

Validity and Reliability Study of Classroom Management Strategies Scale: CMSS-Preschool Teacher Form

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ABSTRACT

The aim of this study is to develop a measurement tool to determine the strategies used by preschool teachers in classroom management practices and to identify its validity and reliability. The research is in the survey model and its sample includes 580 preschool teachers working in public and private preschool throughout Turkey. An item pool was created by examining the literature and other scales related to classroom management. These items were sent to six experts working on the subject and the scale was finalized with 89 items. Exploratory and confirmatory factor analysis was utilized to test the construct validity. The results of the exploratory factor analysis revealed that 89 items in the scale consist of three main dimensions, namely Preventive Strategies, Supporting Strategies and Strategies for the Problem, and thirteen sub-dimensions. The Preventive Strategies Dimension consists of Program and Routines, Transitions between Activities, Organizing the Classroom Environment, Encouraging Participation in Activities, Teaching Desired Behavior, Supporting Dialogues and Giving Direction sub-dimensions. The Supporting Strategies dimension includes Social Skills and Emotional Competence, Understanding and Expressing Emotions, Problem Solving, Friendship Skills, Supporting Children with Persistent Problem Behaviors and Family Education and Participation sub-dimensions. Strategies for the Problem has no sub-dimension. According to the exploratory factor analysis, the explained variance was 72.62%. The Cronbach Alpha reliability coefficient regarding the reliability of the scale was found as $\alpha=.98$. As a result of confirmatory factor analysis, acceptable fit values were reached with $\chi^2= 11272,586$, RMSEA=0.059, SRMR=0.069, CFI=0.843 and TLI=0.837. These results indicate that the developed scale is a valid and reliable scale.

KEYWORDS

Preschool teachers; classroom management; classroom management strategies; scale development.

INTRODUCTION

Effective classroom management is the basis of effective teaching. In a well-managed classroom, there is a well-equipped teacher who puts the child in the center, knows the child's interests and needs and plans the activities, accordingly, organizes the classroom environment in line with educational goals, motivates children to learn, enables children to express themselves freely, supports active participation, and considers individual differences (Marzano & Marzano, 2003; Ozyürek, 2013; Şahin et al., 2011; Turan, 2011). The preschool teachers that children first encounter in the formal education system and their effective classroom management skills are of critical importance for the child to develop a positive attitude towards learning, to internalize school rules, to acquire desired behaviors in the classroom, and to implement activities successfully (Akgun et al., 2011). Teachers with effective classroom management skills carry out various planning and practices to ensure that education is carried out at the highest level without interruption (Unver & Ergun, 2021; Uysal et al., 2010). Classroom management consists of physical order, instructional management, time management, communication and behavior management (Basar, 2005; Uysal et al., 2014). Teachers can configure each dimension during classroom management and make use of different models (Agbaria, 2021). Four models commonly used in classroom management are reactive, developmental, preventive, and holistic models (Aktas Arnas & Sadik, 2008). The reactive model is a classical model that adopts appropriate responses to undesirable behaviors in the learning environment. The basis of the reactive model is the prevention of undesirable behavior, and it appears as an approach to the problem directly. The preventive model is based on "trying to prevent negative behaviors that may arise in the classroom environment" instead of "suppressing after they happen" (Durmusoglu Saltali & Arslan, 2013, p. 1033). It aims to anticipate potential problems and take precautions. The developmental model aims to support children by considering all developmental areas. In the holistic model, it is recommended that teachers should apply the reactive, developmental and precautionary model, when necessary, with a holistic perspective (Aktas Arnas & Sadik, 2008). In the pyramid model (Van Kuyk, 2011), which is one of the contemporary preschool education approaches, a three-tiered approach is recommended to support the social-emotional development of children and to address their challenging behaviors (Fox et al., 2003; Hemmeter et al., 2013). In the tiers of the model, it is suggested that the social-emotional development of children should be supported and the applications for challenging behaviors should include supportive, preventive and problem-oriented strategies, just like the holistic approach (Shonkoff & Phillips, 2000). When the literature is reviewed, it is not an appropriate approach to suggest a single model to all teachers in the face of such a variety of theories, models and practices related to classroom management (Akman et al., 2010; Ocak Karabay & Sahin Asi, 2015). The duty of teachers is to develop appropriate approaches and strategies in line with the needs of their classes by making use of these strategies and models.

Since the strategies adopted by teachers in classroom management will differ according to each class and each teacher, there is a need for measurement tools that evaluate the strategies they use in classroom management. Some of the measurement tools used to determine the strategies used by preschool teachers in classroom management practices in our country are: Teacher Classroom Management Strategies Questionnaire (Webster-Stratton, 2008, cited in Dincer et al., 2018; Teacher Strategies Questionnaire (Dogan & Uzmen, 2003); Classroom Management Skills Inventory for Pre-school Teachers (Dincer & Akgun, 2015), Classroom Management Scale for Preschool Teachers (Uyanik Balat et al., 2012). On the other hand, there are qualitative studies using semi-structured interviews and observations to determine the strategies used by preschool teachers in classroom management practices (Bayata & Yalcin, 2020; Dal, 2016; Keskin, 2002; Kutlu Abu & Arslan, 2020; Ozdemir & Tepeli, 2016; Sadik, 2004). However, the sub-scales and sub-dimensions in the measurement tool developed in our research will offer a different perspective in the evaluation of the strategies used by preschool teachers.

This study focuses on developing a measurement tool based on a holistic model, considering the unique dynamics of each class, individual differences among students, and the competencies of teachers at different levels. In the study, the sub-dimensions of classroom management (organization, teaching management, time management, communication and management, behavior management) were considered in the development of the measurement tool. In the light of all these explanations, the aim of this study is to develop a measurement tool for determining the classroom management strategies of preschool teachers and to test the validity and reliability of the developed tool.

METHOD

Design of the Research

In this study the survey model was used as it is the most appropriate for the nature of this research. The survey model is appropriate for large samples, and it is a model that aims to “collect data to identify specific features of a group” (Buyukozturk, et al., 2011).

Study group

The research was conducted with 580 preschool teachers working in public and private schools affiliated to the Ministry of National Education in 2021-2022 academic year. In order to determine the sample of the research, easily accessible sampling method, one of the purposeful sampling methods, was used. Easily accessible sampling is the method that prevents the researcher from losing time, money and labor (Buyukozturk, et al., 2011).

In the factor analysis studies conducted by Comrey and Lee (1992), Cornish (2006) and Child (2006), the sample size of a study was rated as “50” very bad, “100” bad, “200” medium, “300” good, “500” very good and “1000 and above” was rated as excellent. The study group consisted of 580 teachers, 510 female and 70 male teachers.

There were 24 teachers aged 20-25, 250 teachers aged 26-35, 235 teachers aged 36-45, 53 teachers aged 46-55, 17 teachers aged 56-65 in the study. 269 of the teachers have 1-10 years, 219 of them have 11-20 years, 60 of the teachers have 21-30 years, 25 of the teachers have 31-40 years, 7 of the teachers have 41-50 years of professional experience. 493 teachers have bachelor's degree, and 87 teachers have master's degree

Creating the scale form

In the process of developing the items of the scale, the results of the research on this subject were carefully examined. The findings related to the sub-dimensions of classroom management and the strategies used by the teachers were discussed. In addition, measurement tools prepared to evaluate classroom management in pre-school education were examined in detail. In the literature review, it is seen that the pyramid model sets an example for contemporary classroom management (Bredenkamp, 2015; Fox et al., 2014; Van Kuyk, 2011). The primary tier of the three-tier pyramid model includes nurturing and responsive relationships to support the social-emotional development of all children, and a high-quality supportive environment that encourages young children's participation in developmentally appropriate learning activities (Burchinal, et al., 2010; Chien et al., 2010; Fox et al., 2003; Fox & Lentini, 2006; Hemmeter et al., 2006; Hemmeter et al., 2015). At this level, teachers are expected to design classroom activities and programs to support children in all areas of development (Fettig & Artman-Meeker, 2016; Hemmeter et al., 2006). The secondary prevention tier includes systematic instruction on social skills to all children in the classroom. Understanding and expressing emotions; self-regulation, coping with difficult emotions (e.g., anger and frustration), solving social problems, friendship, cooperation with peers, includes teaching and supporting children (Brown et al., 2001; Fettig & Artman-Meeker, 2016; Hemmeter et al., 2015; Webster-Stratton et al., 2004). The tertiary intervention tier includes comprehensive, intensive and individualized intervention programs based on positive behavior support for children who do not respond to the practices and interventions offered in the first two phases and who continue to exhibit persistent challenging behaviors (Fox et al., 2003; Hemmeter et al., 2015).

It can be seen that the measurement tools prepared as a classroom management assessment tool in the literature contain different sub-dimensions. Classroom Assessment Scoring System (Pianta, et al., 2008) consists of emotional support, classroom organization and educational support sub-dimensions. Emotional support sub-dimension includes classroom atmosphere, teacher sensitivity, and respect for child's perspectives, classroom organization sub-dimensions; educational support dimension includes; concept development and the quality of feedback, being a language model and classroom organization sub-dimension includes behavior management, productivity. Classroom Management Skills Inventory for Preschool Teachers (Dincer & Akgun, 2015) consists of two sub-dimensions that measure teachers' professional skills and teacher-child interaction. Classroom Management Scale for Preschool Teachers (Uyanik Balat et al., 2012) consists of five sub-dimensions. These are time management and democratic environment, competence in planning activities, teachers' personal

competence, regulation of the physical environment and management of problematic behaviors. The Inventory of Teacher Strategies in Classroom Management composed of three subscales (Dincer et al., 2018) namely, Classroom Behavior Management Scale, the Special Teaching Techniques Scale and the Working with Parents Scales. Preschool Teachers' Classroom Management Skills Scale developed by Kaplan (2018) includes Communication and Behavioral Arrangements, Classroom Physical Arrangements, Time Management, and Plan-Program Activities sub-dimensions. The Scale of Teacher Attitude Scale towards Undesirable Student Behaviors in Class (Tanhan & Senturk, 2011) consists of emotional and behavioral dimensions. It is seen that the Scale for Identifying Strategies Used by Preschool Teachers Against Undesirable Behaviors in Classroom Management (Keles, 2015) consists of reality therapy/control model, confident discipline model, teacher effectiveness, Kaunin model, social discipline model, behavior change model sub-dimensions. Teacher Strategies Questionnaire (Gezgin, 2009) consists of the sub-dimensions of Behavior Management, Special Teaching Methods, Working with Parents.

In the light of the information obtained from the literature review, the Classroom Management Strategies Scale (CMSS- Preschool Teacher Form) was prepared as 93 items and the item pool was sent to six experts for their opinions. Experts were required to evaluate whether the prepared items were suitable for measuring the property to be measured. In addition to evaluating each item, the experts were asked to evaluate the suitability of these items within the factors predicted by the researchers theoretically. Moreover, the experts evaluated the items in terms of clarity, intelligibility, and representativeness. They were asked to rate their opinions on the items in the pool as "necessary", "useful but insufficient" and "unnecessary". After receiving expert opinions, the Content Validity Indices (CVI) for each item were calculated. Four items with a low content validity index were excluded from the pool. In the calculations made, the scale average Content Validity Indices was calculated as 98%. This value shows that it meets the intercoder consistency criterion of 90% or more (Polit et al., 2007). It was concluded that the content validity was statistically sufficient. The items were read by an expert working in the field of Turkish Education in terms of intelligibility. After the necessary corrections were completed in the items in the light of expert opinions, pilot administration was carried out with 30 teachers to determine the suitability of the scale for the target group. Participants were asked to evaluate the items in the form in terms of clarity and intelligibility. Necessary revisions were made according to the data obtained in the pilot study and the final form of the scale was created. The draft scale, consisting of a total of 89 items, is five-point Likert scale. Since there were no negative sentences in the scale, reverse scoring was not done.

Data Collection Process

In the 2021-2022 academic year, 700 preschool teachers working in the preschool education institution were reached through social media tools, Whatsapp application and phone, and the teachers who participated in the research voluntarily (n=580) filled out the data collection tools

through the Google form. Of the 700 preschool teachers, 120 refused to participate in this study, resulting in a 82.85% recruitment rate.

Data analysis

Obtained data set was analyzed using exploratory factor analysis. In exploratory factor analysis, the dimensions obtained as a linear combination of observed variables are called factors. Factors are hypothetical variables formed by observed variables (Rencher, 2002). In evaluating the suitability of the data for factor analysis, the correlation matrix should be examined. If many of the coefficients in the correlation matrix are not greater than 0.30, it will probably not be appropriate to utilize factor analysis (Hair et al., 1998). Bartlett test of sphericity is run to test the correlation between variables in the data matrix statistically (Bartlett, 1950). In the Bartlett sphericity test, whether the matrix formed between the questions is the unit matrix or not is determined. The rejection of the basic hypothesis indicates that the variables are suitable for factor analysis. In addition, the Kaiser-Meyer-Olkin (KMO) criterion, which is obtained by using the correlation and partial correlation coefficients, is an important criterion in evaluating the suitability of the data for factor analysis. KMO, which is a sample adequacy criterion, takes a value between 0-1. If the KMO value is less than 0.5, the data set is not suitable for factor analysis (Cerney & Kaiser, 1997).

Principal components analysis was used to obtain the factors in the study. In determining the appropriate number of factors, factor selection criteria as much as the number of eigenvalues greater than one were considered. In addition, by rotating the factor, the variables that contributed to the formation of each common factor were clarified. The varimax method was applied for that process. Confirmatory factor analysis was also used to test the suitability of the factors obtained by exploratory factor analysis to hypothetical or theoretical factor structures. Exploratory factor analysis is usually applied before scale development and construct validity testing.

Confirmatory factor analysis is used to confirm the structure obtained at the end of exploratory factor analysis or structure of the theoretical factor (Brown, 2015). While in the exploratory factor analysis, the appropriate number of factors that will define the basic structure is revealed based on the data matrix, in confirmatory factor analysis, the number of factors is known in advance. IBM SPSS Statistics for Windows (Version 25.0) and Amos (Version 24.0) package program was used for confirmatory factor analysis in the study.

FINDINGS

Exploratory factor analysis

Exploratory factor analysis tries to identify the construct validity of the measurement tool by examining the relationship structure between the items. For this purpose, principal component analysis was run for the data set. As a result of explanatory factor analysis, the following dimensions and sub-dimensions were obtained;

Preventive Strategies (PrS) dimension contains Program and Routines (PR), Transitions between Activities (TA), Organizing the Classroom Environment (OCE), Encouraging Participation in Activities (EPA), Teaching Behaviour Expectations (TBE), Supporting Dialogues (SD), Giving Direction (GD) sub dimensions. Supporting Strategies (SS) dimension contains Social Skills and Emotional Competence (SSEC), Understanding and Expressing Emotions (UEE), Problem Solving (PS), Friendship Skills FS), Supporting Children with Persistent Problem Behaviours (SCPPB), Family Education and Participation (FEP) sub dimensions. Strategies for The Problem (SP) dimension has no sub dimension.

Table 1: Common Factor Variances and Factor Loads for CMSS

	PrS							SS					SP	
	P R	T A	O C E	E P A	T B E	S D	G D	S S E C	U E E	P S	F S	S C P P B		F E P
Item 1	0.655													
Item 2	0.718													
Item 3	0.704													
Item 4	0.595													
Item 5	0.605													
Item 6	0.482													
Item 7	0.389													
Item 8	0.386													
Item 9	0.454													
Item 10	0.576													
Item 11	0.470													
Item 12		0.517												
Item 13		0.501												
Item 14		0.746												
Item 15		0.709												
Item 16		0.480												
Item 17			0.803											
Item 18			0.793											

Item 19			0.717											
Item 20			0.661											
Item 21			0.639											
Item 22				0.520										
Item 23				0.450										
Item 24				0.491										
Item 25				0.565										
Item 26				0.585										
Item 27				0.732										
Item 28					0.540									
Item 29					0.396									
Item 30					0.590									
Item 31					0.662									
Item 32					0.576									
Item 33					0.694									
Item 34					0.707									
Item 35						0.780								
Item 36						0.708								
Item 37						0.780								
Item 38						0.796								
Item 39						0.715								
Item 40						0.731								
Item 41						0.547								
Item 42							0.487							
Item 43							0.793							
Item 44							0.801							
Item 45							0.545							

Item 46							0.771							
Item 47							0.623							
Item 48							0.673							
Item 49								0.729						
Item 50								0.593						
Item 51								0.782						
Item 52								0.475						
Item 53								0.636						
Item 54								0.647						
Item 55									0.791					
Item 56									0.790					
Item 57									0.691					
Item 58									0.761					
Item 59									0.793					
Item 60									0.642					
Item 61										0.515				
Item 62										0.592				
Item 63										0.559				
Item 64										0.509				
Item 65										0.574				
Item 66										0.564				
Item 67											0.593			
Item 68											0.572			
Item 69											0.521			
Item 70											0.527			
Item 71											0.519			
Item 72											0.604			
Item 73											0.491			
Item 74												0.510		

Item 75												0.593		
Item 76												0.643		
Item 77													0.718	
Item 78													0.598	
Item 79													0.595	
Item 80													0.630	
Item 81													0.602	
Item 82													0.666	
Item 83													0.635	
Item 84													0.573	
Item 85													0.662	
Item 86													0.493	
Item 87													0.587	
Item 88													0.592	
Item 90													0.534	
Eigenvalue	4.774	2.881	5.212	1.474	2.483	1.710	1.401	2.573	24.266	4.835	8.079	2.216	1.479	1.250
Ratio of Variance Explained	3.439	5.807	1.919	27.880	1.437	1.571	2.335	3.099	5.040	4.746	2.831	8.998	1.378	1.724
Cronbach's Alpha	0.892	0.700	0.876	0.862	0.807	0.925	0.884	0.900	0.944	0.925	0.939	0.870	0.911	0.848
Total Explained Variance Ratio= 72.621 Kaiser Meyer Olkin (KMO) = 0.979 Bartlett Test Value=49014.935 p=0.001 ** Total Cronbachs' Alpha (α)=0.986														

$p^* < 0.05$; $p^{**} < 0.01$

Note: Abbreviations of dimensions and sub-dimensions are presented in the text.

The KMO test checks whether the distribution is sufficient for factor analysis and the range of 0.80-0.90 is considered very good (Akgul & Cevik, 2003). It can be said that the KMO value in this study (0,979) is at a very good level. Barlett test result was found as 49014.935 ($p < 0.05$). This shows that the variable is multivariate in the universe parameter. In this study, factors numbers are not limited and factors with an eigenvalue of 1 or greater than 1 were accepted as important factors (Buyukozturk, et al., 2011). Considering that variance rates above

40% are assumed to be ideal in factor analysis (Scherer, 1988), it can claim that the 73% variance amount obtained in this study is at a sufficient level.

As seen in Table 1, Classroom Management Strategies Scale consists of three main dimensions: Preventive Strategies, Supporting Strategies and Strategies for the Problem. Preventive Strategies dimension consists of seven sub-dimensions and the Supportive Strategies dimension consists of six sub-dimensions. Strategies for the Problem dimension has no sub-dimension. The factor loads are given in Table 1. Cronbachs'Alpha (α) was considered sufficient because it was above 0.70. Therefore, it can be suggested that the Classroom Management Strategies Scale measures 14 different dimensions. According to these results, it seems to be a reliable measurement tool (Ozdamar, 2002; Tavakol & Dennick, 2011).

It is considered that the values with an item-total correlation value below 0.40 have weak or not strong enough measurement power and will not contribute to the measurement of the structure that is thought to be measured by the scale. Items with an item-total correlation coefficient of less than 0.20 should not be included in the scale because they are statistically insignificant (Erkus, 2003). Accordingly, the total correlation values of the dimensions in the scale vary between 0.203 and 0.827. For this reason none of the item were removed, so the number of items did not change.

Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) aims to test the model claimed by the exploratory method according to some criteria and to test the model fit. The model obtained at the end of exploratory factor analysis was tested with confirmatory factor analysis (CFA). Since the goodness of fit values of the first analysis of the created model were not within the desired limits, necessary corrections and mergers were made by considering the improvement (modification) indexes. After the improvements that can be established theoretically and that make the highest contribution to the model as correction value, as seen in Figure 1, the combinations were made by associating the sub-dimensions with each other, considering the goodness of fit of the sub-dimensions of the variables.

In the model obtained ($\chi^2= 11272.586$ $df=3774$) there are three main dimensions of CMSS and a total of thirteen sub-dimensions under three main dimensions. Chi-square/degrees of freedom (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Goodness of Fit Index (GFI), Standardized Root Mean Square Residual (SRMR), Comparative Fit Index (CFI), Incremental Fit Index (IFI), showed that the model was at an acceptable level (Table 2). In general, it is understood that the model has acceptable fit values (Browne & Cudeck, 1993; Kline, 2011). The tested model is shown in Figure 1.

Table 2: Statistical Values Regarding the Fit of the CMSS Model

Measurement	Good Fit	Acceptable Fit	PrS	SS	SP	General Model
(χ^2/df)	≤ 3	$\leq 4-5$	3.659 *	3.620 *	3.426 *	2.987 **
RMSEA	≤ 0.05	0.06-0.08	0.068 *	0.068 *	0.065 *	0.059 *
SRMR	≤ 0.05	0.06-0.08	0.080 *	0.043 **	0.014 **	0.069 *
IFI	≥ 0.95	0.94-0.90	0.870	0.927 *	0.993 **	0.844
CFI	≥ 0.95	0.94-0.90	0.869	0.927 *	0.993 **	0.843
GFI	≥ 0.90	0.89-0.85	0.756	0.835	0.988 **	0.659
TLI	≥ 0.95	0.94-0.90	0.860	0.920 *	0.981 **	0.837

* Acceptable fit; ** good fit

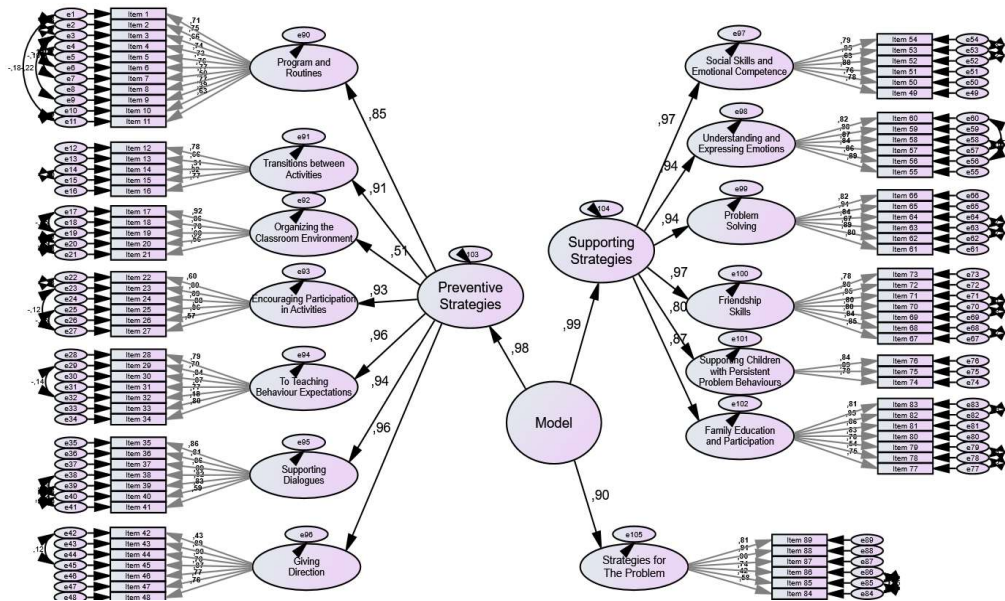


Figure 1: Structural Equation Model for CMSS

After the model was formed, the effect of the questions on the sub-dimensions is given in Table 3, the effect of the sub-dimensions on the dimensions in Table 4, and the effects of the dimensions on the scale are given in Table 5.

Table 3: Evaluation of Effects Between Questions and Sub-Dimensions for CMSS

Tested Path		Standardized Estimate (β)	Estimate (β)	Standard Error	Critical Value	p
PrS	Item 1 \leftarrow PR	0.710	1.000	-	-	-
	Item 2 \leftarrow PR	0.747	1.057	0.049	21.559	0.001**
	Item 3 \leftarrow PR	0.664	1.124	0.076	14.860	0.001**
	Item 4 \leftarrow PR	0.742	1.027	0.061	16.953	0.001**
	Item 5 \leftarrow PR	0.733	1.028	0.061	16.748	0.001**
	Item 6 \leftarrow PR	0.765	1.046	0.060	17.388	0.001**
	Item 7 \leftarrow PR	0.767	1.070	0.061	17.435	0.001**
	Item 8 \leftarrow PR	0.502	0.853	0.074	11.513	0.001**
	Item 9 \leftarrow PR	0.767	1.088	0.062	17.442	0.001**
	Item 10 \leftarrow PR	0.392	0.861	0.096	8.97	0.001**
	Item 11 \leftarrow PR	0.628	0.995	0.075	13.273	0.001**
	Item 12 \leftarrow TA	0.782	1.000	-	-	-
	Item 13 \leftarrow TA	0.661	1.050	0.066	15.865	0.001**
	Item 14 \leftarrow TA	0.314	0.608	0.085	7.163	0.001**
	Item 15 \leftarrow TA	0.323	0.723	0.098	7.364	0.001**
	Item 16 \leftarrow TA	0.767	1.045	0.056	18.811	0.001**
	Item 17 \leftarrow OCE	0.921	1.000	-	-	-
	Item 18 \leftarrow OCE	0.860	0.980	0.042	23.448	0.001**
	Item 19 \leftarrow OCE	0.781	0.653	0.033	19.587	0.001**

Item 20	← OCE	0.603	0.484	0.031	15.365	0.001**
Item 21	← OCE	0.558	0.465	0.033	13.951	0.001**
Item 22	← EPA	0.603	1.000	-	-	-
Item 23	← EPA	0.800	1.018	0.061	16.815	0.001**
Item 24	← EPA	0.691	1.027	0.075	13.617	0.001**
Item 25	← EPA	0.876	1.049	0.066	15.952	0.001**
Item 26	← EPA	0.860	1.080	0.068	15.796	0.001**
Item 27	← EPA	0.567	0.925	0.080	11.577	0.001**
Item 28	← TBE	0.793	1.000	-	-	-
Item 29	← TBE	0.697	1.001	0.056	18.014	0.001**
Item 30	← TBE	0.838	1.063	0.046	22.967	0.001**
Item 31	← TBE	0.871	1.000	0.041	24.249	0.001**
Item 32	← TBE	0.772	0.993	0.048	20.523	0.001**
Item 33	← TBE	0.177	0.454	0.109	4.151	0.001**
Item 34	← TBE	0.802	1.012	0.047	21.629	0.001**
Item 35	← SD	0.856	1.000	-	-	-
Item 36	← SD	0.813	1.001	0.041	24.624	0.001**
Item 37	← SD	0.863	0.984	0.036	27.389	0.001**
Item 38	← SD	0.887	0.963	0.033	28.821	0.001**
Item 39	← SD	0.824	0.916	0.036	25.198	0.001**

	Item 40	← SD	0.827	0.953	0.038	25.230	0.001 **
	Item 41	← SD	0.590	0.895	0.058	15.463	0.001 **
	Item 42	← GD	0.434	1.000	-	-	-
	Item 43	← GD	0.885	1.245	0.115	10.864	0.001 **
	Item 44	← GD	0.897	1.288	0.118	10.905	0.001 **
	Item 45	← GD	0.695	1.259	0.119	10.539	0.001 **
	Item 46	← GD	0.870	1.236	0.114	10.811	0.001 **
	Item 47	← GD	0.769	1.277	0.123	10.405	0.001 **
	Item 48	← GD	0.756	1.236	0.119	10.347	0.001 **
SS	Item 49	← SSEC	0.782	1.000	-	-	-
	Item 50	← SSEC	0.755	1.087	0.055	19.654	0.001 **
	Item 51	← SSEC	0.882	1.050	0.044	24.064	0.001 **
	Item 52	← SSEC	0.635	0.997	0.063	15.910	0.001 **
	Item 53	← SSEC	0.852	1.100	0.048	22.921	0.001 **
	Item 54	← SSEC	0.788	1.052	0.051	20.684	0.001 **
	Item 55	← UEE	0.890	1.000	-	-	-
	Item 56	← UEE	0.855	1.030	0.035	29.121	0.001 **
	Item 57	← UEE	0.841	1.050	0.037	28.115	0.001 **
	Item 58	← UEE	0.873	1.081	0.035	30.513	0.001 **
	Item 59	← UEE	0.877	1.010	0.033	30.836	0.001 **

Item 60	← UEE	0.815	1.026	0.039	26.383	0.001**
Item 61	← PS	0.802	1.000	-	-	-
Item 62	← PS	0.892	1.106	0.043	25.624	0.001**
Item 63	← PS	0.668	0.948	0.055	17.207	0.001**
Item 64	← PS	0.838	1.097	0.047	23.370	0.001**
Item 65	← PS	0.908	1.136	0.043	26.311	0.001**
Item 66	← PS	0.816	1.091	0.048	22.529	0.001**
Item 67	← FS	0.851	1.000	-	-	-
Item 68	← FS	0.838	1.011	0.036	28.435	0.001**
Item 69	← FS	0.801	1.030	0.043	23.901	0.001**
Item 70	← FS	0.800	0.992	0.042	23.820	0.001**
Item 71	← FS	0.848	0.971	0.037	26.340	0.001**
Item 72	← FS	0.859	0.981	0.036	26.982	0.001**
Item 73	← FS	0.779	0.974	0.043	22.858	0.001**
Item 74	← SCPP B	0.784	1.000	-	-	-
Item 75	← SCPP B	0.890	1.008	0.044	22.735	0.001**
Item 76	← SCPP B	0.839	0.896	0.042	21.417	0.001**
Item 77	← FAP	0.754	1.000	-	-	-
Item 78	← FAP	0.539	0.981	0.065	15.006	0.001**
Item 79	← FAP	0.783	1.091	0.056	19.348	0.001**

	Item 80	← FAP	0.833	1.071	0.052	20.781	0.001**
	Item 81	← FAP	0.864	1.020	0.047	21.661	0.001**
	Item 82	← FAP	0.849	1.093	0.052	21.206	0.001**
	Item 83	← FAP	0.810	1.139	0.057	20.060	0.001**
SP	Item 84	← SP	0.585	1.000	-	-	-
	Item 85	← SP	0.419	0.882	0.094	9.370	0.001**
	Item 86	← SP	0.741	1.091	0.069	15.854	0.001**
	Item 87	← SP	0.898	1.186	0.076	15.614	0.001**
	Item 88	← SP	0.911	1.214	0.077	15.730	0.001**
	Item 89	← SP	0.814	1.185	0.080	14.744	0.001**

When Table 3 is examined, each of the path coefficients of the sub-dimensions on 89 questions is statistically significant ($p < 0.05$). All sub-dimensions have a high statistically significant effect on the questions.

When Table 4 is examined, each of the path coefficients on the three dimensions of the sub-dimensions is statistically significant ($p < 0.05$). PrS dimension includes Program and Routines, Transitions between Activities, Organizing the Classroom Environment, Encouraging Participation in Activities, Teaching Behavior Expectations, Supporting Dialogues and Giving Direction sub-dimensions. Supporting Strategies dimension compose of Social Skills and Emotional Competence, Understanding and Expressing Emotions, Problem It consists of Solving, Friendship Skills, Supporting Children with Persistent Problem Behaviors and Family Education and Participation sub-dimensions. Strategies for the Problem has not any sub-dimensions. All dimensions have a high statistically significant effect on sub-dimensions.

When Table 5 is examined, each of the path coefficients of the dimensions on the CMSS is statistically significant ($p < 0.05$). PrS, SS and SP dimensions significantly affect CMSS at a high level.

Table 4: Evaluation of Effects between Sub-Dimensions and PrS, SS and SP Dimensions

Tested Path	Standardized Estimate (β)	Estimate (β)	Standard Error	Critical Value	p
PR ← PrS	0.851	1	-	-	-
TA ← PrS	0.908	1.007	0.067	15.064	0.001**
OCE ← PrS	0.511	1.17	0.108	10.835	0.001**
EPA ← PrS	0.931	1.144	0.091	12.608	0.001**
TBE ← PrS	0.956	1.213	0.076	15.925	0.001**
SD ← PrS	0.94	1.204	0.072	16.658	0.001**
GD ← PrS	0.955	0.986	0.102	9.622	0.001**
SSEC ← SS	0.966	1	-	-	-
UEE ← SS	0.938	0.997	0.045	21.938	0.001**
PS ← SS	0.942	0.98	0.05	19.569	0.001**
FS ← SS	0.968	1.037	0.048	21.463	0.001**
SCPPB ← SS	0.8	1.018	0.062	16.316	0.001**
FEP ← SS	0.865	0.869	0.051	17.038	0.001**

$p^* < 0.05$; $p^{**} < 0.01$

Table 5: Evaluation of Effects between Dimensions and CMSS

Tested Path	Standardized Estimate (β)	Estimate(β)	Standard Error	Critical Value	p
PrS ← CMSS	0.976	0.955	0.079	12.093	0.001**
SS ← CMSS	0.99	1.182	0.087	13.518	0.001**
SP ← CMSS	0.905	1	-	-	-

$p^* < 0.05$; $p^{**} < 0.01$

Table 6: Evaluation of the Relationship Between Dimensions and CMS

		PrS							SS						SP		
		P R	T B A	O C E	E P A	T B E	S D	G D	T o t a l S c o r e	S S E C	U E E	P S	F S	S C P P B		F E P	T o t a l S c o r e
PrS	TBA	.503**															
	OCE	.695**	.432**														
	EPA	.683**	.529**	.626**													
	TBE	.633**	.556**	.542**	.716**												
	SD	.674**	.435**	.589**	.726**	.645**											
	GD	.634**	.539**	.527**	.733**	.685**	.764**										
	Total Score	.868**	.667**	.781**	.865**	.822**	.829**	.836**									
SS	SSEC	.630**	.502**	.517**	.680**	.649**	.747**	.783**	.777**								
	UEE	.543**	.440**	.471**	.650**	.633**	.709**	.723**	.713**	.791**							
	PS	.627**	.465**	.572**	.707**	.652**	.703**	.729**	.767**	.762**	.754**						
	FS	.628**	.478**	.537**	.685**	.642**	.688**	.717**	.751**	.770**	.776**	.846**					
	SCPPB	.602**	.350**	.498**	.581**	.592**	.571**	.529**	.644**	.603**	.608**	.660**	.661**				
	FEP	.525**	.342**	.471**	.562**	.498**	.594**	.519**	.608**	.560**	.560**	.646**	.660**	.687**			
	Total Score	.679**	.475**	.592**	.737**	.699**	.775**	.763**	.819**	.858**	.843**	.891**	.890**	.791**	.812**		
SP	.595**	.568**	.513**	.465**	.625**	.623**	.628**	.655**	.698**	.678**	.648**	.717**	.722**	.580**	.658**	.763*	
Scale Total Score	.851**	.821**	.627**	.729**	.845**	.804**	.836**	.846**	.964**	.847**	.803**	.858**	.848**	.733**	.723**	.932*	

*p**<0.05; *p***<0.01; *r*: Correlation Coefficient

When Table 6 is examined, there is a moderate and high-level positive and statistically significant relationship between PrS, SS, SP dimensions, sub-dimensions and CMSS ($p < 0.05$). Sub-dimension scores and descriptive statistics are given in Table 7 in detail.

Table 7: CMSS Descriptive Statistics

		Mean	Std. Deviation	Minimum	Maximum	Number of Items
PrS	PR	47.93	6.455	11	55	11
	TA	21.36	2.961	5	25	5
	OCE	20.71	4.103	5	25	5
	EPA	26.38	3.742	6	30	6
	TBE	29.93	4.264	7	35	7
	SD	32.07	4.151	7	35	7
	GD	31.26	4.336	7	35	7
	Total Score	209.65	25.659	48	240	48
SS	SSEC	26.84	3.876	6	30	6
	UEE	27.28	3.823	6	30	6
	PS	26.68	3.906	6	30	6
	FS	31.59	4.372	7	35	7
	SCPPB	12.93	2.227	3	15	3
	FEP	30.86	4.477	7	35	7
	Total Score	156.18	20.424	35	175	35
SP	26.41	3.748	6	30	6	
Scale Total Score	392.24	48.109	89	445	89	

When Table 7 is examined, the CMSS total score is evaluated between 89 and 445 points, the PrS total score is between 48 and 240 points, the SS total score is between 35 and 175 points, and the SP score is between 6 and 30 points. A high score indicates a positive increase, and a low score indicates a negative decrease.

DISCUSSION

Although there are scale adaptation and development studies related to classroom management of preschool teachers in Turkey (Dincer & Akgun, 2015; Dincer, et al., 2018; Gezgin, 2009; Keles, 2015; Kaplan, 2018; Tanhan & Sentürk, 2011; Uyanik Balat et al., 2012),

there is no measurement tool developed in Turkey based on a holistic model that considers the unique dynamics of each class, individual differences among students, and the competencies of teachers. Necessary the steps followed by taking into account the scale development process, as a result of the statistical analyzes, the 93-item scale trial form took its final form, consisting of 89 items, three main dimensions and 13 sub-dimensions.

At the end of exploratory factor analysis, a structure consisting of 3 main dimensions and 13 sub-dimensions was obtained. PrS consists of seven sub-dimensions and SS consists of six sub-dimensions. SP has no sub-dimensions. Sub-dimensions and dimensions consist of the following questions. Program and Routines (PR) sub-dimension questions are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11, Transitions between Activities (TA) sub-dimension questions are 12, 13, 14, 15 and 16. Organizing the Classroom Environment (OCE) sub-dimension questions are 17, 18, 19, 20 and 21, Encouraging Participation in Activities (EPA) sub-dimension questions are 22, 23, 24, 25, 26 and 27, To Teaching Behavior Expectations (TBE) sub-dimension questions are 28, 29, 30, 31, 32, 33 and 34, Supporting Dialogues (SD) sub-dimension questions are 35, 36, 37, 38, 39, 40 and 41, Giving Direction (GD) sub-dimension questions are 42, 43, 44, 45, 46, 47 and 48, Social Skills and Emotional Competence (SSEC) sub-dimension questions are 49, 50, 51, 52, 53 and 54, Understanding and Expressing Emotions (UEE) sub-dimension questions are 55, 56, 57, 58, 59 and 60, Problem Solving (PS) sub-dimension questions are 61, 62, 63, 64, 65 and 66, Friendship Skills (FS) sub-dimension questions are 67, 68, 69, 70, 71, 72 and 73, Supporting Children with Persistent Problem Behaviors (SCPPB) sub-dimension questions are 74, 75 and 76, Family Education and Participation (FAP) sub-dimension questions are 77, 78, 79, 80, 81, 82 and 83, and Strategies for the Problem (SP) sub-dimension are 84, 85, 86, 87, 88, and 89. According to the exploratory factor analysis, the total variance was calculated as 72.62%.

The Cronbach Alpha reliability coefficient regarding the reliability of the scale was found as $\alpha=.98$. As a result of confirmatory factor analysis, acceptable fit values were reached with $\chi^2=11272,586$, RMSEA=0.059, SRMR=0.069, CFI=0.843 and TLI=0.837. These values show that the developed instrument is a valid and reliable scale (Collier, 2020).

As a result, it has been revealed that the Classroom Management Strategies Scale (CMSS-Preschool Teacher Form) developed with this study is a valid and reliable measurement tool to measure the classroom management strategies used by pre-school teachers working in Turkey. The scale aimed to measure the strategies used by preschool teachers in classroom management in the most comprehensive way, and it is thought that this scale will be an important tool in future studies examining the strategies used in classroom management.

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