Pegem Journal of Education and Instruction, Vol. 13, No. 1, 2022 (pp. 395-410)

RESEARCH ARTICLE WWW.PEGEGOG.NET

Examination of Variables Used in Educational Administration Research with Social Network Analysis: A Study in the Context of Turkey

Muammer Maral[1*], Doç. Ali Özdemir[2]

[1,2]Marmara University, Institute of Education Sciences, Marmara University Atatürk Education Faculty, Fahrettin Kerim Gökay Cd., 34722 Kadıköy/ İstanbul/Turkey

Abstract

The purpose of this study is to ensure that the existing situation of the field of educational administration is understood, to display the focal points, frameworks and popularity of studies, to shed light to future studies and to guide those who want to conduct study in the field. In line with this purpose, it is aimed in this study to examine with social network analysis the variables in the scope of doctoral dissertations in the field of educational administration in Turkey. The data consist of doctoral dissertations published in Turkey in the field of educational administration between 1998 and 2021. In collecting the data, a contiguity matrix created by the researchers and a review form containing other information about the dissertations were used. In the analysis of the data, descriptive statistics were employed together with the social network analysis method. As a result of the research, it was determined that there are 147 different variables and 538 links in the network. It was concluded that the network is generally divided into three parts; network density is low; the level of association of the variables with each other is low; the well-known and more common variables in the literature tend to be studied together with similar variables; the variables of managerial leadership, organizational commitment, organizational culture, managerial competency, teacher performance, organizational justice, organizational learning, teacher efficacy, and managerial behavior were the most discussed variables, but among these, the "managerial leadership" was the most central variable in the network.

Keywords: Educational administration, educational administration research, social network analysis.

Introduction

The concept of educational administration is defined as the process of organizing and putting into action individuals and other resources that pay effort to realize the purposes and goals of education in the education system which is founded to meet the educational needs of the society (Başaran, 1983). Educational administration manifested itself in the academic field for the first time in the departments opened in the USA universities in early 20th century, and recorded an important development in the whole world in terms of theory and practice in the past time entering an era of professionalization (Papa, 2009). Educational administration is a field that started to develop with the emergence of modern schools. For this reason, the development of research, organization and management theories in the field of educational administration is seen as a relatively new phenomenon (Hoy & Miskel, 2005). Scientists have determined that the modern era in the field of educational administration emerged with the introduction of the theory movement in educational administration in the late 1950s (Oplatka, 2009).

In addition to these developments in the field of educational administration, there have been various theoretical developments in the field in different periods. Theoretical studies in the field were influenced by traditional, rational and positivist paradigms in the early periods. This era came under the influence of critical, cultural, cognitive and symbolist theories, which have been called post-positivist since the 1970s, and especially the hermeneutic paradigm, pioneered by Greenfield, which emphasizes subjectivity rather than objectivity (Oplatka, 2007; Willower & Forsyth, 1999). After the 1970s, there have been significant changes in organization and management as a paradigm (Şimşek, 1997). The reflection of this change on scientific research has been in the form of a trend from quantitative research based on statistics to qualitative research (Beycioğlu & Dönmez, 2006). Theories that have influenced the field of educational administration since the 1990s are related to the postmodern approach and its extensions (Mullen, 2006). This situation is also reflected

Corresponding Author: esen. muammermaral@hotmail.com

https://orcid.org/0000-0002-2055-5711

How to cite this article: Maral M, Özdemir A (2022) Examination of Variables Used in Educational Administration Research with Social Network Analysis: A Study in the Context of Turkey. Pegem Journal of Education and Instruction, Vol. 13, No. 1,2022, 395-410

Source of support: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest: None.

DOI: 10.47750/pegegog.13.01.42

Received : 25.06.2022

Accepted : 18.09.2022 **Published:** 01.11.2022

in research in the field of educational administration. The disputes between researchers in the field about positivist and hermeneutic paradigms are referred to as"paradigm wars" in the literature (Oplatka, 2007).

The theoretical developments in the field of educational administration remained under the influence of the theoretical developments in other fields until the mid-20thcentury. The general view on the field of educational administration is that the field does not have a specific theoretical background, and that it has adapted and used the theories of various disciplines (Turan & Şişman, 2013). The field of educational administration has been under the influence of management theories rather than theoretical approaches to education (Evers, 2003). The reason for this situation stemmed from the fact that educational administration is a management area (Ever, 2003) and that it does not have its own identity yet (Beycioğlu & Dönmez, 2006).

The field of educational administration has recently been questioned as research and theory-oriented (Hallinger & Leithwood, 1996), and has made significant progress in terms of theory and practice (Dimmock & Walker, 1998). According to Sugrue and Furlong (2002), educational administration, which is under the influence of new theoretical foundations, creates and shapes its own theoretical structure in order to meet the needs arising from the changes experienced today. Likewise, according to Southworth (1999), educational administration has been in the process of creating a unique theoretical and conceptual structure for the last twenty years. However, English (2002) states that the field of educational administration is experiencing a bottleneck, while Maxcy (2001) argues that educational administration does not receive much attention and generally leadership and performance-based management issues are discussed in this field. Duke (1999), on the other hand, supports this view by asserting that the field generally focuses on leadership and school leadership.

Compared to some countries, the beginning of the scientification process in the field of educational administration in Turkey was realized in a later period. Although the field of educational administration in Turkeybegan to be studied later in this process, a breakthrough was experienced in Turkey while the process progressed slowly in other countries. There are two important reasons for this situation. The first is that experts in the field were sent to those countries for doctoral studies and then they carried their knowledge to Turkey. The second is that the experience and knowledge abroad are taken as a model (Balcı, 2008).

Turkey is one of the countries where the scientific knowledge in the field of educational administration is transferred most intensively from abroad. This situation is better understood when we look at Western and especially US-based books and scientific studies in the country, as well as the concepts and terminology in the field (Balcı, 2003; Hoy & Miskel, 2012). The most important reason for this to occur is the assumption that the theories put forward in the West can be generalized to other societies and produce the same results (Turan & Şişman, 2013). The conceptual and theoretical dominance of the West in educational administration is acknowledged, but the scientific foundations and framework of educational administration is one of the long-debated issues in the West. It is also argued that the information produced is constantly repeated or the concepts and theories that have been put forward before are presented again under different names (Oplatka, 2009).

Educational administration has been affected theoretically by the fields of social sciences and management; in addition, research conducted in the field is under the influence of various paradigms. Among these, especially positivism dominated educational administration until the late 1970s when the positivist research tradition and theory movement in educational administration began to be questioned and post-positivist approaches attracted attention (Steawart, 2011; Willower & Forsyth, 1999). Emerging unconventional perspectives are grouped under the general title of subjectivism and hermeneutic approaches (Steawart, 2011). The subjectivist approach has brought increasing popularity to qualitative research methods with various classifications such as ethnography, participant observation, case study, and field study (Lunenburg & Irby, 2008).

As a result, questioning of positivism initiated paradigmatic change movement in several sources in the literature (Willower & Forsyth, 1999). In the field of educational administration, both positivist and post-positivist theories and related research approaches have existed. However, it is a fact that the positivist approach is still widely used today (Aydın, Erdağ & Sarıer, 2010). With the effect of the postmodern paradigm, the perspective on educational administration has undergone some changes. Cultural and individual differences, communication, leaders and followers, flexible management approach, an understanding that gives importance to the feelings and thoughts of individuals have begun to dominate the field (Aslanargun, 2007). These changes have been observed by researchers from time to time in various fields of science. Likewise, paradigm shifts of educational research over time have been studied from various perspectives.

Saimer (2008) argues that in these studies conducted in the field of educational administration, a phenomenon that can be "commonization", in other words, becoming ordinary, is being experienced. He states that the reason for this is that cultural, social and political developments lead to instantaneous, ephemeral and fashionable trends in research and practice. For example, he argues that there are several studies on leadership that are independent of science and theoretical foundation and that are not in-depth. Therefore, this situation

causes commonization intellectually and negatively affects the knowledge in the field of educational administration.

This knowledge in educational administration has been studied from time to time both in Turkey and abroad from various perspectives. In order to better understand the current situation of educational administration, to guide those who want to work in this field, and to ensure the advancement of knowledge by revealing the development stages of the researches, it is necessary to reveal and understand what has been done before in regular interval (Cohen, Manion & Morrison, 2007; Hallinger, 2013; Pope, 2009).

Research has been conducted in various subjects in the field of educational administration from past to present. These studies make important contribution to the development of the field. However, revealing the trends of these researches at certain times is as important as conducting research in a certain field. It is important to map these studies to see the studies from a higher point of view and to determine the current focus and conceptual framework of the studies. These researches serve as a guide for future studies and provide the determination of the needs that will contribute to its development by revealing the current position of the field. According to Turan, Karadağ, Bektaş, and Yalçın (2014), such studies also contribute to shaping knowledge production and educational practices. It is important in terms of questioning not only a specific subject area but also science as a whole. According to Yıldırım (2018), the collective analysis of scientific research on a discipline, theme or concept provides elaborate information on the details and prevalence of the subject studied and ensures that the subject is examined as a whole.

In the field of educational administration, research has been conducted that examine the tendencies in the field from various perspectives. The first examples of these studies are the review of the researches in the field of educational administration by James Limpham in 1964 and Donald Erickson in 1967. These early studies included a narrow and selective sample. Limpham focused on different issues related to managerial behavior in her work. Erickson, on the other hand, focused on the methodology of the studies conducted in two-years period. Afterwards, several studies were conducted on the field of educational administration from a statistical, methodological and thematic point of view (Bridges 1982; Campbell, 1979; Griffiths, 1983; Hoy, 1978; Hoy, 1982; McNamara; 1978; Miskel & Sandlin, 1981). In Turkey, the first studies were carried out by Badavan (1988) and Balcı (1988). In his study, Badavan (1988) examined the researches in the field of educational administration and supervision at Hacettepe and Ankara Universities thematically (as cited in Balcı, 1988). Balcı (1988), on the other hand, examined the studies published in the Education Administration Quarterly covering the years 1970-1985 in terms of thematic, methodological and statistical aspects.

Similar studies revealing the status of the field of educational administration in different contexts were also carried out in the following periods. When we look at the studies examining the scientific papers in the field of educational administration in Turkey, it is seen that the studies are examined from the following aspects: statistical (Demir & Parlak, 2012; Demir, Saatçioğlu & İmrol, 2016), methodological (Yılmaz, 2020), thematic (Gülmez & Yavuz, 2016); Turgut & Begenirbaş, 2014), thematic and methodological (Aydın, Erdağ & Sarıer, 2010; Aydın & Uysal, 2014; Aypay et al., 2010; Hatipoğlu, Hıdıroğlu & Tok, 2018; Yılmaz, 2019), and thematic, methodological and statistical (Alp & Şen, 2021; Balcı & Apaydın, 2009; Belibaş & Gümüş, 2019; Öner & Türkoğlu, 2020; Polat, 2010; Yıldırım, 2018). In studies conducted abroad, research has been examined in terms of the following aspects: thematic (Ogawa, Goldring & Conley, 2000), statistical and methodological (Castillo & Hallinger, 2018), bibliographic and thematic (Hallinger & Kovačević, 2019), thematic and methodological (Bridges, 1982; Szeto, Lee & Hallinger, 2015) and thematic, methodological and statistical (Balcı, 1988; Hallinger, 2013; Hallinger & Chen, 2014; Oplatka, 2007). In some of these studies, a single scientific journal was examined; in some others more than one scientific journals were examined, and in some papers postgraduate dissertations or books were studied. In some of the studies, the papers in a journal or the dissertations written in a given year were analyzed. In some others, studies over a longer period of time were examined.

There are studies that systematically address the field of educational administration in Turkey. However, many of these studies cover a respectively narrower time frame. In addition, studies have not looked at the field of educational administration from a network perspective. In this paper, the scope of the doctoral dissertations written in the field of educational administration in Turkey since 1998 is discussed, and the variables in the field of educational administration are examined from a network perspective, unlike other studies. In addition, this paper will answer the questions of "where are we?" and "what are the boundaries of the field?" as regards the field of educational administration; it will also guide researchers to focus on new and original topics for the development of the field in new scientific studies.

The aim of this research is to reveal the variables within the scope of doctoral dissertations in the field of educational administration in Turkey with social network analysis. For this purpose, answers to the following questions will be sought.

1. What is the graph of the research variable network?
2. What are the variables that research focuses on the most?
3. Which variables have the highest indegree centrality and outdegree centrality in research?
4. Which are the most frequently researched dependent and independent variables in studies?

5. Which variables have the highest mediating level in studies?
6. Which variables have the highest eigenvector centrality in studies?
7. What is the degree distribution of the network?
8. What is the level of centralization of the network?
9. What is the level of interaction of the network with each other?
10. What is the density of the network?
11. What is the convergence value of the network?

Method

Research Design

In this research, social network analysis was used to evaluate doctoral dissertations. According to Hawe, Webster and Shiell (2004), social network analysis is the examination of a structure. According to Freeman (2004), it is a structural approach based on the examination of the interactions of social actors with each other in social sciences. According to Breiger (2004), it is the investigation of relationship patterns between individuals and groups. The purpose of social network analysis is to describe, visualize and statistically model the structure of a social network (Van Duijn & Vermunt, 2006). Statistical methods focus on the forest as a whole, or on the mean, rather than on the trees. However, new approaches such as network science allow focusing both on interactions between units and on properties of units, namely trees. This situation constitutes a bridge between small and large scales (Gürsakal, 2009).

Population of the Research

The population of this research consists of 208 doctoral dissertations written in the field of educational administration and supervision at universities in Turkey from 1998 to 2021. Dissertations were reached by selecting "educational administration and supervision" and "educational supervision and administration" as the science branch, and "doctoral" as the type of thesis, from the scanning criteria in the YÖK (The Council of Higher Education) Thesis Database. Among these dissertations, 90 were included in the research.

Data Collection

The form created by the researchers was used in order to classify the data correctly and regularly and to obtain the variables required for analysis in a matrix structure. This form is a Microsoft Excel document in matrix structure where the variables of the examined dissertations are entered; it consists of the title of the publication, publication year, publication language, name of the university, and research design. All dissertations were examined, each of them was numbered and the information of each dissertation was entered into the form by the researchers.

Data Analysis

Social network analysis and descriptive statistics such as frequency and percentage were used in the analysis of the collected data. The social network analysis of the data was performed using the Ucinet program (Borgatti, Everett & Freeman, 2002), and the visualization was conducted through the Mage Display software. In the processing of the data, the form was filled using independent variables as outgoing connection, dependent variables as incoming connection, and reciprocal connection coding method for both variables in relationship models. In the social network analysis, degree centrality of variables (actors), indegree centrality and outdegree centrality, betweenness, and eigenvector centrality were calculated. For the network, the degrees of centralization, reciprocity, density, convergence and transitivity were calculated. In addition, the network map of the data was also developed.

In social network analysis, the whole of the network can be evaluated, as well as the units in the network. Some criteria have been developed to conduct analysis. Some of the unit metrics in the network are centrality, indegree centrality, outdegree centrality, betweenness centrality and eigenvector centrality. Centrality is a criterion that reveals the most important central actors playing a role in a given network. The high centrality of an actor indicates that it has an active and important position in the network. Degree centrality, on the other hand, is one of the most basic criteria regarding the actors in the network. Degree centrality is divided into two as indegree and outdegree. Indegree centrality refers to how popular, prestigious and respected an actor is in the network. Outdegree centrality is an indicator of how expansive an actor is in the network and how connected he/she is with other actors. Betweenness is not about an actor's proximity to other actors, but rather his/her being on the connections between other actors. Actors with high betweenness have the power to reach many other actors in the network and act as mediators of the flow in the network.

Some of the criteria for the whole network are centralization, reciprocity and density. Centralization is an indicator of the degree of centralization of the actors in the network. If the degree of centralization of the network is high, it can be said that there are very few individuals centrally located in the network. One of the indices showing the centralization of the network is the degree centrality of the network. This index takes values between 0 and 1. As the value gets smaller, the centrality of the actors in the network begins to equalize. When this value is zero, the centrality of all actors becomes equal. If this value is equal to 1, it can be stated that one actor in the network has an effect on all other actors and dominates the network. Density, also known as frequency, is an indicator of how self-contained a network is. Reciprocity refers to the degree to which actors in the network

interact with each other and is a value that can only be calculated in directional networks. There is an interaction between reciprocity and density. The more links there are in a network, the greater the reciprocity. If a network has a density of 1, this indicates that all links are reciprocal. Therefore, reciprocity is affected by density. Reciprocity takes a value between 0 and 1. An increase in the value indicates that the links in the network are mutual. While reciprocity focuses on the relationship between two actors in the network, transitivity focuses on the relationship between the three actors in the network. If there is a relationship between A and B and also between A and C, there can also be a relationship between B and C. This is known as transitivity. This value is obtained by dividing the transitive ternary structures in the network by all ternary structures in the network. A low value indicates that there is a disconnection between the actors in the network and the frequency of the network is low. Eigenvector centrality, on the other hand, is calculated according to how important an actor's links are instead of how many links he/she has. In a social network, some actors may have very few links, but these few relationships can be with very strong actors. In this case, it can be said that these actors have high eigenvector centrality. In short, eigenvector centrality focuses on the position of the people you know in the network and how important they are, rather than how many people you know or are known by.

Degree distribution is one of the criteria that givesgeneral characteristic information for the whole network. It reveals the distribution of actors according to their ranks in the network. However, another important indicator that should be examined together with degree distribution is the convergence coefficient because, according to Tunalı (2016), the degree distribution considers the actors in a network individually and gives the degree of the actor whereas the convergence coefficient focuses on the correlation between the degrees of neighboring actors and provides information about the configuration of the network. If the coefficient is greater than zero, it indicates that the network shows convergence, that is, the important actors in the network are in relationship with the important actors. On the other hand, if the coefficient is equal to zero, there is no relationship between the actor pairs, and if it is less than zero, it indicates high divergence, that is, the tendency of unimportant nodes in the network to be neighbors with important nodes.

Findings

Findings Regarding The Dissertations within The Scope of The Research

The publication year, university, publication language and research model of the dissertations examined within the scope of the research are presented in Table-1.

Table 1: Descriptive statistics of the dissertations within the scope of the research

		f	%
Publication year	1998-2003	1	1,1
	2004-2009	12	13,3
	2010-2015	26	28,8
	2016-2020	51	56,6
Publication language	Turkish	88	97,7
	English	2	2,3
Publishing university	Bolu Abant İzzet Baysal University	16	17,8
	Akdeniz University	3	3,3
	Ankara University	2	2,2
	Atatürk University	1	1,1
	Çanakkale Onsekiz Mart University	12	13,3
	Dokuz Eylül University	6	6,7
	Erzincan Binali Yıldırım University	1	1,1
	Fırat University	2	2,2
	Gazi University	22	24,4
	İnönü University	10	11,1
	İstanbul Okan University	1	1,1
	İstanbul Sabahattin Zaim University	2	2,2
	Marmara University	12	13,3
Research method	Quantitative	68	75,6
	Mixed	22	24,4
Total		90	100

It is seen that the number of studies in the field of educational administration has increased over time from 1998 to the present. It is seen that the number of studies published is the highest between 2016-2020 and lowest between 1998-2003. The language of 88 of the studies is Turkish. Studies have been published by 13 different universities. Among the universities within the scope of the research, Gazi University has published the highest number of dissertations. 75.6% of the studies are quantitative and 24.4% are based on mixed methods.

Findings As Regards Social Network Analysis

Within the framework of the analyzes conducted for the network of the study, a graph that presents the map, or a bird's eye view of the studies, was created first. Then, degree centrality, indegree and outdegree centrality, betweenness centrality, eigenvector centrality, centralization, reciprocity, density, transitivity and convergence degrees of the data were analyzed and presented in tables. The network of the study consists of 147 different variables.

Network Graph Findings

The graph of the network is given in Figure-1 and Figure-2. The network has 538 links for 147 different variants. In Figure-1, the variables whose degree centrality is above +1 standard deviation are shown in red dots and highlighted. In Figure-2, the three-dimensional version of the same network is presented. When Figure-2 is examined, it is seen that the network is divided into three parts in general. The first region in the graph is the region where the network is densest. Here, it is seen that the studies focus on certain variables. Even if the variable distributions of the studies are more diverse, the relationships between them are tighter and the studies are more correlated with each other. In the second region, it is seen that the studies are partially less intense. However, in this region, the studies seem more related than in the third region. In the third region, studies are more independent from each other compared to other regions. In fact, there are study cliques in this region that are not related to any study. This region has no connection with either the first or the second region, and the third region constitutes an area which gained complete independence in itself.

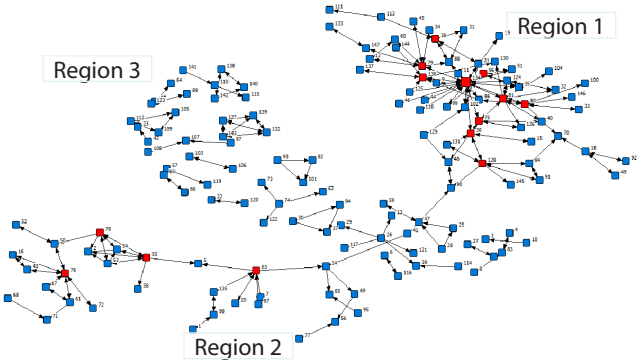

Fig. 1: Network Graph

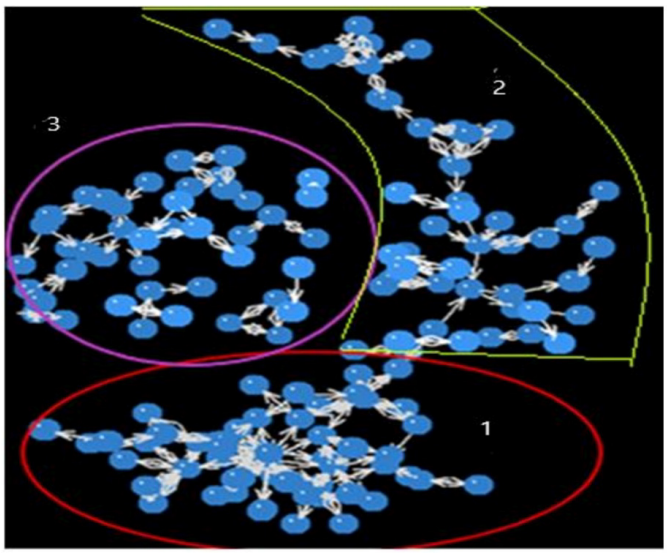

Fig. 2: Three-dimensional Network Graph

Findings for Studies in the Network

Findings for the second, third, fourth, fifth and sixth sub-objectives of the research are presented in the tables below. Since presenting all the variables in the tables would require too much space, the standard deviation criterion was taken into account in determining the number of variables to be presented. Separate standard deviations of the centrality of the variables were calculated and +1 standard deviation was determined as the criterion, considering the space constraint in the study. At +1 standard deviation 11 variables for degree centrality, 14 variables each for indegree and outdegree centralities and eigenvector centralities, and 7 variables for betweenness centrality emerged; the following table was created based on the 14 variables with the highest value.

In Table 2, degree centralities of variables in the network, their indegree and outdegree centralities, betweenness and eigenvalue centrality values, and the number of different variables as related, independent and dependent variables with which the variables are examined are given. The variables with the highest degree centrality, that is, the most discussed ones in the studies are as follows: managerial leadership, organizational commitment, organizational culture, managerial competency, teacher performance, organizational justice, organizational learning, teacher qualification, managerial behavior, alienation towards school, teaching leadership, personality, professional satisfaction, confidence in teacher, and organizational effectiveness. Among these variables, the variable with a higher degree centrality than other variables is managerial leadership which accounts for 8.55% of connections in the network. It is also the variable with highest indegree centrality and outdegree centrality and which is most widely examined as dependent variable and in connection studies. The variable related to the highest number of variables as an independent variable is managerial leadership. The variable related to the highest number of variables as an independent variable is academic success. The effects of managerial leadership on other variables were investigated when it was examined as independent variable. The variable with the highest betweenness centrality is also managerial leadership. There are variables that do not have high degree centrality, but have the highest betweenness centrality. These are school awareness, emotional intelligence, mobbing, managerial effectiveness, and organizational trust. The variable with the highest eigenvector centrality, that is, the variable with the highest degree of importance of the variables it is related to, is managerial leadership.

Findings related to the seventh sub-purpose of the research are presented in Figure-3. The graph of the degree distribution of the network is given in the figure 3.

Accordingly, among the 147 variables, 31 have 1 link, 55 have 2 links, 6 have 3 links, 26 have 4 links, 6 have 5 links, 7 have 6 links, 1 has 7 links, 4 have 8 links, 2 have 9 links, 2 have 10 links, and 7 have 11 and more links. In this case, number of variables with two links is the highest the study

Table 2: Degrees of Centrality of Research Variables

Variable	*Degree centrality (d.c.)*	*Variable*	*In d.c.*	*Variable*	*Out d.c.*	*Variable*	*Between ness*
Managerial Leadership	46	Managerial Leadership	18	Managerial Leadership	28	Managerial Leadership	1672,63
Organizational Commitment	16	Organizational Commitment	9	Organizational Commitment	7	Organizational Culture	500
Organizational Culture	15	Organizational Culture	8	Organizational Culture	7	Personality	446,06
Managerial Competency	14	Managerial Competency	8	Organizational Justice	7	Teacher Qualification	384,93
Teacher Performance	12	Teacher Performance	6	Managerial Competency	6	Organizational Justice	319,60
Organizational Justice	12	Organizational Learning	6	Teacher Performance	6	Managerial Behavior	234,56
Organizational Learning	11	Organizational Justice	5	Managerial Behavior	6	Organizational Commitment	200,367
Teacher Qualification	10	Teacher Qualification	5	Alienation towards School	6	Managerial Competency	165,90
Managerial Behavior	10	Professional Satisfaction	5	Organizational Learning	5	School Awareness	162,93
Alienation Towards School	9	Managerial Behavior	4	Teacher Qualification	5	Organizational Effectiveness	155
Teaching Leadership	9	Teaching Leadership	4	Teaching Leadership	5	Emotional Intelligence	98
Personality	8	Personality	4	Confidence in Teacher	5	Mobbing	90,5
Professional Satisfaction	8	Organizational Effectiveness	4	Emotional Intelligence	5	Organizational Effectiveness	89
Confidence in Teacher	8	Academic Success	3	Life-Long Learning	5	Teacher Performance	65

Variables with the highest eigenvector centrality: managerial leadership (0.654), managerial competency (0.368), organizational commitment (0.319), organizational learning (0.278), organizational culture (0.185), organizational justice (0.143), organizational virtue (0.141), teacher qualification (0.133), mobbing (0.124), managerial experience (0.123), decision participation (0.112), school social network structure (0.112), organizational silence (0.112), organizational effectiveness (0.108).

How many different variables have been studied as related? Managerial leadership (13), organizational culture (7), teacher performance (6), teacher efficacy (5), organizational justice (5), organizational commitment (5), personality (4), organizational effectiveness (4), organizational learning (4), managerial behavior (4), professional satisfaction (3), attitude towards school (3), alienation towards school (3), teaching leadership (3).

How many different variables were studied as independent variables? Managerial leadership (7), lifelong learning (5), alienation towards school (3), teacher self-evaluation (3), bureaucratic structure (2), emotional intelligence (2), innovation (2), emotional intelligence (2), business assurance (2), professional learning community (2), school burnout (2), teaching leadership (2), teacher trust (2), organizational justice (2), organizational commitment (2).

How many different variables were studied as the dependent variable? Academic success (4), teacher work life quality (3), organizational citizenship (3), managerial competence (3), academic self-efficacy (2), bureaucratic structure (2), professional self (2), professional development (2) , school effectiveness (2), student success (2), teacher retention attitude (2), organizational commitment (2), organizational dynamism (2), organizational trust (2).

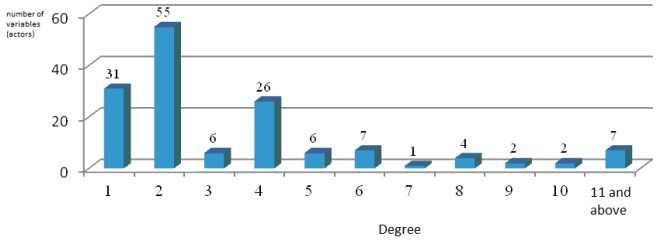

Fig. 3: Degree Distribution Graph

network followed by single-linked variables and the 4-linked variables, respectively. These three make up 76% of the entire network. This is an indication that the density of the network is low as the density of the network depends on the interaction of the actors with each other. The more actors an actor connects with, the higher the density of the network. However, variables with only one or two links in this network account for 59% of all variables.

Table 3: Degrees of Centrality of The Network of Research Variables

Density	*Centralization*	*Reciprocity*	*Convergence*	*Transitivity*
0.012	0.13	0.56	0.739	0.078

The findings for the 7, 8, 9, 10 and 11 sub-objectives of the research are presented in Table-3.

The values in Table-3 are the values for obtaining information about the general structure of the network. The density value of the network was 0.012, the centralization value was 0.13, the reciprocity value was 0.56, the convergence value was 0.739, and the transitivity value was 0.078. The density of the network is approximately 1% which means that there is low correlation between studies. This is also confirmed by the transitivity value and the degree distribution graph. A low transitivity value indicates that there is disconnection between the actors in the network and that the actors are not in a tight relationship. There are also significant differences between the number of links of the variables in the degree distribution. The degree of centralization of the network is also respectively low. This shows that one or a few variables do not dominate the network, on the contrary, there are many centralized variables. However, as this value moves away from 0, it can be said that the number of central variables in the network is limited. The degree distribution also supports this conclusion. It is seen that there are multiple variables with 5 or more links in the network. The reciprocity level of the variables in the network is 56% which shows that the correlation of the research variables with each other is at a moderate level. Convergence value was found as 0.739 indicating that the more researched variables are connected with the more researched variables, and these variables form a whole in themselves. This situation is also seen in Figure-1 and Figure-2, which show the map of the network. In Figure-1, it is observed that the most researched variables are studied with variables like themselves in a certain region. This situation is more clearly demonstrated in Figure-2, and it is seen that the variables are more correlated and intensified in the first region. Likewise, as shown in the second region in Figure-1 and Figure-2, it is seen that variables with low degree centrality are studied with variables that are similar to them.

Conclusion, Discussion and Recommendations

The aim of this research is to examine the doctoral dissertations in the field of educational administration in Turkey with the social network approach. It is aimed to map the studies conducted for this purpose, to identify the focal points of the researches, and to shed light on the future researches. Doctoral dissertations in the field written in the period from 1998 to 2021 were examined and the variables in these dissertations were explored by social network analysis. The results of the research are classified under two categories. The first is the results for the research networks in general, and the second is the resultsspecific for the variables.

According to the results of this research as regards network, the network of studies is divided into three regions. In the first regions, there are variables on which the studies are more concentrated, and these variables have a higher density in themselves compared to the other parts. This means that the variables here were more studied and thus more correlated with each other. In the second regions, although there are fewer variables compared to the first regions, the studies are less associated with other variables and within themselves. The variables in this region are the less studied with the variables in which the studies are concentrated. In the third regions, the variables are only in small research cliques. In this regions, the studies did not form an integrity in themselves, were not dealt with together with the variables studied extensively in the field of educational administration, and in a way formed an independent regions of the network. This independence concerns both the network as a whole and its study cliques.

One of the results obtained for the whole network is that the density of the network is low. This is proven by density and transitivity values and degree distribution graph of the network. This situation shows that there are several variables that need to be studied in the field of educational administration and there are gaps in the literature. On the one hand there are more intensive studies, on the other there are studies completely independent of the network. Science advances systematically and cumulatively. The studies that have been conducted benefit from the studies that were performed before. The previous studies constitute the infrastructure of the studies to be designed. However, in today's world where knowledge develops very rapidly, existing knowledge is subject to change or becomes obsolete. The inclusion of new knowledge in science actually means the entry of new actors into the scientific network. At this point, the task of the researcher is to design original studies and to discover the undiscovered ones, without ignoring previous studies.

According to another result of the study, the convergence of the studies in the field of educational administration is high and their correlation with each other is low. In other words, variables that are studied more than other variables are examined together with variables that are also more intensely studied, and variables that are studied less are handled with variables of the same nature. When evaluated together with the degree centrality of the variables, this shows that researchers focus on certain variables in the field of educational administration, and this concentration is not extroverted but inward-looking. This shows that well-known and more common variables in the literature are studied together with similar variables.

The second part of the conclusions of this research consists of the results for the actors in the network, namely the

variables. In the study network, the main variable was found as "managerial leadership". Besides this variable, organizational commitment, organizational culture, managerial competency, teacher performance, organizational justice, organizational learning, teacher qualification, and managerial behavior are among the most studied variables. In the study network, a single variable did not dominate the network, but several variables took an important place in the network. The low centralization value and the map of the network prove this. Notwithstanding, the variable that is the most important focus of the network, which is more important than other variables in the network, is "managerial leadership". Several studies have been conducted examining the current situation of the field of educational administration in Turkey and in the world according to its time. The study conducted by Badavan (1985) is one of the first studies in Turkey revealing the state of the field of education administration, while the studies by Campbell (1979) and Balcı (1988) are among the first studies carried out abroad. In this study conducted by Badavan (1985), it was concluded that one of the most studied variables in the field of educational administration was leadership. The situation is no different abroad. As a result of Balcı's (1988) research, it was found that leadership and managerial behaviors were among the most studied variables. In the study conducted by Campbell (1979), it was concluded that leadership was one of the most discussed variables. When compared to the studies conducted in Turkey, this situation shows that the focus is still on leadership in the field of educational administration, even after long years.

After these pioneering studies, researches that reveal the situation of education administration both in Turkey and abroad continued. It is concluded that leadership (Castillo & Halinger, 2017; Hallinger & Chen, 2014; Hallinger & Kovačević, 2019; Oplatka, 2007), organizational theories (Murphy et al., 2007), organizational behavior (Hallinger & Chen, 2014), school management (Castillo & Halinger, 2017), career and policy practices (Oplatka, 2007), leadership development, organizational change and performance (Szeto et al., 2015) are the most discussed topics in educational administration studies. It would be appropriate to evaluate each of these studies in its own context, because each of them was conducted in different countries with a different population and sample. However, the reason for including these studies conducted abroad is not to present studies that will support this research, which would be a faulty approach, but to compare the status of the field of educational administration in Turkey with the situation abroad.

When compared with the studies conducted for this purpose in Turkey, similar results can be observed. It has been concluded that leadership (Aydın & Uysal, 2014; Aypay et al., 2010; Bellibaş & Gümüş, 2019; Gülmez & Yavuz, 2016; Erdağ & Sarıer, 2010; Hatipoğlu et al., 2018; Turan et al., 2014; Turgut & Begenirbaş, 2015; Yılmaz, 2019), management, organization and system (Polat, 2014), organizational culture (Hatipoğlu et al., 2018; Turan et al., 2014), educational administrator behaviors (Balcı & Apaydın, 2009), competence (Yılmaz, 2019), performance and personality (Turgut & Begenirbaş, 2015), managerial roles (Aypay et al., 2010), managerial characteristics, organizational commitment, organizational justice (Hatipoğlu et al., 2018), managerial competence, school principal and administrator (Yıldırım, 2018), and organizational behavior (Bellibaş & Gümüş, 2019) are the most explored topics in the studies. As can be seen, it is concluded that the main focal points of the researches in the field of educational administration in Turkey are leadership, management and organization. The aforementioned studies are parallel with the results of this research.

The recommendations made in line with the above conclusions of the research are as follows:

- When the graphs and tables presented in the study are examined, it can be said that evaluating the variables in the first region with variables in the second region and especially in the third region, evaluating variables in the second region with the variables in the first and third regions in addition to evaluating them with each other, studying the variables in the third region with each other as well as the variables in the first and third regions, and studying all these variables with the variables which are not included in the network will ensure that researchers conduct more original studies.
- Research to be conducted between variables with high betweenness values will lead to the emergence of original studies.
- Variables with low eigenvector centrality indicate that they are not studied together with overstudied variables. Studying the variables with low eigenvector centrality in this way will lead to original studies.
- Contribution will be made to the development of the field if the researchers, while designing their research, consider the issues that have not been researched yet, are waiting to be discovered, are partially new and need development.
- Since reexamining the variables that have been studied extensively in future studies will not add innovation to the field, studying the less-studied variables will bring innovation and a different perspective to the field of educational administration.
- Doctoral thesis advisors directing their students to original studies that will contribute to the field of educational administration will make an important contribution to the development of the field.
- During the thesis proposal stage, doctoral students are required to think thoroughly about the research subject in all aspects, to focus on less studied areas, and to present an original research topic.

- Carrying out a study that will determine the focal points of educational administration in the Turkish and global literature will add a unique study to the field and will reveal where Turkey and other countries have differences and similarities.

Limitation

In order to conduct social network analysis, directional or non-directional connection has to exist between at least two actors. If there is no connection between two actors, it is not possible for a social network to occur and thus to conduct its analysis. For this reason, among the dissertations examined within the scope of the study, those which did not include connection between variables were excluded from the research. For example, in qualitative studies, connection between two or more variables cannot be examined. For this reason, qualitative studies were excluded from the scope of the study. In addition, quantitative and mixed studies which focused on a single variable and did not have connection with any other variables were examined and dissertations which did not meet this criterion were not included in the scope of the research. Quantitative studies which included minimum two variables and the quantitative parts of mixed studies which met this condition were included within the scope of the study.

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Appendix

Social Network Analysis İnformation for Variables in the Network

Nm	*Reg*	*Variables*	*Dc*	*Odc*	*Idc*	*Bc*	*Ec*	*Bin*	*İnd*	*Dep*
1	2	EU projects	2	1	1	0.000	0.000	1	0	0
2	2	academic success	4	0	4	0.000	0.000	0	0	4
3	3	academic quality	1	0	1	0.000	0.000	0	0	1
4	3	academic freedom	2	1	1	0.000	0.000	1	0	0
5	2	academic self-efficacy	2	0	2	0.000	0.000	0	0	2
6	3	academic credibility	2	1	1	0.000	0.000	1	0	0
7	2	academic personality traits	1	1	0	0.000	0.000	0	1	0
8	3	academic leadership	1	1	0	0.000	0.000	0	1	0
9	1	academic competence	1	0	1	0.000	0.079	0	0	1
10	3	accreditation	1	1	0	0.000	0.000	0	1	0
11	1	perception management	1	0	1	0.000	0.079	0	0	1
12	1	IT leadership	4	2	2	0.000	0.025	2	0	0
13	3	individual competence	1	0	1	0.000	0.000	0	0	1
14	2	bureaucratic structure	4	2	2	24000	0.000	0	2	2
15	1	conflict resolution	2	1	1	0.000	0.010	1	0	0
16	2	change fatigue	4	2	2	0.000	0.000	2	0	0
17	2	readiness for change	4	2	2	0.000	0.000	2	0	0
18	1	transformational leadership	5	3	2	4000	0.002	2	1	0
19	1	emotional devotion	1	0	1	0.000	0.012	0	0	1
20	2	emotional labor	2	1	1	0.000	0.000	1	0	0
21	1	emotional intelligence	7	5	2	98000	0.101	2	2	0
22	3	education expenses	2	1	1	0.000	0.000	1	0	0
23	3	education services	1	0	1	0.000	0.000	0	0	1
24	3	economic variables	2	1	1	0.000	0.000	1	0	0
25	3	intellectual capital	2	1	1	0.000	0.000	0	1	1
26	3	lifelong learning program	5	5	0	0.000	0.000	0	5	0
27	3	human development	2	1	1	0.000	0.000	1	0	0
28	3	innovation	2	2	0	0.000	0.000	0	2	0
29	3	employment	1	0	1	0.000	0.000	0	0	1
30	3	job security	2	2	0	0.000	0.000	0	2	0
31	1	leave of employment	4	2	2	0.000	0.018	2	0	0
32	1	workplace friendship	4	2	2	0.000	0.054	2	0	0
33	1	workplace aggression	2	1	1	0.000	0.017	1	0	0
34	1	to decide	2	1	1	0.000	0.022	1	0	0
35	1	participation in decision	3	1	2	0.000	0.112	1	0	1
36	1	personality	8	4	4	446067	0.083	4	0	0
37	3	professional self	2	0	2	0.000	0.000	0	0	2
38	1	professional satisfaction	8	3	5	52000	0.040	3	0	1

Nm	*Reg*	*Variables*	*Dc*	*Odc*	*Idc*	*Bc*	*Ec*	*Bin*	*İnd*	*Dep*
39	3	professional development	2	0	2	0.000	0.000	0	0	2
40	1	professional identity	4	2	2	0.000	0.055	2	0	0
41	2	professional learning community	2	2	0	0.000	0.000	0	2	0
42	3	civil administration leadership	1	1	0	0.000	0.000	0	1	0
43	2	loss of morale (teacher)	4	2	2	0.000	0.000	2	0	0
44	1	principal-teacher relationship	1	0	1	0.000	0.079	0	0	1
45	1	school buildings	2	1	1	0.000	0.022	1	0	0
46	1	school-environment relations	2	1	1	0.000	0.079	1	0	0
47	3	school effectiveness	4	1	3	2000	0.000	1	0	2
48	1	school awareness	5	2	3	162933	0.018	2	0	1
49	1	school security	2	1	1	0.000	0.000	1	0	0
50	2	school climate	5	2	3	45000	0.000	2	0	1
51	1	school social network structure	4	2	2	0.000	0.112	2	0	0
52	2	school destruction	2	1	1	0.000	0.000	1	0	0
53	2	school burnout	6	4	2	0.000	0.000	2	2	0
54	2	attitude towards school	6	3	3	0.000	0.000	3	1	1
55	2	alienation towards school	9	6	3	6500	0.000	3	3	0
56	2	student success	2	0	2	0.000	0.000	0	0	2
57	3	student behavior	2	1	1	0.000	0.000	1	0	0
58	2	student leadership	1	0	1	0.000	0.000	0	0	1
59	3	student-centered education	2	1	1	0.000	0.000	1	0	0
60	1	learning organization	4	2	2	0.000	0.025	2	0	0
61	2	learning agility	5	3	2	11000	0.000	2	1	0
62	3	teaching skills	1	0	1	0.000	0.000	0	0	1
63	2	teaching leadership	9	5	4	49000	0.000	3	2	1
64	3	ethical sensitivity of pre-service teachers	1	0	1	0.000	0.000	0	0	1
65	3	entrepreneurship of pre-service teachers	2	1	1	0.000	0.000	1	0	0
66	3	social capital of pre-service teachers	2	1	1	0.000	0.000	1	0	0
67	3	self-efficacy beliefs of pre-service teachers	1	1	0	0.000	0.000	0	1	0
68	2	teacher quality	1	1	0	0.000	0.000	0	1	0
69	2	teacher leadership	2	1	1	9000	0.000	0	1	1
70	1	teacher quality of work life	3	0	3	0.000	0.018	0	0	3
71	2	teacher's attitude to stay in school	2	0	2	0.000	0.000	0	0	2
72	2	teacher teaching mood	2	1	1	0.000	0.000	1	0	0
73	3	teacher self-assessment	1	0	1	0.000	0.000	0	0	1
74	3	teacher self-assessment guidance	3	3	0	0.000	0.000	0	3	0
75	1	teacher qualification	10	5	5	384933	0.133	5	0	0
76	2	teacher performance	12	6	6	65000	0.000	6	0	0

Nm	*Reg*	*Variables*	*Dc*	*Odc*	*Idc*	*Bc*	*Ec*	*Bin*	*İnd*	*Dep*
77	2	teacher teams	1	1	0	0.000	0.000	0	1	0
78	2	confidence in teacher	8	5	3	27500	0.000	3	2	0
79	1	organizational culture	15	7	8	500000	0.185	7	0	0
80	1	organizational justice	12	7	5	319600	0.143	5	2	0
81	1	organizational commitment	16	7	9	200367	0.319	5	2	2
82	3	organizational resilience	2	1	1	0.000	0.000	0	1	1
83	3	organizational democracy	3	1	2	1000	0.000	1	0	1
84	1	organizational support	5	3	2	4000	0.004	2	1	0
85	3	organizational dynamism	2	0	2	0.000	0.000	0	0	2
86	1	organizational virtue	4	2	2	4000	0.141	1	1	1
87	2	organizational flexibility	2	1	1	0.000	0.000	1	0	0
88	1	organizational effectiveness	8	4	4	155000	0.108	4	0	0
89	3	organizational power	2	1	1	0.000	0.000	1	0	0
90	1	organizational trust	4	1	3	55500	0.004	1	0	2
91	1	organizational memory	4	2	2	0.000	0.002	2	0	0
92	1	organizational image	2	1	1	0.000	0.000	1	0	0
93	3	organizational blindness	2	2	0	0.000	0.000	0	2	0
94	3	organizational opposition	2	1	1	0.000	0.000	0	1	1
95	2	organizational norm	1	1	0	0.000	0.000	0	1	0
96	1	organizational learning	11	5	6	48000	0.278	4	0	0
97	3	organizational identification	1	1	0	0.000	0.000	0	1	0
98	2	organizational health	4	2	2	14000	0.000	2	0	0
99	1	organizational silence	4	2	2	0.000	0.112	2	0	0
100	1	organizational cynicism	2	1	1	0.000	0.017	1	0	0
101	3	organizational sustainability	2	0	2	0.000	0.000	0	0	2
102	1	organizational citizenship	3	0	3	0.000	0.093	0	0	3
103	3	organizational intelligence	2	1	1	0.000	0.000	1	0	0
104	1	shared leadership	2	1	1	0.000	0.039	1	0	0
105	3	performance (contextual)	4	2	2	0.000	0.000	2	0	0
106	3	performance evaluation	2	1	1	0.000	0.000	1	0	0
107	3	Performance management	2	0	2	0.000	0.000	0	0	2
108	3	positive psychology	1	1	0	0.000	0.000	0	1	0
109	3	professional learning	4	2	2	0.000	0.000	2	0	0
110	3	program application	2	1	1	1000	0.000	0	1	1
111	1	psychological well-being	1	0	1	0.000	0.001	0	0	1
112	3	psychological possession	4	2	2	0.000	0.000	2	0	0
113	1	psychological capital	2	2	0	0.000	0.005	0	2	0
114	3	virtual classroom	1	1	0	0.000	0.000	0	1	0
115	3	classroom management	1	0	1	0.000	0.000	0	0	1
116	3	justice in the classroom	2	1	1	0.000	0.000	1	0	0

Nm	*Reg*	*Variables*	*Dc*	*Odc*	*Idc*	*Bc*	*Ec*	*Bin*	*İnd*	*Dep*
117	3	social development	1	0	1	0.000	0.000	0	0	1
118	1	stress	2	1	1	0.000	0.079	1	0	0
119	3	burnout	2	1	1	0.000	0.000	1	0	0
120	3	tax revenues	2	1	1	0.000	0.000	1	0	0
121	3	foreign language development	1	0	1	0.000	0.000	0	0	1
122	3	reflective thinking	1	0	1	0.000	0.000	0	0	1
123	3	innovation culture	2	1	1	0.000	0.000	1	0	0
124	1	mobbing	6	3	3	90500	0.124	3	0	0
125	1	managerial experience	2	2	0	0.000	0.123	0	2	0
126	1	managerial emotional intelligence	3	1	2	0.000	0.055	1	0	1
127	3	managerial critical thinking	6	3	3	0.000	0.000	3	0	0
128	1	managerial behavior	10	6	4	234567	0.013	4	2	0
129	1	managerial influence tactics	2	2	0	0.000	0.013	0	2	0
130	1	managerial entrepreneurship	2	0	2	0.000	0.083	0	0	2
131	1	managerial workload	4	2	2	0.000	0.012	2	0	0
132	3	managerial decision making styles	6	3	3	0.000	0.000	3	0	0
133	1	managerial self-development	2	1	1	0.000	0.003	1	0	0
134	1	managerial leadership	46	28	18	1672633	0.654	13	7	1
135	2	managerial humor style	4	2	2	24000	0.000	2	0	0
136	1	managerial competency	14	6	8	165900	0.368	2	1	3
137	1	managerial learning	2	1	1	0.000	0.044	1	0	0
138	3	managerial absorptive capacity	4	2	2	0.000	0.000	2	0	0
139	3	managerial problem solving skills	6	3	3	0.000	0.000	3	0	0
140	3	managerial psychological contract	4	2	2	0.000	0.000	2	0	0
141	3	managerial role	1	1	0	0.000	0.000	0	1	0
142	3	managerial social swap	4	2	2	0.000	0.000	2	0	0
143	3	managerial creative thinking	6	3	3	0.000	0.000	3	0	0
144	1	managerial talent management	1	1	0	0.000	0.044	0	1	0
145	1	confidence in manager	1	0	1	0.000	0.002	0	0	1
146	1	management processes	2	1	1	0.000	0.017	1	0	0
147	1	managerial effectiveness	4	2	2	89000	0.023	2	0	0