Research Article

Positive Discourse Scale in Teaching: Validity and Reliability Study

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Abstract – In this study, it was aimed to develop a valid and reliable measurement tool to be used for third and fourth grade primary school students to evaluate positive discourse in teaching processes. For the study, an item pool was created by reviewing the literature on discourse and positive discourse. The prepared items were made ready after expert evaluations and a pilot application to students. After the scale was applied, exploratory factor analysis was performed within the scope of validity, and it was concluded that it had 4 sub-dimensions consisting of 25 items explaining 51% of the total variance. Then, confirmatory factor analysis was performed, and it was concluded that the chi-square value ($\chi 2/sd$) was 1.87, SRMR value was 0.05, TLI value was 0.88 and CFI value was 0.9. It was found that the scale was compatible with this structure. At the same time, Cronbach Alpha value and McDonald's Omega coefficient were calculated in the reliability calculations of the scale. It was concluded that the Cronbach Alpha value for the whole Positive Discourse Scale in Teaching was 0.91 and McDonald's Omega coefficient was 0.91. It can be stated that the scale is a valid and reliable measurement tool for primary school third and fourth grade students. This scale was developed to enable primary school students to evaluate positive discourse. Considering the teaching process, a scale can also be developed for teachers to determine the level of student's positive discourse.

Key words: Positive discourse, scale development, primary school third and fourth grade students.

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Introduction

Individuals generally express their thoughts through language, and for this reason, it is important to understand the things that are said, what they mean and what is understood by

the other party. Of course, this situation manifests itself in every environment where individuals communicate. By moving away from the people they communicate with in their family environment and immediate surroundings from an early age, children begin to communicate primarily with their classroom teachers and new friends when they enter school. When considering education and training processes, the classroom is the environment where students and teachers share their knowledge and experiences through various means of communication in order to achieve educational goals (Bayraktutan, 2008). It is also an environment that facilitates conversations between teachers and students and among students themselves (Ramli & Yohana, 2015). Seen in this light, the classroom is full of discourses and dialogs, and discourse can be observed in the classroom and in conversations between students and teachers (Molinari & Mameli, 2010). Meaning is constructed also through discourse.

Teachers have an important role in the teaching and learning process, and the role that they have is dominant since they control learning goals, styles and activities. This role of teachers affects students' short and/or long-term learning (Kurhila, 2004). Therefore, it is of great importance to consider teachers' roles and communications in the classroom. Ellis (2008) argues that teachers modify and adapt the functions and forms of language to enhance classroom interaction and communication, and that their speech and roles enrich classroom discourse (as cited in Al-Smadi & Ab Rashid, 2017).

Discourse is any specific instance of communication between individuals and themselves or others, primarily through verbal or other symbolic systems (Sfard & Kieran 2001). The essence of discourse is the gestures, mimics, special codes and agreement on the use of words that enable communication (Uğurel, 2010). Accordingly, discourse is used for any group of spoken or written language that is longer than a single sentence (Cazden & Beck, 2003). Besides any meaningful use of language, discourse encompasses communicative gestures, as well (Gee, 1999), and is inextricably linked to the enactment of social activities (e.g., classroom lessons), the formation and maintenance of social identities (e.g., students as gifted learners), and interactions of social groups (e.g., classroom communities) (Otten, 2010).

Discourse does not only depend on the content of the message in the communication process, but also includes the speaker, authority, audience and purpose of a message (Çelik & Ekşi, 2008). According to Mc Closkey (2008), discourse constitutes reality with knowledge, practices, evaluations, judgments and beliefs. Thus, reflecting it to others by enabling the

world to be understood and perceived (as cited in Gür, 2013). Just as discourse directs interaction, teacher discourse directs classroom interaction in the teaching process. For this reason, a positive discourse will lead to a positive interaction, which will have a positive effect on the learning process (Abu Katılı, 2021).

Individuals create their first discourse environments with their family and social environment in which they were born and live. Later, the educational process that initiates their student life constitutes a very important discourse environment for them as well. Classroom discourse, closely linked to the academic and social development of individuals, is shaped by the diversity of discourse among students and between them and their teachers. As a result, positive discourses and discourse environments created by classroom teachers in primary school may have a greater contribution to students' learning, motivation and attitudes.

According to the theory of social constructivism, which assumes that learning is shaped by interacting with the social environment, it can be said that the discourses used by teachers in educational environments should support students. This perspective illustrates that positive discourse features should be used in educational environments. In educational settings, discourse refers to the conversation that includes both verbal and non-verbal exchanges between teachers and students in the classroom (Cazden & Beck, 2003). In this sense, Rymes (2008) argues that classroom discourse is the use of language to create interaction in order to carry out the learning process (as cited in Abu Katılı, 2021). Classroom discourse is the primary setting in which teaching and learning takes place, and when skillfully managed, it can provide an opportunity for students to develop their own understanding and benefit from the ideas of their peers and teachers (Wang et al., 2014). The process of "opening up" discourse in classrooms and making it more productive provides teachers with more opportunities to get to know and understand their students. Therefore, students need to participate actively in classroom discourse (Chi, 2009; Resnick et al., 2010). Classroom discourse also includes features such as interaction styles, teacher talk, and unequal power relations (Al-Smadi & Ab Rashid, 2017). Accordingly, teachers need to provide space for students to express their ideas, arguments, interests, and opinions about learning (Walshaw & Anthony, 2008; Weil et al., 2020). While students can learn from productive classroom conversations, teachers can learn about their students. Teachers can learn from their students' reactions both to their teachers and to their students' reactions to each other (Michaels & O'Connor, 2012). If teachers can actively engage their students in classroom discourse, they

are more likely to engage their students in more meaningful and sustained learning (Walshaw & Anthony, 2008).

According to Chapin et al. (2009), there are five teaching practices to improve the quality of discourse in educational processes. These are (a) talk moves to encourage students to discourse [Five Talk Moves (1. Revoicing; 2. Asking students to restate someone else's reasoning; 3. Asking students to apply their own reasoning to someone else's reasoning; 4. Prompting students for further participation; 5. Using wait time)], (b) the art of asking questions, (c) using student thinking to stimulate discussions, (d) setting a supportive environment, and (e) managing discourse. Revoicing, one of the five talk moves, involves the teacher revisiting some or all of the student's utterances and asking or prompting the student to question the accuracy of the information again (Garcia, 2009).The act of revoicing can allow the idea presented by one student to be used by other students and give them time to listen again (Chapin et al., 2009). When we look at the purposes of asking questions that can be addressed in the process of Paraphrasing, the teacher asks any student in the classroom to repeat or rephrase what other students have said. The act of asking students to answer their reasoning as if they were someone else is the Agree? or Disagree? Why? move, and the teacher asks the student whether he/she agrees or disagrees with what other students have stated or asserted in the classroom . Moreover, Prompting for Further Participation is when the teacher asks students questions about the topic in order to generate discussion and increase discourse in the classroom, and finally Using Wait Time refers to the time expected for students to respond when a question is asked in class.

The other teaching practice, the art of asking questions, is to ask appropriate questions depending on the cognitive level of the students. The teaching practice of using students' thoughts to stimulate discussion is to create a class discussion based on what students say and to ask questions about students' thoughts to expand the discussion. Creating a supportive environment is organizing the teaching environment (seating arrangement) to make the classroom environment more effective. The last teaching practice, managing discourse, is to encourage students to express their thoughts and increase student-student interaction.

National Council of Teachers of Mathematics (NCTM) (2000) recommends moving from a teacher-centered classroom to a classroom that focuses on student thinking and reasoning and the practice of managing classroom discourse. Therefore, teachers need to spend more time understanding how students think (Chambers, 1995; Hillen, 2006).

According to Shanefelter (2004), teachers can only truly understand what is going on in students' minds if students have the opportunity to articulate their thoughts (as cited in Hillen, 2006).

Hearing students talk about what they understood can help the teacher understand what students missed or did not fully understand. This will enable the teacher to fill the missing gaps, and by doing so, the concepts taught can be grasped more thoroughly (Huggins & Maiste, 1999; Hillen, 2006).

For this reason, in order to identify positive discourses in the educational process, the teaching practices described by Chapin et al. (2009) are taken as a basis. In addition, the studies in the national and international literature review [Smith et al, 2009 (on orchestrating classroom discussion); Sfard, 2000 (on communication process and discourse); Sfard & Kieran, 2001 (on interaction); Sfard, 2001 (on classroom interaction and discourse); Gee, 2005 (on discourse analysis); Garcia, 2009 (on classroom discussions); Genç, 2016 (on positive discourse); Çelik, 2019 (on mathematical discourse); Uğurel, 2010 (on classroom discourse); Abu Katılı, 2021 (on positive discourse); Çulhan, 2022 (on discourse analysis)] were also examined. In the literature review, no study on the positive discourse scale has been found. In this sense, it is thought that the contribution of this scale to the field is important. The aim of the study is to develop a valid and reliable scale for third and fourth grade primary school students to evaluate positive discourse in teaching.

Method

The research design used in the process of developing the "Positive Discourse Scale in Teaching" ("PDST"), the studies conducted during the scale development process, the study group and data analysis are presented below.

Research Design

The research is a descriptive study using a screening model that aims to develop a valid and reliable measurement tool for third and fourth grade primary school students' evaluation of positive discourse in teaching. Descriptive research, which is widely used in the screening model in the field of education, aims to describe a given situation as completely and carefully as possible (Büyüköztürk, et al., 2018). Factor analysis, which is used to examine the validity of a construct in scale development studies, is a statistical method that is widely used in social sciences (Seçer, 2015) and reveals whether the developed measurement tool reveals the theoretical framework appropriately (Büyükkıdık, 2020).

DeVellis (2003) states that eight steps should be followed in scale development. First of all, he states that it is necessary to determine what is intended to be measured. Secondly, the theoretical framework of the variable and related variables should be elaborated in detail. Next, an item pool should be created, and then the format of the measurement tool should be decided. The next step is the examination of the items by experts. Next, item validity should be ensured. Then, the items should be evaluated by applying the scale and the final version of the scale should be established (Şahin & Boztunç Öztürk, 2018).

Studies on Scale Development

Before starting the scale development study, a literature review was conducted. Studies on how to evaluate positive discourses in teaching were reviewed. In these studies, it was seen that discourses were mostly analyzed by discourse analysis. In addition, studies on teaching practices that will increase the quality of discourse in the educational process were reviewed (Tobias, 2009; Stein et al., 2007; Sfard, 2001; Garcia, 2009; Cirillo, 2013; Chapin et al., 2009; Ben-Yehuda et al., 2002). In the reviewed studies, information on how students' discourse can be more efficient and effective in the classroom environment was examined in detail. In particular, Chapin et al.'s (2009) five teaching methods for improving discourse quality were examined in detail. By looking at the classroom applications of these methods, an item pool was created for students to evaluate positive discourse. At the same time, an interview form was prepared by the researchers. Through the interview questions, interviews were conducted with primary school first, second, third and fourth grade students (two students from each grade level). In the interview the questions such as "How is your communication with your teacher?", "How does your teacher speak during lessons?", "What are your teacher's attitudes towards you, the way he/she speaks and communication processes?", and "Would you like to tell us?" were asked. The answers given by the students in the interviews were recorded with audio recordings and the recordings were listened to carefully by the researchers repeatedly on the computer. Moreover, teaching methods that can be used to increase the quality of positive discourse were examined from the literature and an item pool of 81 items was created. In the 81-item scale, negative items were added in addition to positive items. The four-point Likert scale (Strongly Disagree, Disagree, Agree, and Strongly Agree) was prepared and made ready for application for primary school students. Since it was stated that studies conducted with children between the ages of 8-16 emphasized that the most appropriate option for children is the four-point Likert type, as stated by Borgers et al., (2004), this scale was prepared in the four-point Likert type. At the same time, the four-point

Likert type "I am undecided" option in the five-point Likert type was preferred because individuals avoid expressing their thoughts (Yiğit and Kurnaz, 2010). In order to determine the extent to which this scale measures the expected behaviors (Balcı, 2005), the items were sent to experts for evaluation to ensure content validity. The items in the item pool were sent to three field experts to determine the extent to which the items covered the characteristic to be measured. In the feedback from the experts, it was stated that some of the items should be expressed more clearly considering that students, especially at the primary school level, may have difficulties in understanding abstract concepts. Based on the feedback from the experts, the following statements were rearranged:

"Instead of "My teacher listens", "My teacher is a good listener",

"Instead of "My teacher is dull in the lesson", "My teacher is not lively and active in the lesson, he is dull",

"Instead of "My teacher scares us, my teacher scares us by saying that this lesson is difficult".

After necessary corrections were made, the draft scale was applied to primary school students as a pre-test. Three students from each grade level were asked to read and answer the scale aloud in a suitable empty classroom. Here, it was determined whether there were any words and/or concepts that students had difficulty understanding. During the application of the scale with students from each grade level, they were asked to think and answer aloud. The feedback given by the students was noted in detail by the researchers. For the prepared scale, 30 minutes was determined as a pre-test application. The scale was answered one on one with each student. Since there were 81 items in the scale, it was found that the 1st and 2nd grade students got bored towards the end and did not understand the last items. In addition, as the time given was not enough for the 1st and 2nd grade students, it was determined that their attention was distracted. For this reason, it was concluded that the scale would be more suitable for third and fourth grade students.

Participants

The study group of the research consists of primary school students in Efeler district of Aydin province, in Türkiye. In order to develop the scale of positive discourse in teaching, non-random convenience sampling method was selected. In the non-random convenience sampling method, the process of inclusion in the study group continues until the participants at the most accessible level are reached in order to prevent loss of time, money and labor

(Büyüköztürk et al., 2018). With the convenience sampling method, 444 students studying in public primary schools were included in the study for exploratory factor analysis in scale development. The sample size in the study was determined by making sure that the sample size was at least five times the number of items, as stated by Bryman and Cramer (2001). Information about the students in the study is given in the table below.

Table 1 Students included in the study for exploratory factor analysis (study group I)

Characteristics		**n**	**%**
Gender	Male	215	48
	Female	229	52
Grade	Third Grade	220	49
	Fourth Grade	224	51

As shown in Table 1, 48% of the 444 primary school students were male and 52% were female. At the third grade level, 220 students (49%) and at the fourth grade level, 224 students (51%) participated in the study.

The second study group, which was determined for confirmatory factor analysis (the scale consisting of 25 items as a result of exploratory factor analysis), consisted of 317 students from public primary schools in the Efeler district of Aydın province with the appropriate sampling method. Information about these students is given in the table below.

Table 2 Students in the study for confirmatory factor analysis (study group II)

Characteristics		**n**	**%**
Gender	Male	150	47
	Female	167	53
Grade	Third Grade	155	48
	Fourth Grade	162	52

As shown in Table 2, 47% of the 317 primary school students were male and 53% were female. 155 students (48%) at the third grade level and 162 students (52%) at the fourth grade level participated in the study.

Data Analysis

For data analysis, validity and reliability analyses were conducted using SPSS 27.0 for exploratory factor analysis and Jamovi 2.2.5 and AMOS 24 for confirmatory factor analysis.

Exploratory factor analysis (EFA) and then confirmatory factor analysis (CFA) were conducted for construct validity. Cronbach's alpha value and McDonald's ω value were calculated to determine the reliability of the scale.

Findings and Discussions

Kaiser- Meyer-Olkin test (KMO) analysis was performed to evaluate whether the sample size was sufficient. As a result of this analysis, the KMO value was calculated as .948. This value was accepted as an indicator that the sample size was sufficient. In addition, Barlett's test of sphericity was analyzed to ensure that the distribution in the universe should be normal in factor analysis and the value obtained was found to be significant ($\chi2=4134.603$; p=.00). The items of the 81-item scale were evaluated in terms of whether the overlap and factor loading values met the acceptance level. 20 items (1,3,4,7,9,9,10,11,14,20,23,24,25,26,28,29,42,45,75,79) with factor loadings below 0.30 and overlapping items (items with a difference of . 10 or less) 36 items (2,5,6,8,12,16,17,19,21,22,27,30,31,32,35,36,39,41,43,44,46,47,49,50,52,53,56,59,61,62,68,70,72,76,78,80) were removed from the scale respectively.

The factors and eigenvalues table formed as a result of the exploratory factor analysis are given below.

According to Table 3, when the eigenvalues were analyzed, it was concluded that there were 4 factors with a value greater than 1. It can also be seen from this table that the scale consisted of 4 factors as a result of exploratory factor analysis. In addition, the scree plot was also analyzed to determine the dimensions of the scale.

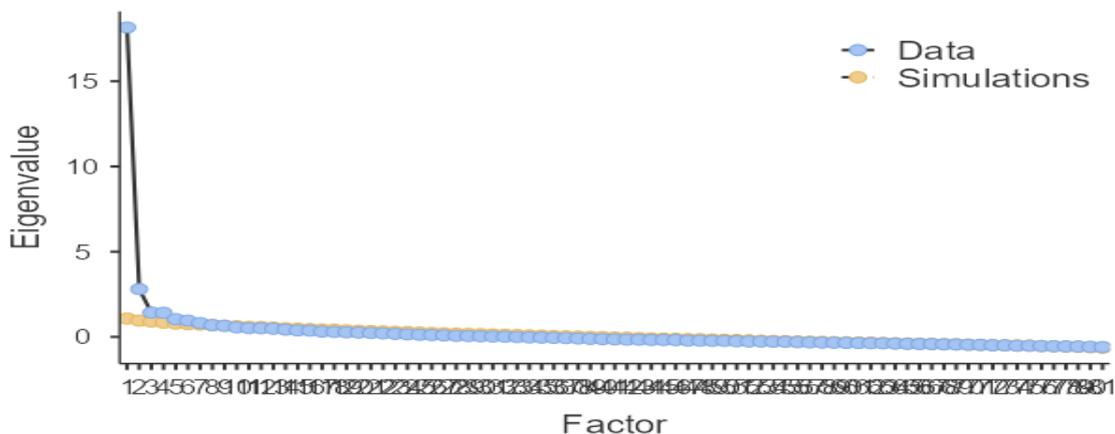The scree plot resulting from the exploratory factor analysis is shown below.

Figure 1 Scree plot as a result of exploratory factor analysis

As seen in Figure 1, for the data set generated by the Jamovi program and both simulated curves, it can be seen that a significant portion of the variance was explained by the first, second, third and fourth factors, and the eigenvalues of the factors following the fourth factor were much closer to each other. When the eigenvalues table and the slope accumulation graph were analyzed, it was confirmed that the scale had a four-factor structure.

As a result of the exploratory factor analysis, factor loadings were calculated before transformation. The factor loadings are presented in Table 4 below.

Table 4 Factor Loadings Before Transformation

Item Number	Factor 1	Factor 2	Factor 3	Factor 4
I 66	.703	-.126	.202	-.045
I 71	.689	-.063	.196	-.131
I 65	.675	-.090	-.161	.058
I 60	.667	-.141	-.328	-.028
I 51	.661	-.031	.077	.342
I 77	.660	-.174	.127	-.039
I 67	.657	-.351	.127	-.132
I 58	.656	-.169	-.264	-.064
I 63	.638	.012	-.312	.044
I 74	.632	-.246	.067	-.218
I 69	.623	-.045	-.160	-.203
I 34	.615	.251	-.168	-.102
I 73	.607	-.117	.320	-.276
I 38	.595	.363	-.116	-.045
I 57	.595	-.004	-.376	.323
I 54	.593	-.089	-.275	.064
I 15	.576	.124	.015	.462
I 81	.570	-.211	.306	.143
I 40	.557	.442	.036	.064
I 55	.551	-.247	-.282	-.184
I 37	.525	.489	.261	-.231
I 13	.513	.011	.201	.414
I 64	.506	-.035	.217	.067
I 18	.499	.350	.182	.046
I 33	.497	.432	-.161	-.276

Principal Factors Analysis was used as a factorization method to reveal the factor pattern in the PDST, and it was decided to use the Varimax method, one of the orthogonal rotation methods commonly used in social sciences, as a rotation method (Çokluk et al., 2018). The factor loadings after rotation are given in the table below.

Table 5 Factor Loadings After Rotation

Item Number	Factor 1	Factor 2	Factor 3	Factor 4
I 73	.686			
I 67	.664			
I 66	.600			
I 74	.596			
I 71	.588			
I 81	.558			
I 77	.552			
I 65	.509			
I 64	.414			
I 60		.664		
I 58		.616		
I 57		.604		
I 55		.600		
I 63		.593		
I 54		.562		
I 69		.495		
I 37			.730	
I 33			.653	
I 40			.605	
I 38			.575	
I 18			.516	
I 34			.501	
I 15				.658
I 13				.614
I 51				.585

When examining Table 5, a 25-item structure consisting of 4 factors was observed. When the factor loadings of these 25 items were examined, it can be seen that the values were at a sufficient level. Barnes et al., (2001) also stated that the size of the factor loadings should be at least 0.30 within the scope of EFA. As a result of the EFA analysis, 9 items (73,67,66,74,71,81,81,77,65,64. items) of the 4-factor 25-item scale were grouped under factor 1, 7 items (60,58,57,55,63,54,69. items) under factor 2, 6 items (37,33,40,38,18,34. items) under factor 3 and 3 items (15,13,51. items) under factor 4.The variance values of the scale consisting of 25 items with four factors are given in the table below.

Table 6 Eigenvalues Statistical Values of the Four-Factor Structure

	Factor Rotation Eigenvalues		
Factor	Total	Variance Explained (%)	Cumulative Variance Explained (%)
1	3.934	15.737	15.737
2	3.611	14.444	30.181
3	2.856	11.426	41.607
4	2.372	9.489	51.096

As seen in Table 6, the individual contribution of each factor to the total variance was found to be 15.737% for factor 1, 14.444% for factor 2, 11.426% for factor 3 and 9.489% for factor 4. The total contribution of the four-factor structure to the variance is 51.096%. As stated by Özdamar (2016), in scale development studies in the field of education and social sciences, it is accepted that the total variance ratio is acceptable between 40% and 60%.

Nomenclature of Factors

In this study, after the EFA, the items collected under the factors were examined and the factors of the Positive Discourse Scale in Teaching were named as shown in the table below.

Table 7 Factor Nomenclature of the Positive Discourse Scale in Teaching

Positive Discourse Scale In Teaching (PDST)	Managing Positive Discourse	I 73	Is consistent in what he/she says and what he/she does.
		I 67	Supports our creative ideas.
		I 66	Respects the diversity of our ideas.
		I 74	Is sensitive, sensitive to our personal problems.
		I 71	Cares about our optimistic approach to the problems we face.
		I 81	Is attentive, notices changes in our attitude or behavior.
		I 77	Gives us the opportunity to correct our mistakes.
		I 65	Allows us to express our ideas freely.
		I 64	Thinks it is normal for us to make mistakes.
	Encouraging Positive Discourse	I 60	Expresses that we are talented.
		I 58	Boosts our confidence to succeed in the lesson.
		I 57	Believes that we will do our best in the tasks he/she gives us.
		I 55	Gives us the opportunity to speak when we want to have a say.
		I 63	Encourages us for the given tasks.
		I 54	Values respect for each other in discussions.
		I 69	Values kindness towards each other.
	Environment and Components Supporting Positive Discourse	I 37	Drives us to inquire.
		I 33	Asks questions that lead us to be able to work together.
		I 40	Increases our ability to solve our problems and issues.
		I 38	Teaches the lesson in a fun way without boring us.
		I 18	Gives explanatory answers to our questions.
		I 34	The arrangement of the classroom is suitable for collaboration.
	Sustaining/ Supporting Positive Discourse	I 15	Appreciates our efforts.
		I 13	Is sincere and genuine with us.
		I 51	Helps us when we need help.

Managing Positive Discourse, Encouraging Positive Discourse, Environment and Components Supporting Positive Discourse, and Sustaining/Supporting Positive Discourse were determined as factor names in the Positive Discourse Scale in Teaching.

Confirmatory Factor Analysis

Confirmatory factor analysis was conducted on the EFA data obtained based on the data of 317 primary school third and fourth grade level participants. Numerical information about

the estimation, standard error and z values resulting from the confirmatory factor analysis are given in the table below.

Table 8 Confirmatory factor analysis estimation, standard error and z values

Factor	Item	Estimated Value	Standard Error	Z Value	p
Factor 1	I 73	0.497	0.0457	10.89	<.001
	I 67	0.516	0.0511	10.10	<.001
	I 66	0.516	0.0430	11.98	<.001
	I 74	0.508	0.0494	10.29	<.001
	I 71	0.557	0.0428	13.01	<.001
	I 81	0.425	0.0463	9.18	<.001
	I 77	0.429	0.0424	10.13	<.001
	I 65	0.574	0.0445	12.88	<.001
	I 64	0.471	0.0506	9.30	<.001
Factor 2	I 60	0.538	0.0550	9.78	<.001
	I 58	0.393	0.0514	7.65	<.001
	I 57	0.485	0.0511	9.50	<.001
	I 55	0.504	0.0509	9.89	<.001
	I 63	0.474	0.0449	10.56	<.001
	I 54	0.464	0.0456	10.18	<.001
	I 69	0.552	0.0478	11.54	<.001
Factor 3	I 37	0.520	0.0514	10.12	<.001
	I 33	0.501	0.0512	9.79	<.001
	I 40	0.569	0.0457	12.46	<.001
	I 38	0.506	0.0495	10.22	<.001
	I 18	0.489	0.0460	10.64	<.001
	I 34	0.563	0.0472	11.93	<.001
Factor 4	I 15	0.481	0.0500	9.62	<.001
	I 13	0.489	0.0529	9.23	<.001
	I 51	0.429	0.0402	10.66	<.001

When the data in Table 8 was examined, it can be seen that the unstandardized estimation values were generally around 0.5 and the z values were statistically significant. This significance showed that the items were related to the factors.

Model fit indices for confirmatory factor analysis are presented in the table below.

Table 9 Model Fit Index Values

χ 2/sd	RMSEA	SRMR	TLI	CFI	GFI	AGFI
1.87	0.05	0.05	0.88	0.90	0.90	0.87

Looking at the fit indices in Table 9, it was concluded that the relative chi-square value (χ 2/sd) was 1.87. The fact that this value was less than 5 indicated an acceptable fit according to Çelik and Yılmaz (2013) and Aksu et al., (2017). The SRMR value in the table was 0.05. Maydeu-Olivares et al., (2017) stated that a value less than 0.08 indicates a good fit. The TLI value was found to be 0.88. Bentler and Bonett (1980) suggested that this value between 0.85 and 0.9 is also a good fit. In addition, Bentler (1980) stated that a CFI value between 0.8 and 0.9 indicates an acceptable fit. As a result of the analysis, CFI was found to be 0.9, which was acceptable. Considering GFI, a value equal to or greater than 0.9 is stated to be a good fit according to Tanaka and Huba (1985). Meanwhile, a AGFI value of 0.86 and a RMSEA value of 0.05 indicate also an acceptable fit. According to the table values and criterion values, it can be seen that model-data fit was achieved.

The path diagram including the standard path coefficients for the validated model is shown in Figure 2.
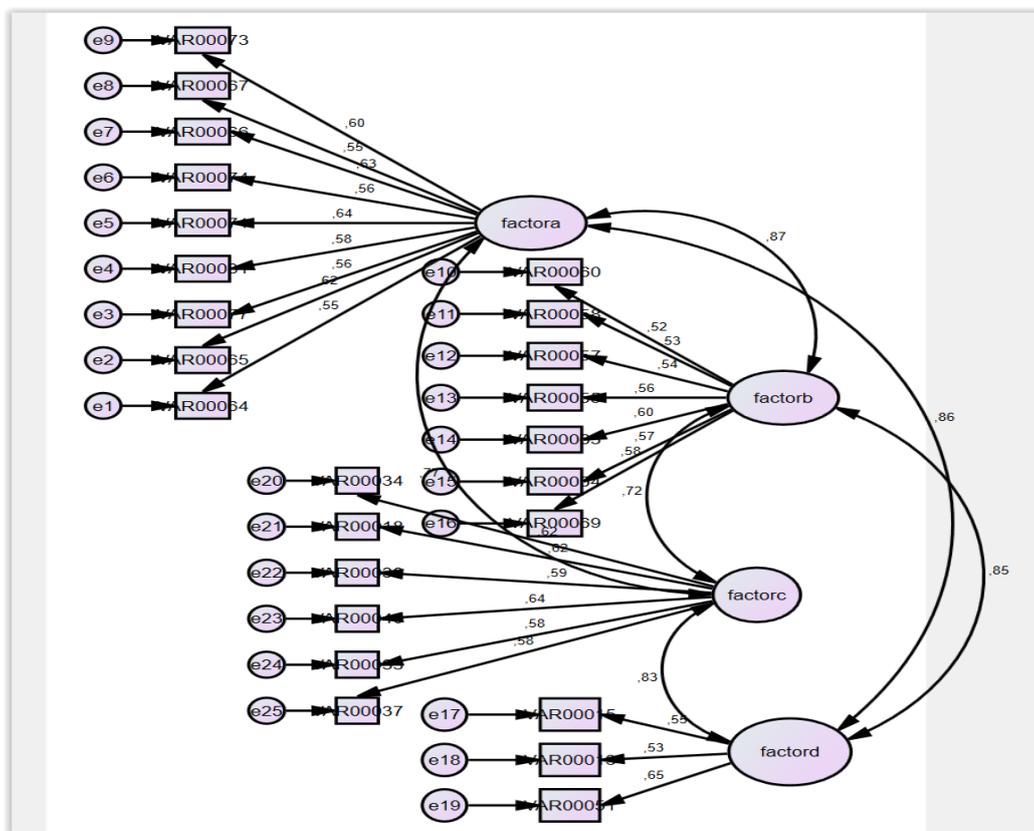

Figure 2 Path Diagram of the PDST

When the visualization of the factor structures in Figure 2 was examined, the factor loadings of the items in the scale for four different sub-dimensions were greater than 0.50. These factor values were found to be statistically significant according to t values within the scope of parametric testing. It was also concluded that the criterion of Şimşek (2007) that factor loadings should be greater than 0.5 without considering the statistical test condition was met.

The 25-item Pearson Product Moment correlation analysis of the scores obtained from the sub-factors of the PDST is presented in the table below.

Table 10 Pearson Product Moment Correlation Values of the PDST and Subfactors

	Factor 1		Factor 2		Factor 3		Factor 4		Scale
Factor 1	1								
Factor 2	0.87	***	1						
Factor 3	0.62	***	0.72	***	1				
Factor 4	0.86	***	0.85	***	0.83	***	1		
Scale	0.90	***	0.85	***	0.81	***	0.74	***	1

* p < .05, ** p < .01, *** p < .001

Correlation analysis was conducted to determine the relationship between the Positive Discourse Scale in Teaching and the factors that make up the scale, and it was seen that there was a significant and highly positive relationship between the total score of the scale and the factors that make up the scale. When the correlation values between the factors were analyzed, it can be seen that each factor had a moderate relationship with the other factor. According to Büyüköztürk (2018), a correlation value between 0.70-1.00 is defined as a high level relationship, 0.69-0.30 as a moderate level relationship, and 0.29-0.00 as a low level relationship.

The reliability values resulting from the application of the Positive Discourse Scale in Teaching are given below.

Table 10 Reliability Values

	Cronbach's α	McDonald's ω
Managing Positive Discourse (Factor 1)	0.824	0.826
Encouraging Positive Discourse (Factor 2)	0.758	0.759
Environment and Components that Support Positive Discourse (Factor 3)	0.774	0.776
Sustaining/ Supporting Positive Discourse (Factor 4)	0.610	0.614
Positive Discourse Scale in Teaching	0.909	0.911

When the reliability values in the table were analyzed, the Cronbach's Alpha value of the sub-dimension of managing positive discourse was 0.82 and McDonald's Omega coefficient was 0.82. The Cronbach's Alpha value of the encouraging positive discourse sub-dimension was 0.76, and McDonald's Omega coefficient was 0.76. The Cronbach Alpha value of the environment and components supporting positive discourse sub-dimension was 0.77 and McDonald's Omega coefficient was 0.78. The Cronbach Alpha value of the sub-dimension of sustaining/supporting positive discourse was 0.61 and McDonald's Omega coefficient was 0.61. For the whole scale, Cronbach's Alpha value was 0.91 and McDonald's Omega coefficient was 0.91. According to Fraenkel et al. (2012), a reliability coefficient of 0.70 and above is considered to be at a good level in social sciences. Accordingly, it can be seen that the reliability of the developed scale is at a good level. It was concluded that only the value of the sub-dimension of sustaining/supporting positive discourse was below 0.70, at the level of 0.60. In this sense, Nunnally (1978) stated that the reliability coefficient in social sciences can be at the level of .60 in scale development studies (as cited in Özbaşı et al., 2018).

Conclusions and Suggestions

In this study, it was aimed to develop a valid and reliable measurement tool to be used within the scope of primary school third and fourth grade students' evaluation of positive discourse in educational processes. In the study, first of all, the items created within the framework of the theoretical structure related to discourse and positive discourse were made ready to students and applied to primary school students after expert evaluations and a pilot application. Exploratory factor analysis was performed to determine the construct validity of the scale in the data obtained. As a result of the analysis, it was concluded that the Positive Discourse Scale in Teaching, which consists of four sub-dimensions, was composed of 25 items and explained 51% of the total variance. After the exploratory factor analysis, confirmatory factor analysis was performed, and the fit indices were examined without removing any items. The fit indices (Chi-square/freedom value: 1.87; RMSEA: 0.05; SRMR: 0.05; TLI: 0.88; CFI: 0.90; GFI: 0.90 and AGFI: 0.86) were found to be within acceptable limits and the four sub-dimensional structure of the scale, namely managing positive discourse, encouraging positive discourse, environment and elements supporting positive discourse and sustaining/supporting positive discourse, was confirmed. In addition, Cronbach's alpha and McDonald's Omega reliability values of the Positive Discourse Scale in Teaching and its sub-dimensions were calculated. The Cronbach Alpha value of the sub-

dimension of managing positive discourse was found 0.82, and McDonald's Omega coefficient was found 0.82. The Cronbach's Alpha value of the encouraging positive discourse sub-dimension was found 0.76, and McDonald's Omega coefficient was found 0.76. The Cronbach Alpha value of the environment and components supporting positive discourse sub-dimension was found 0.77 and McDonald's Omega coefficient was found 0.78. The Cronbach's Alpha value of the sub-dimension of sustaining/supporting positive discourse was 0.61 and McDonald's Omega coefficient was 0.61. For the whole scale, Cronbach's Alpha value was 0.91 and McDonald's Omega coefficient was 0.91. In line with these results, it can be seen that the scale was reliable. When the national and international literature is examined, there is no scale through which positive discourse was evaluated by elementary school students. In this sense, it can be said that this scale will contribute to the gap in the field.

The scale consists of 25 items and is a four-point Likert scale. Since there are no negative items in the score calculation of the scale, a maximum of 100 points and a minimum of 25 points can be obtained. This scale is important for revealing the positive discourse of teachers in primary schools. Considering the duration of students' primary school education, determining the level of discourse of teachers will help teachers plan a more effective teaching process. Of course, this scale was developed to be evaluated by students, but considering the teaching process, a scale can also be developed to determine the positive discourse levels of students. In this way, more effective positive classroom discourses and environments can be created based on the discourse evaluations of teachers and students. In addition, this scale, which was designed for students to evaluate the discourses in different subjects, will help to reveal the discourses of teachers of different subjects. For this reason, the scale can also be evaluated to determine the differences in the discourses in each lesson. During the teaching process, teachers help students structure knowledge. In addition, teachers need to help students understand the information given in lessons and encourage students' discourse. It can be thought that this developed scale will help teachers make the discourses they use in the teaching process more positive and encouraging.

Compliance with Ethical Standards

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Research involving Human Participants and/or Animals

> The study involves human participants. Ethics committee permission was obtained from Aydın Adnan Menderes University, Educational Research Ethics Committee.

Öğretimde Olumlu Söylem Ölçeği: Geçerlik ve Güvenirlik Çalışması

Özet:

Bu çalışmada öğretim süreçlerinde ilkokul üçüncü ve dördüncü sınıf öğrencilerinin olumlu söylemleri değerlendirebilmeleri için kullanılacak geçerli ve güvenilir bir ölçme aracı geliştirmek amaçlanmıştır. Çalışma için alanyazında söylem ve olumlu söylem ile ilgili çalışmalara taranarak madde havuzu oluşturulmuştur. Hazırlanan maddeler uzman değerlendirmeleri ve öğrencilere ön uygulamadan sonra hazır hale getirilmiştir. Ölçek uygulaması yapıldıktan sonra geçerlik kapsamında açımlayıcı faktör analizi yapılmış ve toplam varyansın % 51'inin açıklandığı 25 maddeden oluşan dört alt boyuta sahip olduğu sonucuna ulaşılmıştır. Daha sonra doğrulayıcı faktör analizi yapılarak ki-kare değerinin ($\chi 2/sd$) 1.87 olduğu, SRMR değerinin 0.05; TLI değerinin 0.88; CFI değerinin 0.9 olduğu sonucuna ulaşılmıştır. Ölçeğin bu yapıda uyumlu olduğu görülmüştür. Aynı zamanda ölçeğin güvenirlik hesaplamalarında Cronbach Alpha değeri ve McDonald'ın Omega katsayısı hesaplanmıştır. Öğretimde Olumlu Söylem Ölçeğinin tümü için Cronbach Alpha değeri 0.91, McDonald'ın Omega katsayısı 0.91 olduğu sonucuna ulaşılmıştır. Ölçeğin ilkokul üçüncü ve dördüncü sınıf öğrencileri için geçerli ve güvenilir bir ölçme aracı olduğu görülmektedir. Geliştirilen bu ölçek ilkokul öğrencileri tarafından olumlu söylemi değerlendirilmek amacıyla geliştirilmiştir. Öğretim süreci düşünüldüğünde öğretmenin, öğrencilerin olumlu söylem düzeylerini belirlemek amacıyla da bir ölçek geliştirilebilir.

Anahtar kelimeler: Olumlu söylem, Ölçek geliştirme, İlkokul üçüncü ve dördüncü sınıf öğrencileri.

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