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Development and validation of supervisory behaviour description scale

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The aim of this study is to develop a scale which will describe how education supervisors' behaviours are perceived. Four separate studies have been conducted in order to develop the scale. In the first study the scale that was developed is applied to a working group consisting of 704 teachers. The factor structure of the scale is examined by conducting exploratory and confirmatory factor analyses using the obtained data. At the end of the analyses, it is identified that the scale has a four-factor structure. The criterion-related validity of the scale is the focus of the second study. The third study focuses on whether or not the factor structure of the scale is valid on the different samples. The fourth study concerns the reliability of the scale. The Scale for Perception of Education Supervisors' Behaviours (SPESB) is a tool which consists of four dimensions, namely directive, guide, co-operative and functionless. The obtained data have revealed that this intended tool has reliability and validity.

Key words: Education supervisor, supervisors' behaviours, perception of supervision, education supervision, teacher supervision.

INTRODUCTION

Supervision of education is an area in search of definition. Since the establishment of schools, there is still no consensus on how it should be and what it should target although it is a school-centred activity (Daresh, 1989). However, it is stated that over time, the function of education supervision shifts from controlling the instructional behaviour of teachers towards improving teachers (Daresh, 1989; Glickman et al., 2004; Sullivan and Glanz, 2000). In accordance with this development, the purposes of supervision of education are currently defined as: (1) to develop teaching and learning (DiPaola and Hoy, 2008; Glickman et al., 2004; Hoy and Forsyth, 1986; Lovell and Wiles, 1983; Nolan, 1997; Pajak, 1990; Sergiovanni and Starratt, 2002), (2) to ensure the improvement of teachers (Acheson and Gall, 1997; Daresh, 1989; Pajak, 1990; Wiles and Bondi, 1996), (3) to help teachers to be aware of the results of their teaching – giving feedback - (Daresh, 1989; Glickman et al., 2004; Lovell and Wiles, 1983; Nolan, 1997), (4) to enable teachers to try new teaching techniques confidently and in a supportive environment (Nolan, 1997), (5) to develop programs (Nolan, 1997; Olivia and

Pawlas, 2001; Wiles and Bondi, 1996), (6) to develop human relations (Acheson and Gall, 1997; Glickman et al., 2004; Hoy and Forsyth, 1986; Pajak, 1990, Wiles and Bondi, 1996), and (7) to provide motivation to teachers (Glickman et al., 2004). It can be concluded that purposes (2) to (7) have the characteristic of being tools to achieve the first goal. Moreover, the supervision of education aims at turning schools into more effective learning environments and helping the improvement of students' success.

Zepeda (2007) defines supervision as a triple cyclical process consisting of instructional supervision, evaluation and professional development. These three processes which make up Zepeda's supervision approach are components which are integrated with all supervision applications. Each of these components is a necessary basic element to complete the supervision of teachers entirely. Most of the problems related to supervision, evaluation and professional development in schools are due to misconceptions about these processes. The reason for most of these misunderstandings is that educators fail to understand how these three processes

of development complete and support each other (McQuarrie and Wood, 1991). According to Blumberg (1976), teachers explain supervision with negative words such as anxiety, stress, needlessness, authority and rules. Based on the work of Cogan (as cited in Acheson and Gall, 1997; Blumberg, 1980), supervision is an activity that psychologically, almost inevitably, endangers teachers' professional position and damages their self-confidence. Teachers think that supervision does not play a significant role in the development of their professional experiences, they consider supervision as an unnecessary organizational ceremony and they do not perceive supervisors as a source of new ideas. According to Staller (1996), many teachers consider supervision as a threatening and concerning situation and as a result while interacting with supervisors, they react to supervision as an enemy and try to protect themselves. As a result of this situation, supervision does not contribute to the development of teachers; although they appear to adopt supervisors' suggestions near supervisors, they do not carry out these suggestions (Munson, 1998). Blumberg (1980) defines this situation between the teacher and the supervisor as "cold war".

The teacher who will get help should be ready to get help by relying on supervisors. In addition, supervisors should display the relevant behaviours in order that supervision will carry out its functions of turning schools into more effective learning environments and helping the improvement of students' success. According to Tshabalala (2007) and Kramer et al. (2005), supervisors' behaviours are determinant of teachers' positive and negative perceptions related to supervision and whether or not teachers will benefit from supervision. According to Caspi and Reid (2002), another determinant of teachers' perceptions related to supervision and whether or not teachers will benefit from supervision is whether or not teachers have good relationships. Teachers who have good relationships perceive supervision experiences in a more positive way. For this reason, the supervisor should observe how his actions are perceived by the teacher rather than what he does for human relations (Basar, 1995). This is because the supervisor has the main responsibility for developing supervision relations and being a model (Caspi and Reid, 2002; Nolan and Hoover, 2008).

SUPERVISION BEHAVIOUR

Supervision behaviours are behaviours that are demonstrated by supervisors in carrying out functions that can help turn schools into more effective learning environments and improve students' success. The determinants of how supervision behaviour will be actualised are supervision beliefs that include such topics as the supervision process of supervisors, the purpose of supervision, the implementation of supervision, the determination of supervising points, the flexibility rate of

the supervision process, the relationship of the supervisor and supervised and the level of this relationship (Yilmaz et al., 2009). According to Olivia and Pawlas (2001) and Blumberg (1980), some supervisors consider their role to be giving orders to people and determining the content, materials and techniques for teachers to follow; on the other hand, some of them see their roles as helping teachers to realise their own decisions about the content and method. Pawlas and Olivia with Blumberg classify these supervision beliefs as non-directive and directive, respectively. Sullivan and Glanz (2000) classify these definitions of Olivia and Pawlas as "bureaucratic supervision belief" and "democratic supervision belief", respectively. As you can see, it is possible to show supervision beliefs on a straight line with directive-bureaucratic at one end and non-directive democratic at the other end.

Supervision beliefs naturally reflect the behaviours of supervisors. Accordingly, a supervisor who has a directive-bureaucratic supervision belief dictates everything that the teacher will do, as they think that they should determine the teacher's activities, starting from the assumption that people in higher positions in the organization are more specialised. However, a supervisor who has a non-directive democratic supervision belief helps teachers to find their own truths since they see teachers as intelligent, specialised in education and valuable (Blumberg, 1980; Glickman et al., 2004; Olivia and Pawlas, 2001).

Glickman et al. (2004) define supervision behaviours as listening, explaining, encouraging, reflecting, showing, problem solving, talking, giving directives, standardising and consolidating. Glickman et al. (2004) combine these supervision behaviours into four groups as the non-directive approach, the collaborative approach, the directive informative approach and the directive approach in accordance with whether it is the teacher or the supervisor who has the responsibility for decision-making.

The directive approach includes such types of supervision behaviour as giving orders, standardising and consolidating the results. The directive supervisor determines the most effective way to improve teaching with such behaviours as making tasks explicit, identifying problems and solutions and showing teachers what to do. The supervisor has information about the cause of the problem and his decisions are more appropriate in terms of improving teaching (Glickman et al., 2004). The supervisor forces teachers to comply with certain standards. Additionally, the supervisor clearly states the consequences in the absence of what he or she has commanded. The supervisor tells the teacher what to do because the teacher is incapable of decision-making and dealing with students effectively (DiPaola and Hoy, 2008; Nolan and Hoover, 2008; Pajak, 2000; Zepeda, 2007).

The supervisor is a more dominant role than the teacher in the directive informative approach. The teacher only

has the right to choose from what the supervisor suggests (Glickman et al., 2004). This approach exactly matches the situations in which the teacher feels inexperienced or confused or does not know how to solve the problem and the teacher is weak while the supervisor is specialized. The purpose of this approach is not to solve the problem but to enable the teacher to decide independently in similar situations in the future (DiPaola and Hoy, 2008; Nolan and Hoover, 2008; Pajak, 2000; Zepeda, 2007).

In the collaborative approach, it is assumed that all participants are equals in the decision-making process in education. This assumption includes such behaviours as listening, presentation, problem solving and negotiating, and these behaviours lead to the conclusion of an agreement between the supervisor and the teacher. The collaborative approach is suitable for situations in which the supervisor and the teacher have a similar level of attention, participation and area of specialism. Eventually, an agreement determined and implemented with the cooperation of both parties appears and both of them are responsible for this agreement (DiPaola and Hoy, 2008; Glickman et al., 2004; Nolan and Hoover, 2008; Pajak, 2000; Zepeda, 2007).

In the non-directive approach, the supervisor considers that the teacher has the capacity to analyse and solve problems with his/her own teaching. In this approach, the supervisor displays such behaviours as listening, reflection, clarification, encouragement and problem-solving. The supervisor helps the teacher to develop the plan in his mind (DiPaola and Hoy, 2008; Glickman et al., 2004; Nolan and Hoover, 2008; Pajak, 2000; Zepeda, 2007). According to Olivia and Pawlas (2001), the teacher of course wants the supervisor to help him or her and give some answers but the teacher wants to be free to find his/her own solutions to a problem rather than always waiting for the "right" or "just" answers and solutions of the supervisor. By adding the creative dimension to the quartet classification of Glickman et al. (2004), Gebhard (1984) examines supervision behaviours in five dimensions as directive, offering options, collaborative, non-directive and creative. In the creative behaviour dimension, the supervisor tries to facilitate the creation of supervision effort and testing in addition to allowing the freedom of the teacher for his creativity. Sullivan and Glanz (2000) integrate the classification of supervision behaviour made by Glickman et al. (2004) into three dimensions as the directive approach, the collaborative approach and the self-directive approach. DiPaola and Hoy (2008) call the classification of supervision behaviour made by Glickman et al. (2004) directive, educational, collaborative and specialised. According to DiPaola and Hoy, the directive supervisor gives orders to the teacher, the guide supervisor teaches and then directs the actions, the collaborative supervisor decides with the teacher and the specialized supervisor encourages the teacher to make

decisions on his own.

In accordance with the supervisor's preference for direct or indirect approaches, Blumberg (1980) divides the supervision behaviours into four groups:

Style A- High-direct, high indirect

The teacher sees the supervisor as a person showing both direct and indirect behaviours. The supervisor tells and criticizes but at the same time asks questions and listens.

Style B- High-direct, low indirect

The teacher perceives the supervisor as a person who tells and criticizes more but asks questions and listens less.

Style C- Low direct, high indirect

The teacher perceives the supervisor's behaviour not as directive (telling, criticizing, etc.) but as a person who asks questions, listens and reflects on the ideas and feelings of the teacher.

Style D- low direct, low indirect

The teacher sees the supervisor as a person who is inactive and does nothing.

As seen in the above explanations, supervision behaviours are generally examined in four dimensions which are put forward by Glickman et al. (2004) as the non-directive approach, the collaborative approach, the directive informative approach and the directive approach.

The results of the research on education supervisors (primary school supervisors) in Turkey demonstrate that they are perceived as officers who are constantly searching for the faults of teachers, do not see good or beautiful behaviours, do not listen to teachers, expect the adoption of their truths, try to give punishment when they find fault, should be avoided, are close to criticism, think they know everything, are stern and consider their task as the pursuit of rules (Badavan, 1994; Gokce and Baskan, 2012; Karagozoglu, 1977; Memisoglu, 2007; Tekin and Yilmaz, 2012; Unal, 2007, 2010; Unal and Gursel, 2007; Yavuz, 2010; Yilmaz et al., 2009; Yildirim, 2012). These findings reveal that primary school supervisors display directive supervision behaviour, according to the classification of supervision behaviour made by Glickman et al. (2004). According to studies conducted by Badavan (1994), Unal (2010), Unal and Gursel (2007) and Yavuz (2010) concerning city education supervisors and Collins (2004) concerning education supervisors (ministry supervisors), supervisors are perceived as officers who are unauthorized and ineffective because they cannot renew themselves,

should be avoided, are close to criticism, stern and consider their task as the pursuit of rules. It is impossible to place the results of this research which detect that supervisors do not fulfil any function in the systematic behaviour as described by Glickman et al. (2004). It is possible to place these perceptions into Blumberg's (1980) "Style D" dimension in which the supervisor is inactive, has no contribution to the learning environment or the teacher, and has no function in the system.

Behaviours, which are defined as directive informative behaviours by Glickman et al. (2004), are defined as guidance by the Ministry of National Education (MoNE, 2001), saying that guidance "is done for control, correction and development." Therefore, directive informative behaviours are called guidance in Turkey. The Ministry of National Education (2001) suggests highlighting collaboration and participation, sharing problems, identifying and solving problems together, planning, implementation and impact rather than authority. These recommendations are similar to the behaviours of the supervisor as stated in the dimension of collaborative supervision behaviours of Glickman et al. (2004). According to this, it can be expected that supervision behaviours consist of five dimensions as directive, guidance, collaborative, non-directive and dysfunctional when supervision behaviours are evaluated in the scope of supervision practices in Turkey by integrating the classification of supervision behaviours of Glickman et al. (2004) with the dimension which is defined as "Style D" by Blumberg (1980).

Consequently, teachers' mode for the perception of supervision and supervisors affects their reactions against supervision and supervisors. There has been a lot of studies on the supervision of teachers in Turkey but the studies which have directly focused on how teachers perceive supervisors behaviours are limited to Sunbul and Inandi (2005) and Unal's (2010) studies. Teachers' attitudes towards supervisors are divided into three dimensions which are guidance, positive emotions and supervision in the scale development study conducted by Sunbul and Inandi (2005). In a qualitative study by Unal (2010), attitudes towards supervisors are divided into such themes as wise and guiding, facilitating, seeking fault, unauthorized and ineffective, should be avoided, rule based and self-righteous. Perceptions related to supervisor behaviours are divided into very different dimensions in both of the two studies. For this reason, the aim is to develop a scale intended for describing how behaviours of the education supervisor are perceived because there is a need for a comprehensive scale which has validity and reliability.

METHODOLOGY

Study i method

The study group

The study group consists of 704 teachers who were supervised in

the previous academic year and selected through simple random sampling from 14651 primary school and 5741 secondary school teachers who served in the 2009 to 2010 school year in Konya. 544 of the teachers work in primary schools and 169 of the teachers work in high schools. 187 of the teachers work in villages/towns, 349 of the teachers work in the district centre and 168 of the teachers work in the city centre. Their seniority average is 12.4 (SD = 7.7) years.

The process

In the development process for the Scale of Perception of Education Supervisors' Behaviours (SPESB) an item pool containing 67 items was created based on a scanning of the literature, especially the metaphors and descriptions produced by participants towards supervisors in the qualitative study made by Unal (2010). 8 items were excluded from the pool when the written items were examined in terms of theoretical consistency and clarity. Two experts with experience in educational administration and supervision were asked to give feedback about the remaining 59 items. The experts opined that 10 items were not suitable for the target and it was necessary to correct 6 items. After the corrections the scale containing 49 items was applied to the study group. Reactions to the items were rated as 1 = Strongly Disagree, 2 = Disagree, 3 = Moderately Agree, 4 = Agree, and 5 = Strongly Agree.

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed using the data obtained from the study group in order to determine whether or not the factor structure of the SPESB is a valid model. The appropriateness of the sample size for factorising was examined with Kaiser-Meyer-Olkin (KMO) and Barlett Sphericty Tests before the application of exploratory factor analysis (EFA). Furthermore, the common factor variance of items, item-total correlation analysis, the feature of item distinctiveness, the Cronbach Alpha internal consistency coefficient and the results of the correlation between the main and sub-dimensions were calculated.

Findings

The KMO amount was determined to be .93 from the result of the analysis which was performed to identify the appropriateness of the obtained data for EFA. In line with this finding, it is concluded that the sample size is "perfectly adequate" for factor analysis (Sencan, 2005; Tavsancil, 2006). Additionally, the obtained chi-square amount was found to be significant when the results of the Sphericity Test of Barlett ($\chi^2_{(276)}$ = 5.83, p <.01) were analysed. In this respect, it is considered that the data came from a multivariate normal structure.

In order to demonstrate the factor pattern of the SPESB, principal component analysis was used as a factoring method. This is a maximum variation technique from the perpendicular rotation method and it was chosen because it gives priority to the columns of the matrix of factor loadings and ensures that factor variance is at the maximum in achieving meaningful factors (Cokluk et al., 2010). From the results of the analysis, it is observed that there are 9 dimensions over 1 eigenvalue for the 49 items which were the bases of the analysis. The analyses were repeated by excluding items whose factor loadings were less than 0.40 (Sencan, 2005) and whose difference between factor loadings was less than 0.107 from the scale (Tavsancil, 2006). After this progress, in total 25 items were excluded from the scale and 24 items remained. As a result of the analysis, it is seen that there are 4 factors over 1 eigenvalue for the 24 items which were the bases for the analysis (Table 1).

The first of the identified factors explains 15.69% of the total variance of the scale, the second explains 15.23%, the third

Table 1. Factor loadings of SPESB, common factor variance, total- item correlation and t values.

Scale	A	B	C	D	Common factor variance (h^2)	Total- Item correlation	t
2	0.799				0.70	0.69	-17.5
4	0.744				0.65	0.71	-20.7
3	0.737				0.61	0.65	-16.8
1	0.728				0.61	0.66	-19.6
6	0.572				0.43	0.53	-13.9
7	0.524				0.43	0.53	-14.9
5	0.502				0.44	0.54	-16.6
10		0.702			0.56	0.43	-17.8
14		0.683			0.64	0.52	-23.0
9		0.676			0.57	0.41	-19.4
13		0.634			0.52	0.42	-18.1
12		0.619			0.54	0.46	-20.4
11		0.601			0.56	0.42	-23.8
8		0.558			0.45	0.31	-17.1
15			0.694		0.52	0.47	-9.7
16			0.656		0.46	0.44	-10.9
18			0.598		0.42	0.40	-10.8
17			0.584		0.49	0.48	-16.1
19			0.552		0.42	0.45	-13.2
22				0.698	0.50	0.37	-7.6
23				0.661	0.49	0.48	-11.2
24				0.593	0.44	0.42	-13.3
20				0.495	0.33	0.37	-10.4
21				0.440	0.38	0.43	-14.1
Eigen value	7,728	1,995	1,429	1,029			
Total variance	15.687	30.918	41.224	50.757			

explains 10.31% and the fourth explains 9.53% of the total variance of the scale. The total variance explained by these four factors is 50.77%. Factor loading value of the items is at least 0.44, with a maximum of 0.799 (Table 1).

The variance of the common factor must be calculated in multi-factorial patterns. The variance of the common factor, which is the common variance that is caused by the factors on each parameter after factor analysis, is the sum of the squares of the factor loadings of a parameter. The common factor variance of all of the items that make up the SPESB is greater than 20 (Table 1). Moreover, total correlation values of all the items that are in the scale vary between 0.31 and 0.71 (Table 1). The distinctiveness feature of the items of the lower 27% and the upper 27% groups, which are formed according to the total scores of the scale, was tested using an unrelated t-test for the differences between common scores of the items. With regard to the comparison of the item scores using the data obtained from the first study group formed by the SPESB's lower 27% and upper 27% groups, the results of the t-test (Table 1) demonstrate that the t values of all the items in the scale are meaningful (p<0.001) and that the items have the feature of distinctiveness.

The items loaded to each factor were analysed in terms of content and names were given to the factors by taking into account the classifications of Blumberg (1980), DiPaola and Hoy (2008), Gebhard (1984), Glickman et al. (2004), Nolan and Hoover (2008), Pajak (2000) and Zepeda (2007) about behaviours of supervisors. Accordingly, the names directive, guidance, collaborative and dysfunctional were given to the four sub-factors. The guidance

factor is formed by seven items (1 to 7. items), the directive factor is formed by seven items (8 to14. items), the dysfunctional factor is formed by five items (15 to 19. items) and the collaborative factor is formed by five items (20 to 24. items). The Cronbach Alpha internal consistency coefficient, which is calculated using the item analysis for the reliability of the scale, is 0.85 for the guidance dimension, 0.85 for the directive dimension, 0.69 for the dysfunctional dimension and 0.66 for the collaborative dimension.

The relationships between the sub-dimensions of the SPESB were analysed by calculating the Pearson Correlation Coefficient. As can be seen in Table 2, there is a meaningful 0.1 level relation-ship between the sub-dimensions of the SPESB.

Confirmatory factor analysis (CFA): The model of a four-dimensional structure of the scale was tested with CFA on the basis of the EFA results in order to evaluate the extent to which the factor structure, identified by EFA, harmonizes. The chi-square value which was calculated with CFA is statistically significant (x^2 = 549.69, df = 238, x^2/df = 2.31, p <0.01). When the chi-square value is divided by the degree of freedom, the resulting rate is less than three and this rate indicates perfect harmony (Kline, 2005; Sumer, 2000; Cokluk et al., 2010). Some harmony indices calculated by using the same analysis are as follows:

RMSA = 0.043, RMR = 0.050, SRMR = 0.048, GFI = 0.94, AGFI = 0.92.

The criterion for the harmony indices is defined as >0.90 for the GFI

Table 2. Results of the correlation between main and sub dimensions of SPESB.

Sub dimensions of SPESB	Directive	Guidance	Collaborative	Dysfunctional
Directive	1.00			
Guidance	-0.676**	1.00		
Collaborative	-0.577**	0.641**	1.00	
Dysfunctional	0.695**	-0.493**	-0.388**	1.00
Total	-0.604*	0.703**	0.562**	-0.457*

**p<0.01, *p<0.05.

and AGFI, <0.05 for the RMSEA, RMR and the SRMR (Cokluk et al., 2010). Viewed from the perspective of these harmony index values, there is harmony between the model and the observed data, and the proposed model has a good level of harmony.

Study ii method

The study group

The criterion-related validity of the SPESB was performed with 212 teachers; 111 class and 101 subject teachers, working in 7 primary schools in the 2011 to 2012 academic year in the Konya Metropolitan Municipality area. Their seniority average is 13.4 (SD = 5.9) years.

The process

The Scale of Primary School Supervisors Leadership Practices, which was developed by Unal and Gursel (2007) to be implemented with school principals and teachers, was used in order to ensure the criterion-related validity of the SPESB. All items of the scale are related to the leadership practices of supervisors. High scores mean that the leadership of supervisors is perceived as positive and low scores mean that the leadership of supervisors is perceived as negative. The scale consists of 14 items. The Cronbach Alpha coefficient is 0.90. Co-variance of the scale changes between 0.43 and 0.81.

Findings

The results of the Pearson Multiplication Moments Correlation Coefficient demonstrate that there is a positive relationship in the guidance (r = 70, p <.001) and collaborative (r = 56, p <.001) dimensions. On the other hand, with regard to determining the criterion-related validity of the SPESB, there is a negative relationship in the directive (r = -55, p <.001) and dysfunctional (r = -46, p <.001) dimensions.

Study iii method

The study group

The study group consists of 330 teachers, 177 class and 153 subject teachers, working in 11 primary schools in the 2011 to 2012 academic year in the Konya metropolitan municipality area. Their seniority average is 12.9 (SD = 5.8) years.

The process

CFA analysis and the Cronbach Alpha consistency coefficient were recalculated by applying the remaining 24-item scale following EFA

and CFA analysis to the study group.

Findings

To determine whether or not the SPESB is valid in different conditions and sample groups, it was firstly found that the chi-square value is meaningful in the result of the CFA which was performed in order to evaluate the level of harmony of the factor structure in the first study with the obtained data in this study ($x2$ = 552.4, df = 242, $x2$/df = 2.28, p <0.01). When the chi-square value is divided by the degree of freedom, the resulting rate is less than three, and this rate indicates perfect harmony (Kline, 2005; Sumer, 2000; Cokluk et al., 2010). Some harmony statistics calculated by using the same analysis are as follows:

RMSA = 0.062, RMR = 0.053 and SRMR = 0.053, GFI = 0.88, AGFI = 0.85.

The Cronbach Alpha internal consistency coefficient, which is calculated using the item analysis for the reliability of the scale, is 0.91 for the guidance dimension, 0.85 for the directive dimension, 0.83 for the dysfunctional dimension and 0.77 for the collaborative dimension.

Study iv method

The study group

The criterion-related validity of the scale was performed on the obtained data from 60 teachers; 27 class and 33 subject teachers working in 2 primary schools in the 2011 to 2012 academic year in the Konya metropolitan municipality area. Their seniority average is 11.6 (SD = 4.6) years.

The process

The test-retest procedure was performed for the reliability of the SPESB. The scale was applied twice to the study group over an interval of two weeks.

Findings

The reliability of the SPESB was calculated with the test-retest method in this study. The reliability coefficient which was obtained by the test-retest method is r = 0.93 for the guidance dimension, r = 0.89 for the directive dimension, r = 0.85 for the dysfunctional dimension and r = 0.83 for the collaborative dimension.

DISCUSSION AND CONCLUSION

The aim of this study was to develop a scale to describe

how education supervisors' behaviours are perceived. EFA, CFA, total-item correlation and the feature of item distinctiveness were calculated to ensure the structural validity of the scale. The reliability of the scale was calculated by the Cronbach Alpha and test-retest methods.

Sample size should preferably be over 500 in studies in which both EFA and CFA analyses are selected (Noar, 2003). Therefore, a 704-person data set obtained from the first study group was primarily used in both analysis processes. In addition, CFA was repeated on a 431-person data set. The explained variance of multi-factorial patterns needed to be between 60 and 40% and the factor loading value of items needed to be at least 0.40 (Cokluk et al., 2010). According to the results obtained from the EFA to examine the structural validity of the SPESB, a four-factor structure whose factor loading value ranged between 0.495 and 0.799 explaining 50.77% of the total variance was acquired. Accordingly, the variance ratio explained by the four-factor structure and the factor loading value of the items are adequate. In addition, the variance of the common factor that should be calculated is higher than 0.20 for all the items that make up the scale in the multi-factorial patterns. Therefore, it can be said that the items are homogeneous (Cokluk et al., 2010).

The total-item correlation values of all the items in the scale vary between 0.31 and 0.71. It can be said that the items exemplify similar behaviours and the scale has high internal consistency as all of the values are higher than 0.30. According to the results of the t-test for comparison of the item scores of the lower 27% and upper 27% groups of the scale to determine the feature of item distinctiveness, the t values of all the items in the scale are meaningful (p <0.001). Accordingly, it has been concluded that the validity of items in the scale is high and they are intended for measuring same behaviour. This finding demonstrates that the items in the scale have distinctiveness with respect to teachers' negative or positive perceptions of the behaviours of education supervisors, and that the items also have structural validity.

The harmony indexes obtained from the results of the CFA performed on the data set which was obtained from the first study group in order to evaluate the level of harmony of the model belonging to the four-dimensional structure determined by the EFA are in agreement with the EFA. The harmony indexes obtained by the results of CFA which was performed on the data set obtained from the second study group demonstrate that the four-dimensional structure of the scale is also confirmed by the data obtained from the different samples.

The total score relationships of dimensions and sub-dimensions of the scale were also examined. According to the obtained findings, there is a meaningful relationship level of 0.01, a positive correlation between total score and the guidance, collaborative dimensions

and a negative correlation between total score and the directive, dysfunctional dimensions. The sub-dimensions relationships with each other are meaningful. When the scores of supervisors' guidance and collaborative behaviours increase, the scores of directive and dysfunctional behaviours decrease or vice versa and this condition matches expectations. Based on this, it can be said that the scale measures similar structures.

Considering the supervision practices in Turkey and the classifications of generally accepted supervision behaviors of Blumberg (1980), Gebhard (1984), Sullivan and Glanz (2000), DiPaola and Hoy (2008) and in particular Glickman et al. (2004), it is expected that supervision behaviours consist of five dimensions which are directive, guidance, collaborative, non-directive and dysfunctional. As a result of the analyses in this study, the non-directive dimension, shown in the literature as a type of supervision behaviour, is not included in the developed scale. This is because the Ministry of National Education (2001) expects supervisor studies to be based on guidance (directive informative) and the collaborative rather than non-directive behaviours. In addition, training the education supervisors in an inefficient way can be a factor (Unal and Kantar, 2011). On the other hand, the behaviours in the dysfunctional dimension are not recommended as expected behaviours in the literature; only Blumberg (1980) calls attention to these behaviours. When the negative perceptions regarding the supervision studies performed in Turkey are evaluated (Badavan, 1994; Collins, 2004; Karagozoglu, 1977; Memisoglu, 2007; Unal, 2007, 2010; Unal and Gursel, 2007; Yavuz, 2010; Yilmaz et al., 2009), it can be said to be natural and necessary to include a dysfunctional dimension in a scale which measures perceptions related to supervision behaviours.

The Scale of Leadership Practices of Primary School Supervisors, which was developed by Unal and Gursel (2007) for application with school principals and teachers, was used for the criterion-related validity. The results demonstrate that there is a meaningful relationship at the 0.01 level, positive in the guidance and collaborative dimensions; negative in the directive and dysfunctional dimensions. This means that the SPESB has criterion-related validity.

The reliability of the scale was calculated by test-retest and internal consistency (Cronbach Alpha) methods. The coefficients obtained from results of the scale demonstrate that the scale is reliable. The Cronbach Alpha coefficients calculated on different data sets are similar and sufficient and this serves as proof of the reliability.

Consequently, according to the evidence regarding the validity and reliability, the SPESB is a valid and reliable tool. This tool can be used in order to determine how the behaviours of education supervisors are perceived before or after supervision practices. In addition, the supervision of teachers is not only the task of supervisors. School

principals also have responsibility for supervision. Therefore, the scale can also be used in order to determine how the supervision behaviours of school principals are perceived by teachers. Whether or not the scale will be used for the supervision behaviours of school principals should be laid down in other research.

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