Data Mining as New Networked Language within School Governance for Digitalization

Kemal Çakmak^a, Gokmen Dagli^b, Zehra Altınay^c, Fahriye Altınay^d

Abstract

Governances as schools summed up by common shareholders joining for decision mechanisms by many-sided communication. The transition of education administrators from traditional administration to governance enables all shareholders of the education system to take place in decision mechanisms, furthermore, with multivocality and the soul of participation that appear it becomes faster to go for practices that would increase the success of the system. The term governance includes the necessary evaluation of several data and this fact increases the significance of data mining within governance. Data mining, which can be described as methods that enable the evaluation of several data, exists as an irreplaceable tool within education governance. This research aims to examine administration and governance terms, express data mining and investigate data mining's aim of use within education governance. The qualitative research method is used for this work, subject-related information and documents have been scanned and the general summary is made. Enabling especially education administrators to reach for prior knowledge about governance and data mining, networked language increase this kind of researches significance.

Keywords: Governance, digitalization, education governance, data mining, school management

1. Introduction

Collecting data in systematic ways and converting them into information in order to use them in administrative activities enable administration to become a field of science. Workforce, which was increased with the twentieth century, led administrative issues to occur in organizations and new administration approaches were started to be developed.

According to Gundogan (2007), governance means changing from one-sided administration to correlative administration. Therefore, governance means managing together, represents a type of administration which enables relevant shareholders to join decision-making stage during business process.

According to type of governance, enabling all shareholders to join decision process, ensures a healthy evaluation of data in hand in order to reach for organizational aims. This increases the significance of data mining within education governance. Data mining and students behaviours can evaluate skills of learning different subjects and make predictions on methods that may increase success in the future according to students' achievements.

Governance is about how governments and other social organizations interact with each other, how they build up relationship and how is making decisions in a chaotic world. Therefore, governance is a duration, which indicates how societies and organizations make serious decisions and who involves in this process (Graham vd., 2003: 1). According to Cope vd. (1997: 447), governance was also described as a duration. This duration is a period, where connected positions, actors who have opposed interests take place and network topologies, which are different from each other are coordinated.

The term governance can be usefully applied to contexts as global, national, institutional and communal. Understanding governance at national level becomes easier with the consideration of assets, which occupy social and economic fields (Graham vd., 2003: 1-2). Therefore, governance can be calculated under four subtitles:

^aNear East University, Graduate School of Educational Sciences, Nicosia, Northern Cyprus, Mersin 10 Turkey, zekikemalcakmak@gmail.com ^bUniversity of Kyrenia, Kyrenia, Northern Cyprus, Mersin 10, Turkey, gokmen.dagli@neu.edu.tr

^cGraduate School of Educational Sciences Faculty of Education Near East University Nicosia, Northern Cyprus, zehra.altinaygazi@neu.edu.tr ^dGraduate School of Educational Sciences Near East University Nicosia, Northern Cyprus, fahriye.altinay@neu.edu.tr

Kemal Çakmak, Gokmen Dagli, Zehra Altınay, Fahriye Altınay

- Governance or global governance in the "global sphere" deals with topics out of individul administrations consideration and interest.
- In the "national sphere", which means governance within a country, it is a term which involves more than one level in it, for instance, national, province, state and urban governance. In general, national term is about what kind of roles actors as non-governmental organizations will play in decision making on topics that will attract public's interest.
- Organizational governance (governance in the organization field): Generally, it involves activities of organizations which are responsible against board of management. It is a governance term which involves organizations as private sectors or hospitals, schools and government organizations that belong to public
- Communal governance (governance that belongs to community): This governance involves forming organizations that can't be found in legal form, and activities, which are at local level without the existence of officially created board of management.
- Five main principles of a good governance were specified by Graham vd. (2003: 3) for a study was made for united nations which development programme (UNDP). Firstly, aim of contemporary management is enabling social actors take action and providing coordinative Governance evolves movement. from maintaining balance in social profits, giving chance to social actors and system to be in a specific order and at the point of indicating the restrictions (Özer, 2006: 66). According to these points, main features of the term governance are indicated below:
- Social, Political and Economic Priorities: Governance is linked to the principles of participation, transparency and accountability. This link appears with a social negotiation during the period of economic development in social, political and economic priorities. Theorists, who are working on the term of governance, indicate about priorities that new periods has come into play rather than traditional responsibility channels and consumer preferences and its responsibility are the most effective priorities during these periods (Peters-Pierre, 1998: 225).
- Role change between chosen officials: Functions for officials who are chosen with the approach of governance, carry less importance than traditional functions. From now on, improvement of relations between networks, unification of public and private sources is more

important for a more effective use (Peters-Pierre, 1998: 223).

- Transparency is one of the most important mechanisms for the sake of protecting group's profits and preventing misconducts.
- Participation: One of the major features of governance is the principle of participation.The term of governance presents a type of administration which foresees all actors participation as firsthand or by legal mediatorsto durations or by legal mediators.
- Democratic Responsibility: Governance is making contributions to provide democratic responsibility (Kettl, 2000: 494). This criteria can be accepted as chaotic and problematic due to the transformation of leading management force to an individualised one or the difficulty of distinguishing them from each other (O'Toole, 1997: 449).
- Bureaucratic Conditions: Bureaucratic supervision's functions also carry a great importance as much as political responsibilities for solving problems.
- Shareholders of governance in school are principal, teacher, student, parents, staff and external shareholders. Changes in management aims to manage together. Nowadays, economic, social and political problems are considered all together. This situation has led to the need of changes and transformations in the field of management. This change and transformation has led to managing together rather than managing alone (Al, 2014: 127). Accordingly, it has been seen that traditional administration and management are insufficient and workers should interact with each other. In this situation, governance in schools enable all shareholders or partners to have a voice within administration and management. Therefore, any school system which wants to transfer from administration and management to governance should acknowledge all shareholders and partners views and suggestions about school and these should be reflected to the management of school (Gündüz and Balyer, 2013: 47).
- It is significant for a leader in education institutions to indicate the place of an education institution that he works for within the democratic school governance.Bäckman ve Trafford (2006: 15-17) indicate that in order to designate school's place within the field of governance, principles that were designated for democratic citizenship education by Council of Europe are considered as the first criteria. Correspondingly, these principles are "rights

and responsibilities", "active participation" and " value that is giving to diversity." Moreover, in order to identify the level of school governance there are four key points that are identified. These are summarized below:

- Responsibility of Governance, Leadership and Public:Methods that are used within the school administration, the way of how instructions and guidance are made, how they are managed and how do they explain the decisions which were taken to the public are accepted as main indicators within the school governance.
- Value Focused and Oriented Education: Social structure should focus on common ideas aims, main moral principles and beliefs in education system in order to maintain sustainability. Schools capability of providing value-focused education is based on these values rootedness on democracy (Bäckman and Trafford, 2006: 16).
- Cooperation, Communication and Participation

 Competitiveness and Autonomy of School:
 Communication is found in the foundation of education. Competitiveness and school autonomy also take place at this significant point therefore, wrong-directed competitiveness and school autonomy are explained as these are affecting cooperation and communication negatively in a school (Bäckman and Trafford, 2006: 16).

In recent years, data mining attracts attention in information industry and knowledge-based society because of the fact that large quantity of data is accessible and these datas need to be converted into useful information (Adalı, 2017: 4).Information exploration in databases is a process where valid, new, useful and understandable patterns are extracted from the bonded datas. Data mining is as an operation of getting "valued" information among the large scaled datas.Data mining aims to extract the hidden patterns and information among large quantity of data by using developed modeling techniques and coverting data to an applicable information (Tsiptsis and Chorianopoulos, 2009).

Fayyad vd., (1996) describes data mining as implementing some algorithms in order to extract hidden patterns from data.Therefore, revealing relationships between datas and predicting about future are not possible.Data mining has become an important application in every part of customer life cycle in order to provide competition advantage due to the marketshare between increasing competition and marketing.

Generally, methods of data mining feed from two main roots which are statistics, artificial

intelligence and machine learning that is the extension of artificial intelligence. Rather than these two principles; database technology, visual technology and algorithms also play significant role within the methods of data mining(Akpınar, 2014).

Data mining can be implemented in many fields. In education, meaningful relations can also be searched and there are broad databases which may lead to the creation of useful information.Luan states that one of the most important problems in front of higher education is the prediction of road that students and graduateds follow, institutions indicate that they want to know the answers of for instance, which students will enroll for specific courses, which students should be supported in order to be able to graduate, which students have the probability of transfering to other institutions and which graduates can contribute. Moreover, in higher education institutions, traditionally the search for solutions on management of applications average graduation and period still continue. Analysis of datas and its presentation, in other terms, data mining is an approach that is suitable for these problems.Institutions can extract and understand unknown patterns with data mining by their existing reporting skills.Later on, these patterns are used for providing accurate estimations on individual behaviours by data mining models. At the end of these, institutions become able to use their sources in more effective ways.

Delavari and others suggest that problems that higher education systems face result from information gap, therefore a new model which is based on data mining is suggested (Delavari vd., 2005: 1). Information gap; results from having lack of information during education periods as planning, evaluating and counselling. This information gap can be demolished with data mining by revealing hidden patterns, realtions and abnormalities. This model can act as a counsellor or route map when the advantage of data mining is taken in order to provide organizational recovery in education institutions. In the model, first of all main processes and subprocesses appear. According to these, information which will be discovered are indicated by data mining techniques and recovering of periods in every category or application of new periods are provided. Vranic and others examine how algorithms of data mining and its techniques heal some ways of educational quality in academic environments by focusing on a specific course's students(Vranic vd., 2007: 243). It should be started from the idea that there might be useful information for these students which is not

discovered yet. The aim should be focused on understanding students behaviour and their learning skills on several topics with working method and predicting next year's students success with the evident of present students success.

Nowadays, it is not possible following a student traditionally by e-learning which is a learning process via electronic media. Therefore, educators should search for different methods in order to follow student's behaviour during learning process. Distance learning institutions are created automatically by web servers or they save large quantity of data which are bonded in learning management systems journals. Learning environments that are based on Web can save many learning behaviours of students, therefore can provide information about learning profile. The Web based learning transfer a context that takes place in hardware of any place to student. In recent years, many courses are published on websites by distance learning institutions. However, most Web based courses are linked to statical learning material which lacks the student difference and disparity. Adaptable and intelligent education systems that are based on the Web are solutions that present rich learning environment.

These systems provide a model that is based on learners aims, preferences and experiences and creates a chance of individual or self learning. Data mining, which automatically extracts certain and interesting patterns from large quantity of information, is used in order to be informed of learning process or student behaviours. According to this information, evaluation and improvement of e-learning systems are possible (Özkan, 2016; Zaiane, 2001: 60).

In education systems, the implementation of data mining in order to improve learning can be seen as the method of formative evaluation (Romero and Ventura, 2007: 136). Examining how student uses the system formalistically means evaluating the design of content. Therefore, educators obtain necessary information in order to design better contents. Information that will be obtained by data mining will design and update learning environment or approach for educators and it can be used (information) in formative evaluation in order to help them making decisions based on pedagocial foundation.

Data mining is used for discovering useful information which improves process of e-learning about courses, utilisation and interaction and it starts from all information that exist. Implementation of data mining in education systems depend on different aims for students, educators, academic employees and administrators. Data mining that is for educators, evaluation of course content and activity, grouping of students according to received patterns, finding most common mistakes, identifying more effective activities and lastly enabling course to become individualised. These aims provide more objective feedback. Among the aims of studies of data mining academic that are for employees and administrators there can be found increasing the effectiveness of e-learning, providing information about source utilisation and organizing institutional sources in better ways.Generally the aim of studies, which are for students, is providing suggestions to learning process by activities, sources and learning experiences that will help and lead to improvement.

Data mining allows for the evaluation of many data together. In order to achieve a higher and sustainable success in education, education governance requires that physical, social and economic parameters be evaluated together (AI, 2014: 127), and that the stakeholders involved in education are able to participate in managerial decisions and practices (Gündüz and Balyer, 2013: 47). In this context, it can be said that the use of data mining in education governance is a necessity.

The development of new technologies enables students to learn more effectively, efficiently, flexibly and comfortably. Students use digital resources to access wireless resources and use smart devices for both personalized and uninterrupted learning. Intelligent education, a concept that defines learning in the digital age, attracts more attention every day.

Intelligent education aims at reaching information without the restrictions of time and space. Therefore, education has become a personal process. However, digital transformation and intelligent education bring about a process that calls for patience. It needs to be addressed not only in terms of infrastructure, hardware or content, but also in aspects of digital literacy and education management. Through the digital transformation in education, the learning process is completely under the control of the student and the student can manage the learning process with his/her personal preferences and can own his/her own learning process. Digital transformation in education also brings many innovations for teachers. It makes teachers more effective about their studies with the data they provide.

As a new educational paradigm, smart learning is based on smart devices and intelligent technologies. As it has been studied intensively in

recent years, technology can be applied and used to help students learn. This is defined as Technology-Enhanced Learning (TEL). TEL is used to provide flexibility in learning. Technological tools are used to access the content of education, communication and inquiry and evaluation in technology-enhanced learning.

Technologies offer a range of opportunities that can alter the learning process. Developments in software technologies can increase the learning level of students and prepare them for using advanced technologies. The fact that technology plays an important role in making learning more effective, efficient and entertaining makes TEL significant. Learning is the fastest when students are most engaged in questioning-based learning. Here, the actual work of the teacher is to carry out productive, appropriately challenging questioning tasks, to ensure that students have the tools and resources they need to accomplish each task (including opportunities for group activity) and then follow progress on a specific basis. The work of the group of teachers should be planned and the ideas about good tasks should be carefully considered. Care must be given to identify and place the necessary tools and resources, to help students organize individually, in small groups or teams, or as a kind of learning community.

In the design of contemporary education with TEL, the following must be accepted: (Goodyear ve Retalis, 2010: 11):

- a. Good design is complex and requires skill, experience and time,
- b. The design of good learning tasks also includes the design of supportive, pleasant learning environments,
- c. Design works indirectly. Students have the capacity to adapt, personalize and invent,
- d. Its infrastructure is designed to run at various scale levels from the detailed functionality of a tool or interface to the enterprise-wide utilisation.

The networked language translation system is based on the technology of Translation Memory (TM), a parallel sentences storage and search system (Source language-target language) which is used to facilitate translation from one language to another. TM Stores translations so that next time it is not necessary to translate the same phrases or sentences again. Thus, one of the main functions of TM involves search and comparison of sentences, phrases and their translations. Information gathering and exchange for any scientific, commercial, political or social purpose often requires fast and easy translation of content in order to make the universe of knowledge and ideas useful on a global scale. Computer programs that translate automatically from one language to another ("machine translation programs) can in principle meet this need and Such programs have been developed and are in continued development for a variety of languages. For formal (as opposed to informal, idiomatic, colloquial) con tent in wellstudied languages (e.g., English, French, Spanish, German, and others). Such machine translation programs work reasonably well (Gusakov, Ukrainets & Smolnikov, 2017).

Aim of this research study, education administrators and governance: aims to evaluate the use of data mining within school governance. Answers for the questions below will be searched in order to reach this aim:

- 1. How and with what purposes do you use information technologies within education management in your school?
- 2. Are the meanings of data mining and governance known?
- 3. How do you use results from past terms within education administration with the use of uinformation that is kept in software of school computers?

2. Methods

This study is a qualitative research, which is figured from qualitative study patterns to comparative case study. Qualitative study can be described as a type of research, which uses qualitative data collecting techniques, as observation, interview and document analysis, furthermore, it follows a qualitative process that is for presenting perceptions and events from their natural habitats in real and totalitarian way. Qualitative studies are studies that prioritize having a conception, which aims to theorize, researching and understanding social facts within an environment that they are connected (Yıldırım, Simsek, 2011). This method is based on interdisciplinary totalitarian vision and intends to examine research problem with an interpretative approach (Karasar, 2008).

Qualitative studies deal with individuals emotions, experiences and ideas. A researcher starts with these datas in order to provide analysis. One of the most significant features of qualitative case study is the fact that a few or at least one case is deeply researched. In other terms, factors that are related to this case (individuals, events, atmosphere, durations etc.) are researched with a totalitarian approach and their effect on the case and how they are affected from the case are

Kemal Çakmak, Gokmen Dagli, Zehra Altınay, Fahriye Altınay

focused. In addition, in a case study, at least one case is a study which is researched within its boundaries (Yıldırım, Şimşek, 2011). In the pattern of case study, which is different from the other qualitative research patterns, current contextual event (for example, examination of an education programme, event or a process) is a method t hat researches certainly within the specified boundaries (Karasar, 2008).

Case Studies; are studies, which use multidimensional data collecting techniques, as observation, interview and document analysis. In these studies, analysis of obtained datas is made through methods as revealing patterns, description and comparative analysis, then reporting results by individiual or comparative descriptions of cases (Yıldırım, Şimşek, 2011). In this research, interview and data collecting techniques are used. Aim of comparative case studies is comparing research module crossingly that is stated for a research subject. Comparative studies involve a broad perspective, which consists of several different modules and vision. Therefore, implementation of comparative analysis leads to deep understanding of a subject. In this study, which is designed according to comparative case study, analyses are resulted from individual interviews (Çekmez, Yıldız ve Bütüner, 2012).

In this study, semi-structured interview technique has been used as a data collecting tool. Interview is one of the most used methods. Goal is to capture and understand the relativity and mobility of interview and social facts. Advantages of interview technique are chance of seeing a researched subject from the related individuals points of view and revealing social durations that have led the creation of these points of view (Yıldırım ve Şimşek, 2011).

Research group of the study is created with the participation of 80 school principles of middle schools in North Cyprus. Generally, qualitative research approach uses techniques as in-depth interview, direct observation and document analysis in order to collect data (Legard, Keegan ve Ward, 2003). Datas of this study were obtained with the most common technique of qualitative research approach, which is called "face to face interview technique", that enables detailed presentation of participants points of view. In depth or face to face interviews have some advantages, for example, high rate of answers, flexibility on orders of answers, control of atmosphere and detailed information about the researched subject (Yıldırım ve Şimşek, 2011). This method is used as a reference for revealing the answers that are based

on emotions, reasons, ideas and beliefs of participants. (Legard, Keegan ve Ward, 2003).

This method is preferred due to providing flexibility for researcher about questions and order of questions during research, moreover, enabling researcher to interfere easily when it is necessary. Researcher has a type of questionnaire that consists questions or topics that are related to researched subject. Therefore, researcher is enabled to ask these questions to participants at any time of the interview, creating alternative questions that are not on interview form according to given answers and asking open-ended questions in order to enable participant to express his or her ideas in detail.

Semi-structured interview questions that are created for this study consist of three open-ended interview questions. First of all, related field had been examined during summer, draft of an interview form was created and opinion from an expert was taken during the process of creating semi-structured interview form.

Interview form, which was prepared, was prepared again after taking opinion from an expert. At first, interview forms were applied to two participants. Interviews, which had been made, were read repeatedly and were written down. Applied to participants after receiving secure records. Interview form was prepared before and it consits of questions that researcher aims to ask. However, this form may change according to the flow of interview or affect the flow of interview with sub-questions and it might enable individual to be more detailed in his or her answers. Semistructured interview forms consist of open-ended questions. Before implementing prepared interview questions, interview form has found its final state with pilot scheme arrangement to three teachers by giving attention not to repeat questions.

Qualitative data, which is obtained through this study, is subjected to content analysis that involves specifying, coding and categorising similar themes by repeated review of researcher. Main aims during content analysis are creating themes by gathering similar terms within data set and creating their relationship with each other to interpret in the most suitable way. (Yıldırım ve Şimşek, 2011).

Patton (1999) said that diversification strategy has four main types. First one, which is data diversification, is described as diversification of data sources about study that is carried out. Another diversification type is called researcher diversification and it involves participation of different researchers during research. Institutional diversification is described as the third

diversification type. It enables several datas to be interpreted according to several different points of view. The last one of diversification types is method diversification and it is described as using several methods about the subject which is studied. In this study, institutional diversification type is used among the other types of diversification.

3. Results

Using data mining within governance through education administrators and governance is evaluated below with the ideas of participants.

First Dimension: Ideas of participants on how and with what purposes are information technologies used within education management in schools: Administrator(5):

" *Student attendance

* Comments of people about institutions

* Announcement of decisions that are taken to parents

*Announcement of decisions that are taken to teachers and requesting to receive feedback

* Transcripts of students

* Placement of students (follow up)"

Administrator(11): "Using information technology is essential in every part of education, lecturing can be made through inter-active boards with the help of the Internet during a lesson. Furthermore, lecturing can become applied learning for students in related courses. Operations and works that are linked to school management are carried out by information technology. At the same time, communication is made through the same technology with ministry and related office principal secretary."

Administrator(78):" We try to enable using interactive whiteboard in every class and lecture."

Administrator(66): "Smart boards can be found in our school however, their availability is 50% due to impossibilities."

Administrator(15):" In class, grading systems and report cards ."

Administrator(24):" All of our documentation systems are extracted form Smart School programme from computers and every lecture has a smart board."

Administrator (35):"Entering grades, teachers opinions and permissions can be made online on Smart School programme."

Second Dimension: Participants points of view on ideas about terms that are used for data mining: a) Data:

Administrator(23):"Information that is necessary

for decision-making."

Administrator(44):" It is the first information that is needed in order to get results about works that will be made in any particular field."

Administrator(5):" Information that is needed in a research"

Administrator(68):"The most important information that is needed in researches"

Administrator(41):"Value that is for obtaining information"

Administrator(56):" We can understand how far we came from datas."

Administrator(39):" Information about students grades, academic success and student and teacher absence."

b) Data Mining:

Administrator(3): "Selecting useful ones from the existing information"

Administrator(23): "Operation of reaching for useful and necessary information among large quantity of data"

Administrator(48): "Data mining operation is obtaining useful information during a research"

Administrator(49): "Sources that help in order to carry out a fruitful research"

Administrator(59): "Using rational methods in order to extract datas."

Administrator(42): "Using datas above in a meaningful way"

c) Data Warehouse:

Administration(21): "Storing datas after operation."

Administrator(5): "It is a needed computer environment where information are stored and it has evolved from the increase in information"

Administrator(15): "Storage, which datas are collected."

Administrator(34): " A place where information that are found for research are gathered"

Administrator(57): "Saving datas according to their categories"

d) Database:

Administrator(45): "Storing datas for a specific aim."

Administrator(11): "A field where related information are collected"

Administrator(8): *"Place where datas are collected."*

Administrator(24): "Gathering and editing collected information due to the fact that research is not given."

Administrator(26): "Storing datas in computer".

Administrator(19): *"A place where information above is stored"*

e) Relational Database:

Kemal Çakmak, Gokmen Dagli, Zehra Altınay, Fahriye Altınay

Administrator(15): "Keeping datas through tables." Administrator(21): " A digital database which its organization is based on relational database."

Administrator(29): "Total space where datas are associated."

Administrator(44): ". Comparison which is made in order to understand the usefulness of research" Administrator(78): "Storing datas that are related

to each other."

Administrator(5): "Presenting relationship between datas, for instance, displaying the success of year 7 classes at maths course."

Third Dimension: Information of participants on the term of data mining:

Administrator(13):"* Information on the Internet can't always be trusted

*Safer information is needed.

*Data mining is useful for providing safety."

Administrator(29):" Researching for needed information and information that belongs to past then using the useful ones and working with these data during an operation."

Administrator(44):"Literature search is made and several research techniques are used in order to obtain the most efficient information in data mining."

Administrator(58):"My knowledge is limited."

Administrator(61):" It can be used in many fields. For instance, using education and health information meaningfully and making them beneficial"

Administrator(49):"Do not have any idea."

Fourth Dimension: Participants ideas on the use of results from past terms within education administration with the use of unformation that is kept in software of school computers:

Administrator(36):"From the first day of system's implementation within computer system every information is available and every document involves relevant year of study. It is possible to change the year of study in order to find information about past because previous information is already archieved in the system."

Administrator(33):"At every level of education,we search for results that belong to previous terms in order to run student affairs, compare general success levels, data transcription of students who may leave school and to edit documents."

Fifth Dimension: Participants ideas on the general aims of using data mining:

Administrator(22):"Detecting problems and taking measures in order to fix them."

Administrator(69):"Veri madenciliği genellikle eski öğrencilerin bilgi ve belgeleri ne ulaşmakta kullanılıyor olmakla birlikte gerek görülmesi veya talep edilmesi halinde diğer amaçlara yönelik de kullanılabilmektedir. Data mining is generally used in order to obtain old students information and documents, however, it can also be used for other aims upon request."

Administrator(73):"*It is used in scientific researches.*"

Administrator(66):"*It is aimed to be used in scientific studies.*"

Administrator(77):" We benefit from our computer teachers, I do not have enough knowledge on these topics."

Administrator(36):"It can be used in many fields as education and health.."

Sixth Dimension: Participants ideas about the use of data mining within education:

Administrator(22):" Can be used in proper archieving, with functional surveys and tests and in following situations ."

Administrator(34):"Better education might be provided with researches that are carried out in order to remove deficiences by useful and effective data transcription in fields and subjects that are related with education."

Administrator(5):" Can be used in education programmes, which our institution is connected, that are developed by ministries."

Administrator(46):" I believe that it can be used in education programmes that are linked to public servives and developed by ministries."

Administrator(69):" There can be made two comparisons, first of all comparing student/teacher absence to previous years, secondly students academic success can be compared to previous years."

Seventh Dimension: Participants ideas about results of using data mining within education and their benefits:

Administrator(59):" More individuals, who may intend to find themselves, will be raised. Students and teachers motivation might be increased."

Administrator(61):"Important benefits might be gained that will lead to the most effective implementation of education."

Administrator(9):" Society will gain more modern, qualified and inquisitive individuals."

Administrator(53):"Düzen sağlanır donanımlar daha verimli olur ihtiyaç duyulan bilgi el altında olur." Information that is needed will be accessible, qualities, equipment will be more efficient and order will be maintained."

Administrator(61):" If academic success and student/ teacher attendance is decreased then reasons can be searched and solutions can be found."

4. Discussions

The pace of development of technology on every part of the world has led to significant structural changes from economy to politics and education to daily life.Earth has become global with the era of communication and information.Interaction between countries and cultures has reached to the highest point. Naturally, this process has influenced the traditional understanding of management. Organizational structures, which have to act within a narrow framework, where interaction is more limited, nowadays can't respond to the needs of globalised world with the administration type that has been implemented in the past. Developed and increased environmental factors have directed the need of searching for a new administration system. The time is for decision making with shareholders, in other words, it is the turn of governance (Özdilekler, Altınay, Altınay, Z. et al. 2018).

5. Conclusion

Rapid development of computer technology and softwares have enabled the evaluation of large sized datas all together. Data mining enables many related datas to come together and from these datas meaningful information in the field of management can be taken. This results in being able to use sources in hand more effectively, evaluate many datas that may affect strategic decisions and make more realistic projections for future (Altinay, Fedai, Altinay, and Dagli, 2017).

These changes inevitably influence education systems. Transferring to governance approach in education system seems rational when the main aims of education institutions are improving success and creating sustainable environment for success. From now on, decision making by central administration is faded on situations as making strategic and important decisions and taking actions against future events. Governance within education foresees that other than commissioned education administrators and teachers by the public, from students to parents, from elected neighborhood representatives to local administrators, from civil society organizations to other groups that are related to the topic every shareholders of education should be able to join the process of administration and management (Gürbüzer, Altınay, Altınay, et al., 2018).

Implementation of this vision should not only be limited with indicating opinions, therefore it should be applicable. Unfortunately, high ranking education administrators, who have been working in education system for many years, do not have sufficient will for the use of technology. Furthermore, during training of education administrators they do not sufficiently focus on data mining. Accordingly, every education administrator, who is currently working, should be systematically informed about governance and workshops for governance may increase awareness on this topic.

Administrator candidates level can be increased with workshops that will be made by the Ministry of National Education about governance. Cooperations that will be made with schools may enable education administrator candidates during academic education periods to graduate with sufficient capabilities about governance and also data mining (Altinay, Altinay, Dagli, Altinay, 2018).

Availability of data and material

Research is based on qualitative research. Qualitative data based on thoughts, experiences of research participants from interviews were translated, coded and and stored by corresponding author. Data can't be shared other parties due to ethical considerations and data are kept in confidential.

- Funding
 - There is no funding for this research.
- Acknowledgements

We would like to thank research participants who participated the research.

References

- [1] Adalı, G. K. (2017). Veri Madenciliğinde Birliktelik Yöntemleri ve Müşteri İlişkileri Yönetimine İlişkin Bir Uygulama.İstanbul Üniversitesi Fen Bilimleri Enstitüsü, Doktora Tezi, İstanbul.
- [2] Akpınar, H. (2014). Data Veri Madenciliği, Veri Analizi, 2. Basım, Papatya Yayıncılık Eğitim, İstanbul.
- [3] Al, H. (2014). Eğitim Hizmetlerinin Sunumunda Yönetişim Arayışları: Charter Yöntemi. Bilgi Ekonomisi ve Yönetimi Dergisi, 9(1), 127-136.
- [4] Altınay, F., Altınay, M., Dagli, G. Altınay, Z. (2018). Being leader in global citizenship at the information technology age. *Qual Quant* 52(Suppl 1): 31. https://doi.org/10.1007/s11135-017-0585-5.
- [5] Altinay, F., Fedai, L., Altinay, Z. and Dagli, G. (2017). The Impact of Open Leadership in Being

Learning Organisations for Professional Learning. DOI: 10.5220/0006384807320735 In Proceedings of the 9th International Conference on Computer Supported Education (CSEDU 2017) - Volume 1, pages 732-735 ISBN: 978-989-758-239-4

- [6] Bäckman, E. and Trafford, B. (2006). Democratic Governance of Schools (Vol. 383). Council of Europe.
- [7] Bolat, S. (1996). Eğitim Örgütlerinde İletişim: Hacettepe Üniversitesi Eğitim Fakültesi Uygulaması. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi, (12), 75-80.
- [8] Çekmez, E., Yildiz, C., & Önder Bütüner, S. (2012). Fenomenografik Araştırma Yöntemi. Necatibey Faculty of Education Electronic Journal of Science & Mathematics Education, 6(2).
- [9] Cope, S., Leishman, F. and Starie, P. (1997). Globalization, New Public Management and The Enabling State: Futures of Police Management. International Journal of Public Sector Management, 10(6), 444-460.
- [10] Delavari, N., Beikzadeh, M. R. and Phon-Amnuaisuk, S. (2005). Application of enhanced analysis model for data mining processes in higher educational system. In Information Technology Based Higher Education and Training, 2005. ITHET 2005.6th International Conference on (pp. F4B-1). IEEE.
- [11] Fayyad, U., Piatetsky-Shapiro, G. and Smyth, P. (1996). From Data Mining to Knowledge Discovery in Databases.*Al Magazine*, 17(3), 37.
- [12] Graham, J., Plumptre, T. W. and Amos, B.(2003). Principles for Good Governance in the 21st Century. Ottawa: Institute on Governance.
- [13] Gündüz, Y. ve Balyer, A. (2013). Gelecekte Okul Müdürlerinin Gerçekleştirmeleri Gereken Roller. Anadolu Üniversitesi Sosyal Bilimler Dergisi, 13 (3), 45-54.
- [14] Gürbüzer, E., Altınay, F., Altınay, Z. et al. (2018). educational An evaluation of and administrative decision-making process in tolerance school context for job motivation. Quant 52(Suppl 1059. Qual 2): https://doi.org/10.1007/s11135-017-0557-9Karasar, N. (2008). Bilimsel Araştırma Yöntemi. Ankara: Nobel Yayın Dağıtım.
- [15] Gusakov, V., Ukrainets, A., & Smolnikov, I.
 (2017). U.S. Patent No. 9,619,464. Washington, DC: U.S. Patent and Trademark Office.
- [16] Kettl, D. F. (2000). The Transformation of Governance: Globalization, Devolution, and the Role of Government. *Public Administration Review*, 60(6), 488-497.

- [17] Luan J. (2004). Data Mining Applications in Higher Education, SPSS Inc., http://www.spss.ch/upload/1122641492_Dat a%20mining%20applications%20in%20higher %20education.pdf, Erişim Tarihi: 25.10.2018.
- [18] O'Toole, L. J. (1997). The Implications for Democracy in a Networked Bureaucratic World.*Journal of Public Administration Research and Theory*, 7(3), 443-459.
- [19] Özdilekler, M.A., Altınay, F., Altınay, Z. et al. (2018). An evaluation of class-teachers' roles in transferring values. Qual Quant 52(Suppl 2): 1043. https://doi.org/10.1007/s11135-017-0556-x
- [20] Özkan, Y. (2016). Veri Madenciliği Yöntemleri, Papatya Yayıncılık Eğitim, İstanbul.
- [21] Peters, B. G. and Pierre, J. (1998). Governance Without Government? Rethinking Public Administration. Journal of Public Administration Research and Theory, 8(2), 223-243.
- [22] Romero, C. and Ventura, S. (2007). Educational Data Mining: A Survey From 1995 to 2005. *Expert Systems With Applications*, 33(1), 135-146.
- [23] Stoker, G. (1998). Governance as Theory: Five Propositions. International Social Science Journal, 50(155), 17-28.
- [24] Tsiptsis, K. ve Chorianopoulos, A. (2009). Data Mining Techniques in CRM: Inside Customer Segmentation, Wiley Publications ISBN: 978-0-470-74397-3.
- [25] Vranic, M., Pintar, D. and Skocir, Z. (2007). The Use of Data Mining in Education Environment.In Telecommunications, 2007.ConTel 2007. 9th International Conference on (pp. 243-250). IEEE.
- [26] Yıldırım, A. Şimşek, H. (2011). *Nitel araştırma yöntemleri (6. baskı)*. Ankara: Seçkin.
- [27] Zaiane, O. (2001). Web Usage Mining for a Better Web-Based Learning Environment.Advanced Technology for Education'da sunulan bildiri (Banff, Alberta. 27-28).