

# Development and Validity-Reliability Study of a Teacher-Child Communication Scale\*

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## Abstract

One of the essential factors for preschool education to succeed and meet expectations is the presence of teachers who have effective communication skills. Effective communication between preschool educators and children influences children's school adjustment, developmental outcomes in different domains, and their future relationship with teachers. For this reason, measurement scales which determine to what extent teachers have these skills are needed. The purpose of the present study is to develop a scale which determines teacher's communication skills with children and to test the reliability and validity of the scale. Sample group is composed of 182 teachers for first application, and for second 207 teachers working at public and private kindergartens in Konya in the districts of Meram, Karatay and Selçuklu. Teacher-Child Communication Scale (TCCS) was used as a data collection tool in the present study. For content validity of TCCS, expert opinions were asked. In order to determine internal consistency reliability of the teacher-child communication scale, each dimension and the whole scale, Cronbach's alpha values were calculated. In order to test construct validity of TCCS, Categorical Principle Components Analysis and Confirmatory factor analysis were used. The results suggest that Teacher-Child Communication Scale is a valid and reliable scale which has five dimensions.

## Key Words

Teacher-Child Communication, Teacher-Child Communication Scale, Communication Skills, Scale Development.

Achievement of a suitable educational environment in pre-school education institutions depends as much on teacher competencies as on physical conditions, effective program and children's characteristics. One of the most important competencies for teachers working with pre-school children is to have is developed communication skills.

Communication is the process of transmission of an idea or emotion from one person to another through facial expressions, gestures, speech or via means of communication like writing, telephone, radio, television, etc. (Ağca, 2009). Communication skill can be defined as "one's ability to express his/her emotions, ideas, beliefs and attitudes comprehensibly way and relevantly" (Alper, 2007). In studies on communication, it is emphasized that communication skills are important for interpersonal relationships and a wide variety of occupations (Chant, Jenkinson, Randle, & Russell, 2002; Dökmen, 1995; Pembecioğlu, 2006). As communication is an important component of early years education, pre-school teachers also need to have adept communication skills. The application of education programs prepared by preschool teachers depends on many factors including communication skills (Önder, 2003). Besides, Pianta who carried out significant studies on teacher-child communication points out that teachers' having effective communication skills is of great importance

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for the development and education of the children. It was determined that pre-school children who perceive their relation with their teachers as positive, warm and close had better school adaptation. However, school adaptation of students who perceive their relation with their teachers as negative were poorer compared to others (Pianta, Steinberg, & Rollins, 1995). In similar studies Brich and Ladd (1997), Justice, Cottone, Mashburn, and Rimm-Kaufman (2008), it was pointed out that there was a reverse relation between close relation and shyness and a linear relation with reading comprehension and this positive relationship affects children's academic success and children love school more. It was revealed that when child-teacher relationship is negative, children exhibit negative attitudes towards school, have poor academic success, spend less time at school environment, and avoid from being at school and cooperation in the class. Also teacher communicative behaviors influence students' perceptions of the classroom environment, as well as whether they participate in class and talk to their teacher (Claus, Booth-Butterfield, & Chory, 2012; Myers, Martin, & Mottet, 2002). As it can be seen in the results of these studies, teachers' communication with children is of great significance in children's educational process.

When the field of communication studies is examined, it can be seen that different communication models have been developed. Some of these models are non-linear models like Ogood and Schramm, Dance, Gerbner, Newcomb ABX, Westley- Maclean, Riley-Riley models (Demiray, 2011). These models include feedback and other components of communication process. In these models, one of the two persons in a dialogue is the source unit and the other is the target unit. Between these two units, there is a channel through which the message shuttles (Alper, 2007; Cüceloğlu, 1993; Çağdaş, 2008). In source module, the message is formed and sent to the target unit and the target module is the unit where the message is sent. To answer the message it receives, the target prepares a message as the sender and sends it to source through a channel. Source and target modules are not stable but they swap functions dynamically (Alper; Çağdaş).

The teacher-child communication scale was developed based on non-linear communication models. In these models, communication is a bilateral process in which messages are sent and received. Message is composed of observable symbols through which emotions and ideas are encoded and communicated to the receiver with verbal, non-verbal and written expressions (Altıntaş & Çamur, 2001). The words people utter, facial expressions, gestures, way of sitting and standing and writings are

all messages (Cüceloğlu 1993; Özgüven, 1992). The positive or negative attitudes and behaviors towards the child and the verbal and non-verbal messages are closely related with confidence, autonomy, and assertiveness/delinquency emotions the child develops in this period. The concept of self and foundations for personality s/he is going to develop in adolescence are laid in this period (Ölçer, 2004).

Body language, speech communication, empathy and listening play a great role in communication and understanding of a message (Cihangir Çankaya, 2011; Dökmen, 1995; McKay, Davis, & Fanning, 2010; Özer, 2007; Yücel, 2011). Empathy is one's ability to put himself into the another person's place, see events with his/her point of view and understanding his/her feelings and ideas correctly and communicating this to him/her (Dökmen, 1995). Emphatic understanding increases the effectiveness of human relations and maintains it (Çağdaş, 2008). Therefore, it is one of the important elements in communication. Listening is related with one's respect and interest to his/her interlocutors. Listening which is regarded as one of the communication skills is a basic behavior showing that the speaker is accepted (Cihangir Çankaya). Gordon (1996) emphasizes the significance of listening and non-verbal communication as a part of teachers' communication skills. Non-verbal communication is "the use of movement and gestures, time, eye contact, facial expression, touch, environment, vocal expressiveness, and dress" (Wei & Wang, 2010). If the teacher is a good listener, he makes sense of not only what children say but also their facial expressions and gestures, and body language. S/he also attracts attention to the messages s/he communicates with his body language because non-verbal messages are also a part of communication. Non-verbal messages have a significant function in communication of ideas and feelings as they bring what is done and what is said to forth. In a positive communication environment, the need for non-verbal communication increases (Bulut, 2008). Positive teacher-child communication makes it easier for children to adapt to school environment and it positively affects their emotional, social and even cognitive development during this adaptation. Several studies reported that positive teacher-child communication influences children's academic, social success and even their school life in the future. This is especially true for children who suffer from scolionophobia (Koepke & Harkins, 2008; Rudasill, 2011; Tsigilis & Gregoriadis, 2008; Vondra, Shaw, Swearingen, Cohen, & Owens, 1999). In a conflict based communication, teachers try to bring chil-

dren's behavior under control and this decreases efforts to create a positive classroom environment (Driscoll & Pianta, 2010).

Another important component of communication skills is speech. Speech is one's expression of a person's feelings with linguistic expressions in phonological units through communication channels in order to come to agreement with other people with the assumption that this communication will be of interest to others. Speech is a system of signs that not only enables communication between people and expression but also a way of swapping ideas and sharing experiences (Yüksel, 2011).

As mentioned in non-linear communication models, speech, listening, empathy, non-verbal communication and the message are vital for accurate perception and communication of the message. Therefore, when the items of teacher-child communication scale are constructed, the sub-scale items were specified to include message, speech communication, listening, empathy and non-verbal communication dimensions.

Teacher's behaviors in the class affect children and in turn children's behaviors affect the teacher's responses (Claus et al., 2012; Finn, 2012; Rudasill, 2011). This influence is interactive and determines the quality of teacher-child communication. Therefore, the communication that pre-school children establish with their teachers will affect their relations with their teachers in the following years. Teacher-child communication is an area to be examined to determine the quality and nature of relationships between child and teacher and its effects on children all developmental areas, skills and abilities (Rudasill). However, in the literature review, there are a limited number of studies into the nature of teacher-child communication in Turkey (Çelik & Çağdaş, 2010; Tepeli & Arı, 2011; Tezel Şahin, Kandır, Yaşar, & Yazıcı, 2011). Furthermore, none of these studies have employed scales developed especially for measuring communication skills with preschool children. When the related literature is examined, it is seen that although there exist some scales developed by Çetinkanat (1998), Şahin (2007) and different experts for measuring teachers' communication skills, no scale has been encountered especially aiming to measure communication between preschool teachers and children (cited in Keçeci & Gülsün, 2009). This study is important in the sense that it is the first one in Turkey. Thanks to this scale, preschool teachers' communication skills can be identified and new studies can be planned with different variables affecting teachers' communication skills. Determining teachers' inadequacy in communication skills and revealing the factors related

with communication skills will provide a basis for in-service education programs targeting at teachers. The development of a teacher-child communication scale is significant contribute to pre-school children's development in every domain and for their education. Furthermore, it is thought that this study will pioneer researchers who intend to develop scales in different issues.

For these reasons, the general aim of this study is to develop Teacher Child Communication Scale that assesses pre-school teachers' communication with children and to conduct its validation study.

## Method

### Sample

Population of this study is composed of teachers working in public and private preschool education institutions affiliated to Meram, Selçuklu and Karatay districts in Konya. Sample consists of 182 preschool teachers for the first application and 207 preschool teachers for the second application. Teachers for both studies are randomly selected from the population based on element sampling method. For the first application the teachers' ages ranged between 23 and 45,  $35.83 \pm 6.75$  being the average and the experience in preschool teaching ranged between 1 and 33 years,  $11.31 \pm 7.01$  years being the average length of service. For second application the teachers' ages ranged between 22 and 49,  $32.43 \pm 6.59$  being the average and the experience in preschool teaching ranged between 1-30 years,  $9.54 \pm 6.35$  years being the average length of service. Data obtained from the second application is used only for confirmatory factor analysis.

### Instrument

**Teacher Child Communication Scale-(TCCS):** In this study, "teacher child communication scale" is used as instrument for collecting data.

**Development of Teacher Child Communication Scale:** In the development of the scale, first of all sub-dimensions including message, empathy, speech, listening and non-verbal communication were determined based on non-linear communication models. Relevant studies were reviewed and items that would reflect each dimension were developed. An item pool consisting of 54 items was created. Later, similar items under the same sub-dimension were combined, expressions were corrected and a 33-item scale was drafted and sent to experts for feedback. Based on feedback from seven experts, 5 items were omitted from the scale and the expressions of 4 items were corrected. As

a result, *Teacher Child Communication Scale* draft consisting of 28 items was prepared for piloting. The data collection instrument developed in this way was piloted on 30 volunteer pre-school teachers and the result of this piloting revealed that the scale did not have any items which were inconsistent or which could lead to misunderstandings in-responses. Therefore, we decided to apply the scale with the finalized 28 items. The answer choices presented to teachers in the scale with regard to their communication with children are: Always (5), Often (4), Sometimes (3), Rarely (2) and Never (1). In the scale there are four reverse items and these items are scored reversely.

**Collecting and Analyzing Data**

Scale is applied to teachers by the researchers themselves. Teachers were informed about aim of the study and scale items, then they were asked to fill the items in the scale. Obtained data were coded and computerized; then data analysis is started.

In order to determine internal consistency reliability of the teacher-child communication scale, each dimension and the whole scale, Cronbach’s alpha values were calculated. In the validity analysis of factor construct, each dimension was submitted to Categorical Principle Components Analysis (Cat-PCA) one by one in optimal scaling. As a result of analysis, the items with factor loads less than 0.30 were taken into consideration. And than was used Confirmatory Factor Analysis. In Confirmatory Factor Analysis, maximum likelihood prediction method was used to predict model parameter (Jöreskog & Sörbom, 2001). In the assessment of model goodness of fit RMSEA,  $\bar{\chi}/df$ , GFI, CFI goodness indexes were taken as criteria. RMSEA, (root mean square error of approximation) should be less than 0.05 for a good fit,  $\bar{\chi}/df$  assesment should be between 2-5 for a good fit; GFI (goodness of fit index showing the quantity of variance and covariance explained by model) should be more than 0.90 for an acceptable fit; CFI (comparative fit index) should be more than 0.90 for an acceptable fit (Bayram, 2010; Bryne, 2010; Kline, 2005).

**Results and Discussion**

**Reliability Analysis**

In order to determine internal consistency reliability of the teacher-child communication scale, each dimension and the whole scale, Cronbach’s alpha values were calculated.

**Table 1.**

*Mean, S. Deviation and Cronbach  $\alpha$  Values*

	Item	Mean	Standard deviation	C. Alpha
Teacher-Child Communication Scale				
Sub-dimension 1:				
Communication language	5	18.49	1.66	.81
Sub-dimension 2: Listening				
	8	29.56	2.56	.73
Sub-dimension 3: Empathy				
	3	10.70	1.40	.72
Sub-dimension 4: Message				
	4	13.10	2.01	.74
Sub-dimension 5: Non-verbal communication				
	4	13.80	2.09	.86

As Table 1 is examined, reliability coefficients of the scale’s sub-dimensions were calculated to be 0.81 for communication language, 0.73 for listening, 0.72 for empathy, 0.74 for message and 0.86 for non-verbal communication. All coefficients were found to be within acceptable limits. Reliability coefficient for the whole Teacher-Child Communication Scale (TCCS) was found to be .88.

In a similar study, Çetinkanat (1998) explained the Teacher Communication Skills Scale (TCSS) with five sub-dimensions as empathy, equality, competence, effectiveness, and transparency. Cronbach alpha values for subcategories of the instrument are calculated as empathy .71, transparency .67, equality .59, effectiveness .45, competence .50; scale overall Cronbach alpha is found as .81 (cited in Keçeci & Gülsün, 2009; Saracaloğlu, Yenice, & Karasakaloğlu, 2009).

Şahin (2007) developed “Interpersonal Communication Skills Scale” which is composed of 33 items. The scale includes 4 subcategories as empathically listening, effectiveness, giving feedback, and confidentiality. Its alpha was found to be .96.

When the literature is examined, it is seen that there are instruments that can be used in evaluating the communication skills in different subcategories. Results of reliability analysis found for similar instruments show close values with the reliability analysis results of Child Communication Scale.

**Validity Analyses**

For validation of the scale, content and construct validity were examined.

**Content Validity:** For content validity of TCCS,

expert opinions were asked. The test was sent to seven experts in the field to get their opinions.

They were asked to critically appraise the items in TCCS for expediency, clarity and comprehensibility and to share their opinions about necessary amendments, corrections and omissions. In addition to this, to ensure successful validity, they were asked to indicate whether the skills are appropriate for teacher-child communication and evaluate based on five-likert- like evaluating criteria as none, a few, fair, a lot, completely.

In line with opinions these experts, 5 items were omitted from the test and expressions of 4 items were edited and revised and the scale took its final form with 28 items.

**Construct Validity:** In order to test construct validity of TCCS, Categorical Principle Components Analysis and Confirmatory factor analysis were used.

**Categorical Principle Components Analysis (CatPCA):** In the validity analysis of factor construct, each dimension was submitted to Categorical Principle Components Analysis (CatPCA) one by one in optimal scaling. Categorical Principle Components Analysis (CatPCA) is taken as an appropriate technique when different indicators are expected to get together under a hidden variable (Jehoel-Gijsbers & Vrooman, 2007). As a result of analysis, the items with factor loads less than 0.30 were taken into consideration and four items were excluded from the analysis and the study was carried out on 24 items. The results of the analysis are represented in Table 2.

**Table 2.**  
*The Results of Optimum Scaling for Each Subcategory (Categorical Principle Components Analysis-CatPCA): Factor loads, item-scale correlations, C. Alpha Values*

TCCS Sub Dimensions	Factor load	C. Alpha
<b>1: Communication Language (Speech) (CL)</b>		<b>0.81</b>
(CL1)	.856	
(CL2)	.559	
(CL3)	.563	
(CL4)	.821	
(CL5)	.880	
<b>2: Listening (L)</b>		<b>0.73</b>
(L1)	.649	
(L2)	.725	
(L3)	.608	
(L4)	.496	
(L5)	.491	

(L6)	.624	
(L7)	.503	
(L8)	.549	
<b>3: Empathy (E)</b>		<b>0.72</b>
(E1)	.854	
(E2)	.821	
(E3)	.721	
<b>4: Message (M)</b>		<b>0.74</b>
(M1)	.832	
(M2)	.736	
(M3)	.802	
(M4)	.619	
<b>5: Non-verbal communication (NVC)</b>		<b>0.86</b>
(NVC1)	.853	
(NVC2)	.837	
(NVC3)	.915	
(NVC4)	.725	

As it is seen in Table 2, validity of factor construct is examined, alpha value ranged between 0.59 and 0.88 for the first dimension, 0.49 and 0.73 for the second dimension, 0.72-0.85 for the third dimension, 0.74 and 0.83 for the fourth dimension and between 0.73 and 0.92 for the fifth dimension. When obtained values are taken into consideration, it is seen that all dimensions are in acceptable values.

**Confirmatory Factor Analysis:** In the study, first a confirmatory factor analysis was performed for each dimension, and then a factor construct was taken as a whole and the results of the analysis are represented in Table 3, Figure 1.

**Table 3.**  
*Confirmatory Factor Analysis Fit Indices*

Model	$\bar{\chi}$	df	$\bar{\chi}/df$	GFI	CFI	RMSEA
1: CL	4.258	5	0.852	0.99	1.00	0.00
2: L	34.798	20	1.740	0.96	0.93	0.05
3: E	0.000	0	-	1.00	1.00	-
4: M	0.288	2	0.144	0.99	1.00	0.00
5: NVC	0.600	2	0.300	1.00	1.00	0.00
TCCS	412.633	247	1.671	0.90	0.92	0.05

When the fit indices results in Table 3 are examined, it can be seen that the results of goodness of fit indices indicate a good level of fit both for each dimension and the communication scale, which is the combination of all dimensions. In addition, road coefficients in the model are interpreted as standardized regression coefficients. As it can also be seen in Table 3, the model explains 90% of variance and covariance amount.

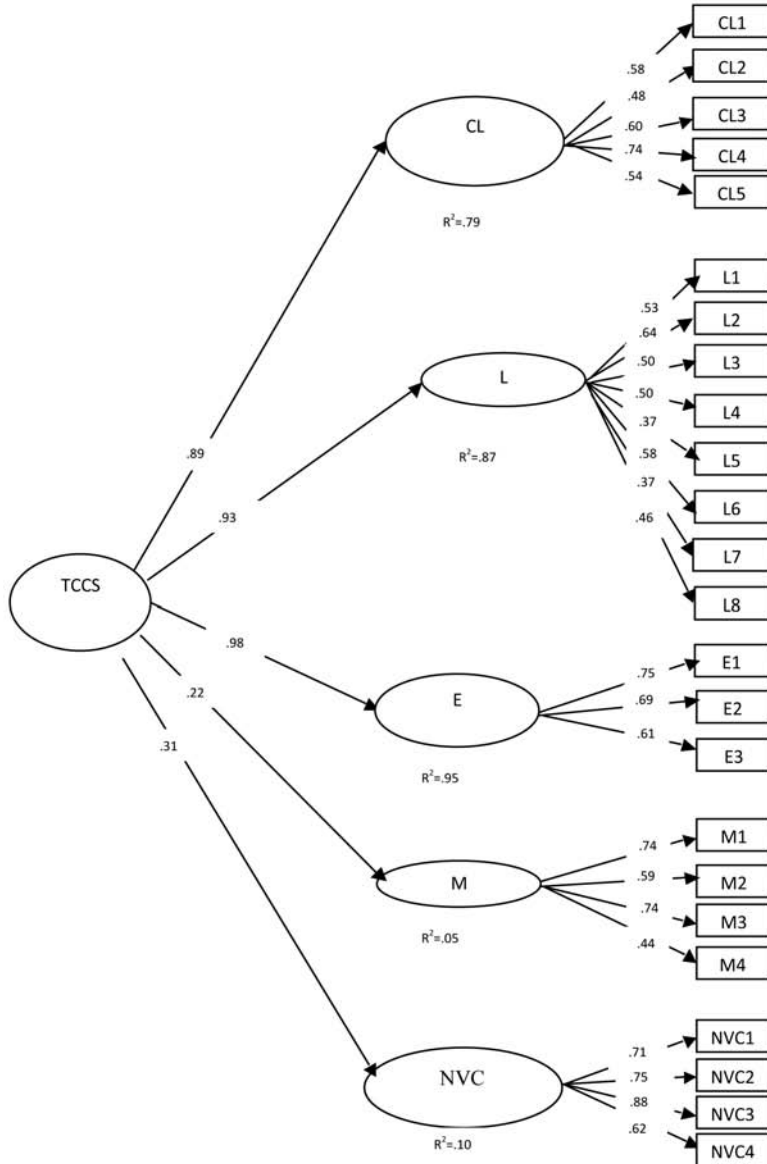


Figure 1. Model of Confirmatory Factor Analysis

As a result of confirmatory factor analysis, all factor loads were found to be high and high factor loads suggest a robust association with latent variables. Factor loads obtained as a result of analysis, it ranges between 0.48 and 0.74 communication language latent variable, between 0.37 and 0.64 for listening latent variable, between 0.61 and 0.75 for empathy latent variable, between 0.44 and 0.74

for message (content) latent variable and between 0.62 and 0.88 for non-verbal communication latent variable.

The results indicate that the scale's construct validity is achieved. Direct effects of secondary factors range between 0.22 and 0.98 and have strong effect. In other words, it can be said that five latent

variables in teacher child communication latent variable are -in combination or independently-measured properly by the items they include. However, it was seen that teacher-child communication scale was represented by communication language (structural coefficient is 0.89 and explained variance is 0.79), listening (structural coefficient 0.93 and explained variance is 0.87), empathy (structural coefficient is 0.98 and explained variance is 0.95), message (structural coefficient is 0.22 and explained variance is 0.05) and non-verbal communication (structural coefficient 0.31 and explained variance 0.10) dimensions, respectively. The goodness of fit indices of the model is at the acceptable level. Therefore, teacher-child communication is satisfactorily represented by five dimensions.

As a result, this study which aims to develop a scale to measure pre-school teachers' communication with children revealed that Teacher-Child Communication Scale (TPCS) which has five dimensions is a valid and reliable scale.

### Suggestions

This instrument-development study is planned in order to evaluate especially preschool teachers' communication skills in Turkey. It can be recommended that researchers intending to develop scale in communication domain should prepare instruments with different sub-dimensions relying on different communication models and theoretical basis. Obtained results can be compared with TCCS results.

This scale is recommended to be used in different studies for evaluating teachers' communication skills with children in their classroom, and the results should be shared in educational (school) and academic environments. Sharing of the results in educational (school) environments will provide opportunity for teachers to evaluate themselves and overcome their deficiencies. Sharing of the results in academic environments draws attention to the importance of teacher-child communication and it will inspire more studies to be conducted in this field. Preschool education can only succeed when various factors like teacher, child, program and education environment are considered altogether.

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