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Development of Teachers' Structural Empowerment Scale (TSES): A Validity and Reliability Study

ELIF ILIMAN PUSKULLUOGLU and YAHYA ALTINKURT

Abstract

The purpose of this study is to develop a data collection tool in order to define the levels of teachers' structural empowerment. The sample of the research consists of teachers of primary, secondary and high schools. For the construct validity, explanatory and confirmatory factor analyses are done. The five-factor structure, emerged as the result of explanatory factor analysis (EFA), is; Participatory Decision-Making Environment (DM), Accountable Environment (AE), Professional Development Supportive Environment (PD), Facilitative School Environment (FE), and Autonomy-Supportive Environment (AS). This five-factor structure accounts for 65.01% of the total variance. The scale is comprised of a five-point Likert type 30 items ranging from "1-completely disagree" to "5-completely agree". The five-factor, 30 item structure emerged at the end of EFA, is also analyzed via confirmatory factor analysis (CFA), and the results show that the scale has good fit ($\chi^2/sd= 2.93$, RMSEA= .079, NFI= .96, NNFI= .97, CFI= .97, IFI= .97, RMR= .04, SRMR= .05). For the reliability of the scale, item total correlations, Cronbach's Alpha internal consistency coefficients and item means of the upper and lower 27% groups are examined. Consequently, a psychometrically adequate, valid and reliable data collection tool is developed to assess teachers' structural empowerment.

Keywords: structural empowerment scale, empowerment, teacher.



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Introduction

Since how the power is exercised directly effects organizational success and relations (administrator-employee, employee-employee, etc.), it is possible to say that the power and the exercise of power is one of the primary concepts of the organization and administration literature. In the classical administration approach, the power is basically seen as an instrument that has to be possessed by the administrator. However, the administration understanding has changed over time and is also accompanied by some adjustments related to the exercise of power. In new administration paradigms, firstly the importance of human relations is stressed; then the individual, psychological, and sociological factors of employees in organizational relations are considered (Altinkurt & Iliman-Puskulluoglu, 2016). This situation requires centering on the individual, sharing of the power thought to be possessed by the administrator, and empowering the employee in the organizations. Similarly, in educational organizations, the issues enabling power-sharing and empowering the employee like autonomy, participation in decision making, and perceived organizational support, have all become the prominent subjects of the organizational behavior literature.

Empowerment, with its most general definition, is sharing of the power with employees. At the end of this sharing, the employees', as an important part of the organization, feeling themselves powerful is important. Because empowerment is both a structural concept handling with the power sharing in organizations and a psychological concept defining the emotions of the employees as the result of this sharing. However, as conceptualized psychological empowerment, employees' feeling powerful can be ensured via structural empowerment. It is possible to encounter with the studies related to the concepts of psychological and structural empowerment that enlighten different aspects of the term, both together and separately in the literature.

Within the scope of this study, firstly the concept of empowerment, including both psychological and structural aspects at the same time, is mentioned. Then, psychological empowerment is explained in general terms. After that, structural empowerment is handled, the studies conducted related to this subject are given and why there is a need for a data collection tool in the assessment of teachers' structural empowerment is clarified. Including both psychological and structural aspects, teacher empowerment, frequently used in the international literature, is mentioned and how teacher structural empowerment handled in the context of this research is defined.

Empowerment means to give power to. In the organizational context, since the power includes the concepts of authority, competence, self-efficacy and energy; empowerment can be evaluated as both psychologically and structurally (Thomas & Velthouse, 1990). Empowerment can also be used to describe both the act of enabling and the inner process of the empowered individual (Menon, 2001). Although, empowerment is frequently used in equivalence to enabling, it is possible to say that empowerment is a wider concept including enabling (Altinkurt, Turkkas-Anasız & Ekinçi, 2016) since it has both psychological and structural aspects. Fundamentally, the aim of empowerment is employees' enhancing the skills and increasing his self-efficacy (Thomas & Velthouse, 1990), and making more contribution to the organization in doing so.

When empowerment is considered in a psychological context, it specifies the individual's emotions and feelings that emerged through the empowerment (Meyerson & Kline, 2008). Psychological empowerment is motivating the individual to make him gain self-

efficacy and so make him feel powerful (Conger & Kanungo, 1988). In literature, psychological empowerment is generally accepted as a construct consisting of *meaning*, *competence/self-efficacy*, *self-determination* and *impact*. In psychological empowerment *meaning* is defined as the value of the work for the individual; *competence* as the individual's belief in his capability to do the work; *self-determination* as the individual's beginning and ending a work with his own will; and *impact* as the degree of control on the work-related processes (Conger & Kanungo, 1988; Spreitzer, 1995; Thomas & Velthouse, 1990). In other words, psychological empowerment is motivating employees to accomplish his tasks successfully and effectively, and so make him feel efficient.

When empowerment is structurally discussed, it could be defined as creating the conditions to prompt and to motivate the individual, and to make him feel efficient. While these conditions are setting, the administrator may either share the power with the employees or enable them (Conger & Kanungo, 1988), or may use power sources in ethical boundaries in order to facilitate their work. In this context, structural empowerment is not just giving power to someone in place of the administrator. Instead, structural empowerment is employees' participation in the organizational decision-making (Goynes et al., 1999; Menon, 2001), access to the necessary materials to do their tasks (Lashinger et al., 2004), knowing the things that lead them to have more control over their tasks (Kimwari, Chirure, & Omondi, 2014) and to do their tasks effectively (Conger & Kanungo, 1988; Meyerson & Kline, 2008), and making the necessary structural arrangements to let them take on responsibility when needed (Goynes et al., 1999). Actually, empowerment is to let the employee make use of his energy for the benefit of the organization, instead of struggling with bureaucratic obstacles. In other words, it is enabling the common use of the power and the power sources in order to achieve organizational goals effectively.

To clarify the structural empowerment this example can be given: In organizational life, most of the employees experience this situation; an employee wants to accomplish a task effectively and efficiently. For instance, an A person, responsible from this task, uses the legislation to facilitate the solution of encountered problems emerged during the process via interpreting the legislation in accordance with the organizational aims on behalf of the employee. However, a B person, responsible from the same task, acts on the contrary, via being only a "legislation servant", and hinders the process. The problem in this example stems from here: The legislation is just a tool to achieve the organizational goals, from the perspective of the administration. However, in practice, generally aims and tools are switched and "end justifies the means". At this point the importance of structural empowerment is emerged. Structural empowerment is, instead of putting bureaucratic obstacles, interpreting the legislation on behalf of the employee striving to facilitate tasks for the benefit of the organization. From the perspective of administrative process, the ideal thing is here to arrange the legislation to facilitate the tasks, without leaving it down to the administrator's initiative. However, it is a leadership characteristic to take the initiative to use a de facto and debatable legislation for the benefit of the organization. It is also expected from today's administrators to display such leadership skills.

As roughly stated in the paragraphs above, structural empowerment is paving the way for the employees' access to information, support, resources and opportunities to complete tasks and to improve themselves (Armstrong & Lashinger, 2006). In this context, in explaining structural empowerment, *access to opportunity*, *access to resources*, *access to information*, and *access to support*, besides the concepts of *formal* and *informal power*

accepted to have an effect on the access, is utilized. In structural empowerment *access to opportunity* is defined as the chance of an individual's improving himself and developing his knowledge and skills; *access to resources* as the ability to acquire funds, materials and time to do necessary tasks; *access to information* as having formal and informal information to be effective in the workplace; *access to support* as getting feedback and guidance from administrators and colleagues; *formal power* as the power, ensuring the achievement of the organizational aims, related to environmental conditions peculiar to the work; and *informal power* as the power, enabling the formation of information and communication channels in the organization, emerged via social networks (Kanter, 1993 cited by Laschinger et al., 2004; Orgambidez-Ramosab & Borrego-Ales, 2014).

As it is seen, when structural empowerment is identified, organizational conditions enabling empowerment are handled. In other words, 'structure' in the structural empowerment is conceptualized as the organizational environment (Meng et al., 2015). The foundation of structural empowerment lies in how the organizational circumstances are (Orgambidez-Ramosab & Borrego-Ales, 2014). Accordingly, the clarification of what the characteristics of empowering environments is considered as important. In this context, it is possible to say that in empowering environments, there are working teams based on active participation, training opportunities for employees to improve themselves and information sharing. Besides, it can also be stated that employees' access to necessary sources, getting feedback on actions taken and having transparent evaluation criteria is important (Caudron, 1995).

On the other hand, in empowering environments, it is seen that job turnover decreases as job satisfaction increases, and employees show more commitment to the organizational aims (Meyerson & Kline, 2008; Wilkinson, 1998). Similarly in educational organizations, it is seen that structurally empowered teachers know that they are trusted, feel themselves as more effective and take the responsibility of their own growth. Besides, it is understood that empowered teachers develop mechanisms to deal with the problems experienced in daily classroom settings, work collaboratively with the school administration related to the issues concerning them and so enhance a more democratic understanding. Moreover, since they use power in their educational lives, their authority over the occupation increases and their voices raise related to their profession as a teacher. When there is a mismatch between the legislation and the practice, they act with taking responsibility. Since they develop themselves personally and professionally, they serve in the effective achievement of the school goals (Kimwarey et al., 2014).

When the international literature is examined, it is seen that structural empowerment is generally used in health sciences, especially in nursing (Armstrong & Laschinger, 2006; Gibson, 1990; Meng et al., 2015) and is mostly discussed based on Kanter's theoretical assumptions. When the studies conducted in Turkey are investigated, it is found out that the scale developed by Laschinger et al. (2001) based on Kanter's classification is frequently used. It is seen that this assessment tool is used both in enterprises (Erbay & Turgut, 2015; Kerse & Karabey, 2014; Polatci & Ozcalik, 2013) and in educational organizations (Altinkurt et al., 2016; Surgevil, Tolay & Topoyan, 2013; Tolay, Surgevil & Topoyan, 2012). Additionally, it is found out that on structural empowerment there is one study conducted with another scale (Pelit, Ozturk, & Arslanturk, 2011), and one scale development study (Arslantas, Ozcelik, & Pekdemir, 2007), and a qualitative study focused on empowering school environment (Balkar, 2015). Therefore, it can be concluded that structural empowerment

studies are generally conducted in health sciences and business management, and the studies in educational sciences are nourished by them. However, it is thought that structural empowerment scales developed for business management and health sciences are inadequate to assess the environments of educational organizations in that schools are loosely structured and value-centered organizations. Besides, educational services at schools are not only ordinary services that can be conducted with individual efforts and decisions, but also most of the services require creativeness and teamwork. On the other hand, teachers comprise of almost all of the school employees, and are experts educated in their own fields (Altinkurt & Yilmaz, 2013). For these reasons, the need for the development of a new tool to assess teacher structural empowerment is emerged.

In addition to all of these, there is also teacher empowerment concept, generally encountered in the international literature, dealing with psychological and structural empowerment together. When the studies related to this concept are analyzed (Bogler & Nir, 2012; Bogler & Somech, 2004; Goyne et al., 1999; In'am, 2015; Kimwarey et al., 2014; Rinehart, et al., 1998), a six-dimension construct is observed. *Decision making, professional development, status, self-efficacy, autonomy* and *impact* constitute the skeleton of the basic structure in which teacher empowerment is analyzed (Short, 1994). It is possible to say that some of them are related to psychological empowerment and some of them are related to structural empowerment. Teacher empowerment certainly can be evaluated as both including psychological and structural aspects together. But dealing with these concepts separately will make more contribution to the solution of the problem. Besides, teacher empowerment is fundamentally related to the circumstances. For this reason, different from this teacher empowerment classification, especially conditions of empowering environments are taken into consideration and the subject of this study is kept limited with structural empowerment. In this context, teacher structural empowerment is discussed as a five-factor structure consisting of (1) participatory decision-making environment, (2) accountable environment, (3) professional development supportive environment, (4) facilitative school environment, and (5) autonomy-supportive environment. Below this structure is summarized briefly:

Participatory decision-making environment: The Turkish Education System is structurally too centralist. In spite of this centralist structure, by taking responsibility, administrators can support teachers' participation in decision making in order to achieve the aims of the school and to get effective results. In this context, the issues related to branches of teachers can be consulted to them. Opinions of teachers can be asked in providing materials peculiar to the branches, in the school planning, in the school commissions and in the assignments to do. In meetings, an environment enabling discussion of the decisions can be provided. Rinehart et al. (1998) state that in an environment supporting participation in decision making, school administrators give up being the boss, and teachers become prominent and participate in cooperation and consensus.

Accountable environment: The foremost features of empowering environments are transparency and accountability. In this context, school rules should be clear and valid for everyone. Evaluation criteria should be expressed. Teachers should reach the information related to all of these things on request. In these environments, teachers can question the decisions taken. They can learn everything related to the administration process. They can get feedback related to things done. Since the rules are clear, they can do their duties effectively. Goyne et al. (1999) state that this kind of information sharing is quite important

in organizational trust formation and can be accepted as a sign that employees are given importance.

Professional development supportive environment: Personal and professional development opportunities are quite important in teachers empowerment (Kimwary et al. 2014). For this reason, in order to provide an environment supporting professional development, the creative thoughts of teachers should be supported. An environment enabling the intellectual development of teachers should be provided. Successful teachers should be recognized and awarded officially.

Facilitative school environment: A facilitative school environment is an important tool for teacher empowerment. Actually this structure seems to include other dimensions; but in this study facilitative school environment contains more technical properties. In these environments teachers can easily reach necessary materials to do their jobs. Required facilities are provided for the teachers who want to do educational activities. Teachers are supported to take responsibilities. The problems carried to the school administration are handled as quickly as possible. Teachers do not have difficulty in reaching school administrators. Teachers have required authority as much as their responsibility.

Autonomy-supportive environment: One of the features of the environments empowering teachers is autonomy support. It is quite important for teachers' autonomy to decide their own teaching methods and techniques, classroom materials, and measurement and evaluation criteria (Bogler & Somech, 2004). In an autonomous school environment, teachers can take on responsibility when needed. They can make necessary changes on teaching program according to the student needs. In commission meetings they can express their feelings freely. Bogler and Nir (2012) state that authorization and autonomy of empowered teachers increase so they can voice better their opinions related to the daily tasks and the organizational issues.

Methodology

Teachers working in Mugla and voluntarily participated in the research constitute the sample of the research. The scale development procedure holds on two samples, independent and different from each other. The data is collected in 2016-2017 education year. With the data collected from the first sample, explanatory factor analysis (EFA); and with the data got from the second sample, confirmatory factor analysis (CFA) are done.

In the first sample of the study, there are 261 teachers. 33.3% of teachers (n=87) work in primary schools, 31.8% (n= 83) in secondary schools, and 34.9% (n=91) in high schools. In the second sample of the study there are 331 teachers. In this group, 24.9% of teachers (n=65) work in primary schools, 41.4% (n=108) in secondary schools, and 33.7% (n=88) in high schools.

While the items in **Teachers' Structural Empowerment Scale (TSES)** are written, from the studies related to the subject (Armstrong & Laschinger, 2006; Arslantas et al., 2007; Balkar, 2015; Bogler & Nir, 2012; Bogler & Somech, 2004; Goyne et al., 1999; In'am, 2015; Kimwary et al., 2014; Lashinger et al., 2001; Menon, 2001; Orgambidez-Ramosab & Borrego-Ales, 2014; Pelit et al., 2011; Rinehart et al., 1998), and the opinions of field experts and teachers are utilized. A five-point, Likert-type scale consisting of "1-Completely disagree, 2-Disagree, 3-Slightly disagree, 4-Agree, 5- Completely agree" options are used to evaluate the construct. Item pool constituted is given to 8 field experts, except for the researchers, to

state their opinions related to the meaning, the scope, the comprehensibility and the clarity of the items. According to the feedbacks, some items are changed. After that, the scale is applied to a group consisting of 10 teachers so as to test comprehensibility and fluency and to learn the required time to respond the scale. At the end of the application, an interview is made with teachers, and their opinions are asked for regarding the items and comprehensibility of answer scale. After final changes are done and based on the feedbacks, the 46-item scale becomes ready for the pilot application.

In order to define the construct validity of TSES, firstly EFA and then in order to decide whether the construct is valid or not, CFA are conducted. Before both EFA and CFA, skewness and kurtosis coefficients are examined. It is seen that these values are between -1 and +1. For the reliability of the scale, item total correlations, Cronbach's Alpha internal consistency coefficients and item means of the upper and lower 27% groups are investigated.

Findings

During the development process of the TSES firstly EFA is conducted and then the factor relationships are defined. After that, CFA is performed and the reliability analysis is held, respectively.

Findings Related to EFA

Firstly, in the research EFA is conducted. Before EFA, in order to test if the data is appropriate for factor analysis or not, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity results are examined. Accordingly, KMO value is found out as .93, and the result of Bartlett's Test of Sphericity is [$\chi^2=8154.24$; $df=1035$; $p<.00$] also found out to be meaningful. These values show that the data is appropriate for EFA.

Then, in order to define factor structure of TSES, EFA is done. In the analysis, Varimax orthogonal rotation method is used. In EFA, in order to decide which items are appropriate for the scale, the threshold value for factor loadings is accepted as .32 (Tabachnick & Fidell, 2001). Besides, for the items having high loadings in more than one factor, the variance between them is accepted to be at least .10. It is decided that items not providing these requirements would be discarded.

At the end of the first factor analysis, items are loaded under 10 factors, in which eigenvalues greater than 1.0. It is seen that factor loadings of the items are between .58 and .79, and also the ten-factor structure explains 68.97% of the total variance. However, when the number of items clustered under the factors, the contribution of the factors to the total variance, the scree plot graphic and the comprehensibility of the factors emerged (Ozdamar, 2004) are taken into consideration, it is decided that the structure could be 5 factors, instead of 10. In this context, for 5 factor structure, the data is re-analyzed.

In the course of factor analysis, 11 items that are not coherent with the other items in the same factor are discarded. Moreover, items having high loadings in more than one factor are examined and 5 items not providing this requirement are discarded. During this process, items are discarded one by one and analysis is repeated each time. At the end of these procedures, the number of items in the scale drop to 30. The items retained in the scale re-numbered and analysis is conducted again. Correspondingly, KMO value is found out as .93 and the result of Bartlett's Test of Sphericity ($\chi^2 = 5273,51$, $sd= 435$, $p<.001$) is found out to

be meaningful. After the retained items are proved to be appropriate for factor analysis, EFA is done again. As the result of analysis, without any intervention, a five-factor structure is emerged. This structure emerged is found out to be theoretically appropriate by the researchers. These factors are entitled as Factor 1: Participatory decision-making environment (DM); Factor 2: Accountable environment (AE); Factor 3: Professional development supportive environment (PD); Factor 4: Facilitative school environment (FE); and Factor 5: Autonomy-supportive environment (AS). The results of EFA are given in Table 1.

Table 1. EFA Results of TSES

Item	Common Variance	Factor 1 DM	Factor 2 AE	Factor 3 PD	Factor 4 FE	Factor 5 AS	Variance Explained (%)
1	.59	.65	.21	-.05	.17	.30	17.88
2	.70	.72	.23	.18	.23	.19	
3	.61	.70	.21	.15	.21	.08	
4	.54	.64	.07	.18	.28	.12	
5	.76	.77	.06	.25	.18	.26	
6	.69	.71	.19	.19	.21	.28	
7	.58	.63	.24	.18	.31	.04	
8	.69	.61	.12	.10	.32	.44	
9	.67	.58	.19	.01	.39	.38	
10	.70	.29	.69	.00	.36	.09	9.12
11	.68	.22	.62	.06	.45	.20	
12	.62	.32	.60	.36	.09	.11	
13	.67	.15	.76	.13	.07	.23	
14	.55	.29	.29	.53	.13	.30	7.54
15	.55	.16	.09	.71	.01	.08	
16	.58	.09	-.02	.65	.39	-.07	
17	.69	.26	.16	.59	.45	.22	
18	.50	.26	.11	.21	.59	.15	15.74
19	.69	.23	.12	.27	.70	.25	
20	.70	.26	.20	.23	.67	.29	
21	.68	.25	.05	.22	.72	.24	
22	.65	.38	.16	.09	.67	.14	
23	.63	.27	.33	-.13	.63	.17	
24	.62	.24	.24	.09	.57	.42	
25	.73	.12	.38	-.05	.19	.73	
26	.75	.09	.31	.01	.17	.79	14.73
27	.72	.20	.02	.20	.08	.80	
28	.72	.32	-.03	.16	.23	.73	
29	.64	.35	.07	.13	.33	.62	
30	.62	.26	.14	.01	.41	.61	
						<i>Total</i>	65.01

As seen in Table 1, there are 9 items in the first factor of TSES, "Participatory decision making environment", and factor loadings of these items are between .58 and .77. This factor, alone, accounts for the 17.88% of the variance. In the second factor of the scale,

“Accountable environment”, there are 4 items. Factor loadings of these items are between .60 and .76. This factor, alone, accounts for 9.12% of the variance. In the third factor of the scale, “Professional development supportive environment”, there are 4 items. Factor loadings of these items are between .53 and .71. This factor, alone, accounts for 7.54% of the variance. In the fourth factor of the scale, “Facilitative school environment”, there are 7 items. Factor loadings of these items are between .57 and .72. This factor, alone, accounts for 15.74% of the variance. In the fifth and the last factor of the scale, “autonomy-supportive environment”, there are 6 items. Factor loadings of these items are between .61 and .80. This factor, alone, accounts for 14.70% of the variance. All factors as a whole account for 65.01% of the total variance. The correlations among the scale factors range from .43 to .72 and are presented in Table 2.

Table 2. The Relationships among the factors of TSES

<i>Factors</i>	DM	AE	PD	FE
AE	.64**	-		
PD	.57**	.50**	-	
FE	.72**	.63**	.58**	-
AS	.64**	.53**	.43**	.65**

p<.01

Sample items related to the factors of TSES are: *Factor 1-Participatory decision-making environment*: I1: Teachers participate in decision making in issues related to their branches. I8: In the definition of school rules teachers participate in decision making. *Factor 2–Accountable environment*: I10: Teachers can question decisions taken. I12: Teachers are given feedback related to the things they do. *Factor 3-Professional development supportive environment*: I14: Teachers are provided an environment supporting their intellectual development. I16: Successful teachers are awarded officially. *Factor 4–Facilitative school environment*: I18: Teachers can easily reach necessary materials for the lessons. I19: Required facileness is provided for the teachers who want to do educational activities. *Factor 5-Autonomy-supportive environment*: I25: Teachers decide their own teaching methods and techniques for the lessons. I28: Teachers can take responsibility when needed.

Findings Related to CFA

Secondly, in order to test whether the five-factor, 30 item structure emerged at the end of EFA, conducted for the construct validity, verify or not, via CFA, from a different sample data is re-collected. Then, first order confirmatory factor analysis is done. In this process, covariance matrix and maximum likelihood method are used. When the findings got from CFA, in Figure 1, are evaluated, the ratio of χ^2/sd is 3.07 (1212,44/394). This ratio means good fit (Kline, 2005). The other goodness of fit indexes calculated via CFA are: RMSEA= .079, NFI=.96, NNFI=.97, CFI= .97, IFI=.97, RMR= .04, SRMR= 0.05. These goodness of fit indexes show that first order of the five-factor structure of TSES have acceptable threshold values (Hooper, Coughlan, & Mullen, 2008; Joreskog & Sorbom, 1993; Kline, 2011). During CFA, the error variances of items are reviewed and it is seen that there are high level error correlations between two items (I5-I6) under DM factor. These items are examined in the scale and error variances are correlated. Items I5 and I6 assess teacher participation in decision making related to which commissions are formed at school and from whom these commissions constitute. In other words, these two items assess two similar properties.

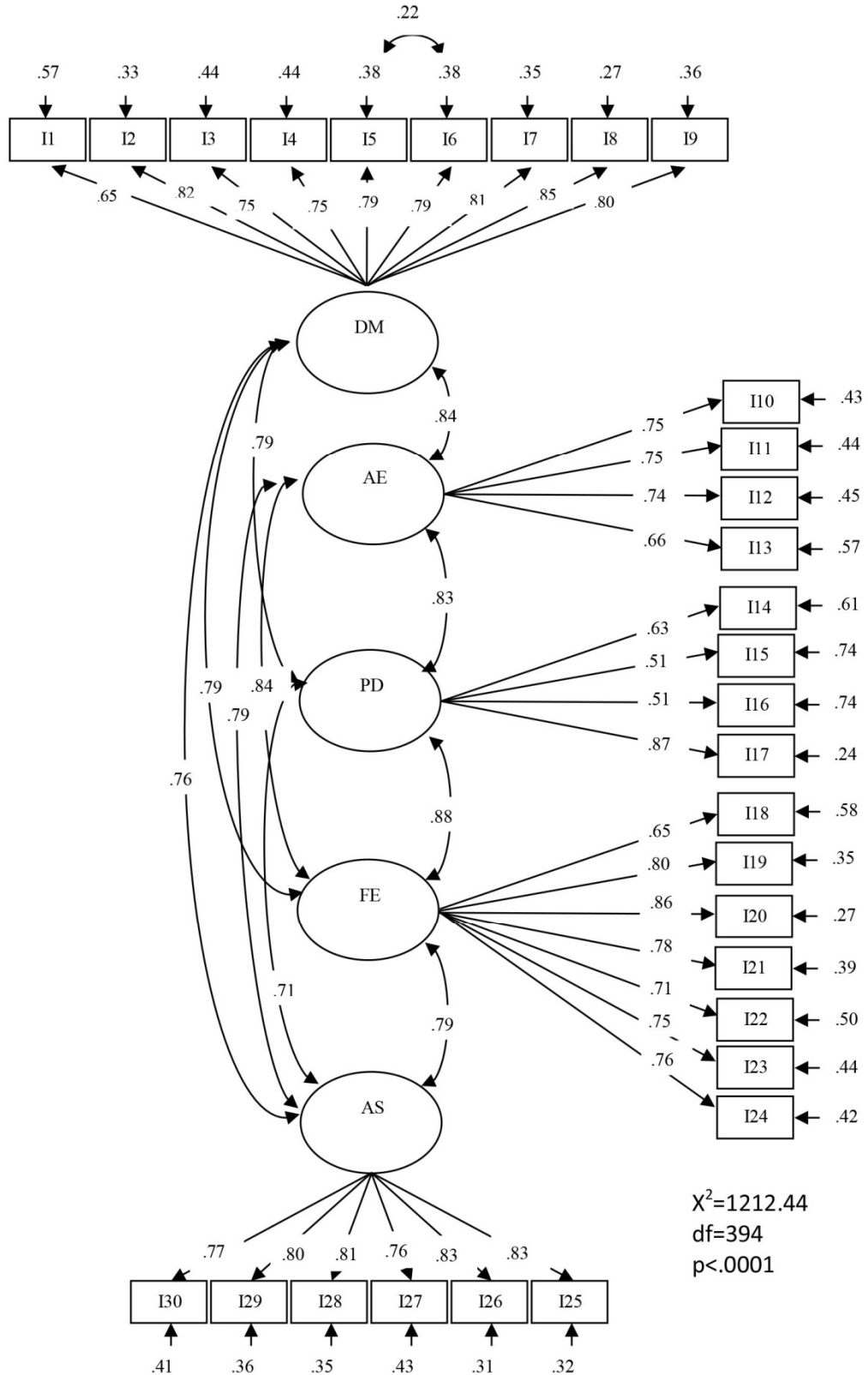


Figure 1. Path Diagram of TSES

Standardized path coefficients (λ_i), situated in the path diagram, given in Figure 1, show the relationships between each observed variable and related latent variable. These values range from .65 to .85 for the DM factor, .66 to .75 for AE, .51 to .87 for PD, .65 to .86 for FE, and .76 to .83 for AS. Error variances of items under the factors range from .27 to .57 for the DM factor, .43 to .57 for AE, .24 to .61 for PD, .27 to .58 for FE, and .31 to .43 for AS. T values of items range from 4.33 to 19.17. Therefore, t values for all of the items are meaningful at .01 level.

Findings Related to Reliability of TSES

Thirdly, for the reliability of the scale, corrected item total correlations, Cronbach's Alpha internal consistency coefficients and item means of the upper and lower 27% groups are analyzed. Item total correlations in the first factor of TSES, DM, range from .63 to .80; in the second factor, AE, from .59 to .67; in the third factor, PD, from .55 to .65; in the fourth factor, FE, from .67 to .75; for the fifth and the last factor, AS, from .69 to .78. These values show that the item discrimination is high (Buyukozturk, 2009). In order to test the reliability of the scale, Cronbach's Alpha internal consistency coefficients are examined. This coefficient is calculated as .93 for DM, .81 for AE, .77 for PD, .89 for FE, .90 for AS and .95 for the overall scale.

Lastly, in the research, the difference between item means of upper and lower groups, formed according to item total scores, are also investigated. At the end of this analysis, meaningfulness of the differences between these groups shows the internal consistency of the scale and to what extent items discriminate the assessed behavior of the individuals (Buyukozturk, 2009; Erkus, 2012). As the result of t test ($t=3.03$, $p<.01$), discrimination of all items are found out to be meaningful.

Conclusion and Discussion

This study is held so as to develop a valid and reliable tool that can be used in the assessment of teacher structural empowerment. Some changes are done on the draft scale of TSES according to the opinions of field experts and the results of pre-application. Then, the scale consisting of 46 items become ready for the pilot application. Analyses are done with the data collected from the pilot application. As the result of EFA, it is seen that scale items are loaded under 10 factors. However, when the number of items loaded under the factors, the contribution of the factors to the total variance, the scree plot graphic and the comprehensibility of the factors emerged are taken into consideration, it is decided that the structure can be 5 factors and EFA is repeated. In the factor analysis, 11 items are discarded since they are incoherent with the other items under the same factor and 5 items are discarded because they have high loadings on more than one factor. With the 30 items retained, EFA is conducted again and without any intervention and a five-factor structure is emerged. These factors are entitled as "Participatory decision-making environment", "Accountable environment", "Professional development supportive environment", "Facilitative school environment", and "Autonomy-supportive environment".

Factor loadings of 9 items under the first factor of TSES, participatory decision-making environment (DM) are between .58 and .77, and item total correlations of them are between .63 and .80. This factor alone accounts for the 17.88% of the total variance and its internal consistency coefficient is .93. Factor loadings of 4 items under the second factor of TSES, accountable environment (AE), are between .60 and .76, and item total correlations of them

are between .59 and .67. This factor alone accounts for the 9.12% of the total variance and its internal consistency coefficient is .81. Factor loadings of 4 items under the third factor of TSES, professional development supportive environment (PD), are between .53 and .71, and item total correlations of them are between .55 and .65. This factor alone accounts for the 7.54% of the total variance and its internal consistency coefficient is .77. Factor loadings of 7 items under the fourth factor of TSES, facilitative school environment (FE), are between .57 and .72, and item total correlations of them are between .67 and .75. This factor alone accounts for the 15.74% of the total variance and its internal consistency coefficient is .90. Factor loadings of 6 items under the fifth and the last factor of TSES, autonomy-supportive environment (AS), are between .61 and .80, and item total correlations of them are between .69 and .78. This factor alone accounts for the 14.70% of the total variance and its internal consistency coefficient is .93. All the factors account for the 65.01% of the total variance. Cronbach's Alpha internal consistency coefficient for the overall scale is found out as .95. As the result of examination of the differences between item means of upper and lower 27% groups, it is seen that discrimination of all items are meaningful at $p < .01$ level.

In order to test if the five factor 30 item structure emerged at the end of EFA proved or not, data is collected from a different sample and first order CFA is done. Goodness of fit indexes emerged are; $\chi^2/sd=3.07$, RMSEA= .079, NFI=.96, NNFI=.97, CFI= .97, IFI=.97, RMR= .04, SRMR= 0.05. It is seen that all the fit indexes are on acceptable level. While error variances are examined, it is seen that there is high level correlation between the two items (I5-I6) under the factor DM. These items are reviewed and error variances are correlated. In path diagram standardized path coefficients and item error variances are checked, and it is seen that path coefficients for the DM factor are between .65 and .85, and error variances are between .27 and .57. For the AE factor path coefficients are between .66 and .75, and error variances are between .43 and .57. For the PD factor path coefficients are between .51 and .87, and error variances are between .24 and .61. For the FE factor path coefficients are between .65 and .86, and error variances are between .27 and .58. For the AS factor path coefficients are between .76 and .83, and error variances are between .31 and .43. Since t values of the items are between 4.33 and 19.17, it can be said that for all of the items t values are meaningful at .01 level. At the end of all of these analyses, it is decided that the structure is confirmed. Consequently, TSES consists of 30 items and items are scored as "1- Completely disagree, 2-Disagree, 3-Slightly disagree, 4-Agree, and 5-Completely agree". There is no reverse item in the scale. The scale produces a total score. Since the items under the factors are different, every score got from each factor must be divided by the item number. In this way, means, between 1 and 5, make it possible to compare the factors. The increase, in the total scores calculated, either on a single factor or on the overall scale means teachers are structurally empowered. When all of them are taken into consideration, it can be said that the developed assessment tool is valid and reliable to evaluate teacher structural empowerment of public primary, secondary, and high schools. In this context it can be said that TSES both contributes to fill the gap in the assessment tool of teacher structural empowerment in educational organizations and provides a psychometrically adequate tool for further research. If TSES is used in organizations other than public schools, it is thought that it will be beneficial to recalculate validity and reliability proofs.

Notes

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Appendix**Öğretmenlerin Yapısal Güçlendirilmesi Ölçeği [Teachers' Structural Empowerment Scale]**

Madde No [Item Number]	Ölçek Maddeleri [Scale Items]
Çalıştığım okulda,	
1	Öğretmenler branşları ile ilgili konularda karar sürecine katılır
2	Okula ilişkin planlamalarda öğretmenlerin görüşleri alınır
3	Öğretmenler, branşları ile ilgili ihtiyaç duydukları malzemelerin (araç-gereç, materyal) sağlanması konusunda söz sahibidir
4	Öğretmenlere yönelik yapılacak olan görevlendirmelerde, görevlendirilecek kişilerin görüşü alınır
5	Okulda hangi komisyonların oluşturulacağına belirlenmesinde, öğretmenler de söz sahibidir
6	Okulda kurulacak komisyonların kimlerden oluşacağı konusunda öğretmenlerden görüş alınır
7	Okula kaynak sağlama konusunda neler yapılabileceğiyle ilgili öğretmenlere danışılır
8	Okul kurallarının belirlenmesinde öğretmenler karar sürecine katılır
9	Toplantılarda kararlar tartışılarak alınır
10	Öğretmenler alınan kararları sorgulayabilir
11	Öğretmenler okulun işleyişiyle ilgili her şeyi öğrenebilir
12	Öğretmenlere yaptıkları işlerle ilgili geri bildirim verilir
13	Kurul toplantılarının gündem maddeleri önceden duyurulur
14	Öğretmenlere entelektüel olarak gelişecekleri okul ortamı sunulur
15	Okul aylık bilim/sanat dergilerinden en az birine üyedir
16	Başarılı öğretmenler resmi olarak ödüllendirilir
17	Öğretmenlerin yaratıcı düşünceleri desteklenir
18	Öğretmenler ders için gerekli materyallere kolaylıkla ulaşabilirler
19	Eğitsel etkinlik yapmak isteyen öğretmenlere gereken kolaylık sağlanır
20	Öğretmenlerin sorumluluk almaları desteklenir
21	Eğitim amaçlı geziler düzenleyen öğretmenlere gerekli kolaylık sağlanır
22	Okul yönetimine iletilen sorunlar, en kısa sürede çözülmeye çalışılır
23	Öğretmenler okul yöneticilerine ulaşmada zorluk yaşamaz
24	Öğretmenler sorumlulukları çerçevesinde gerekli yetkiye sahiptir
25	Öğretmenler, derslerinde kullanacağı öğretim yöntem ve tekniklerine kendileri karar verebilir
26	Öğretmenler sınıflarında kullanacakları materyallere kendileri karar verir
27	Öğretmenler, öğrenci gereksinimlerine göre öğretim programında düzenlemeler yapabilir
28	Öğretmenler gerektiğinde inisiyatif alır
29	Öğretmenler, kurul toplantılarında düşüncelerini özgürce ifade edebilir
30	Öğretmenler derslerinde kullanacakları ölçme ve değerlendirme yöntemlerine kendileri karar verebilir
<p>Note: Karara katılımı destekleyici ortam (DM=1-9); Hesap verebilir ortam (AE=10-13); Mesleki gelişimi destekleyici ortam (PD=14-17); Kolaylaştırıcı okul ortamı (FE=18-24); Özerkliği destekleyici ortam (AS=25-30).</p>	