The adaptation of teacher enthusiasm scale into Turkish language: Validity and reliability study

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Abstract

The present study aims to adapt the "Teacher Enthusiasm Scale" developed by Kunter, Frenzel, Nagy, Baumert and Pekrun (2011) to Turkish and carry out validity and reliability analyses for the Turkish version of the scale. Study group 1 consisted of teachers working in the province of Antalya in the 2019-2020 academic year. Linguistic equivalence studies were carried out to determine the consistency between the Turkish version of the scale and the English version. Study group 2 involved 529 teachers working in various provinces of Turkey in the 2019-2020 academic year. Based on the findings obtained, it can be suggested that the Teacher Enthusiasm Scale is an appropriate data collection tool to evaluate teaching enthusiasm and subject enthusiasm based on teachers' perceptions. Within the scope of this research, the concept of teacher enthusiasm was introduced to the national literature, and validity and reliability analyses of a scale that can be used to evaluate teachers' perceived enthusiasm for teaching and the subject were carried out through the adaptation of the scale into Turkish. These findings indicate that the psychometric properties of the Turkish version of the Teacher Enthusiasm Scale are appropriate.

1. Introduction

One of the most important factors indicating the quality of education system of a country is the quality of teachers officiating at that country. And one of the most important indicators of the quality of teacher is the affection for the profession. It is of importance in literature to search the factors that may hinder the affection of teachers, who spin the wheel of education systems, for their profession. In studies performed with this purpose, the factors such as burnout levels of the teachers (Durak & Seferoğlu, 2017;

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García-Arroyo, Segovia & Peiró, 2019; Starchenkova, Nikiforov, Vodopyanova, Dudchenko & Rodionova, 2019; Tümkaya, 1999), their job satisfaction (Okumuş, Mete, Bakiyev & Kaçire, 2013; Skaalvik & Skaalvik, 2017; Tunç, 2019), their satisfaction with life (Erdamar & Demirel, 2016; Kartal, Yirci & Özdemir, 2015; Olcar, Rijavec & Golub, 2017), their job motivation (Ada, Akan, Ayık, Yıldırım & Yalçın, 2013; Han & Yin, 2016; Sarı, Canoğulları & Yıldız, 2018; Schiefele, 2017), their self-efficacy perceptions (Aldridge & Fraser, 2016; Buluç & Demir, 2015; Güvenç, 2011; Skaalvik & Skaalvik, 2010) that may positively or negatively affect the effective teaching of the teacher are frequently being searched.   It is being specified that these factors are affecting the teaching and learning process and the quality of students (Schiefele, 2017; Shoshani & Eldor, 2016) as well as the quality of teachers (Skaalvik & Skaalvik, 2017). Moreover, one of the factors whose effect on the teachers, students and the process is being underlined is the teacher enthusiasm (Kunter, 2013; Lazarides, Gaspard & Dicke, 2019; OECD, 2019).

Teacher enthusiasm is being defined as nonverbal expression that the teacher reflects to others (Baloch & Akram, 2018); teacher behaviors such as making clear and effective presentations, enabling interaction, and organizing (Hadie, Hassan, Talip & Yusoff, 2019); sufficiency of the teacher, and effective teacher characteristic based on positive feelings (Keller, 2011; Keller, Becker, Frenzel & Taxer, 2018); positive emotional experiences that the teacher gains while performing her/his duty (Keller, Goetz, Becker, Morger &Hensley, 2014), and continuous and repetitive feelings made as habit based on emotional experiences (Kunter, Tsai, Klusmann, Brunner, Krauss & Baumert, 2008). Teacher enthusiasm may be defined as the state of teachers being under the effect of positive feelings while fulfilling their profession. Motivating and energetic teaching of the teachers is being interpreted as their enthusiasm (Patrick, Turner, Meyer & Midgley, 2003). The teachers, who had not lost their enthusiasm and excitement, are being defined as idealist, but it is being specified that mostly the teachers, who recently started working, are idealist (Ünsal, 2018; Yıldız, 2013). However, one of the most important musts of effective teaching is enthusiastic teachers who enjoy teaching and who had not lost their excitement (Hotaman & Şahin, 2010). It is being specified that enthusiasm has a contagious effect in teaching and learning process, and that the students also feel enthusiastic if the teacher is enthusiastic (Bacanlı, 2002). Teacher enthusiasm is increasing the desire of teaching of the teacher, and making her/him seek how s/he can teach in the best manner. Thus, teacher enthusiasm positively affects the teaching and learning process (Bedir & Yıldırım, 2000; Cui, Yao & Zhang, 2017; Kunter, 2013); behaviors of the teachers (Hadie at al., 2019); learning of students (Keller, Neumann & Fischer, 2013; Kunter, Klusmann, Baumert, Richter, Voss & Hachfeld, 2013); success of students (Allen, Witt & Wheeless, 2006; Kunter, 2013); interest of students (Keller et al., 2014); motivation of students (Meece, Anderman & Anderman, 2006; Patrick, Hisley & Kempler, 2000); and quality of education (Kunter et al., 2008).

In modern education systems, it is expected for the teachers to be a guide in the teaching and learning process in a manner as to require the teacher enthusiasm (Dewey, 1997). Guidance means recognizing each student as an individual, and knowing how the students learn the best rather than directing them in the process for supporting their learning. One of the teaching services of the teachers, who are responsible for organizing the teaching and learning process in the classroom, is to organize the teaching and learning process by giving the correct clues (signs) to the students (Bloom, 1976). These clues are indicators showing the students how they can learn the best. It is expected for the teacher, who is a guide, to know her/his students, and to provide an environment where they can learn in the best manner. The method, technique, materials, questions, tone of voice, gesture and mimics etc., that the teacher opts in preparing such an environment, are clues for the students regarding how they can learn in the best manner if they consider these. Being a guide for the student by preparing the correct clues is harder than being an information transmitter. And it is clear that one of the basic feelings enabling to overcome this difficulty is enthusiasm. Enthusiasm ensures the teacher to intend more than the standard duties that are required to be fulfilled pursuant to her/his profession, and to endeavor for giving correct clues conforming to her/his students. In this sense, enthusiastic teacher may be defined as one striving for carrying out the teaching and learning process in the best manner, and fulfilling the duty of guidance for the student which is required for a good teaching and learning process. Thus, it is natural for the student to be affected by this enthusiasm in the classroom environment (Kunter, 2013; Keller et al., 2014). But it can be said that especially experimental studies, which may reveal this state, are inadequate in literature (Kunter, Frenzel, Nagy, Baumert & Pekrun, 2011). As similar to reflection of teacher enthusiasm on the students, it can be said that teacher enthusiasm will make a difference also in the teaching and learning process, because the teachers are the ones who are organizing that process (Bedir & Yıldırım, 2000). It is important for the teacher to be enthusiastic while fulfilling the teaching services being under her/his responsibility.

Among the teaching services of the teachers, there are provision of suitable reinforcing stimulus for the students at the correct point and time, and provision of feedback and correction as well as provision of suitable clues used while organizing the teaching conditions (Bloom, 1976). All these factors, revealing the quality of teaching service, may also be deemed as indicators of teacher enthusiasm (Hotaman & Şahin, 2010). Allowing the student to speak and present her/his opinion during the course, listening to the opinions of the students, providing feedbacks regarding their correctness and incorrectness, and correcting their incorrectness are factors supporting teacher enthusiasm (Bedir & Yıldırım, 2000). Because these factors are also indicators of the effort of the teacher to communicate with the student, and the communication and interaction in between the teacher and student ensures the presence of enthusiasm (Lincoln, 2008). Reinforcing stimuli (awards), that may be used in the teaching and

learning process in order to promote the desired behaviors of the students, support the teacher and student interaction (Can, 2005), and thus the teacher and student enthusiasm (Gözütok, 2004) in the teaching and learning process provided that they are used correctly in accordance with the level of the student.

In the teaching and learning process, fluent, stimulating and attracting presentation that the teacher performs during the course may be deemed as one of the significant indicators of her/his enthusiasm (Bedir & Yıldırım, 2000). Being able to present the course in accordance with the interest and level of the student with an effective manner when required, being able to adjust her/his tone of voice, being able to emphasize the important points with her/his tone of voice, being able to address correct points that may stimulate the student, being able to adjust the tone, speed and pitch of voice according to the student during the presentation ensures the course to be interesting for the student, and reveals the enthusiasm of the teacher for the course and for teaching (Keller, Hoy, Goetz, & Frenzel, 2015; Lincoln, 2008). Moreover, not repeating the same words much, caring to select the correct words and especially frequently using the adjectives during the presentation reveal the teacher enthusiasm in the process (Hotaman & Şahin, 2010).

Being able to make eye contact with a positive facial expression, as revealing the presence of the student in the classroom, is also among the indicators of teacher enthusiasm (Keller et al., 2015; Gözütok, 2004). The courses performed with semi closed eyes as avoiding from eye contact, or communication established with a grumpy, straight and unenthusiastic face may give the student the opinion that the teacher is not aware of her/his presence, or that the teacher may get angry and show a negative attitude if s/he makes eye contact. And this state may cause the student to be alienated from the course in spirit. It is required for the teacher to keep the student in classroom environment spiritually as well as keeping physically, and to try to help the student to feel the eagerness and enthusiasm by showing that s/he is eager and enthusiastic during the course even if s/he will not be able to know what is in the mind of the student. For this reason, complete open eyes of the teacher during the course, her/his vivid and positive facial expression, and her/his endeavor for making eye contact with each of the students make the students think that they are expected to make eye contact in the same manner, and alienation and daydreaming of the students may be prevented. In this sense, it can be said that eye contact made with open eyes and preserving a positive facial expression for attracting the teacher and students to the course both physically and spiritually are required for increasing the enthusiasm of the teacher and of the students, and for having an effective teaching.

As well as eye contact and facial expression, the use of clues such as gestures and mimics by the teacher may be an indicator of her/his enthusiasm (Keller et al., 2015). The use of such clues by the teacher at correct times in the teaching and learning process in a manner as not distracting the concentration of the students may be effective for drawing

the attention of students, for making the teacher dynamic and vivid, and for making the course non-monotonous (Can, 2005). As a matter of fact, the energy of the teacher, and her/his vivid and dynamic behaviors show that s/he is enthusiastic (Hotaman & Şahin, 2010).

1.1. Propose of the study

Kunter et al. (2011) had specified that teacher enthusiasm consists of two sub-dimensions as being teaching enthusiasm and subject enthusiasm.   The teaching enthusiasm had been expressed as teaching of the course by the teacher with great enthusiasm, and the teacher's enjoyment of teaching the course, teaching new things, the act of teaching, and having interaction with the students. And subject enthusiasm had been defined as enthusiastic state of the teacher while making studies in her/his field of specialization, her/his opinion regarding that her/his field is exciting, and her/his desire to share that excitement with the students, studying in her/his field being one of her/his favorite activities, her/his enjoyment of working in her/his field, and her/his desire not to alienate from working in her/his field as s/he enjoys it.   Teacher Enthusiasm Scale, developed by Kunter et al. (2011), is being used for determining the enthusiasm of teachers abroad in teaching and learning process (Kunter, 2013), and this study is genuine in terms of adaptation of the scale to Turkish which had not been previously adapted.   No current and extensively used assessment tool for determining teacher enthusiasm in Turkey was found (Gözütok, 2004). In fact, the number of studies performed for determining the enthusiasm of teachers officiating in Turkey is very few (Bedir & Yıldırım, 2000; Fidan, 2014; Gözütok, 2004; Hotaman & Şahin, 2010). And it is drawing attention that these studies in national literature are not up-to-date. Frequent search of teacher enthusiasm in international studies (Cui et al., 2017; Hadie et al., 2019; Keller et al., 2014; Keller et al., 2015; Orosz, Kiraly, Bothe, Kusztor, Kovacs & Janvari, 2015; Sheppard, Hurley & Dibbon, 2010; Wenström, Uusiautti, & Määttä, 2019), and deeming of teacher enthusiasm as one of the significant factors of effective education (Keller et al., 2013; Keller et al., 2018; OECD, 2019) constitute the ground of adaptation operation performed in this study. In PISA (2018) report, teacher enthusiasm had been addressed as one of the significant variables affecting the education and teaching, and the positive effect of teacher enthusiasm on the reading performance, behavior and motivation of the students had been emphasized (OECD, 2019). By adaptation of the scale to Turkish, it is being considered that it will be contributed to national studies to be performed relevant to teacher enthusiasm, and thus results comparable with international studies may be obtained. Based on the specified grounds, the purpose of the research is to adapt to Turkish the Teacher Enthusiasm Scale developed by Kunter et al. (2011).

2. Method

2.1. Study group

This research was carried out with teachers officiating at state and private pre-school education institutions, primary schools, secondary schools and high schools. 529 teachers, from 36 different provinces of Turkey, participated in the research. The data was collected in the spring term of the academic year of 2019-2020. The form of scale was primarily sent via internet to 60 teachers determined through convenience sampling. The participants were asked to send link of the scale, which was sent to them, to the teachers they know who were officiating at all the state and private schools in Turkey after completing the answering of the scale. By the use of snowball sapling method in this manner, it was reached to 529 teachers, and the data was collected via the internet (Yıldız, 2017). It was determined that teachers participating in the research were officiating in 31 different fields of study. It was tried to ensure maximum range by the inclusion in the research of teachers officiating in different fields of study, and it was cared for the items of the scale not to be relevant to a specific group. 73.2% (n=387) of the participants, whose professional seniorities vary in between 1 and 39 years (average of professional seniority = 18.66; SD=10.83), were female teachers, and 26.8% (n=142) of them were male teachers. 9.1% (n=48) of the teachers were officiating at pre-school level, 23.6% (n=125) of them were officiating at primary school level, 37.4% (n=198) of them were officiating at secondary school level, and 29.9% (n=158) of them were officiating at high school level. It was observed that 10.6% (n=56) of the teachers were officiating at private schools, and 89.4% (n=473) of them were officiating at state schools. Their age average was 41.10 (SD=4.04).

2.2. Data Collection Tool

2.2.1. Teacher Enthusiasm Scale (TES)

The Teacher Enthusiasm Scale, developed by Kunter et al. (2011), consists of 10 items and two sub-scales. These two sub-scales had been named as i) teaching enthusiasm (enthusiasm for teaching), and ii) subject enthusiasm (enthusiasm for the subject) (see Appendix A). The dimension of teaching enthusiasm consists of five items, and the dimension of subject enthusiasm also consists of five items. The adaptation to Turkish of this scale, that intends to determine the enthusiasms of the teachers for teaching and subject, was actualized by the researchers as the result of obtaining the required permits from the relevant author who had developed the scale and who is a corresponding author. By the scale, the opinions were obtained through a five point Likert scale type rating in the form of (5) I definitely agree, (4) I agree, (3) I'm uncertain, (2) I don't agree, and (1) I definitely don't agree.

2.3. Process of adaptation of data collection tool

The scale in the original form in English was translated to Turkish by two instructors, who were officiating at department of educational sciences of faculty of education of a state university, and who have good command of both languages, based on translation - back translation technique (Brislin, Lonner, & Thorndike, 1973) from among linguistic equivalence studies. The translated scale was reviewed by two linguists of Turkish language, and corrections were made in some items. And then, the final Turkish form of the scale was translated to English by two instructors who have good command of both languages, and who were officiating at sub-department of foreign languages. Thus, it was examined whether the items of original form in English were tallying with the items of the back translated form.

The translated items of scale was assessed by seven instructors, having specialization at various sub-departments of department of educational sciences, in order to examine the content validity, face validity, and language (grammar) and content (readability and comprehensibility) integrity. In the assessment process, Content Validity Index (CVI) was calculated (Davis, 1992). The CVI values of the items (in between .78-1.00; .85 for the whole scale) indicated that the content validity was at acceptable level (Davis, 1992). Consequently, in the direction of reviewed, assessed and developed suggestions of the specialists, the Turkish form of the scale was drawn up prior to linguistic equivalence.

And at the final stage, it was tried to determine the consistency in between the Turkish form and original form in order to test the linguistic equivalence of the scale. For this, primarily the English original form of the scale and then its Turkish form were applied by two weeks intervals to a study group (Study 1) which was formed of English teachers who were officiating at various educational levels at the province of Antalya in the academic year of 2019-2020, and who volunteered to participate in the research. It was regarded for the study group (Study 1), on which the linguistic equivalence application was made, to be of a quality of representing the study group (Study 2) on which the adapted scale would be applied.

2.4. Data Analysis

The data of Study Group 1 was collected on February – March 2020 in the academic year of 2019-2020, and the data of Study Group 2 was collected on April 2020 in the academic year of 2019-2020. SPSS 23.0 and LISREL 8.54 software packs were used in the analysis of data. Exploratory and confirmatory factor analyses were performed for determining the construct validity of the scale, composite reliability analysis was performed for ensuring the convergence validity, and Cronbach's alpha internal consistency coefficient values were calculated for reliability.

The goodness of fit among the factor constructs of the adapted scale was interpreted by examining the acceptability statuses of the values of adjusted goodness of fit index (AGFI ≥ .90), goodness of fit index (GFI≥ .85), comparative fit index (CFI ≥ .95), normed fit index (NFI≥ .90), Root Mean Square Error of Approximation (RMSEA ≤ .10), Standardized Root Mean Square Residual (SRMR ≤ .10), and Root Mean Square Residual (RMR ≤ .10) (Hair, Black, Babin, Anderson, & Tatham, 2006; Kline, 2016; Schermelleh- Engel, Moosbrugger and Müller, 2003). Moreover, some researchers had expressed their opinions regarding that the x2/sd ratio being smaller than 5 is acceptable for the fit of model (Çokluk, Büyüköztürk, & Şekercioğlu, 2018).

3. Results

In this part of the research, findings regarding scale's linguistic validity, exploratory factor analysis, confirmatory factor analysis, composite reliability, and reliability are being presented.

3.1. The TES's Linguistic Validity

By the data obtained from the test applications of English and Turkish forms, Pearson correlation coefficients were calculated for all the items of the scale. It was observed that Pearson correlation coefficients of all the items of the scale were varying in between .470- .844 for teaching enthusiasm, and in between .758-.829 for subject enthusiasm, and that they had a significant relation at the level of p<.01 and p<.05. The findings obtained indicate that the consistency in between the two applications of the scale was at acceptable level, and that the linguistic equivalence was ensured.

3.2. The TES's Exploratory Factor Analysis (EFA)

Exploratory factor analysis was applied for examining the construct validity of the Teacher Enthusiasm Scale. In exploratory factor analysis, the items' factor load values of above 0.40 were included in the calculation (Hair et al., 1998). According to "Kaiser-Meyer-Olkin (KMO)" test, indicating the sufficiency of sample size, KMO value was determined as 0.919. The KMO value being above 0.90 indicated that the sample size is of perfect level (Şencan, 2005). And the result of Bartlett Sphericity Test, specifying the conformity of data, was calculated as χ2= 3345.878 (p<.01). The P value being lower than 0.05 in Bartlett Sphericity Test had indicated that there is a sufficient level of relation among the items of the scale (Sipahi, Yurtkoru, & Çinko, 2006). Principal components analysis and varimax rotation method were applied in the scale's exploratory factor analysis, and two sub-scales and 10 items were obtained. The scale's rate of expounding the total variance was calculated as 69.668, and it was observed that the dimensioning

performed by the data of this study completely tally with the dimensioning in the original form. In Table 1, the findings of EFA are available.

Table 1. EFA findings for Teacher Enthusiasm Scale

I	Items and Sub-scales	Total variance	Factor loading
	Teaching Enthusiasm [Öğretme Coşkusu]	37.526	
I1	I teach [mathematics in this class] with great enthusiasm. [Dersimi büyük bir coşkuyla öğretirim.]		.620
I2	I really enjoy teaching [mathematics in this class]. [Dersimi öğretmekten zevk alırım.]		.772
I3	I always enjoy teaching students new things. [Öğrencilere yeni şeyler öğretmekten zevk alırım.]		.807
I4	I enjoy interacting with students. [Öğrencilerle etkileşimde bulunmaktan zevk alırım.]		.682
I5	It's a pleasure to teach. [Öğretmek büyük bir zevktir.]		.781
	Subject Enthusiasm [Alan Coşkusu]	32.142	
I6	Even now, I am still enthusiastic about my subject [the subject of mathematics]. [Alanımla ilgilenirken coşkulu olurum.]		.708
I7	I find my subject [the subject of mathematics] exciting and try to convey my enthusiasm to the students. [Alanımı heyecan verici bulurum ve heyecanımı öğrencilere aktarmaya çalışırım.]		.748
I8	Engaging in my subject is one of my favorite activities. [Alanımla ilgilenmek benim en sevdiğim etkinliklerden biridir.]		.866
I9	I engage in my subject because I enjoy it. [Zevk aldığım için alanımla ilgilenirim]		.867
I10	Because engaging in my subject is fun, I wouldn't want to give it up. [Alanımla ilgilenmek zevkli olduğu için alanımda çalışmayı bırakmak istemem.]		.780
KMO	.919 Total variance explained	69.668	

When Table 1 was examined, it was observed that the factor loads of items in the dimension of teaching enthusiasm, consisting of 5 items, were varying in between .620 and .807, and that the rate of variance it had expounded was 37.526%. The subject enthusiasm dimension, consisting of five items, had expounded 32.142% of the total variance, and factor loads of the items were varying in between .708 and .867.

3.3. The TES's Confirmatory Factor Analysis (CFA)

The construct of 10 items and two dimensions, obtained in the original scale, was tested by confirmatory factor analysis. Fit indices of the model, obtained as the result of scale's confirmatory factor analysis, were examined, and it was determined that this model's conformity statistics of [$\chi2$=209.16, sd=34, p<,001] , ($\chi2$/sd)= 6,15; RMSEA = .099, AGFI = .88, GFI = .93, CFI = .95, NFI = .94, SRMR= .047, and RMR = .015 were within the acceptable criterion values except the value of ($\chi2$/sd), and that the model was significant with the date (Jöreskog & Sörbom 1993; Marsh & Hocevar 1988; Schermelleh-Engel, Moosbrugger & Müller, 2003). As the value of ($\chi2$/sd) was above 5, modification was actualized. Fit index data, obtained as the result of modification actualized in items

8 and 9, are as follows: $\chi2=161.33$, sd=33, P<0,001] , ($\chi2$/sd)= 4.88; RMSEA = .086, AGFI = .90, GFI = .94, CFI = .96, NFI = .95, SRMR= .040, and RMR = .013.

Factor load values, error coefficients, and values of correlation in between the dimensions regarding the scale's two-dimensional model are shown in Figure 1.
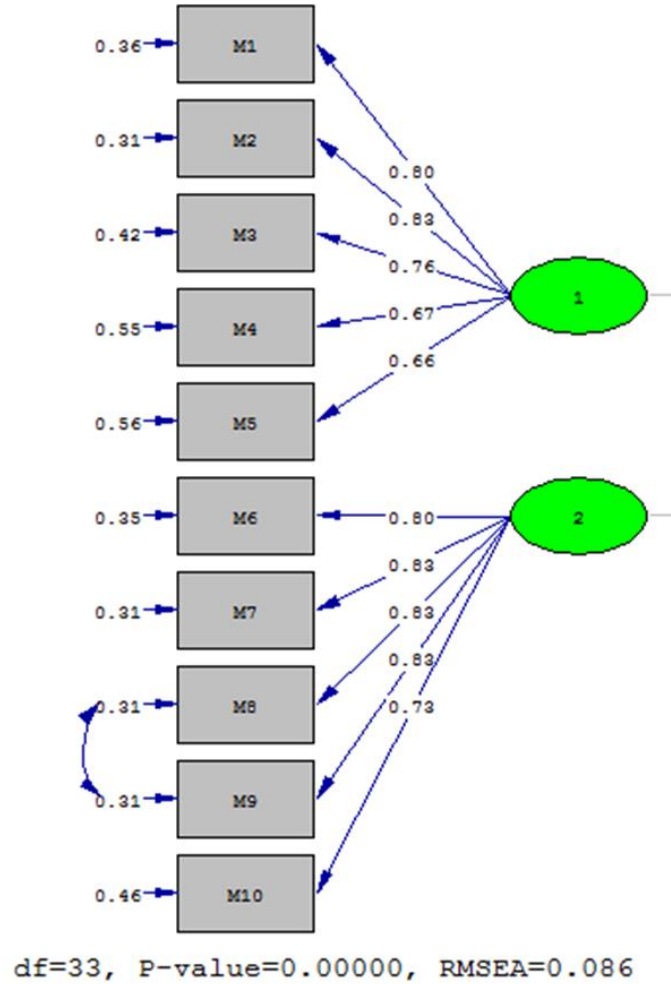

df=33, P-value=0.00000, RMSEA=0.086

Figure 1. Model of confirmatory factor analysis regarding teacher enthusiasm scale

In Figure 1, when the Lambda-x (λ) values indicating the factor loads are examined, it is being observed that these values vary in between .66 and .83 for items in the teaching enthusiasm dimension, and that they vary in between .73 and .83 for items in the subject enthusiasm dimension. It can be stated that the obtained factors loads are statistically significant at the level of p<.05, and at sufficient level. Consequently, the two dimensional construct of the relevant scale was also verified by the confirmatory factor analysis.

The information on t and λ (variance extracted – squared multiple correlation) values of the items consisting the Teacher Enthusiasm Scale is shown in Table 2.

Table 2. t and R²(variance extracted) values of items of the Teacher Enthusiasm Scale

Items	Teaching Enthusiasm		Items	Subject Enthusiasm	
	λ	t		λ	t
I1	.80	21.28	I6	.80	21.61
I2	.83	22.39	I7	.83	22.77
I3	.76	19.73	I8	.83	22.59
I4	.67	16.66	I9	.83	22.58
I5	.66	16.35	I10	.73	19.00

3.4. The TES's Composite Reliability

In order to ensure the convergence validity of the scale, composite reliability operation, covering the construct reliability and average variance extracted (AVE), was performed. The construct reliability was calculated by the formula of $(\sum \text{Factor loadings})^2 / [(\sum \text{Factor loadings})^2 + \sum \text{Error coefficient}]$, and it was considered to meet the assumption of the obtained value being above 0.70. And the variance extracted was calculated by the formula of $(\sum \text{Factor loadings}^2) / [(\sum \text{Factor loadings}^2) + \sum \text{Error coefficient}]$, and it was expected for the obtained value to be above 0.50 (Hair et al., 1998). Teacher enthusiasm scale's composite reliability analyses are given in Table 3.

Table 3. Values of composite reliability analysis regarding Teacher Enthusiasm Scale

Sub-scales	Composite Reliability	Average Variance Extracted (AVE)	M	SS	1	2
1.Teaching enthusiasm	.86	.55	4.68	.40	1	
2.Subject enthusiasm	.90	.64	4.52	.54	.69**	1

P<.001

When the composite reliability values of the two dimensions in the scale in Table 3 are examined, it is being observed that the construct reliability of the teaching enthusiasm dimension was .86, and rate of variance extracted of the teaching enthusiasm dimension was .55, and that the construct reliability of the subject enthusiasm dimension was .90, and rate of variance extracted of the subject enthusiasm dimension was .64. It can be said that the strengths of dimensions forming the TES in expounding the construct are at sufficient level. When the correlation coefficients in between its dimensions were examined, positive and high level of statistically significant relations were determined in between the teaching enthusiasm and subject enthusiasm (r= 0.69).

3.5 Findings Regarding the TES's Reliability

Internal consistency coefficients calculated for determining the reliability of TES were .860 in teaching enthusiasm dimension, .906 in subject enthusiasm dimension, and .919 for all the items of the scale. Moreover, when values of item analysis of all the items consisting the scale were examined, it was observed that the correlation values in between the corrected item – factor scores was varying in between .625-.756 for the teaching enthusiasm dimension, and in between .695-.829 for the subject enthusiasm dimension. Büyüköztürk (2006) had specified that correlation values of .30 and higher in between corrected item - factor scores indicate that the items have good level of distinctiveness characteristic, and that correlation values at the range of .20 - .30 indicate that the items may be present in the scale in case of being deemed obligatory. In this sense, it can be said that the distinctiveness strength of the items of the present scale is high. In the direction of all these opinions and values, it can be specified that the Teacher Enthusiasm Scale is at sufficient reliability level.

3.6 Findings regarding TES's item analyses

The differences among the total scores of the factors, and among the item scores of bottom-top groups of 27% were examined by the performance of t test for unpaired samples. t values regarding the scale's dimensions, distribution of factor loads as per items, item – total correlation coefficients (r), and score differences in between bottom-top groups of 27% are given in Table 4.

Table 4. Items' total correlations, and t values

Items	r	t	Items	r	t
I1	.741	-28.646*	I6	.749	-26.996*
I2	.699	-20.141*	I7	.770	-22.228*
I3	.640	-13.519*	I8	.764	-22.966*
I4	.613	-19.918*	I9	.774	-25.138*
I5	.572	-15.380*	I10	.673	-20.824*

P<.001

According to Table 4, t values regarding all the items are at significant level (p<,01), and when they are examined as per the dimensions, they are varying in between -13.519 and -28.646 for the teaching enthusiasm, and in between -20.824 and -26.996 for the subject enthusiasm. In addition, corrected item – total correlation coefficients are statistically significant (p<,01). Item – total correlation coefficients are varying in between .572 and .741 in the teaching enthusiasm dimension, and in between .673 and .774 in the subject enthusiasm dimension. In the light of these results, it is being observed that the distinctiveness characteristics of the scale's items are high.

4. Discussion and Conclusions

Within the scope of this study, the adaptation to Turkish of TES, developed by Kunter et al. (2011), was performed, and the required validity and reliability proofs were presented. The adaptation operation was started by translation – back translation technique applied in the manner of translating from source language to target language, and then back translating. It was resorted to the opinion of specialist for ensuring content validity, face validity, and language and content integrity. And then linguistic equivalence study, and pilot application were performed, and the scale was put into its final form. The final form of the adapted scale was applied on 529 teachers officiating at state schools in Turkey, and factor analyses were performed by the obtained data. The results of EFA, determining the factor construct of the scale, had indicated that the scale was of a construct having two factors. The obtained factor construct tallies with the factor construct of the original scale. And the results of DFA performed had supported the construct of 10 items and two dimension obtained by the results of EFA as in the original scale. In this scale, the denomination of dimensions of the original scale was preserved. The first dimension was called as teaching enthusiasm, and the second dimension was called as subject enthusiasm. The results of reliability analysis had indicated that the scale was a reliable assessment tool. The scale, developed depending on the validity and reliability studies performed, may be used in assessing the teacher enthusiasm of the teachers in Turkey.

The theoretical bases, found by the review of relevant literature, support the teaching enthusiasm and subject enthusiasm dimensions of the scale (Kunter, 2013). It is being expected for the scale to contribute to the operations of increasing the quality of teachers, students, and teaching and learning process which is being deemed among significant problems of Turkish Education System (Abazaoğlu & Taşar, 2016; Erdamar & Demirel, 2016; Tunç, 2019). The data of PISA (2018) verifies the hypothesis that teacher enthusiasm and students' performance are related at high level as also being emphasized in literature. Moreover, it was concluded that students' motivation is being higher when the teacher enthusiasm is high, and in that case that the students are endeavoring more while learning, and that a better learning environment is being formed (OECD, 2019). When the status of Turkey is addressed in terms of teacher enthusiasm, it is being specified in the same report that the data on teacher enthusiasm based on perceptions of students obtained from Turkey are much below the average of OECD countries, and that there is no significant difference in between the students who are studying at socio-economically more advantageous schools and disadvantageous schools, and who are studying at private schools and state schools in terms of teacher enthusiasm perceived by the students. Based on these findings, it can be said that teacher enthusiasm in Turkey doesn't vary even if the students' and schools' socio-economic statuses are considered, and that it is generally at low level. And for searching the causes of this state, it is primarily

required to make researches on different samples which will determine teacher enthusiasm. It can be said that the scale developed will contribute to national literature in this respect. Moreover, it is being observed that in international literature the relation of teacher enthusiasm with variables such as leadership of the teacher (Sheppard et al., 2010; Wenström et al., 2019); autonomy of the teacher (Cui et al., 2017); spirit of the teacher (Sheppard et al., 2010); perceived value of duty (Cui et al., 2017); classroom management (Kunter, 2013); cooperation of the teacher (Sheppard et al., 2010); teacher enthusiasm perceived by the students (Keller et al., 2014); cheating of the student (Orosz et al., 2015); use of technology in teaching and learning process (Baloch & Akram, 2018); enjoying the course or getting bored of the course – sense of student (Keller et al., 2018) are being examined. When relations of teacher enthusiasm revealed by different variables are also considered, it can be said that the scale will provide diversity for the studies that may be performed in Turkey, and thus that it will contribute to the literature.

TES, as also specified by Kunter et al. (2011), is a scale developed for assessing the enthusiasm statuses of the teachers. For the future studies, it may be suggested to apply the TES on different samples by crosschecking validity and reliability. The constraint of the study is the performance of EFA and CFA analyses, performed for examining the factor construct of the scale, on data obtained from the same sample.

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Appendix A. The Teacher Enthusiasm Scale (Öğretmen Coşkusu Ölçeği)

		English form of the scale			Turkish form of the scale
Teaching enthusiasm	I1	I teach [mathematics in this class] with great enthusiasm.	Öğretme coşkusu	M1	Dersimi büyük bir coşkuyla öğretirim
	I2	I really enjoy teaching [mathematics in this class].		M2	Dersimi öğretmekten zevk alırım
	I3	I always enjoy teaching students new things.		M3	Öğrencilere yeni şeyler öğretmekten zevk alırım
	I4	I enjoy interacting with students.		M4	Öğrencilerle etkileşimde bulunmaktan zevk alırım
	I5	It's a pleasure to teach.		M5	Öğretmek büyük bir zevktir.
Subject enthusiasm	I6	Even now, I am still enthusiastic about my subject [the subject of mathematics].	Alan coşkusu	M6	Alanımla ilgilenirken coşkulu olurum
	I7	I find my subject [the subject of mathematics] exciting and try to convey my enthusiasm to the students.		M7	Alanımı heyecan verici bulurum ve heyecanımı öğrencilere aktarmaya çalışırım.
	I8	Engaging in my subject is one of my favorite activities.		M8	Alanımla ilgilenmek benim en sevdiğim etkinliklerden biridir
	I9	I engage in my subject because I enjoy it.		M9	Zevk aldığım için alanımla ilgilenirim
	I10	Because engaging in my subject is fun, I wouldn't want to give it up.		M10	Alanımla ilgilenmek zevkli olduğu için alanımda çalışmayı bırakmak istemem.

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