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## Sporcular için Antrenör Davranışlarını Değerlendirme Ölçeğinin Boşnakça Uyarlaması (SADDÖ): Geçerlik ve Güvenirlik Çalışması

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### Öz

Bu çalışmanın amacı “Sporcular için Antrenör Davranışlarını Değerlendirme Ölçeğinin” (SADDÖ; Côté, ve diğ.,1999) Boşnakça uyarlamasının geçerlik ve güvenirliliğini sınamaktır. Bu amaçla SADDÖ Boşnakça’ya çevrildikten sonra 14-36 yaş aralığında 82’i erkek (%64,5), 45’i kadın (%35,5) olmak üzere toplam 127 sporcuya uygulanmıştır. Ölçek 7 alt boyut ve 47 maddeden oluşmaktadır ve 7’li Likert derecelendirme içermektedir. Ölçeğin geçerliğini belirlemek amacı ile elde edilen verilerle önce açımlayıcı faktör analizi yapılarak faktör yüklenmelerine bakılmıştır. Ardından açımlayıcı faktör analizinde belirtilen faktörlerin modele uygunluğunu test etmek üzere veriler doğrulayıcı faktör analizi ile incelenmiştir. Açımlayıcı faktör analizi sonuçları özgün ölçek ile tutarlılık göstererek maddeler 7 boyut altında toplanmıştır. Bu 7 faktör toplam değişkenliğin % 67,89’unu açıklamaktadır. Doğrulayıcı faktör analizi sonuçlarına bakıldığında ( $\chi^2/sd= 3.520$ , NFI= 0.90, RMSEA= 0.073, CFI= 0.96 ve IFI= 0.92, GFI= 0.92) 7 faktörlü bir modelle kabul edilebilir bir uygunluk gösterdiği ortaya konmuştur. Ölçeğin 7 boyutunun Cronbach alfa değerleri. 81 ile .92 arasında, toplam değer ise .95’dir. Bu sonuçlar, Boşnakça SADDÖ’nün iç tutarlık ve yapı geçerliği açısından ilgili araştırmalarda kullanılmaya uygun olduğunu göstermiştir.

**Anahtar Kelimeler:** Antrenör davranışları, Faktör analizi, Geçerlik, Güvenirlik

## **The Adaptation of Coaching Behavior Scale for Sport (CBS-S) into Bosnian Language: A Validity and Reliability Study**

### **Abstract**

The aim of the study was to test the construct validity and reliability of the Turkish version of Coaching Behavior Scale for Sport (CBS-S; Côté, et al., 1999). Totally, 88 men (%64, 5) and 45 women (%35, 5) athletes aged between 14-36 years old completed the Bosnian version of CBS-S. CBS-S includes 47 items and 7 sub-dimensions. Each item is rated in 7 point likert type scale. Exploratory factor analysis was conducted to examine the factorial validity of the scale. The findings of the exploratory factor analysis were consistent with the original scale and 7 sub-dimensions were found. Total variance was calculated as % 67,89. Confirmatory factor analysis results ( $\chi^2/sd= 3.520$ , NFI= 0.90, RMSEA= 0.073, CFI= 0.96 and IFI= 0.92, GFI= 0.92) indicated that there was an acceptable fit index values between 7 factor model. Cronbach alpha value of the 7 dimensions of the scale were between .81 and .92, the total value is .95. Results of the study showed that Bosnian version of the CBS-S has good internal consistency and construct validity to use in related studies.

**Keywords:** Coaching behaviors, Factor analysis, Validity, Reliability

## Introduction

Mallett (2007) described high-performance coaching as “a complex, social, and dynamic activity that is not easily represented as a set of tangible and predictable processes ... and might be considered within a broader set of relations: the interdependence between (a) the coaching tasks undertaken by coaches, (b) coaches’ relations with other people (e.g., athletes, other coaches, parents), and (c) the coaching situation and context in which they operate”. The complexity of high-performance coaching necessitates ongoing cycles of planning, monitoring, implementing, and reviewing to respond to the dynamic characteristics of coaching (Bowes and Jones,2006). Therefore, the work demands for high-performance coaches are significant (Lyle,2002). Hence, assessing their work should be done using a multi-dimensional behavioral framework to better reflect their performance. Unfortunately, despite these difficult and complex challenges in high performance coaching, evaluation of sports coaches’ effectiveness is mainly focused on performance outcomes such as win-loss records (Mallett and Côté,2006, Koh et al.,2009).

Côté et al. (1999) have developed the Coach Behaviors Scale for Sport (CBS-S) as a tool for measuring the quality of high-performance coaches’ behaviors. This model of coaching behaviors is suitable for all forms of coaching, including participation and performance (Koh et al,2014). It aims to collect quantitative data on coaches’ behaviors, providing feedback to them and guiding their personal development. It has been used in countries like Canada, the USA, Turkey and Australia and found to be useful (Mallett and Côté,2006).

High-performance coaching is a highly complex vocation and is bounded by context and culture (Lyle,2002). Research findings from the CBS-S conducted in Canada, Australia, and the USA cannot be generalized to the Europa context. Furthermore, Côté et al. recommended that “cross cultural validation studies of the CBS-S should be carried out” (Côté et al.,1999) to better understand and evaluate the work of high-performance coaches (Koh et al.,2009). The CBS-S measures seven dimensions of a coach’s consistent involvement with the athletes in the complex training and competition coaching environments. They are Physical Training and Planning (the coach’s involvement in the athlete’s physical training and conditioning for training and competition), Technical Skills (the coach’s provisions of feedback, demonstration, and cues), Goal Setting (the coach’s involvement in identifying, developing, and monitoring the athlete’s goals), Mental Preparation (the coach’s involvement in providing the athlete with advice on how to perform well under pressure), Competition Strategies (the coach’s constructive interaction with the athlete in competition), Personal Rapport (the coach’s approachability, availability, and understanding of the athlete), and Negative Personal Rapport (the coach’s use of negative techniques such as fear and yelling for coaching), (Koh et al,2014).

Therefore, a study was conducted in Bosnian to examine the ecological validity of the CBS-S in the Bosnian context. For a research study to possess ‘ecological validity’, the methods, materials and setting of the study must approximate the real-life situation that is under investigation (Gratton and Jones,2004, Koh and et al,2009). Therefore, the purpose of this study was to examine the behaviors of high-performance taekwondo coaches using the existing CBS-S with the national team coaches, players and team managers in the Bosnian context.

## Method

Coaching Behavior Scale for Sport (CBS-S; Côté, et al., 1999). Totally, 88 men (%64, 5) and 45 women (%35, 5) athletes aged between 14-36 years old completed the Bosnian version of CBS-S. CBS-S includes 47 items and 7 sub-dimensions. Each item is rated in 7 point Likert type scale. The Coaching Behavior Scale for Sport (CBS-S) is an instrument that assesses coaching behaviors from athletes' perspectives. It has been modified and the current version of the CBS-S consists of 47 items, 2 measuring seven dimensions of coaching behaviors: Physical Training and Planning (7 items), Technical Skills (8 items), Goal Setting (6 items), Mental Preparation (5 items), Competition Strategies (7 items), Personal Rapport (6 items), and Negative Personal Rapport (8 items). Respondents were asked to rate their coach's behaviors by responding to each of the items on a 7-point Likert scale, ranging from 1 (*never*) to 7 (*always*). (Koh et al, 2014). The data were analyzed using SPSS (Version 20.0) producing basic statistics. Statistical significance was set at  $P < 0.05$ . Reliability was analyzed by calculating Cronbach alpha coefficient ( $C\alpha$ ). Homogeneity was analyzed by factor analysis with oblique rotation (percentage of explained variance (% VAR)). The sensitivity of measuring instruments was tested with Kolmogorov - Smirnov test to determine normality (KS).

## Results and Discussion

During the validation of the first and last dimension of the CBS-S questionnaire (Physical Training and Planning and Negative Personal Report) factor analysis resulted in two significant components. CBS-S are exploratory factor analysis to examine the factorial validity of the in table 1. The proposed new dimension and items were content analyzed.

**Table 1.** Exploratory factor analysis to examine the factorial validity of the scale

Subscale	Factor number	Factors common variance	Factor loadings	Described Variance
<b>Physical Training and Planning</b>	Item 1	0.570	0.633	20.88
	Item 2	0.602	0.662	
	Item 3	0.538	0.612	
	Item 4	0.651	0.660	
	Item 5	0.695	0.619	
	Item 6	0.721	0.733	
	Item 7	0.647	0.726	
<b>Technical Skills</b>	Item 8	0.749	0.675	10.28
	Item 9	0.699	0.720	
	Item 10	0.720	0.704	
	Item 11	0.608	0.599	
	Item 12	0.454	0.517	
	Item 13	0.636	0.529	
	Item 14	0.627	0.378	
	Item 15	0.718	0.436	
<b>Mental Preparation</b>	Item 16	0.621	0.546	9.03
	Item 17	0.728	0.605	

	Item 18	0.702	0.668	
	Item 19	0.759	0.635	
	Item 20	0.752	0.673	
<b>Goal Setting</b>	Item 21	0.737	0.608	8.69
	Item 22	0.736	0.618	
	Item 23	0.753	0.740	
	Item 24	0.752	0.704	
	Item 25	0.781	0.688	
	Item 26	0.642	0.651	
		Item 27	0.700	
<b>Competition Strategies</b>	Item 28	0.659	0.602	
	Item 29	0.738	0.718	
	Item 30	0.652	0.689	
	Item 31	0.725	0.692	
	Item 32	0.790	0.775	
	Item 33	0.744	0.750	
		Item 34	0.724	0.735
<b>Personal rapport</b>	Item 35	0.591	0.627	
	Item 36	0.633	0.699	
	Item 37	0.598	0.600	
	Item 38	0.747	0.812	
	Item 39	0.716	0.806	
		Item 40	0.428	0.557
<b>Negative personal rapport</b>	Item 41	0.468	0.580	
	Item 42	0.529	0.695	
	Item 43	0.630	0.755	
	Item 44	0.894	0.938	
	Item 45	0.874	0.925	
	Item 46	0.835	0.891	
	Item 47	0.636	0.604	
<b>Total announced Variance</b>				

(KMO: 0.88;  $\chi^2$ :5168.457;  $p < 0.05$ )

Physical Education and Planning load factor was found to be between 0,662 and 0,733.

Factor loadings; Technical Skills has found that the 0,454 and 0,749. Mental Preparation load factor was found to be between 0,621 and 0,759. Factor loadings; Goal Setting has found that the 0,642 and 0,781. Competition Strategies has found that the 0,652 and 0,790. Factor loadings; Personal rapport has found that the 0,591 and 0,747. Negative personal rapport has found that the 0,428 and 0,894 (Table 1). Factor loading is deemed sufficient in the literature to be greater than 0,40 (Field, 2000). The findings of the exploratory factor analysis were consistent with the original scale and 7 sub-dimensions were found. Total variance was calculated as % 67,89

### Confirmatory Factor Analysis

Confirmatory factor analysis of the square ( $\chi^2$ ) = 1053.40 and statistically  $p < 0.05$  significant level and 295 degrees of freedom is calculated.  $\chi^2 / SD$  ratio is calculated as 3,520. Absolute harmony of the index; GF value was found to be 0,92.

**Table 2.** Confirmatory Factor Analysis Findings for CBS-S

	Results	Reference Values
$\chi^2(sd=295)$	1053.40	$P < 0.05$
$\chi^2/sd$	3.520	$< 5.00$
NFI (the normal fit index)	0.90	$> 0.90$
RMSEA	0.073	$< .08$
IFI	0.92	$> 0.90$
CFI	0.96	$> 0.90$
GFI	0.92	$> 0.85$
Item Relationship Factor	0.42 – 0.89	$p < 0.01$

The root mean square error of approximation (RMSEA) corrects the tendency of the  $\chi^2$  to reject models with large same size or number of variables. A lower RMSEA ( $< .05$ ) value indicates a good fit and it is often reported with a confidence level at 95% level to account for sampling errors associated with the estimated RMSEA. A widely used index example is the Comparative Fit Index (CFI) which indicates the relative lack of fit of a specified model versus the baseline model. It is normed and varies from 0 to 1, with higher values representing better fit. CFI is widely used because of its strengths, including its relative insensitivity to model complexity (Khine, 2013). In this study, Confirmatory factor analysis results ( $\chi^2/sd = 3.520$ , NFI = 0.90, RMSEA = 0.073, CFI = 0.96 and IFI = 0.92, GFI = 0.92) indicated that there was an acceptable fit index values between 7 factor model. Item Relationship Factor is between 0, 42 and 0, 89 (Table 2).

## Results for Reliability

**Table 3.** CBS-S Factor loadings and residuals in exploratory structural equation modeling

	Mean	Sd	F1	F2	F3	F4	F5	F6	F7	Alpha
<b>Physical Training and Planning</b>	5.26	1.24	-							.83
<b>Technical Skills</b>	6.16	1.02	.61)	-						.89
<b>Mental Preparation</b>	5.92	1.34	.59	.69	-					.89
<b>Goal Setting</b>	5.51	1.47	.54	.68	.68	-				.91
<b>Competition Strategies</b>	5.98	1.30	.62	.72	.75	.75	-			.93
<b>Personal rapport</b>	6.14	1.27	.51	.67	.69	.71	.85	-		.90
<b>Negative personal rapport</b>	1.97	1.22	-.10	-.11	-.17	-.14	-.16	-.07	-	.86

Physical Training and Planning was found mean 5, 26, Technical Skills 6, 16 and Mental Preparation 5, 92. Goal Setting was found mean 5, 51, Competition Strategies 5, 98, Personal rapport 6, 14 and Negative personal rapport 1, 97 (Table 3). As expected, all CBS-S factors except for Negative Personal Rapport were positively correlated with Coaching Satisfaction. These results supported the concurrent validity of the CBS-S responses.

The seven factors of the CBS-S are the following (Mallet and Cote, 2006):

1. Physical Training and Planning (PTP; seven items about the coach's involvement in the athlete's physical training and planning for training and competition).
2. Goal Setting (GS; six items assessing the coach's involvement in the identification, development, and monitoring of the athlete's goals).
3. Mental Preparation (MP; five items focusing on how the coach helps the athlete to perform under pressure, stay focused, and be confident).
4. Technical Skills (TS; eight items about coaching feedback, demonstration, and cues)
5. Personal Rapport (PR; six items assessing the approachability, availability, and understanding of the coach).
6. Negative Personal Rapport (NPR; eight items examining the coach's use of negative techniques such as fear and yelling).
7. Competition Strategies (CS; seven items focusing on the coach's interaction with the athlete in competition).

## Conclusion

In order to resolve this gap in the literature, the factor structure of the CBS-S was carefully examined in the present study for Bosnian taekwondo athletes by using approaches. The results from both approaches indicated that the seven-factor structure model adequately represented the CBS-S responses. In addition to model assessment as a whole, convergent and discriminant validity of the seven factors was supported through the examination of individual parameter estimates. Internal consistency estimates for the seven factors were also found to be satisfactory and indicated that all subscales were internally consistent. There are several practical implications from this study. The CBS-S has been considered practically useful to provide feedback to coaches about their practice in taekwondo sport settings. Results of the study showed that Bosnian version of the CBS-S has good internal consistency and construct validity to use in related studies.

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