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INTERACTION OF CLASSROOM TEACHERS AND DIRECTORS IN DECISION-MAKING PROCESSES ON THE TOPICS OF SCIENCE COURSES

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Abstract

This research aims to determine the level of participation of teachers in decision-making processes in the educational processes within the context of science education. Explanatory case study design was used in the research. The participants were determined by criterion sampling and stratified sampling methods. They consist of classroom teachers, school principals, assistant school principals and branch directors responsible for education and training. A total of 26 directors participated in the research. Interview forms were used as the data source. Within the scope of the research, three semi-structured interview forms were developed, and the process was carried out face-to-face. The content analysis technique was used for data analysis process. The data were analyzed inductively, and the data obtained from the participant groups were cross-examined to reveal the relationships. As a result of the research, it has been seen that the groups and other directors who are effective in the decision-making processes of classroom teachers have a mutually supportive attitude to each other. Although the physical infrastructure of the institution is kept at the forefront in the decision-making processes, it has been seen that teacher qualifications and interests are effective elements in the decision-making processes of directors.

Keywords: Education directors, science education, decision-making processes, classroom teacher

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1. Introduction

1.1. Introduction to the problem

The changes in technology and social expectations differ from the 1990s to the 2000s. Factors such as changes in production processes and population growth have led to the emergence of new business areas and the birth of innovative production processes. Countries have started to benefit from the labor force in the production processes or to transition to autonomous production processes. Among the high-level benefits provided by the labor force are expectations such as being able to make quick decisions, working in harmony with the group, and solving a problem effectively in a short time. These expectations have been reflected in the educational processes. Development in areas such as science, technology and engineering creates pressure on educational processes to be appropriated for the changes. It can be said that science education, in particular, is more affected by change compared to other disciplines in terms of the fact that it contains many disciplines such as technology, engineering, mathematics together.

Turkey keeps pace with competitive societies by conducting studies that improve the science education and training process in order to adapt to the technologically developing and enriching world in science education and training, and to educate individuals who are open to innovations and who can use science in all areas of life (Kabataş Memiş, 2021). Science education is a broad and comprehensive process that includes formal and informal learning activities. It can be said that the program development studies carried out to enrich the science education process are not fully sufficient to prevent the problems encountered in the educational process (Balbağ, Leblebicier, Karaer, Sarıkahya, & Erkan, 2016). Therefore, the problems encountered in the science education processes closely affect the education stakeholders in this process (Çavaş & Anagün, 2021). In order to support the problems experienced in science education in this regard, the results of the international comparative exams conducted in the field of mathematics and science education in recent years have revealed that the country has failed (Balbağ et al. 2016). This unveils that it is necessary to consider competence in order for the curricula to provide the qualifications in line with the competition in the international arena (Ersoy, 2013).

It is believed that the improvement of the above-mentioned international exam results will be possible with the change in educational processes. The people in the society want schools that not only transfer academic content to the students but also contribute to the development of their stakeholders in all aspects with the decisions they make and cooperate with teachers and administrators (Çınkır, 2004). Meeting these expectations requires a management approach where all stakeholders participate in the decision-making process and the decisions are implemented. In short, it is a situation related to the effective management of the decision process and the participation of teachers in the decision process (Balbağ et al. 2016).

In modern societies, involving teachers in decisions to be made for solving problems and ensuring that they have a say in issues that concern them are considered the most important aspects of management tasks and processes. Participation in the planning process is seen as a factor that reduces the likelihood of failure during the preparation and implementation of the decision. Spector stated that there is a relationship between employee participation in decisions and job satisfaction and motivation; and emphasizes

that employees who participated in the decision-making processes in the study achieved higher job satisfaction than those who did not (Karaman & Altunoğlu, 2007).

Since the teachers are at the center of the educational process at school, they have the opportunity to see problems, expectations, and failures related to education instantly and on the spot. The participation of teachers in the decisions made at school is a necessary condition due to the fact that they have the authority to take initiative in their classes as professionals (Gürkan, 2006). It is also effective in increasing the institutional connection of teachers involved in the decision-making process with the school and increasing professional satisfaction along with it (Harris, 2010). According to Özdemir and Cemaloğlu (2001), all personnel in an educational institution can participate in the decisions regarding all operations performed in that institution. Involving teachers in the decision-making process can be seen as one of the ways to ensure they get satisfaction from their work and integrate with the educational organizations they work with. The research have shown that the educational institutions with the highest success are where employees participate in positive school climate and decision-making processes (Bush, 2018). On the other side, some situations in which teachers are not involved in decision-making processes also cause a negative organizational climate (Cemaloğlu & Özdemir, 2019; Demir & Yılmaz, 2019)

Problems in decision-making processes in schools may affect students' academic achievements, teachers' effectiveness in teaching processes and teacher-parent communication, as education stakeholders. The sources of the problems are determined by the principals of the school, sometimes by chance, sometimes depending on the experience of the principals. Failure to diagnose the problem correctly leads to wrong decisions (Aslanargun & Bozkurt, 2012).

The fact that immaterial elements are more effective in education directors' decisions in schools makes it difficult for the directors to manage the process. The teachers, school principals, and even ministry directors, therefore, need to take into account the human element. The directors should consider the immaterial elements in the context of the Polyphony Rule defined by Hoy & Tarter (2004). The Polyphony Rule is related to ensuring the participation of all employees participating in educational processes.

Although the teachers seem to act in accordance with the decisions made by the centralized element such as school principals and National Education Directorates within the scope of education programs, they are the main decision-making authority for the management of processes within the classroom (Öztürk, 2011). The fact that central decisions exhibit the general framework without taking into account the individual differences and the demographic environment that envelopes the institution makes it more difficult for the teachers to carry out practices that care about student development and that are not within the program in terms of the teachers' individual efforts. For this reason, it is important that teachers are free to make decisions about education in the classroom (Çolak and Altınkurt, 2017; Sehrawat, 2014). Therefore, teachers need more space for action at the point of making decisions in teaching, applying activities that best suit the characteristics of students, and evaluating students from different angles. It may become possible for teachers to act autonomously in their professional activities both by the authority provided to them by the rules and administrators, and by developing the professional capacities and

skills that teachers need to be able to use this authority (Bustingorry, 2008; Steh & Pozarnik, 2005).

From the point of view of educational teaching processes, the classroom teachers have a distinct importance. The courses from the 1st to the 4th grade of primary school are taught by classroom teachers. This puts classroom teachers in a different position compared to other branches. Although the above-mentioned decision-making processes generally involve all teachers, it is considered that classroom teachers are important both for the variety of educational content they provide and for the group in which the educational process is conducted. However, it is considered that this research is considered to be important in terms of the fact that the emphasis placed on science education in the acquisition of 21st century skills in current education policies is of a remarkable size, and that science education is provided at primary school, which is the first step of compulsory education. It is thought that the research will contribute to the literature in terms of revealing the interaction of classroom teachers with senior management and their groups in decision-making processes.

1.2. Research questions

This research tries to determine how the mutual interaction in decision-making processes is in the context of teacher-school director-branch manager. This research only covers the decisions made within the scope of the science courses.

- Which contributions are being provided to the classroom teachers in the decision-making processes of education directors?
- What are the factors effective in the decision-making processes of teachers and directors?
- To what extent does the support of directors in decision-making processes reach?
- What are the reactions of teachers to the application of the decisions?

2. Method

2.1. Research design

This research utilized the explanatory case study pattern described by Dawey (1991). In this pattern, a case study is used to describe an event or situation. This research focuses on "The decision-making processes in science education" and this has been determined as the main condition of the research. The research design has been presented below:

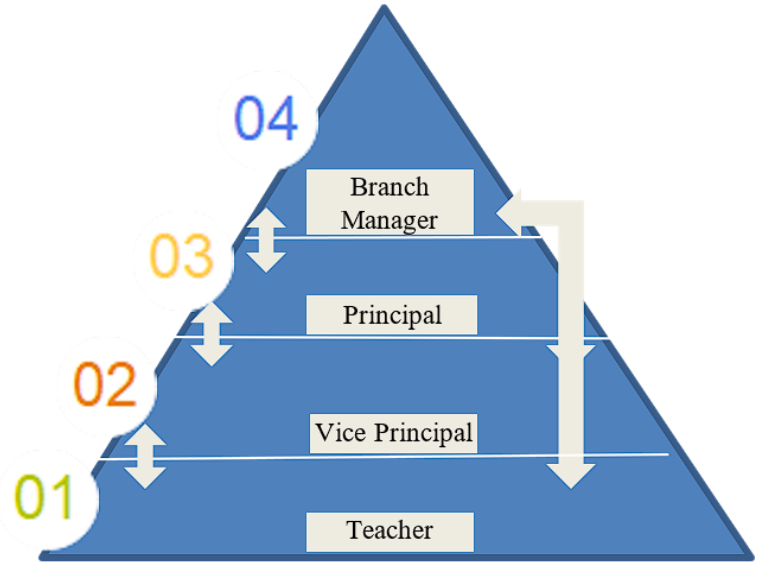

Figure 1. The Main Elements Involved in the Design of the Research are as Follow

During the design of the research, the administrative elements included in the teaching processes were evaluated in four steps. The authorized decision-makers in the educational processes consisted of the branch managers, the school principals and vice principals, and the teachers. Decision-making processes involve mutual interaction. This process involves the interaction between the upper and lower layers of the system. For example, the supporter of teacher's project is other teachers and the factors presented in Figure 1 The reflections of the decisions taken by the directors in the educational process are carried out by the teachers. There are four groups of educational employees involved in the decision-making processes that form the basis of the research.

2.2. Participants

The research utilizes the criterion sampling method, which is included in the purposeful sampling methods. Criterion sampling is a sampling method in which all the situations that meet a set of predetermined criteria are studied (Glesne, 2016; Merriam, 2002). The criteria may be prepared by the researcher, or a previously created list of criteria may be used (Hennink, Hutter & Bailey, 2020; Toloie-Eshlaghy, Chitsaz, Karimian & Charkhchi, 2011). Stratified sampling, on the other hand, is a sampling method that divides a population into smaller strata according to common characteristics; thus, achieving adequate representation for each layer in the entire sample population of the study (Elmusharaf, 2012; Merriam, 2002). Since the research focuses on "the interaction in decision-making processes for teachers", groups that are effective in teacher's decision-making or decision-making situations have been identified. The educational employees involved in the decision-making processes that form the basis of the research consist of four groups. The basic characteristics of the research participants are presented below.

Table 1. Demographic distribution of the research participants

	Gender		Tenure			Total
	Female	Male	15-20	0-5	5-10	
Teacher	7	8	15	-	-	15
Vice Principal	-	2	-	2	-	2
Principal	2	2	-	1	3	4
Branch manager	-	5	-	5	-	5

There are four groups of educational employees involved in the decision-making processes that form the basis of the research. The inclusion and exclusion criteria for the participants are presented in the table below.

Table 2. The inclusion and exclusion criteria for the participants

Group	Inclusion	Exclusion
Teacher	Working as a classroom teacher	Having been from another branch other than classroom teaching
	Working as a fourth-grade teacher in primary school	Having been a classroom teacher for less than 10 years
	Having been a classroom teacher for at least 10 years	Working as a teacher in primary school for the first, second and third grades
Vice Principal	Working as a vice principal in a private school	Working as a vice principal in an institution other than primary school
Principal	Working as a principal in a private school	Working as a principal in an institution other than primary school
Branch manager	Being responsible for education unit	Working in any non-educational unit

26 participants were included in the study, of which seven were female and eight were male. The tenure of all teachers varies between 15-20 years. All of the vice principals (f: 2) and branch managers (f: 5) who participated in the research were male. Two of the directors were female and two were male. The Principals and Vice Principals were subject to rotation once every four years and continued in a different institution after every four years.

The data collection process followed ethical guidelines such as obtaining informed consent from participants and ensuring that only voluntary participants were included in the study. Prior to starting the research, permission was obtained from the ethics committee of a specific university on a date (02.03.2023), with a corresponding number (2023/02/04). The data collection took place in the spring term of 2023.

2.3. Data Collection Tool

Multiple data sources are important in case studies (Yin, 2014). It is important in this study to determine the units that actively participate in the processes carried out in order to determine the decision-making processes (Flyvbjerg, 2011; Roulston & Choi, 2018; Yin,

2014). Therefore, three separate interview forms have been prepared for educational teaching units of this case study. A common question was asked to the participants other than the teachers. One of the prepared forms was for the teachers, the other for the principals and the vice principals, and the other for the branch managers. The classroom teachers' interview form was prepared first in terms of the impact of the decision-making processes. Intra-school teacher and director interaction was considered at the beginning of the research; however, it was decided during the interviews to add the branch managers.

The form development process is similar in all three forms. Initially, the literature review was conducted. Unstructured interviews were then conducted with two teachers in line with the information obtained. Draft interview forms have been prepared within the scope of the findings obtained from the interview and literature review. The draft forms were firstly presented to three experts in terms of language and scope validity. Afterwards, the revised forms were applied to two teachers and the vice principals, and their opinions were obtained simultaneously. In line with their opinions, the semantic integrity and comprehensibility of the questions were checked. A similar process has been carried out for the branch managers' form. During the development process, it was decided to include a common question for all directors.

During the data collection process, face-to-face interviews were conducted with the participants in all units. After the interviews have been transcribed, they have been submitted to the participants' approval. It is aimed to check the consistency between the notes taken during the interviews and the participants' opinions.

2.4. Validity and Reliability

The research question and the purpose of the research were clearly defined. It has been defined in line with the research method in accordance with the research purpose. Two researchers had bachelor's degrees in classroom teaching and worked as classroom teachers. Two researchers are PhD graduates. The research participants were determined on a voluntary basis. All the elements involved in the decision-making processes have been tried to be included in the research. In order to ensure the validity of the research structure, three interview forms have been prepared separately for the teachers-principals and the vice principals-branch managers. A final alternative question has been prepared in these forms for each question in order to facilitate focusing on the research objective (McGehee, 2012). The interviews were conducted at the place and time determined by the participants. The transcribed interviews were submitted for the approval of the relevant participant. The basic criteria were defined in detail when determining the participants. The researchers were attentive to ensure that the participants were descriptive of the current situation. Data analysis was performed simultaneously and independently by the researchers based on the participant group characteristics, and then the encoder compatibility was examined. Mutual persuasion has been used in the differentiation between encoders. The data obtained are supported by visuals and participant opinions are included.

2.5. Data Analysis

A unifying and interpretive view was used during the data analysis process. The data obtained from the opinions of each unit that is the source of data in the decision-making

processes have been interpreted, and attempts have been tried to be brought together. This design was carried out with the content analysis technique. The procedures were in accordance with the content analysis procedure put forward by Miles and Huberman (1994). In this three-stage process, data transcription was performed first, and a preliminary reading of the data was performed. Afterwards, the first independent encodings were implemented by the researchers and then co-encodings were made. Finally, the themes were determined in the context of the findings. The literature review was carried out during the theme creation process, and it was associated with the theoretical framework. The opinions obtained during the data collection process were organized and visualized with the qualitative data editing program MAXQDA. Each participant was given a code name while expressing their opinions. For example, the codes "T3", "P3", "VP3", and "BM3" were for every third teacher, principal, vice principal, and branch manager, respectively. Additionally, arrows were included on the main theme in the obtained codes. The thickness of the arrows reflects the frequency of the codes. Finally, the codes were visualized using the color green for positive and red for negative judgments.

3. Results

This research tried to determine the interaction levels of classroom teachers and other education directors within the scope of the science courses. The opinions of education stakeholders in three different areas were evaluated. The opinions of classroom teachers were considered at the beginning during the presentation of the findings, and then the opinions of other education administrators were included. The research findings were evaluated within the scope of research questions. An inductive method was carried out for analyzing the findings. The research findings were evaluated according to the flow chart below. The process was evaluated under two separate headings as teachers and other directors.

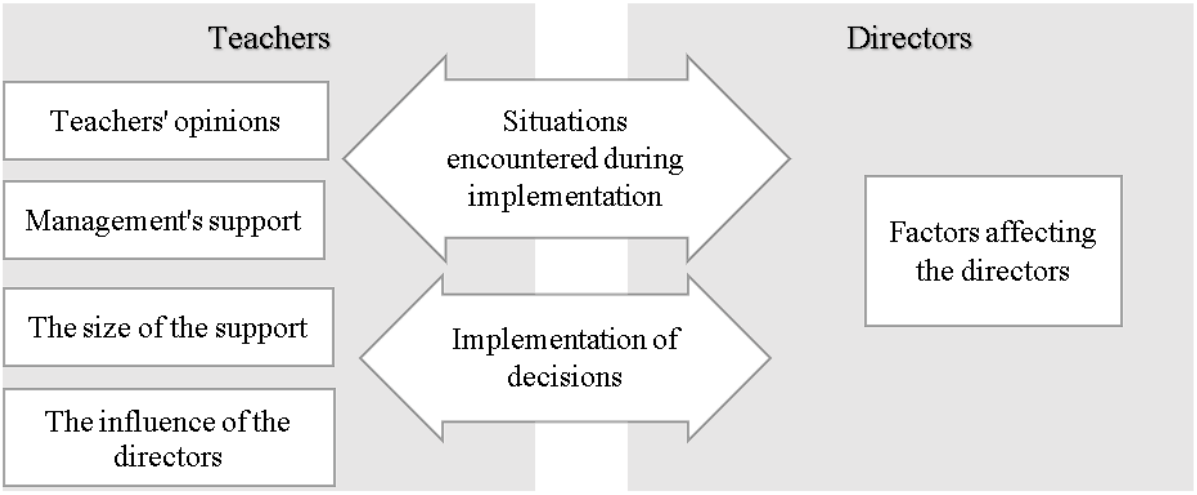

Figure 2. The themes for the decision-making processes

As seen in Figure 2, the teachers' opinions were evaluated within the scope of two common themes specific to four groups, while the directors' opinions were evaluated within the scope of two common themes specific to one group. This process was carried out in order to determine the interaction of stakeholders with each other and to cross the views on mutual processes.

3.1. Teachers' Opinions on the Decision-making Processes for Science Education.

14 of the classroom teachers acted independently in decision-making processes, while one teacher stated that decisions were made with the management. The current situation shows that teachers acted autonomously in decision-making processes. The teachers' views on this situation are listed below.

T11: *I make the decisions I want for the science courses. We make joint decisions about the institution directors.*

T9: *I am independent in my classroom, and I make the decisions I want in order to organize a more effective education for children, provided that I comply with the curriculum.*

T7: *Science subjects are based on practice compared to other courses. I apply different experimental activities, especially when explaining abstract concepts. We are very compatible with my groups. We act together when they share their ideas.*

Taking into account the statements above, it has been observed that almost all teachers acted independently in decision-making processes, while one teacher also includes other elements in the decision-making processes.

3.2. Support of the Directors in Decision-making Processes

Classroom teachers are asked about the decision-making processes in science-related subjects. "How is the management's support for you in the decision-making processes? Rate this support between 1 and 5." A majority of the teachers (f:14) said that they make the decisions they want, while only one teacher said they made decisions with the management.

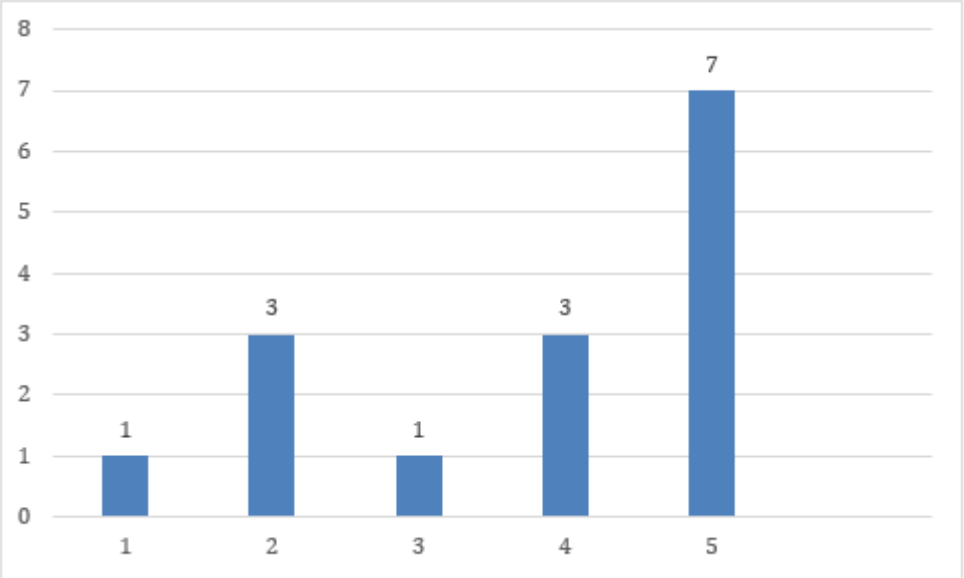

Figure 3. Support of management in decision-making processes

Figure 3 above shows the extent to which teachers are supported. Five teachers stated that the support was below average. Seven teachers were fully supported by the management.

3.3. The Contribution of the Directors for the Teachers in the Decision-making Processes

The answers to the question of how the management supports the decision-making processes are listed below. Five codes have been obtained within this scope.

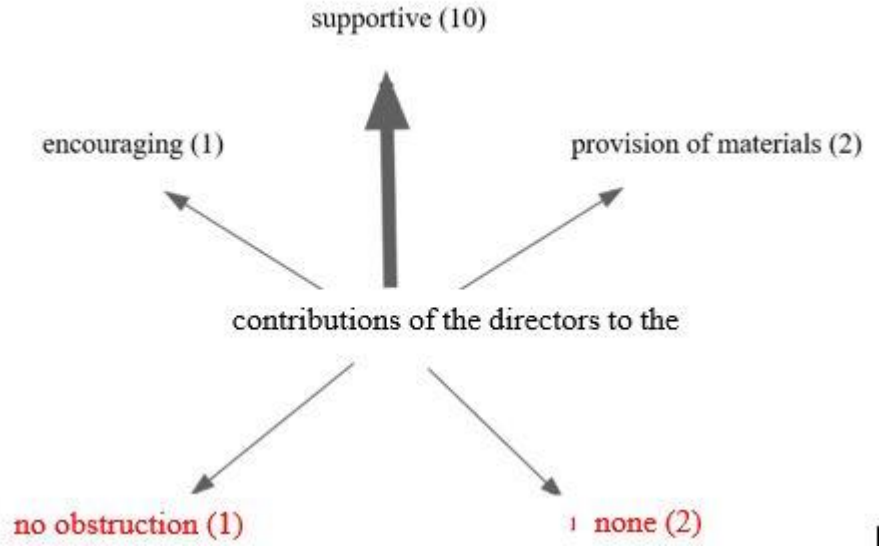

Figure 4. The extent of support by the management for the decisions

Figure 4. It has been observed that 10 teachers expressed an opinion that the management showed a supportive attitude. On the other hand, two teachers expressed that the management did not provide support, while one teacher expressed that "There is no obstacle", in other words, the only expectation they had was that the management does not hinder their decisions. Some teacher opinions are given below.

T14: My only wish is that they do not interfere with me when I carry out my activities. I do not want anything else anyway. I prepare and bring the necessary materials in advance.

T4: Thanks to them, they are open to everything that is ready. The management is open to everything that is innovative and applicable within the scope of the curriculum.

T1: The supporters of the decisions we make also encourage us in this regard. Any project, any social event, whenever we present an idea, they are always supportive.

When the above statements are examined, T14 emphasized that they are alone in the process. They stated that their only expectation from the management is not being prevented. In the statements of T1 and T4, it has been observed that the management was supportive of the teachers and followed a supportive attitude towards the decisions taken by the teachers. When teacher statements are taken into consideration, it has generally been seen that the institution directors showed a positive attitude.

3.4. The Impact of Decisions Made by Directors on Teachers.

As part of the research, the teachers were asked "How do the decisions made by the institution director affect you?" The findings obtained are presented in Figure 5.

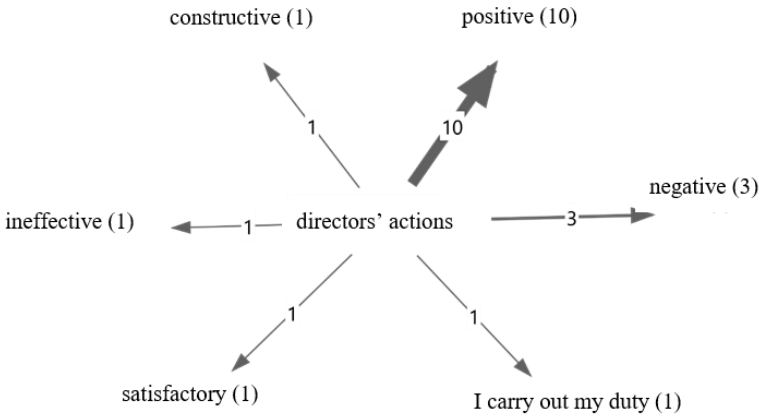

Figure 5. Actions of institutions directors

Figure 5 above presents the effects of decisions made by directors on the teachers. A majority of the teachers (f: 10) stated that the decisions made by the management had a significant impact. However, three teachers expressed that the decisions were negative, while one teacher stated that they were ineffective. Some opinions of the teachers are given below.

T1: It does not affect me much. I carry out my task and my plans.

T2: It has a positive effect. The decisions are in the best interest of the students.

T10: The decisions are always satisfactory. They offer what is useful for us.

It has been observed in the above opinions that T1 avoided working in partnership with the management and is only fulfilling their current duties. T2 and T10, on the other hand, emphasized that the decisions were in the best interest of the student; therefore, it seems that the decisions were perceived by teachers as satisfactory.

3.5. Factors Affecting the Decision-making Processes of The Directors.

Within the scope of the research, the branch managers, principals, and vice principals were asked "What are the factors that are effective in your directors' decision-making processes?" The findings obtained in this context were included in Figure 6 below.

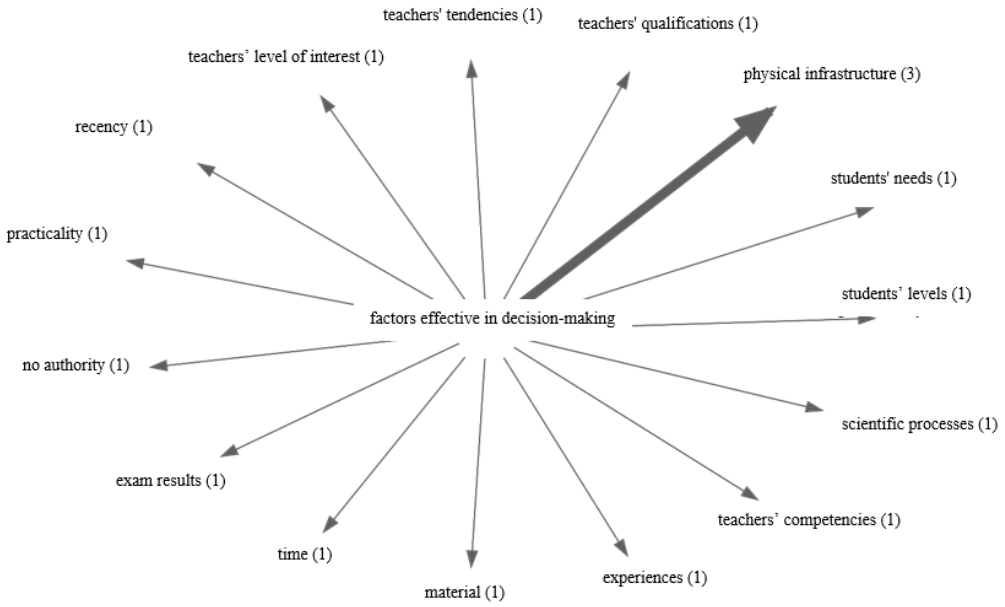

Figure 6. Factors that influence directors' decision-making processes

It has been observed that the predominant element in the decision-making processes of managers is the physical infrastructure of schools (f:3). Two codes have been found related to student qualifications and four codes related to teacher qualifications. Some of the views obtained from the directors are listed below.

BM5: When we come up with a project or application proposal, we first look at the suitability of the physical infrastructure of the school. Of course, the applicability of teaching, in other words its competence, is important for us. Not all teachers have the same competence. Some of them are willing and self-developed in this regard. Some of them are concerned with protecting what already exists.

BM2: I consider the exam scores when choosing a school or teacher in an application. The higher the scores are, the more willing the teacher will be. This is my interpretation.

P3: I think my experiences are effective. All we work with are teachers. I can predict how each will do.

BM4: The interest and education of teachers are determining factors. The ministry prepares decisions in line with the interviews with the principals and the previously known areas of interest of the teachers.

Although branch managers primarily emphasize the physical infrastructure in their decision-making processes, it has been observed that the proclivities focus on teacher qualifications and competencies. Similarly, P3 emphasizes their personal experience in their statement. This is about teacher competencies.

3.6. Levels of Participation in Mutual Decisions

In this section, the researchers asked about the participation levels of the branch managers, other directors and teachers in the decision-making processes. This is a common section for all units. The findings obtained are presented in Figure 6 below.

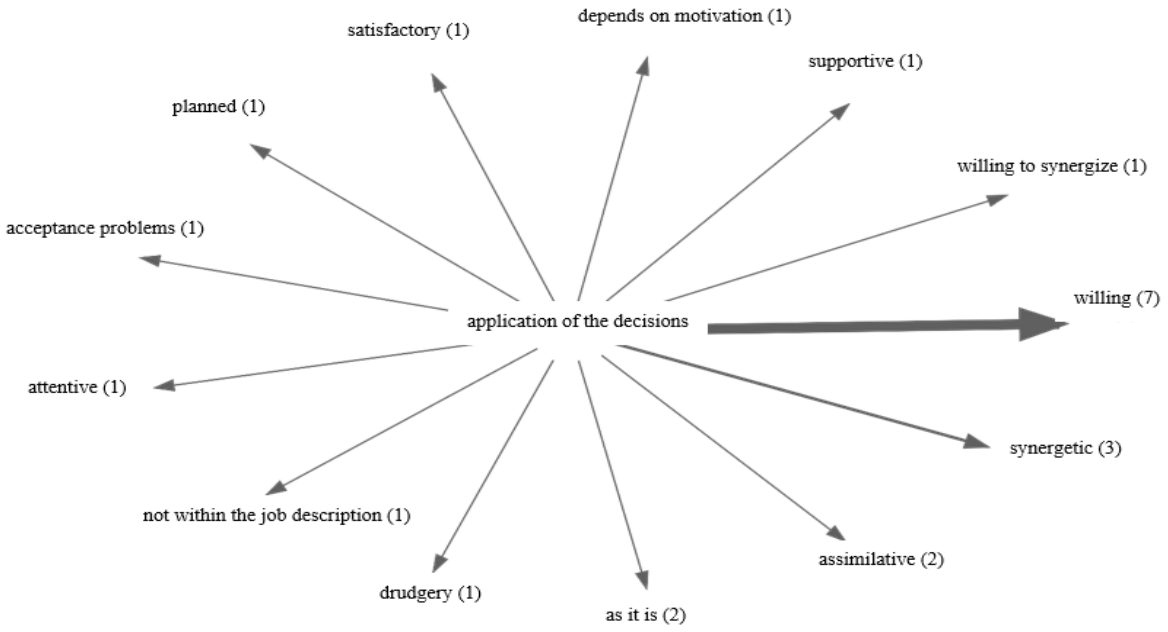

Figure 7. Levels of participation in mutual decisions

It has been observed that the directors are willing in teachers' decision-making processes (f: 7), that they cooperate with the management (f: 3), and that they have an assimilative structure. On the other hand, it has been seen that some teachers are reluctant, experience acceptance problems and consider it as a chore because it is not within the job description. Some opinions of the directors are given below.

P1: Teachers apply the decisions by blending them with their own information, in other words, by interpreting them. Of course, the situation of the students and the conditions of the school are very important in this regard.

T1: The decisions are seen as drudgery and perceived as if they are not within the job description.

T7: We consult the management and the teachers while a decision regarding the school is on the table. We then pay attention to the implementation of the decision.

VP1: Teachers determine their own methods. They apply the decision accordingly. Of course, there are those who apply it as it is, however, those who take into account the classroom conditions and the competencies follow the former path.

It has been seen in the answers of T1 that some of their colleagues consider the processes as drudgery and are reluctant to participate in the processes. VP1, on the other hand, emphasizes that teachers choose to participate in the processes or not by considering the institution's competencies and the individual competencies.

3.7. Situations Encountered During Decision-making.

This is another common question in the research. In this context, teachers and directors were asked "What are the positive and negative aspects that you encounter in the decision-making processes?" The findings are presented in Figure 7.

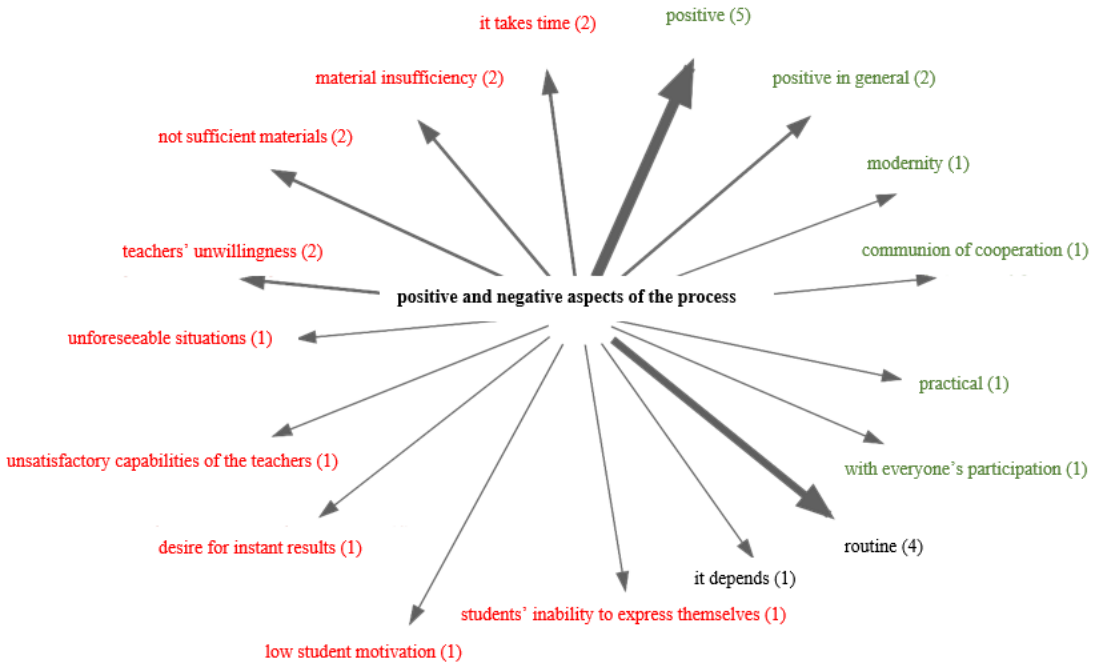

Figure 8. Positive and negative aspects in the decision-making processes

It has been observed in Figure 8 that the positive expressions occurred with the frequency level of 11, while that of negative expressions was 13 and neutral expressions was 5. It has been seen that the negativities converge on issues such as teachers and physical infrastructure. Some opinions of the participants are given below.

P2: Sometimes we encounter unpredictable situations. These are challenging. Otherwise, the processes are carried out very positively.

BM2: Of course, there are both positive and negative sides. The negative situation is the expectation of getting a quick result. Education is a process, and it takes time to create a product. Sometimes teachers and other directors are impatient about this. The positive

result is the development of a sense of being able to work together. It is quite positive when the mutual interaction and the resulting product are as desired.

T3: There are material deficiencies in schools. Every school should have a laboratory.

The views of BM2 among the findings are remarkable. It has been seen that the expectation of getting quick results has negative effects, and this negatively affects the ability to work together. On the other hand, it has been observed that the teachers consider material insufficiency as the primary factor for negativity.

4. Conclusion and Discussion

This research tried to determine the elements that are effective in decision-making processes for subjects related to science courses in accordance with the opinions of teachers, school principals, vice principals, and branch managers. The discussion section does not include the literature review due to the qualitative structure of the research and the fact that the research does not pursue generalization but tries to evaluate the current situation within the current system. The comparison of the findings is important in terms of the integrity of the research.

It has observed in the findings that a majority of the teachers make independent decisions. The findings are similar to the studies conducted by Balboğan & Yılmaz, (2012) and Köylü & Gündüz, (2019). It has been discovered that school directors usually support the decisions made by teachers during the teachers' decision-making processes. On the contrary, it has been observed that the quality of the support provided by the management in terms of support varies.

It has been seen further that the directors and teachers do not properly coordinate. The different expectations of the teachers and the directors, in other words, their lack of finding a middle ground, is thought to be the cause of this problem. This view is supported by the findings obtained under the support heading. While 10 teachers emphasized that the management was supportive in nature, the fact that only one teacher emphasized that the management is encouraging indicates that there is no high-level relationship between the stakeholders. Additionally, only one of the findings regarding the impact of directors' decisions was considered "constructive", in other words, contributive. The remaining 10 teachers explained the situation as only positive.

It has been seen that the factors that are effective in the decision-making of the institution managers rally around students, teachers and physical infrastructure. Although Sezer (2016) and Üzür & Kurt (2019) emphasized that laws and regulations are at the forefront as a determining factor in terms of the support, the situation differs in this research conducted in the field of science courses. It is believed that the source of this difference is related to the fact that course-oriented decisions will not be contrary to regulations and legislations, and that project-based practices are more included in the science courses. Especially from the point of view of teachers, it has been seen that the qualifications and interest of teachers are an important point in this regard.

In terms of the implementation of the decisions, it has been observed that teachers usually implement the decisions. This is similar to the teacher participation dimension of the

research conducted by Carr-Hill, Rolleston, Schendel, & Waddington, (2018). In this research, it has been discovered that although teachers are willing to participate in decision-making processes, their willingness status is heterogeneous. In other words, their willingness level varies. Finally, it has been seen that some teachers have acceptance problems and consider some situations drudgery.

It has been observed in the findings of this research in general that the education directors comply with the decisions in education processes, especially in terms of science courses. Furthermore, it has been discovered that the teachers acted independently and considered the management an approving authority while taking decisions. In terms of the decision-making processes of the senior management, it has been observed that teachers' individual qualifications and the physical structures were dominant factors.

Declaration of Conflicting Interests and Ethics

There is no conflict of interest between the authors

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