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Retesting the Structure of the Goal Commitment Scale in the Teacher Candidates

Ender ŞENEL[1]

[1]Faculty of Sport Sciences, Mugla Sıtkı Koçman University

Research Article

Abstract

This study aims to retest the structure of the Turkish version of the five-item goal commitment scale in the teacher candidates. Four hundred sixty-five students were recruited from the pedagogical formation education program including departments of coaching education, sport management, recreation, history, accounting, public management, philosophy, Turkish language, tourism, English language, mathematics, the culture of religion and knowledge of ethics, painting, biology, nursing, and chemistry. Hollenbeck, Williams, and Klein (1989) developed Goal Commitment Scale with nine items. Klein, Wesson, Hollenbeck, Wright and DeShon (2001) revised the scale to 5 items. Şenel and Yıldız (2016) translated the scale in Turkish and tested the reliability and validity with the participation of students studying in the physical education and sports field. The data were analyzed with SPSS 22,0 by using independent sample t-test, Pearson Correlation. The structure of the scale was analyzed by using CFA in the AMOS program and EFA in SPSS. Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity values were calculated to determine whether the data was proper for the factor analysis. KMO value was found to be 0,83, while Bartlett's Test of Sphericity was statistically significant. According to EFA results, the factor loadings ranged between 0,75 and 0,84, while those in CFA ranged between 0,68 and 0,84. The scale displayed one dimension; the Eugene value was found to be 3,265. The contribution of the extracted dimension to the total variance was 65,294%. The internal consistency coefficient (Cronbach's alpha) was 0,86. Measurement invariance analysis revealed that goal commitment scale worked in the same way for both genders. The CFA results showed that the scale had a perfect fit.

Keywords: *Goal commitment, Pedagogical formation, Scale adaptation*

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Hedef Bağlılığı Ölçeği Yapısının Öğretmen Adaylarında Yeniden Test Edilmesi

Öz

Bu çalışmanın amacı, beş maddelik hedef bağlılığı ölçeğinin Türkçe sürümünün yapısının öğretmen adaylarında yeniden test edilmesidir. Araştırmaya antrenörlük eğitimi, spor yöneticiliği, rekreasyon, tarih, muhasebe, kamu yönetimi, felsefe, Türk dili, turizm, İngiliz dili, matematik, din kültürü ve ahlak bilgisi, resim, biyoloji, hemşirelik ve kimya bölümlerinden pedagojik formasyon alan 465 öğrenci katılmıştır. Araştırmada veri toplama aracı olarak, Hedef Bağlılığı Ölçeğinin Türkçe formu kullanılmıştır. KMO değeri 0.83 bulunurken Bartlett testi anlamlı çıkmıştır. AFA sonuçlarına göre, faktör yükleri 0,75 ve 0,84 arasında değişirken DFA faktör yükleri 0,68 ve 0,84 arasında değişmiştir. Ölçeğin tek boyutlu yapısı doğrulanmış, öz değer 3.265 olarak bulunmuştur. Çıkarılan boyutun genel varyansa katkısı %65.294 olarak bulunmuştur. Ölçeğin iç tutarlılık katsayısı Cronbach's alfa değeri ile hesaplanmış, iç tutarlılık katsayısı 0.86 olarak bulunmuştur. DFA sonuçları ölçeğin mükemmel uyuma sahip olduğunu göstermiştir. Ölçme eşdeğerliği analizleri ölçeğin cinsiyetler açısından değişmez olduğunu ortaya çıkarmıştır. Beş maddelik hedef bağlılığı ölçeğinin, öğretmen yetiştirme programlarında öğrenim gören öğrencilerin hedef bağlılıklarını ölçebilen geçerli ve güvenilir bir ölçüm aracı olduğu sonucuna varılmıştır.

***Anahtar sözcükler**: Hedef Bağlılığı, Pedagojik formasyon, Ölçek uyarlama*

Introduction

The main finding found in goal setting studies is that challenging and specific goal, compared to easy and ambiguous goals, lead to higher performance (Locke, Shaw, Saari, & Latham, 1981). Such things as goals that individuals go for, how to reach it, and how much effort they spend is taken as deliberately controlled (Locke & Kendall, 1965). Since goals provide meaning to meaningless tasks (Latham, 2003), goals are effective in high performance. According to Burton and Naylor (2002), there are two fundamental ways to examine the notion of goals, one of which is considering the goals as a direct motivational strategy that can regulate the behavior regarding effort and attention. The other way is that goals are considered as cognitive drivers for involvement in activities.

Within the goal-setting theory, goal commitment is defined as a necessary condition (Locke, Latham, & Erez, 1988). Goal commitment has been one of the first potential mediator variables defined by Locke (1968), who stated that people avoid trying when faced with a difficult task (uncommitted to a goal) decided the goal is unreachable and were type individuals not spend effort for this goal. Hollenbeck and Klein (1987) hypothesized a theoretical model consisting of antecedents of goal commitment within the goal-setting process by focusing on the conditional and personal factors having impacts on attractiveness and expectation of reaching a goal (see also in Hollenbeck, Williams, & Klein, 1989).

Hollenbeck, Williams & Klein (1989) developed 9-item self-report goal commitment measurement by considering the importance attributed to goal commitment. Hollenbeck, Klein, O'Leary, & Wright (1989) analyzed the structures of 4-, 7-, and 9-item alternative commitment measurement by including discrepancy between self-assigned and assigned goals, motivational power, and the changes in personal goals. Tubbs (1993) and Tubbs & Ekeberg (1991) have criticized the goal commitment measure in some ways. Wright,

O'Leary-Kelly, Cortina, Klein, & Hollenbeck. (1994) designed a study to provide additional data related to the relative effect of past performance (ability) as the results of self-report and discrepancy measures and concluded that self-report goal commitment measurements were less problematic.

Some research in the literature discussed the dimensionality of the goal commitment measure (DeShon & Landis, 1997; Tubbs, 1993). Klein et al. (2001) reanalyzed the structure of goal commitment scale and reduced the items from nine to five. The first goal commitment measure in Turkish literature is the translation of the five-item goal commitment scale by Şenel & Yıldız (2016), who adapted the scale in the Turkish language with the participation of students studying in physical education and sports department.

Goals are important determinants of success in an educational context; however, without commitment, it seems unlikely to reach or struggle for these goals. Thus, measurement of goal commitment in educational context becomes prominent to set academic goals and reach these goals. Because the structure of the Turkish form of goal commitment scale was analyzed by the participation of the students studying in the physical education and sports department, the need for analyzing the contract of the five-item goal commitment scale in an educational context arose. The purpose of this study was to retest the structure of the Turkish version of the five-item goal commitment scale in the field of teacher education.

Method

Participants

465 students at the last level of their pedagogical formation education and studying in departments of coaching education (9,7%, n=45), sport management (4,3%, n=20), recreation (7,5%, n=35), history (6,9%, n=32), accounting (3,9%, n=18), public administration (1,3%, n=6), philosophy (3%, n=14), Turkish language (22,8%, n=106), tourism (16,1%, n=75), English language (5,2%, n=24), mathematics (4,5%, n=21), religious culture and moral knowledge (2,2%, n=10), painting (3,4%, n=16), biology (2,2%, n=10), nursing (5,6%, n=26), and chemistry (1,5%, n=7) were recruited for the study. Veriler 2018-2019 eğitim ve öğretim yılında toplanmıştır.

Measurement - Goal Commitment

Hollenbeck, Williams, & Klein (1989) developed Goal Commitment Scale with nine items. Klein, Wesson, Hollenbeck, Wright and DeShon (2001) revised the scale to 5 items. Şenel & Yıldız (2016) translated the scale in Turkish and tested the reliability and validity with the participation of students studying in the physical education and sports field. The scale is Likert type and has one dimension, including five items (1=Strongly disagree, 5= Strongly agree). The internal consistency coefficient was 0,74 (Klein et al. 2001). DeShon & Landis (1997) examined the dimensionality of the measurement developed by Hollenbeck, Williams & Klein (1989) in a complex task and revealed that it had two dimensions in complex tasks. Klein et al. (2001) reanalyzed the scale and eventually

found the 5-item measurement. Şenel & Yıldız (2016) conducted the validation and reliability analysis of the Turkish form.

Analysis

The data were analyzed by using SPSS and AMOS programs. The demographical features of the participants were analyzed with descriptive statistics. The factor structure was analyzed in both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Keiser-Meyer-Olkin (KMO) and Bartlett's Sphericity values were calculated to see whether the data were proper for the factor analysis. Principle Component Analysis (PCA) was used as the extraction method in EFA. Cronbach's alpha was calculated for internal consistency while the composite reliability result was reported. Chi-square (x2), degrees of freedom (df), Goodness of Fit Index (GFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), SRMR (Standardized Root Mean Square Residual), and RMSEA (Root Mean Square Error Of Approximation) were reported for the fit indexes of the scale structure analyzed in structural equation model. Pearson Correlation method was used for item-total correlation. Measurement invariance analysis for gender was included in the data analytic strategies to see whether the structure was the same for males and females. Configural invariance was calculated with no constraints. Metric invariance was calculated by "forcing the factor fit coefficient to be equal between groups" (male-female) (Başusta, 2010), and scalar invariance was calculated by forcing the threshold. The residuals were constrained for strict invariance. The average difference for both groups was tested by fixing the latent means (see in Procházka, 2019).

Findings

Table 1. The factor structure of goal commitment scale (GCS)

Items	**Error Variances**	**EFA**	**CFA**
		Factor Loadings	
		Goal Commitment	
Item 1	0,45	0,77	0,74
Item 2	0,29	0,84	0,84
Item 3	0,49	0,84	0,71
Item 4	0,53	0,75	0,68
Item 5	0,53	0,81	0,68

Total Variance Explained

Factor	**Eugene Value**	**Variance (%)**	**KMO**	**Bartlett's Test of Sphericity**
Goal Commitment	3,265	65,294	0,83	1091,956 p<0,001

Ort.	***S.S.***	***Skew.***	***A***	**Composite Reliability**
4,39	0,86	-2,07	0,86	0,85

Fit Indexes	**x^2**	**df**	**x^2/df**	**GFI**	**TLI**	**CFI**	**SRMR**	**RMSEA**
	8,31	4	2,07	,99	,99	,99	,016	0,04

Item Correlations	**1**	**2**	**3**	**4**	**5**
Item 1	1				
Item 2	0,645**	1			
Item 3	0,537**	0,597**	1		
Item 4	0,500**	0,567**	0,518**	1	
Item 5	0,473**	0,584**	0,723**	0,506**	1
Total Score	0,763**	0,819**	0,853**	0,758**	0,838**

****p<0,01**

Table 1 displays the factor structure, factor loadings of the scale after EFA and CFA, internal consistency and composite reliability, fit indexes, and item correlations. KMO

value was 0,83 and Bartlett's test of sphericity score was statistically significant (x^2=1091,956, df=10, p<0,001). PCA method was used in EFA. PCA is a simplified form of computation of a general class of dimension extraction analysis (Osborne & Banjanovic, 2016). The main purpose of the Principal component analysis is to calculate the variances of the measured variables instead of explaining the correlations (or covariance) between the variables (Thompson, 2004; Fabrigar & Wegener, 2012). Item distributions in factors with an Eigenvalue higher than one were considered for factor extraction (Fabirgar & Wegener, 2011; Osborne & Banjanovic, 2016). Eigenvalues are always the indexes of information amount represented in some multivariate results (Thompson, 2004). According to EFA results, factor loadings ranged between 0,75 and 0,84 while the loading in CFA changed between 0,68 and 0,84. The scale was one-dimensional as it was in the original study, and the Eigenvalue was 3,265. The contribution of this dimension to the total variance was 65,294%. The internal consistency coefficient (α coefficient) was 0,86. CFA results revealed that the structure of the scale had perfect fit with the data (x^2=8,31, df=4 , x^2/df=2,07, GFI=0,99, TLI=0,99, RMSEA=0,04, SRMR=0,016, CFI=0,99) indicating that the scale worked for the sample.

Table 2. Item Frequencies, Means, Standard Deviations of The Goal Commitment Scale, CCT item analysis, and CFA loadings

	Frequency					Descriptive	CTT Item Analysis		CFA Loadings
	1	**2**	**3**	**4**	**5**	**Mean±S.D**	**α**	**r[1]**	
1) I1	15	15	31	71	333	4,48±0,98	0,843	0,638	0,74
2) I2	11	12	22	26	394	4,67±0,86	0,826	0,732	0,84
3) I3	35	16	35	121	258	4,18±1,18	0,816	0,742	0,71
4) I4	15	22	45	114	269	4,29±1,03	0,846	0,622	0,68
5) I5	46	9	16	66	328	4,33±1,26	0,828	0,707	0,68

CTT – Classical Test Theory, [1]r – item-total correlation corrected, CFA – Confirmatory Factor Analysis Standardized Factor Loadings

Table 2 displays the item Frequencies, means, and standard deviations of the items, CCT item analysis, and CFA loadings. The mean scores and standard deviations of the items ranged between 4,18±1,18 and 4,67±0,86. Considered the contribution of items to the alpha coefficient, deleting any of the items caused a decrease in reliability. Thus, all of the items positively contributed to reliability.

Table 3. Measurement Invariance for Gender

	Model						Model Comparison					
	x^2	**df**	**TLI**	**CFI**	**RMSEA**	**SRMR**	**Δx^2**	**Δdf**	**ΔTLI**	**ΔCFI**	**ΔRMSEA**	**ΔSRMR**
Configural	9,944	8	0,996	0,998	0,023	0,015						
Metric	12,514	12	0,999	1,000	0,010	0,020	2,570	4	0,003	0,002	-0,013	0,005
Scalar	14,764	17	1,000	1,000	0,000	0,020	2,250	5	0,001	0,000	-0,010	0,000
Strict	29,045	22	0,994	0,994	0,026	0,025	14,281	5	-0,006	-0,006	0,026	0,005
Means	37,144*	24	0,990	0,988	0,034	0,033	8,099	2	-0,004	-0,006	0,008	0,008

**p<0.05 (0.042), Chi-square for means was significant. Configural: No constraints. Metric: Loadings were fixed to the same values for both groups. Scalar: Loading and threshold were restricted. Strict: Loadings, threshold, and residuals variances were constrained. Means: Loadings, threshold, residuals variances, and latent means were constrained.*

Table 3 shows the measurement invariance for women and men. McDonald's ω was calculated for both gender, and there was no significant difference between women and men (ω_{women}=0,855 and ω_{men}=0,886). Configural, metric, scalar, strict, and means invariances revealed that goal commitment scale worked in the same way for both genders. Factor loadings related to measurement invariance for women and men were shown in table 4.

Table 4. Factor loadings related to measurement invariance results between women and men

Items	Configural		Metric		Scalar		Strict		Means	
Gender	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
I1	0,684	0,845	0,694	0,838	0,694	0,837	0,723	0,773	0,745	0,745
I2	0,831	0,874	0,845	0,859	0,845	0,859	0,833	0,869	0,845	0,845
I3	0,728	0,700	0,709	0,725	0,709	0,726	0,697	0,749	0,719	0,719
I4	0,683	0,682	0,663	0,707	0,663	0,708	0,662	0,717	0,686	0,686
I5	0,687	0,681	0,671	0,704	0,671	0,705	0,664	0,719	0,685	0,685

After the invariance analyses of configural, metric, scalar, strict, and means, the results showed no significant differences between factor loadings of goal commitment scale for both women and men. All of the factor loadings were found to be high.

Discussion and Conclusion

The purpose of this study was to retest the structure of the five-item goal commitment scale with the participation of students taken the pedagogical formation, which was accepted as one of the teacher education programs. Hollenbeck, Williams, and Klein (1989) developed the scale with nine items. Klein, Wesson, Hollenbeck, and Wright (2001) revised the scale and analyzed the structure by reducing the items to five. Şenel & Yıldız (2016) translated the scale into Turkish and analyzed the structure with the participation of the students in the physical education and sports field and confirmed that the scale had one dimension with five items. The factor loadings of the 9-item scale by Hollenbeck, Williams, and Klein (1989) ranged between 0,42 and 0,98. Klein, Wesson, Hollenbeck, and Wright (2001) conducted factor analyses for both 9-item and 5-item scales. While the factor loadings of 9-item model ranged between 0,31 and 0,67, 5-item measurement had factor loadings between 0,53 and 0,66. The α coefficients for 9-item and 5-item measurements were 0,79 and 0,74, respectively. Şenel & Yıldız (2016) examined the structure of the scale in two steps. In the first step, they conducted EFA with physical education and sports student sample. Secondly, they ran CFA with a different sample, including physical education students. They reported a one-dimensional structure of the scale and α coefficient as 0,74.

The current study revealed the factor structure of the scale and measurement invariance for genders in the educational context. Before factor analysis, KMO and Bartlett's Test of Sphericity values were calculated. The results showed that the data was fit proper for the factor analysis. Measurement invariance analysis showed that the scale worked as the same for both women and men. According to α and McDonald's ω coefficients, the scale had higher reliability (α=0,86; ωwomen=0,85; ωmen=0,88). CTT analysis showed that the items of goal commitment scale positively contributed to scale

reliability. The CFA provided strong evidence for the construct validity with the excellent fit indexes for the model with sample data. The item and total scale correlations can be considered as high. We can conclude that the scale is unidimensional, valid, and reliable, and assesses the goal commitment in an educational context for students.

The meaning of the commitment, structure, and measurement have discussed despite many years of research history (Becker, Klein, & Meyer, 2009; González & Guillén, 2008; Harrison, Newman, & Roth, 2006; Cappelli, 2000). Klein, Molly, and Brisnfield (2012) had a great effort to overcome the concerns about commitment measurements. Studies are needed with different sample groups to support the evidence for commitment research, especially for goals, because studies revealed that commitment had significant consequences for employees and organizations (Becker ve diğerleri, 2009; Cooper-Hakim & Viswesvaran, 2005). Klein, Molly, & Brinsfield (2012). Teachers and academic staff should be included in future research for the measurement in the educational context.

Corresponding Address (Yazışma Adresi):
Dr. Ender ŞENEL
Muğla Sıtkı Koçman Üniversitesi Spor Bilimleri Fakültesi
Beden Eğitimi ve Spor Öğretmenliği Bölümü, 48000 Menteşe/Muğla/Türkiye
E-posta: endersenel@gmail.com

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