices ($\chi^2/df=1.17$, RMSEA = .030, AGFI = .97, GFI = .99, CFI = 1.00, SRMR = .019) of the scale confirmed the structure of the scale. In the adaptation study, the researchers found the internal consistency coefficient (Cronbach's Alpha) .88, which they calculated over the data obtained from the Turkish sample. Cronbach's Alpha internal consistency coefficient calculated on the data collected in the current study was found to be sufficient ($\alpha = .86$).

Data Analysis

Exploratory and confirmatory factor analysis was used to examine the construct validity of the Career Engagement Scale. Kaiser-Meyer-Olkin (KMO) and Bartlett Test are used to determine whether the data is suitable for EFA. While the Bartlett Test is expected to be significant, over 0.80 is accepted as an excellent value for KMO ([Büyüköztürk, 2002](#)). In addition, item loads must take values of .30 or higher. If an item has significant factor loading in more than one dimension, the difference between the values of factor loadings should be greater than .10. Otherwise, it is considered as an overlapping item and this item is excluded from the analysis. A scree plot graph was used to determine the number of factors. In addition, while determining the number of factors, the condition that the

eigenvalues should be greater than 1 was taken into account. Rotation methods in factor analysis are collected in two groups as orthogonal and oblique. Orthogonal rotation methods are recommended to be used in cases where there is no relationship between factors, and oblique rotation methods are recommended when there is a relationship between factors (Field, 2009). It is assumed that there is a relationship between the factors of the adapted CES in the study. For this reason, promax was preferred in oblique rotation methods in this study. The results of the confirmatory factor analysis results were evaluated according to the model fit index (χ^2/df , RMSEA, CFI, IFI, TLI, NFI). While examining the confirmatory factor analysis results goodness of fit values, $\chi^2/df < 5$; GFI, NFI, TLI, CFI $> .90$; *RMSEA* $< .10$ values were taken as basis for good fit (Hu & Bentler, 1999). On the other hand, to examine similar scale validity, the correlation coefficient between the Career Engagement Scale with VOE, CDRS, and SWLS was calculated. In addition, in order to test the distinctiveness of the Turkish version of the CES, whether the difference between the 27% lower-upper group mean scores was significant or not was examined with the independent group t-test. Internal reliability coefficients (Cronbach's Alpha) of all measurement tools used in the adaptation study were calculated.

Results

Exploratory Factor Analysis (EFA) Results

In the research, first of all, confirmatory factor analysis was performed by preserving the original structure of the scale. However, as a result of this analysis, it was observed that the existing structure had low fit indices. Then, the proposed modification suggestions (MI) were examined and it was seen that the model fit indices became perfect when the covariance was established between item 8 and item 9, item 7 and item 9, item 7 and item 8, item 6 vs item 8, item 6 and item 7. However, when the literature is examined, it is stated that it is not a correct approach to try to validate a model with low model fit indices as a result of confirmatory factor analysis by using too many modification indices (Schmitt, 2011). For this reason, it is stated that exploratory factor analysis is a more appropriate approach instead of making many changes in structures that show poor fit as a result of confirmatory factor analysis (Schmitt, 2011). First, exploratory factor analysis was performed on the collected data. Before factor analysis, the scale was Kaiser-Meyer-Olkin (KMO=0.90) and Barlett Test of Sphericity ($\chi^2= 2074.450$, $df=36$ ($p < .001$)). As a result of the analysis, the data were found to be suitable for exploratory factor analysis. The Career Engagement Scale revealed a two-factor structure. The scree plot graph of this result is presented in Figure-1.

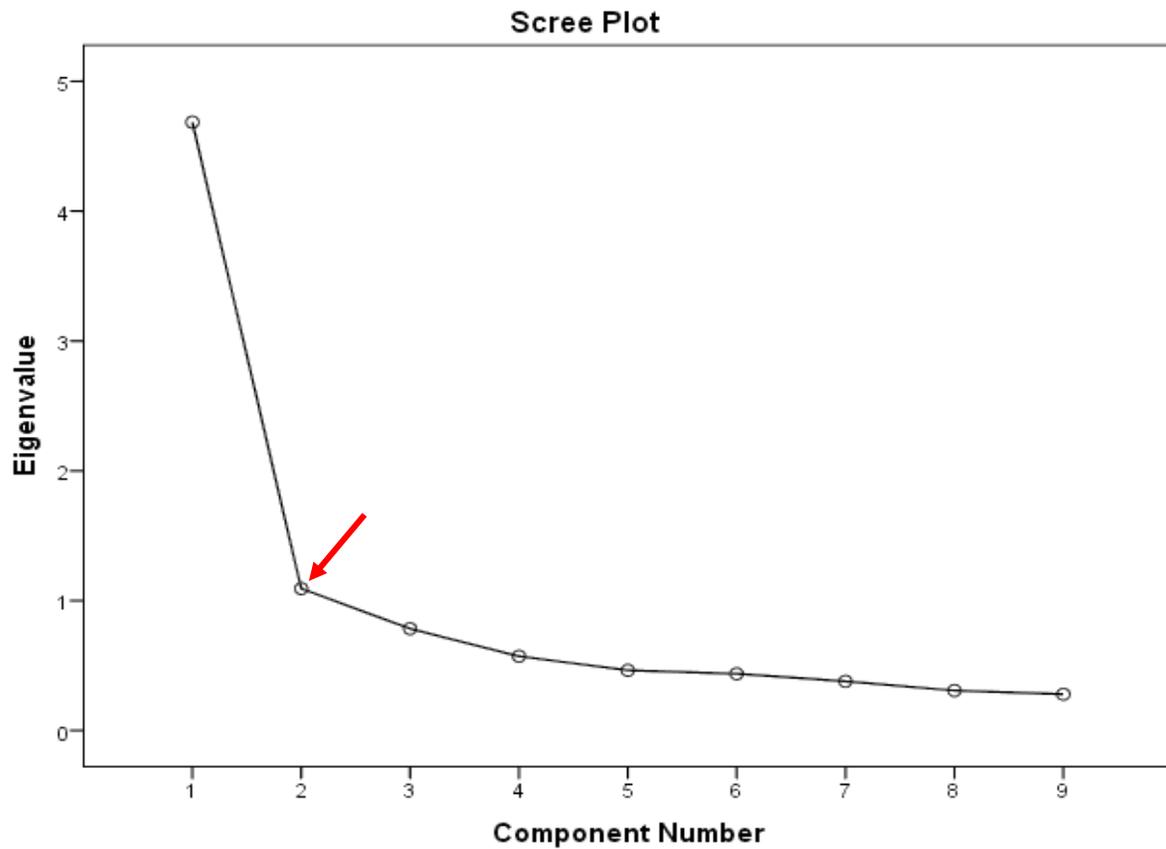


Figure 1. Scree Plot Graph

When Figure 1 is examined, it is seen that after the second factor, the other parts follow a horizontal course together. As a result of the EFA, a two-dimensional structure with factor loads ranging from .554 to .916 and eigenvalues greater than 1 explaining 63.58% of the total variance was obtained. There was no overlapping item loaded on both dimensions. The item factor loads of the CSE are presented in Table 1.

Table 1

Item Factor Loads of CSE

Items	Factors	
	*F1 (Planning and Evaluation)	*F2 (Research and Networking)
CES1: Gelecekteki kariyerimi aktif bir şekilde tasarlamaya çalışırım.	.885	
CES2: Kariyer hedeflerime ulaşabilmek için bazı şeyler (girişimde bulunmak, zorlukları yönetmek vb.) üstlenirim.	.775	
CES3: Kariyer gelişimime özen gösteririm.	.916	
CES4: Gelecekteki kariyerim için hedefler belirleyip, planlamalar yaparım.	.759	
CES5: Kişisel değerlerim, ilgi alanlarım, yeteneklerim ve zayıf olduğum yönlerim hakkında gerçekçi bir şekilde düşünürüm.	.554	
CES6: Çalışmak istediğim alandaki işverenler, mesleki gelişim fırsatları veya iş piyasası hakkında bilgiler toplarım.		.634
CES7: Bana mesleki olarak yardımcı edebilecek insanlarla iletişim kurup, bu iletişimi sürdürürüm.		.854
CES8: Kariyerimi desteklemek için ileri düzeyde eğitim, öğretim ve benzeri etkinliklere gönüllü olarak katılırım.		.876
CES9: Kariyer gelişimime yardımcı edecek sorumluluklar ya da görevler üstlenirim.		.772
Eigenvalues	4.605	1.118
% Variance	%51.16	%12.42
% Total Explained Variance	%63.58	
*Promax Rotation		

When Table 1 is viewed, it is seen that the CSE has two factors with an eigenvalue greater than 1, item factor loads vary between .55 and .92, and the scale has an explanatory power of 63.48% of the total variance. In the exploratory factor analysis, it is stated that the total variance ratio explained for scale structures with more than one factor is between 40% and 60% (Tavşancıl, 2002). According to this explanation, it can be stated that the current scale has sufficient variance explanatory power.

Confirmatory Factor Analysis (CFA) Results

The two-factor structure obtained in exploratory factor analysis was tested with confirmatory factor analysis. CFA analysis was performed and the model fit indices ($\chi^2 = 73.924$, $df = 25$, $\chi^2/df = 2.95$; $p < .001$, GFI = .97, AFGI

= .97, CFI = .98, RMR = .038; TLI=.95, IFI = .98, NFI=.97 ve RMSEA=.063 %90[.046-.079]) obtained showed that the two-factor structure was confirmed. The path diagram of the first level DFA performed is shown in Figure 2.

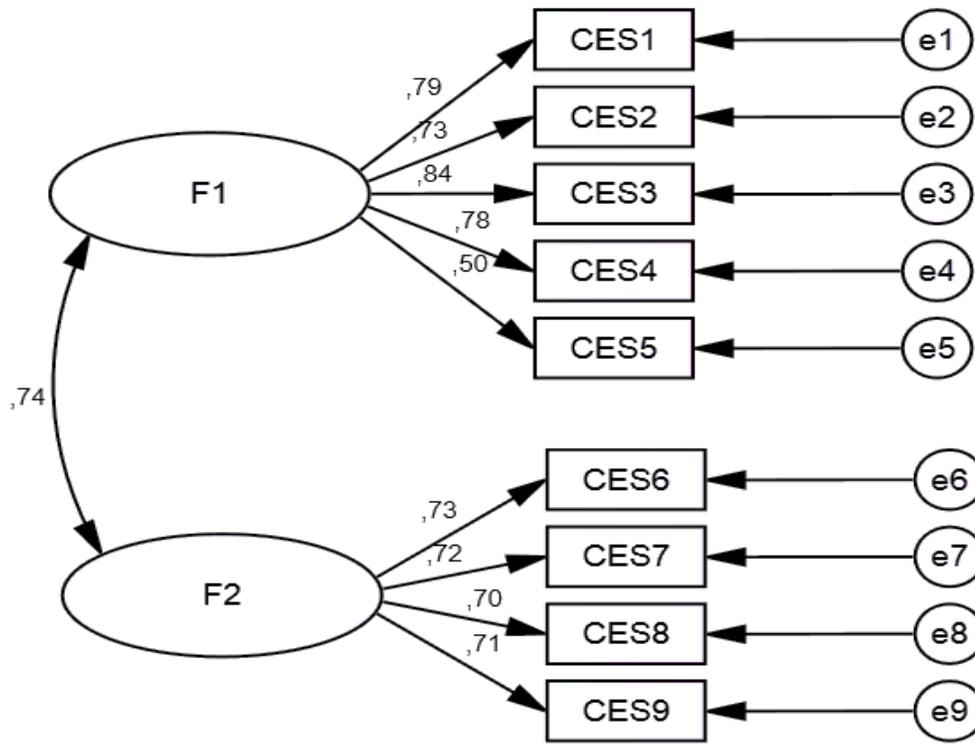


Figure 1. Confirmatory Factor Analysis Path Diagram

Reliability Analysis Results

The internal consistency coefficient (Cronbach's Alpha) was calculated to determine the reliability level of the adapted CES. The internal consistency coefficients (Cronbach's Alpha) calculated for the CES were found to be .88 for the whole scale, .84 for the proactive career planning sub-dimension, and .83 for the proactive career skill development sub-dimension. In addition, the internal consistency coefficients calculated for the measurement tools used for similar scale validity in the study were found to be .91 for VOE, .89 for CDRS, and .86 for SWLS.

Results on Internal Criterion-Based Validity

In order to evaluate the internal criterion-based validity of the CES, it was examined whether the difference between the 27% lower group and upper group mean scores was significant. For this, independent groups t-test analysis was performed. According to the result of the analysis ($\bar{X}_{\text{lower}} = 23.22$, $\bar{X}_{\text{upper}} = 39.47$; $t = -40.41$; $p < .001$), the difference between the 27% lower group and upper group mean scores was found to be significant. One of the important indicators of the construct validity of a scale is that it has concordance and discriminant validity. Composite Reliability (CR) and Average Variance Extracted (AVE) values are taken into account to evaluate concordance and discriminant validity. For this reason, CR and AVE coefficients were calculated to examine the concordance validity. It is stated that the Ave coefficient should be greater than .50 (Fornell & Larcker, 1981), and

the CR coefficient should be greater than .60 and .70 (Fornell & Larcker, 1981; Hair et al., 2011). Calculated as CR = .91 and AVE = .53 over all items of CES. Similarly, CR = .85, AVE = .54 for the proactive career planning sub-dimension, and CR = .81, AVE = .52 for the proactive career skill development sub-dimension.

Results on Criterion-Related Validity

To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), Career Decision Regret Scale (CDRS), and The Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES ($r = .55; p < .01$) and SWLS ($r = .41, p < .01$). However, a significant negative correlation was found between CES and CDRS ($r = -.22; p < .05$). These results indicate that CES provides criterion-related validity.

Discussion

In this study, the validity and reliability study of the Turkish form of the Career Engagement Scale consisting of 9 items and a single dimension developed by Hirschi, Freund, and Herrmann (2013) was conducted. In the study, primarily exploratory factor analysis was performed, and unlike the original form, two-dimensional structure with an eigenvalue greater than 1 and explaining 63.58% of the total variance was obtained. This differentiation can be thought to be caused by the differences in Turkish culture related to career development processes. From the exploratory factor analysis, it is seen that the factor loads vary between .55 and .92. It is stated that factor loads should be greater than .31 in exploratory factor analyzes (Çokluk et al., 2012). It is seen that the factor loads obtained as a result of the exploratory factor analysis performed in this study are above the limit recommended in the literature. Confirmatory factor analysis (CFA) was performed to examine the validity of the two-factor structure obtained in EFA. The model fit indices ($\chi^2 = 73.924$, $df = 25$, $\chi^2/df = 2.95$; $p < .001$, GFI = .97, AFGI = .97, CFI = .98, RMR = .038; TLI = .95, IFI = .98, NFI = .97 ve RMSEA = .063 %90 [.046-.079]) obtained as a result of the analysis reveal that the two-factor structure of the measurement tool was confirmed on Turkish samples. The findings obtained as a result of confirmatory factor analysis are within the limits recommended in the literature and these results show that the measurement tool provides construct validity (MacCallum et al., 1996; Hu & Bentler, 1999; MacCallum et al., 1996; Tabachnick & Fidell, 2013). The internal consistency coefficient (Cronbach's Alpha) was calculated to determine the reliability level of the adapted CES. The internal consistency coefficients (Cronbach's Alpha) calculated for the CES were found to be .88 for the whole scale, .84 for the proactive career planning sub-dimension and .83 for the proactive career skill development sub-dimension. It is stated that the internal reliability coefficients of measurement tools should be .70 and above (De Vellis, 2012). Considering this explanation, it can be said that CES is above the recommended limit in the literature and is a reliable measurement tool to evaluate the validity of the Career Participation Scale based on internal criteria, independent groups t-test was conducted to understand whether the difference between the 27% lower group and upper group mean score was significant. According to the result of the analysis ($\bar{X}_{\text{lower}} = 23.22$, $\bar{X}_{\text{upper}} = 39.47$; $t = -40.41$; $p < .001$), the difference between the 27% lower group and upper group mean scores was found to be significant. According to this result, it can be stated that CES is a measurement tool that can measure desired features and has distinctiveness. One of the important indicators of the construct validity of a scale is that it has concordance and discriminant validity. For this reason, CR and AVE coefficients were calculated to examine the concordance validity. It is stated that the AVE coefficient

should be greater than .50 (Fornell & Larcker, 1981), and the CR coefficient should be greater than .60 and .70 (Fornell & Larcker, 1981; Hair et al., 2011). Calculated as CR = .91 and AVE = .53 over all items of CES. Similarly, CR = .85, AVE = .54 for the proactive career planning sub-dimension, and CR = .81, AVE = .52 for the proactive career skill development sub-dimension. According to these results, it can be said that CES has concordance and discriminant validity. To examine the similar scale validity of CES, the correlation coefficient between the Vocational Outcome Expectations Scale (VOES), the Career Decision Regret Scale (CDRS), and the Satisfaction With Life Scale (SWLS) was calculated. As a result of the analysis performed, a significant positive correlation was found between CES and VOES ($r = .55; p < .01$) and SWLS ($r = .41, p < .01$). However, a significant negative correlation was found between CES and CDRS ($r = -.22; p < .05$). These results reveal that CES provides criterion-related validity. When all these results above are evaluated together, it can be concluded that CES is a valid and reliable measurement tool.

Limitations and Future Research

This study includes some limitations. Primarily, the original study of the scale was carried out with data collected from both employees and university students. However, in the current study, only the data collected from university students were analyzed. This situation creates a limitation in terms of the use of the measurement tool in Turkish culture. Secondly, data were collected by the self-report method. Therefore, it is subject to all kinds of prejudices. Finally, the data of this study were collected from students studying at a university. For this reason, care should be taken when generalizing to all groups (different regions, university, faculty, department, etc.) in other studies.

The validity and reliability study of this measurement tool was carried out on the data obtained from university students. In another study, an adaptation study can be made on the data obtained from individuals working in Turkish culture, as in the original scale. In addition, the high school period is critical in terms of carrier development and carrier decision. In this period, determining and supporting the self-control of individuals over their career development is an important issue. Therefore, in another study, an adaptation of CES can be carried out on a sample group consisting of high school students. On the other hand, in this study, it was seen that there is a positive relationship between career engagement, vocational outcome expectation, and life satisfaction, and a negative relationship between career decision regret. For this reason, in another research to be conducted in the future, a modeling study that examines the factors affecting the career engagement levels of university students can be conducted.

Conclusion

In the current study, the structure of the Career Engagement Scale, which is a measurement tool related to the concept of career participation, which is a new field of study, was verified through the data obtained from the Turkish sample. However, while the original CES had a single-factor structure, a two-factor structure emerged in the Turkish adaptation study, and this structure was confirmed. In addition, reliability analyses, internal criterion validity, and criterion association validity results indicate that CES will give valid and reliable results in future studies. Finally, thanks to this study, a short and economical measurement tool that evaluates the career proactive behaviors of individuals has been brought into Turkish culture. In addition, a similar scale validity was found to have

a positive and significant relationship between career participation, professional outcome expectation, and life satisfaction. This result indicates that university students' career engagement levels may have a positive impact on their vocational outcome expectations and life satisfaction. On the other hand, it was concluded that there is a negative significant relationship between career engagement and regret for professional decisions. This result shows that the level of career engagement of university students can be a preventative source against regret in their career choices. Finally, thanks to this study, a short and useful measurement tool that evaluates the career proactive behaviors of individuals has been brought into Turkish culture.

Ethical Approval

All procedures in this study involving human participants were conducted in accordance with the ethical standards of the 1975 Helsinki Declaration and were approved by the research team's university ethics committee.

Informed consent

Informed consent was obtained from all participants before the study.

Conflict of Interest

The author(s) declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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Corresponding author' statement

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