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Original scientific paper
UDC: 37.014
DOI: 10.17810/2015.94

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DEVELOPMENT OF THE “PERCEIVED TEACHER BEHAVIOURS” SCALE IN PRIMARY SCHOOL

Abstract: The study is aimed at developing a valid and reliable measurement instrument intended to identify the perception of the third and fourth grade primary school pupils in relation to their teachers' behaviour throughout their education. The analysis of the related literature and the draft version of the scale were prepared after obtaining expert opinion and trials conducted in the second term of 2015-2016 school year in different state primary schools under the jurisdiction of the provincial directorate of national education in Malatya on the sample of the third and fourth grade pupils. Expert opinion was obtained to determine the content and face validity of the scale and for construct validity. Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were also conducted. For statistical operations, studies on 25 items were carried out. Findings obtained based on EFA and CFA analyses suggested that fit indices of the structure of the scale of perceived teacher behaviour were sufficient. The Pearson Correlation Coefficient between the obtained scale and the scores of the test-retest method was also found to be at reasonable level. Based on these findings, it was concluded that the scale of perceived teacher behaviour is an instrument that produces valid and reliable measurements and it could be used to measure the pupils' perception of teacher behaviour.

Key Words: teacher, perceived behaviour, scale development, primary school.

INTRODUCTION

While studying, pupils find themselves in a community system moulded by the school, family and environment consisting of the teacher, teaching environment and education-training program. Each element of the system has a different importance. The only constant factor among the changing elements of this system is pupil's success and the studies that increase this success. The attitudes and behaviours towards the child and significance of coordination among pupil – parent – teacher are emphasized by scholars on all occasions due to the fact that teacher's and parent's perceptions of the child have an important effect on his/her learning. The studies carried out on children and the problems they are facing with suggest

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that the school-family-child triangle is inevitably a responsibility relation. "It is an accepted fact that the individual's attitudes and behaviours are affected by his family and school". At the same time, it can be seen that the child's behaviour and attitudes also affect his family (Acar, 2000). The basic approach of the family and the teacher towards learning is that the child reaches success by studying. Learning a lesson is naturally required to be successful (Uluğ, 1991). According to this view, studying and being successful have the same importance (Kara, 2008). The way children perceive their teacher and family is also considered important. Making the teaching-learning activities easier and increasing the pupils' learning performances require knowledge about pupils' feelings, motivation, and what they should do and how they should act to reach their goals.

Elements of the school system, such as the way pupils communicate with their teacher, technological equipment in the school and family environment, education program, and appropriateness of the teaching environment affect the learning process in different ways. The way pupils perceive their teachers in the teaching process is also one of the elements that is believed to affect this process. The level of child's perception of the teacher can be examined on the basis of the level of education, age or other variables. This study is aimed at developing a reliable and valid measurement instrument that measures the perception of the third and fourth grade primary school pupils about how their teachers behave towards them during the educational process.

The study started by creating a draft scale based on expert opinion and tests, and analysing the corresponding literature. The study was conducted in the second term of the 2015-2016 school year on the sample of the third and fourth grade primary school pupils in Rahmi Akinci, Kazım Karabekir, Kemal Özalper, Derme, Cengiz Topel, Barbaros, Melekbaba and Gazibelonging to the Battalgazi district of Malatya provincial education directorate. Expert opinions were obtained for the content and face validity of the scale and for construct validity, and Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) were conducted. For statistical operations, 25 items were taken in consideration. The results obtained based on the CFA for the second study group were found to have adequate fit indices of structure relating to perceived teacher behaviours. The Pearson Correlation Coefficient between the obtained scale and the scores of test-retest method was also determined. These findings indicated that the scale is a valid and reliable measurement instrument and it could be used to measure how the primary school pupils perceive their teachers' behaviour.

METHOD

Design – Model

The study has been designed as a screening model, which is one of the quantitative research methods. It serves as a model of instant screening. This research model is defined in the same way as the models in the studies that describe available situations in certain time (Büyükoztürk, vd. 2018, pg.185). The study was intended to develop a reliable and valid measurement instrument to determine teacher's behaviour perceived by primary school pupils, which is one of the variables of the learning/teaching environment. The research was carried out in accordance with this purpose and was performed as a study of scale development.

First Study Group

The study was based on a descriptive method, i.e. a screening model. The sample of the respondents consisted of pupils attending primary schools located in Battalgazi district of Malatya in the second term of the 2015-2016 school year. Pupils in the sample of the study were selected in a way to represent the population. After the first analysis conducted upon the application of the related scale and after eliminating the forms that were filled wrongly or incompletely, data relating to a total of 1130 pupils were analysed. The first study group consisted of 619 (54.8%) boys and 511 (45.2%) girls, of which 38.7% (437) were attending the third grade and 61.4% (693) the fourth grade.

Second Study Group

After analysing the first group, a second study group was required for confirmatory factor analysis to get healthier results after exploratory factor analysis (Henson and Roberts, 2006). The new study group was formed by taking into account that the characteristics of the second group should be similar to those of the first group. Accordingly, the scale was applied to pupils attending the first term of the 2016-2017 school year in primary schools located in Battalgazi district of Malatya. After the first analysis conducted upon the application of the related scale and after eliminating the forms that were filled wrongly or incompletely, data relating to a total of 210 pupils were analysed. The first study group consisted of 116 (55.2%) boys and 94 (44.8%) girls, of which 50% (105) were attending the third grade and 50% (105) the fourth grade.

Development of the data-collecting tool

The choice of method in studies is also defined as collecting the data relevant to the research and determining the details related to their analysis (Ural, Kılıç: 2006, 53). The most appropriate methods and techniques were used by taking the aim, process and approach of the research into account while choosing the applications and activities. In this study, the development of the "perceived teacher behaviours" scale in primary school was realized by taking the following steps: preparation of scale items, content validity, pre-test study, determining construction validity and reliability (Karasar, 1995: 139-143).

Pool of Items

Taking account of the basis and procedures of item preparation in the study, items were primarily chosen based on the size and the scope of the study. Elements (statements) in coordination with the objective were created in line with sub-goals. Questions for the pool of items were compiled by making use of the study called "Personality Traits of Teachers". On the other hand, the study "Classroom Management Models" was also analysed, completing thereby the review of relevant literature. Previous scales prepared on this subject were also analysed (Saydam and Telli, 2011; Karadağ, Baloğlu and Yalçınkayalar, 2006; Nartgün, 2008; Çağlar, Yakut and Karadağ, 2005; Kılınc, 2014; Kurt, 2013; Erdoğan, 2013; Albayrak, Güngören and Horzum, 2014; Atik and Üstüner, 2014; Özer, Gençtanırım and Ergene, 2011; Baykara Pehlivan, 2005). The researchers asked four different classes, each consisting of 30 pupils, to answer the question "How would you like your teachers to behave towards you?" and asked them to rank these answers. After classifying the answers, 83 draft items were created. In the later stage, Master and Doctorate students were asked to analyse these statements and the

results were sent to instructors and their assistants, who were asked to review them and make appendices and deductions to these items. Thus, based on expert opinion, the authors sought to provide the content validity of items. Items included in the pool were preliminarily evaluated based on the instructors' views. As a result, 57 items were included in the pool. The scale was designed as a 3-point Likert scale with the following scores: agree: 3 pts., hesitant: 2 pts., disagree: 1 pt.

Expert Opinion (Content Validity)

Six lecturers, including two education programme experts, two educational psychology experts and two educational administration experts were asked for their opinions regarding the items in the pool of items. In addition, support was received from an expert lecturer in the field of Turkish Language Teaching in order to ensure the prepared items' clarity and grammar correctness.

Procedure

In accordance with several expert opinions, the draft scale was applied to almost 120 pupils from the first through fourth grades as a pilot scheme, and they were asked to identify the items which they find difficult to understand. All the items marked were rearranged according to expert's opinions and support. At the end of this study, "The Development of Perceived Teacher Behaviours Scale" was made ready for pre-application, as it would include 57 draft items. After having expert opinions and pre-tests, the data were collected by applying the scale to 1130 third and fourth grade pupils from different primary schools in Battalgazi district of the Malatya province.

Factor Analysis

After the application of the draft scale to 1130 pupils, factor analysis was carried out. The sample group consisted of 54.8 % (619) boys and 45.2% girls. Based on the results of the analysis, the items which construct validity was proven were included in the final version of the scale. The factor analysis was focused on the fact that Kaiser-Meyer-Olkins (KMO) values were high.

Calculating the Scale of Reliability

After factor analysis, when the scale was in its final form, the Cronbach alpha coefficient of internal consistency was calculated. In order to avoid any mistake in the coefficient of reliability, all operations were repeated twice in a controlled way under the supervision of the authors, and these operations that were conducted separately yielded with the same results (Bayram, 2004: 128). It was stated that it is enough for Cronbach Alpha value to be higher than .70 in terms of reliability. In order to determine the variables that did not equally share the common value that was measured and to increase the internal consistency of the scale by excluding these variables from the analysis, the variables were first applied on the basis of factor and then they were subjected to a reliability test (Baş, 2005: 193). In the stage of analysis, Cronbach Alpha and Part-Whole Correlation were used to identify statements that did not reflect the common value which was to be measured. The operations were conducted using the SPSS 21.0 program package, and were repeated until all the statements negatively affecting the reliability of each factor were excluded. Then, in the second stage, all factors

were examined by this test again. At the end of this analysis, 33 out of 57 items were excluded from the scale.

FINDINGS AND COMMENTS

Explanatory Factor Analysis

The scale developed to determine how the primary school pupils perceive their teachers' behaviours, attitudes and manners was called "Perceived Teacher Behaviours Scale". The draft scale was taken in factor analysis with 25 items and at the end of the analysis 9 statements were discarded. Thus, the scale included a total of 16 statements.

Table 1- Item loading values	Item loading values
My teacher always shouts.	.486
My teacher always says."Stop speaking."	.684
I do not like my teacher.	.385
My teacher scolds me.	.583
My teacher fails to check my homework.	.443
My teacher does not like me.	.353
I cannot ask my teacher questions because I am afraid.	.529
I refrain from my teacher's reaction.	.355
My teacher knows me very well.	.527
My teacher blames me on everything.	.445
My teacher does not care for me.	.464
My teacher does not give me tasks.	.349
We study even if my teacher is not in the class.	.351
My teacher goes over subject-matter even if I do not understand it.	.572
My teacher behaves angrily.	.425
My teacher fails to help me with the lessons.	.447

The factor loading in the final version of the scale varies between .349 and .684 (Table 1). After the factor analysis, it can be concluded that the "Perceived Teacher Behaviours Scale" consisting of 16 items was a valid scale (Nunnally and Bernstein, 1994). As a result of the one-dimensional scale, three sub-dimensions appeared. Coefficients of internal consistency of these sub-dimensions were determined using the Cronbach Alpha values (Table 2). Based on these values, it was concluded that the scale is reliable.

Table 2- Reliability and Validity of Attitude Scale

	Negative	Caring	Repressive	Total
Cronbach Alpha	.799	.561	.538	.777
KMO	.862	.606	.583	.867
Bartlett Test of Sphericity	2478.713	341.489	140.896	3745.486
Number of valid items	10	3	3	16

KMO values, Bartlett test and Cronbach Alpha coefficients of internal consistency of the scale were calculated in relation to various sub-dimensions of the scale. Statements in the sub-

dimensions identified after factor analysis were examined and the sub-dimensions were given names with the support of different lecturers and master students. Attention was paid to the fact that KMO values of both the sub-dimensions and the whole scale were higher than .50 and Bartlett test was significant ($p < 0.05$) (Büyüköztürk, 2004:120). The authors made sure that the value of factor loading after the analysis was higher than .349 (Nunnally and Berstein, 1994). After the repeated factor analysis, values of the KMO, Bartlett test of Sphericity and Cronbach Alpha of the scale with three sub-dimensions were .867, 3745.486 and .777, respectively. Loading values of each attitude statement in the scale after the factor analysis are given in Table 3.

Table 3- Rotated Components Matrix after Factor Analysis

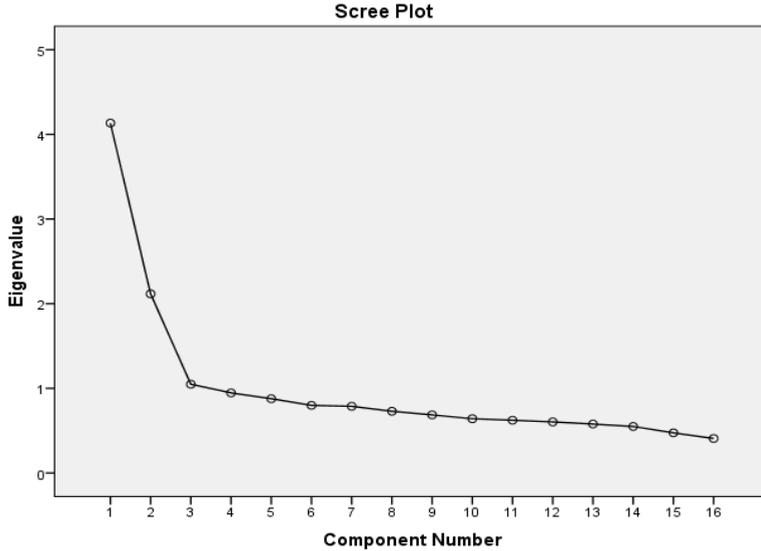
	Negative	Caring	Repressive
My teacher blames me on everything.	.639		
My teacher does not care for me.	.634		
My teacher scolds me.	.617		
I cannot ask my teacher questions because I am afraid.	.614		
My teacher does not give me tasks.	.574		
My teacher behaves angrily.	.548		
My teacher fails to help me with my lessons.	.535		
I refrain from the teacher's reaction.	.532		
My teacher fails to check my homework.	.524		
My teacher does not like me.	.497		
My teacher knows me very well.		.749	
We study even if my teacher is not in the class.		.690	
My teacher goes over subject-matter even if I do not understand it.		.575	
My teacher always shouts.			.825
My teacher always says. "Stop speaking."			.596
I do not like my teacher.			.411

One of the operations conducted using the SPSS 21.00 is to determine the extent to which items in the final version of the three-dimensional scale define the subject. For that purpose, results obtained from the Total Variance Explained test are given in Table 4 below.

Table 4- Total Explanatory Variance Values of Sub-dimensions

Sub-dimensions	Eigenvalue	of Sub-dimensions	Total Explanatory	Variance (%)
Negative	4.133		22.225	
Caring	2.116		35.826	
Repressive	1.048		45.608	

As seen in Table 4, the rate of determination of the three dimensions forming the "Perceived Teacher Behaviours Scale" was found to be higher than 50% in total percentage. This rate is reasonable in social sciences (Nunnally and Bernstein, 1994).



Confirmatory Factor Analysis

The Lisrel 8.71 program package was used to conduct confirmatory factor analysis in order to confirm the explanatory factor analysis. The data from the second study group were evaluated based on confirmatory factor analysis to confirm the 3-factor model, which includes 16 items obtained from the explanatory factor analysis. It can be seen that the values of t were significant at the level of 0.01 concerning the definition of observed variables by latent variables for the three-factor model (Çokluk, Şekercioğlu and Büyüköztürk, 2010; Seçer, 2015). It can also be seen from the model that the defined standardised parameter values of latent variables in relation to observed variables are between 0.08 and 0.57, while the error variances of observed variables are between 0.16 and 0.72. According to the literature, these values are on a reasonable level (Çokluk, Şekercioğlu and Büyüköztürk, 2010; Şimşek, 2007; Seçer, 2015). Below are given the values of goodness of fit for the model that were obtained before and after the modifications were introduced. Values relating to goodness of fit were determined as “perfect, reasonable or poor” according to the criteria generally accepted in the literature (Çokluk, Şekercioğlu and Büyüköztürk, 2010; Seçer, 2015; Brown, 2006; Şimşek, 2007; Tabachnick and Fidell, 2007).

In the confirmatory factor analysis, a significant difference between the expected and observed covariance matrix has been found for the three-factor model ($p < 0.05$). The value of p is required not to be significant, but this is probably because of the size of the sample group. Therefore, alternative fit indices were examined. While parameters of χ^2/sd , RMSEA, RMR, CFI and NNFI were on a reasonable level in the first analysis, other values were poor. In this stage of confirmatory factor analysis, suggestions for modification should be considered in order to improve the model. According to the results obtained using the Lisrel program, it is stated that the relation between error variances of items “The teacher fails to notice me.” and “The teacher scolds me.” should be defined.

Table 5 - Results of Confirmatory Factor Analysis of the Scale

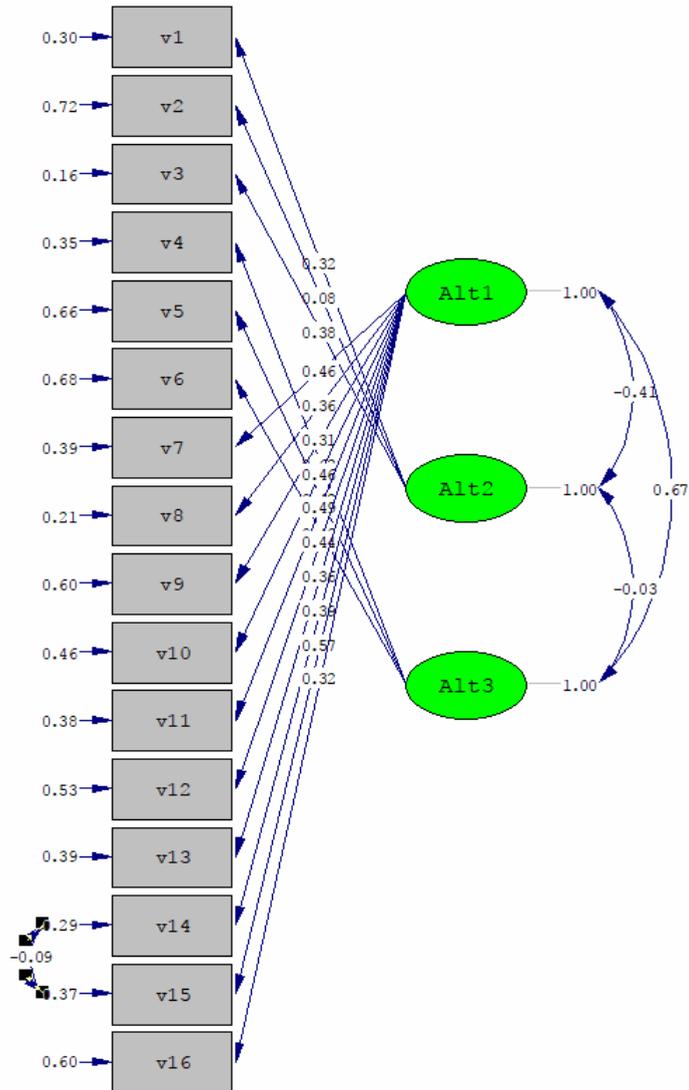
Goodness of fit values	Perfect (M)	Reasonable (K)	Before modification	After modification (V15-V14)
P	> 0.05	< 0.05	0.01 (K)	0.01 (K)
χ^2/sd	<3	3-5	143.13/101=1.41(M)	134.61/100=1.34 (M)
RMSEA	<0.05	<0.08	0.045 (M)	0.041 (M)
RMR	<0.05	<0.08	0.036 (M)	0.035 (M)
SRMR	<0.05	<0.08	0.058 (K)	0.057 (K)
GFI	>0.95	>0.90	0.92 (K)	0.93 (K)
AGFI	>0.95	>0.90	0.89	0.90 (K)
CFI	>0.95	>0.90	0.96 (M)	0.97 (M)
NFI	>0.95	>0.90	0.89	0.90 (K)
NNFI	>0.95	>0.90	0.95 (M)	0.96 (M)

After introducing the suggested modification, the value of chi-square (χ^2), which is one of the fit indices, significantly decreased. The chi-square that cannot be evaluated alone has reached a perfect level when comparing with the degree of freedom ($\chi^2/sd = 1.34$). In addition, it can be seen that the difference between the expected and the observed matrix of covariance obtained for the model was on a reasonable level ($p < 0.05$). In addition, the obtained fit index is at the level of 0.041 in the Root Mean Square Error of Approximation (RMSEA). If the RMSEA value is equal to or lower than .05, the fit is perfect, if it is .08 or below, the fit is reasonable, and if it is .10 and higher, the fit is poor. Thus, it can be concluded that the fit index obtained for the analysis is perfect. The *Standardized Root Mean Square Residuals* (SRMR) index is .057. The fact that the RMR and *standardized* RMR are lower than .05 indicate a perfect fit; values lower than .08 indicate a good fit, and values below .10 a reasonable fit. Accordingly, it can be stated that, for the analysis performed, the *standardized* RMR has a reasonable fit, while the RMR has a perfect fit.

In fit indices, it can be seen that Goodness of Fit Index (GFI) is .93 and Adjusted Goodness of Fit Index (AGFI) is .90. Values of GFI and AGFI range between 0 and 1. GFI and AGFI values of .95 and higher indicate a perfect fit, while values between .90 and .94 indicate a reasonable fit (Schumacker and Lomax 2004; Hooper, Coughlan and Mullen, 2008). Accordingly, it was concluded that GFI and AGFI values present a reasonable fit index.

Considering the non-normed fit index (NNFI), the normed fit index (NFI) and the comparative fit index (CFI), their values are .96, .90 and .97, respectively. With NNFI, NFI and CFI values higher than .95, the fit is perfect, while with values higher than .90, the fit is reasonable (Sümer, 2000). Accordingly, it can be concluded that NNFI and CFI have a perfect fit, while the NFI has a reasonable fit for the analysis performed.

The path diagram including standardized factor loadings, error variances and modifications at the end of confirmatory factor analysis is shown in Figure 2.



Chi-Square=134.61, df=100, P-value=0.01201, RMSEA=0.041

Figure 2- Path diagram of the four-dimensional model after modification

Reliability of the Scale in Time

As a result of the exploratory and confirmatory factor analysis, the test-retest correlation coefficient relating to the score invariance of the scale, the final version of which is given in Appendix-1, was tested on a group consisting of 220 pupils for reliability calculations in time. The scale was reapplied to the same individuals within the interval of three weeks. The Pearson Correlation Coefficient between these two applications was found to be $r = 0.84$. Based on this result, it was accepted that measurements conducted using the scale were reliable (Ekici, 2009).

RESULTS

Based on the findings of this study, it was concluded that the Perceived Teacher Behaviours Scale was confirmed to be a three-factor model with 16 items, and the developed scale that presents the way primary school pupils perceive their teacher's behaviours is composed of three sub-dimensions; negative, caring and repressive teacher. The developed model was subjected to exploratory factor analysis and confirmatory factor analysis, respectively. Based on the conducted factor analysis, item pool, expert opinion, and workout during the process of Exploratory Factor Analysis, it was concluded that the values of Cronbach's Alpha coefficient of reliability, KMO and Bartlett Test of Sphericity for each dimension and the values of the total exploratory variance of the scale's sub-dimensions were at reasonable level. Then, the fit indices of the developed model resulting from confirmatory factor analysis suggested that the model was not discarded, and the reliability of the model was confirmed. In addition, it was determined that all standardized parameter values are reasonable or perfect, and thus the validity of all formations is convergent (Chou, Boldy and Lee, 2002, 52). Results obtained in the context of the study suggest that the scale is a valid and reliable measurement instrument.

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Appendix 1- The Scale of Perceived Teacher Behaviours

Explanation: The following statements determine the perceived teacher behaviour. Please mark the corresponding column with an “X”, indicating the extent to which you agree with the given statement. This study is conducted exclusively with scientific objective. We thank you for your truthful and definitive answers.

	Agree	Hesitant	Disagree
1- My teacher knows me very well.			
2-We study even if our teacher is not in the classroom.			
3-My teacher goes over subject-matter even if I do not understand it.			
4-My teacher is always shouting.			
5- My teacher always says, "Stop speaking."			
6- I do not like my teacher.			
7- My teacher does not like me.			
8- My teacher blames me on everything.			
9- I refrain from my teacher's reaction.			
10- My teacher fails to help me with the lessons.			
11- My teacher behaves angrily.			
12- My teacher does not give me tasks.			
13- I cannot ask questions to my teacher because I am afraid.			
14- My teacher scolds me.			
15- My teacher does not care for me.			
16- My teacher fails to check my homework.			

Bahadır KÖKSALAN was born in 1968 in Kadirli / Osmaniye. He completed primary, secondary and high school education in Kadirli; University graduated from İnönü University, Faculty of Education between 1987-1991. He completed master's degree between 1991-1993 and doctorate between 1993-1999. He has been working as an Assistant Professor since 2000.

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