Investigation of the Relationship Between Argumentation Level and Decision Making Skills of Secondary School Students[*]

Ortaokul Öğrencilerinin Argümantasyon Düzeyleri ile Karar Verme Becerileri Arasındaki İlişkinin İncelenmesi

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Abstract

The aim of this study is to determine the relationship between the argument levels and decision making skills of the students during the argumentation based social studies courses. The study was carried out with the action research, which is one of the qualitative research methods. The study group of the research consisted of 33 7th grade students. As data collection tools, five different activities were designed by the researcher. The data analysis was carried out at two phases. Firstly, the student's argument levels were determined by The Argumentation Evaluation Scale and students' decision-making skills were determined by "Decision-Making Skill Evaluation Rubric". Then the correlation between the two rubric scores was examined for each student. According to the result, positive and high-level (0.80) relationships were determined between students' argument levels and their decision making skills.

Keywords: Argumentation, argument level, decision making skills, social studies, action research

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Öz

Bu çalışmanın amacı, argümantasyon temelli yürütülen sosyal bilgiler dersinde öğrencilerin argüman düzeyleri ile karar verme becerileri arasındaki ilişkiyi belirlemektir. Çalışma nitel araştırma yöntemlerinden eylem araştırması ile yürütülmüştür. Araştırmanın çalışma grubunu 33 yedinci sınıf öğrencisi oluşturmaktadır. Veri toplama aracı olarak araştırmacı tarafından beş farklı etkinlik tasarlanmıştır. Araştırmada verilerin analizi iki aşamada gerçekleşmiştir. İlk olarak "Argümantasyon Değerlendirme Ölçeği" ile öğrencilerin argüman düzeyleri ve "Karar Verme Becerisi Değerlendirme Rubriği" ile öğrencilerin karar verme becerileri değerlendirilmiştir. Daha sonra her bir öğrencinin iki rubrikten aldıkları puanlar arasındaki korelasyon incelenmiştir. Sonuçlara göre öğrencilerin argüman düzeyleri ve karar verme becerileri arasında pozitif ve yüksek düzey (0.80) ilişki olduğu belirlenmiştir.

Anahtar sözcükler: Argümantasyon, argüman düzeyi, karar verme becerisi, sosyal bilgiler, eylem araştırması

Introduction

Decision making is the process of choosing among many choices which is the most appropriate to our thoughts or actions (Khishfe, 2012). Engle (2003) who expressed that decision making was the heart of social studies teaching stated that the most basic function of social studies was to give education in order to rise good citizens. She has also stated that the most basic indicator of a good citizen was to make good / quality decisions in social issues.

Also she stated that decision making required more than the knowledge of facts and rules; it required the balance between the arms of a two-armed scale and the synthesis of the knowledge and values owned by a person. She stated that the individual has beliefs and attitudes coming from past and that the individual has chance to test his/her beliefs and attitudes against truths and values during decision making. She argued that decision making skills was a structure that had to be organized by the teaching of social studies.

The skills of 21st Century were identified by The Pacific Policy Research Center (2010) and six standards that should be included in these skills were mentioned. Creativity and innovation, communication and collaboration, research and information literacy, critical thinking, technology operations, problem solving and decision making are among these standards. From this point, decision making is a prerequisite for gaining other skills as well as being a skill on its own.

In order to be able to make healthy and correct decisions, it is first necessary to determine the purpose of the decision to be made (Adair, 2000). Additionally in order to make correct and effective decision, right timing should be made and the process should be implement effectively (Kneeland, 2001). Detailed information about the subject to be decided should be collected and collected information should be interpreted well. Sometimes, a decision which seems to be very popular may not be the right decision in terms of the results. For example, in a group of seven people, a decision taken by a vote of five may be a popular decision to make the majority of a group happy, but this decision may not be right and it shouldnt be necessarly make those two people happy who do not approve the decision in the group. In this regard, besides the popularity this taken decision should be also accurate and right (Steele, Regan, Colyvan and Burgman, 2007).

It is very important to make an accurate decision during the decision making process. Because the mistakes made at the end of the decision can make process costly and can lead to insoluble results (Milkman, Chugh and Bazerman 2009). In order to make a proper decisions, the decision making process should be managed correctly (Butt, 2010). In order to be able to manage the decision-making process properly, the individual has to know effective decision-making methods. A free society is structured in this way and reaches the decisions through arguing. Individuals may try different methods during the decision making process. Brainstorming, group discussion or argumentation are some of these methods. Generally individuals employ discussion methods while making an important decision. In order to make right decision, individuals should know the ways of scientific discussion (Aymen Peker, Apaydın and Taş, 2012).

Argumentation, which is one of the most appropriate methods to the nature of the scientific debate, is among the efficient methods to be used during the decision making process.

The past researches revealed that the argumentation method was effective during the decision-making process (Siegel, 1999; Cho, 2001; Nussbaum, 2008; Tonus, 2012; Gutierez, 2015). The individual must also have some other metacognitive skills for the decision-making process. For example, critical thinking is one of the most important skills among them. It is expected that the individual has the ability of critical thinking skills to be able to make well-justified decisions that are appropriate for ethical rules and to have the argumentation skill. Critical thinking skills enable the individual to see the steps of the argumentation process separately but within a specific integrity (Chowning, Griswold, Kovarik and Collins, 2012; Freeley and Steinberg, 2013). The research findings revealed that the method of argumentation developed the students' critical thinking skills (Sevgi and Şahin, 2017). Therefore, the critical thinking skill described as a kind of precondition among the skills that individuals must possess for the development of decision-making skills is developing in argumantation process.

The individual is cognitively active during the process of argumentation which is a structured discussion method. A well-justified argument in this process may be the most important element of the decision-making process (Stab and Gurevych, 2017). Individual can make the best possible decision during a well-planned argumentation process (Cho, 2001). One of the most basic functions of the argumentation process is to allow the students to participate in a cognitive activity in a continuous way. Especially the students' decision making in the paradoxical situation is very important. However, Çalışkan (2015) determined that teachers failed to create a classroom environment with conceptual contradictions. This may be due to the fact that teachers feel insufficient or unable to have sufficient knowledge about the topic to improve their students' cognitive skills, such as decision making. Meyer (2018) aimed to determine teachers' thoughts on the student's decisions in engineering design courses and she made a preliminary interview with the teachers for this purpose. As a result of the preliminary interview, the teachers were found to be inadequate to lead students in decision-making activities. In another study, it was stated that the teachers didn't spare enough time for argumentation method in their lessons because of their inadequate knowledge on this method (Özcan, Haktamış and Hiğde, 2018). Teachers can create these environments more easily by using the argumentation method. Siegel (1999) stated that the ability of teachers to conduct lessons with different methods would contribute positively to the acquisition and development of this skill. Furthermore, the teaching of the decision making skills and its improvement through real life experiences is part of the life in modern societies (Kaya, 2005).

However, all people may not follow a scientific or logical path when deciding. Some decisions of people may depend on religion, belief, moral values, or emotional reactions. These decisions may not be important if they bind only the individual. But, decisions based on emotional reactions, beliefs and value judgments related to important scientific developments can sometimes hinder the progress of science or the individual's ability to gain a scientific perspective. Halverson, Siegel and Freyermuth (2009) tried to determine the decisions of the teacher candidates related to stem cell researches conducted with 132 college students. For this purpose, questions about stem cell research have been prepared in written form so that students can decide within the biotechnology course and the data was collected from the students. The obtained results revealed that students made non-scientific decisions which were based on value judgment. Halverson et al. stated that this might be resulted due to the lack of teaching methods

which could be used by the students to produce scientific arguments in the lessons and to use scientific evidences in their decisions.

Evidence-based worksheets have been prepared in a study conducted to guide the development of students' decision making skills in socio scientific issues. The result of the study, where the experimental and control groups were involved, it was determined that the students who applied the worksheets improved their decision making skills. (Hsu and Lin, 2017). Evidence /data is one of the most important components of the argumentation process. From this point, the process of argumentation is crucial for students to be involved in social issues as well as to acquire the skills necessary for them to take part in the decision-making process. In addition, argumentation method can be used for students' decision making or forming opinions not only in scientific matters but also in historical matters. The decision making about a historical subject using documents containing subjective judgments such as memorandums, letters or diaries can sometimes lead to misunderstanding or misinterpretation of history (Doğan, 2016). From this point of view, the argumentation method can be used to make students decide more objectively in different discipline.

Due to the above mentioned importance, decision-making skills have been found in teaching programs of today's society. For the purpose of teaching and improving of this skill, the content, standards and activities have been developed. This skill was also included in curriculum in Turkey. Especially the social studies program which aims to raise efficient citizen has content and standards required for teaching this skill. The social studies curriculum was last updated in 2018 and in this program, there are 27 skills required to be given to the students. Decision- making skills is among these skills and is aimed to be acquired along with the social studies classes also within the other classes (National Ministry of Education, 2018).

The social studies allow the individuals to take a part of decision making mechanism as a part of the democratic society and also provide the environment to make right decisions on behalf of society (Basye, 2012). Savage and Armstrong (2000) stated that the primary aim of the social studies was to help youths living in a democratic society to develop decision making skills based on information and logic. Engle (2003) stated that students should not make the best decision but they should be guided to make decisions during a justified and grounded decision making process by thinking critically.

When we evaluate all this information it can be stated that the decision making skills is very important in terms of the social studies. In teaching this skill, it is necessary to use methods in which students can make scientific discussions, evaluate alternatives, and recognize the positive and negative direction of the decision. It was determined that the argumentation, which is used as a teaching method in education and is a structured discussion method, is efficient in the teaching of decision making skills. When analyzing researches related to the acquirement and development of the decision making skills in the field of social studies, it was specified that the argumentation method has not been used yet in Turkey. In this sense, it is considered that this research will contribute both in terms of creating the literature of decision-making as well as in terms of the findings obtained as the result of this application.

Method

Research model

This research which aimed to determine the relationship between the students' argument levels and decision making skills attending argumentation based social studies course was carried out by the action research which is a type of the qualitative research. The process observed in the studies, which were carried out through action research, was described in different ways by the researchers. In this study, the action plan of the research was prepared by the researcher and the experts in this field in line with the literature findings related to the planning of the process. The research process consisted of 4 main phases including planning, action, observation and evaluation and each of these phases were detailed. This process is as follows:

1-Planning: Revealing the research problem, determination of research questions, literature review/determining the situation, planning of action research (determination of the teaching method to be used, implementation period, monitoring of the action research)

2-Action: Implementation of the first, second, third, fourth and fifth activity.

3-Observation: Monitoring of the application (camera records, evaluation of weekly practices, student documents), if necessary making changes in the plan,

4-Evaluation: Data analysis (together with field experts), interpretation of findings, reporting

Participants

A total of 33 seventh-grade students including 15 male and 18 female continuing their education in the central district of Adıyaman province in the academic year 2013-2014 constituted the study group in this research. These students were selected by criterion sampling of purposeful sampling methods. While selecting the study group of this research, four criteria were used such as curriculum, school administration, accessibility to school and required characteristics of students with whom the study would be carried out. These criteria are shown in Table 1.

Table 1. Criteria Related to Determination of the Working Group

Criteria	
Curriculum	Curriculum should have the subjects, concepts and skills appropriate to the improvement of the argumentation and decision making skills which are required for the application of the research.
School Administration	The school administration where the application will be conducted should have positive attitude, provide support for the researcher and have willingness on this matter, Allowing camera records in lessons which will be used during the application process,
Accessibility to School	The school where the application will be applied should be located in the center of the province in terms of the accessibility.
Students	The students should attend 7th grade during the academic year of 2013-2014, The level of their argumentation production and decision –making should be weak, They should not have participated in similar application intending to improve the argumentation and decision-making skills.

discussions. In this activity, unlike the previous activity, not all the components of the argumentation were given directly and it was intended for the students to discover them through questions.

The Activity of the Third Week

The activity titled "*Who's right? Ayşe or her family*?" was developed for the third week implementation. This activity was designed to teach the subject called Providing Employment Today in the "Economic and Social Life" unit of the seventh grade social studies course. This activity was based on a story taken from the book "Yurttaş Olmak İçin (to become a citizen)" (Gürkaynak, Gözütok, Akipek, Bağlı, Erhürman ve Uluç, 1998). The theme of the story was a problem between a girl who can not choose the profession she desires because of the pressure from her family. In the study, the story was given as incomplete. In the activity, students were asked to complete the story in accordance with the argumentation process and to make a decision on the choice of profession at the end of the story.

The Activity of the Fourth Week

The activity titled "*Destruction of fish population in a fish farm*" was developed for the fourth week implementation. This activity was designed for the teaching of the subject The emergence of the industry and the accompanying phenomena in the same unit. The activity was based on a true story. The students were assigned as prosecutors, lawyers and judges in this study which was prepared about the negative effects of industrial wastes on nature. Students were asked to make a decision in accordance with their duties related to industrial companies by starting from the true story in the activity.

The Activity of the Fifth Week

The activity titled "*Let's establish a foundation*" was developed for the fifth and last week implementation. This activity was designed for the teaching of the subject called Foundations. This activity included information about the establishing and functioning of a foundation. For this purpose, a foundation memorandum was prepared and students were asked to form groups and make arguments in accordance with the argumentation process and finally to decide on the establishment of a foundation.

Implementation Process

The implementation process of the research was conducted in a secondary school located in the central district of Adiyaman province in the 2013-2014 school year. The necessary preparations were made firstly in order to carry out the implementation process smoothly. In this context, before the implementation period of the research was started, necessary permissions were obtained, interviews were made with principal and teachers in the school in which the implementation was planned. Data collection tool was developed and required tools (camera, tripod, projection device etc.) were provided during the implementation process. A pilot study was applied to the implementation class before the actual implementation process was started. After these preparatory phases, the implementation process started and lasted for a total of eight weeks. In the implementation process, the course was conducted by the researcher by using the data collection tools mentioned above. After appropriate presentation of the subject content each week, the prepared worksheets were distributed to the students and small and large group

discussions on these activities were performed. After the discussions, each student was asked to fill out these activity sheets individually. The entire process was recorded by the camera. After the weekly practice, the records were examined by the researcher and necessary measures were taken for the following week by identifying the problems experienced.

Data Analysis

Data analysis was carried out in two steps. Primarily the argument levels formed by students were determined depending on the situation of problem. For this, the arguments which were written by the students on the worksheets were transferred to computer environment and each worksheet was evaluated by three different experts. In order to analyze the argument levels formed by students through the activities prepared for the research, an Argument Evaluation Scale, which was developed by Erduran, Simon and Osborne (2004) in their studies as a version of Toulmin Argumentation Model (TAM), was used. This evaluation scale is the developed form of the model used to determine the quality of argumentation in the Toulmin Argumentation Model. The Toulmin's argumentation model consists of a total of six items including three basic items of "claim, data and reasoning" and three auxiliary items of "modifier, supportive and corrosive" (Toulmin, 2003). However, this model has some limitations while assessing the quality of argumentation in terms of determining the level of the items. It is an example for the difficulty of determining how rebuttals in arguments, which are intended to compare, would effect the arguments. To eliminate the problems experienced, Erduran et al. redesigned the argument assessment criteria in the Toulmin Argument Model in the form of an analytical scale.

In this assessment model, student arguments were classified as Level 1, Level 2, Level 3, Level 4 and Level 5 according to the argument components they contain. This analytical scale developed by Erduran et al. is shown in a more detailed way in Table 2 according to the argument components and levels they contain.

Table 2. Argumentation Assessment Scale

Argumentation Level	Argumentation Content/Component
Level 1	Argument consists of simple claim or a simple claim with counter-claim.
Level 2	Argument can consist of a simple claim with another claim, data, reason or warrant but doesn't contain any rebuttal.
Level 3	There are data, reason and warrant and weak rebuttal with the claim and counter-claim.
Level 4	There should be a clear rebuttal with the claim series, data, reason and warrant.
Level 5	At this level, there should be more than one clear rebuttal in addition to all components found in other levels.

(Erduran, Simon and Osborne, 2004)

Each level in this scale was categorized by the researcher by elaborating in itself, and each category was converted to a standard argumentation assessment rubric by scoring as 1, 2 and 3. In this process, support was received from an evaluation and assessment specialist and three field experts. Thus, a more accurate assessment tool was developed to determine the quality of arguments formed by students. Argumentation assessment rubric developed by the researcher is shown in Table 3.

Table 3. Converted Form of Argumentation Assessment Scale Developed by Erduran et al. into Argumentation Assessment Rubric by the Researcher

Argumentation Level	Score	Argumentation Content (Criterion)
Level 1	1	No clear claim (Indirect claim)
	2	A simple claim
	3	A simple claim and counter-claim
Level 2	1	Claim + data
	2	Claim + data + warrant
	3	Claim + data + warrant+backing
Level 3	1	Claim + (data) + rebuttal (Weak, unclear)
	2	Claim + data +warrant + rebuttal (Weak, unclear)
	3	Claim + data + warrant+backing+ rebuttal (Weak, unclear)
Level 4	1	Claim + data + rebuttal (Clear, explicit, strong, one)
	2	Claim + data + warrant + rebuttal (Clear, explicit, strong, one)
	3	Claim + data + warrant+backing + rebuttal (Clear, explicit, strong, one)
Level 5	1	Claim + data + rebuttal (more than one, clear)
	2	Claim + data + warrant + rebuttal (more than one, clear)
	3	Claim + data + warrant+backing + rebuttal (more than one, clear)

The rubric developed by the researcher was arranged in a way that each level would be at the least 1 point and 3 points at the most to facilitate assessment. Thus, the rubric was converted into a form that students could get 5 points at the least and 15 points at the most.

At the second step of the data analysis, the decision-making skills of the students were also determined by re-analyzing the worksheets. A "Decision Making Rubric" was developed by the researcher in order to determine the students decision making skills in the research. For this, firstly related literature was investigated in order to determine the steps which need to be

followed by the students when using the decision- making skills then the decision -making steps were determined. Among the determined steps, the decision making steps which are included within the curriculum of the 7th grade social studies were adopted as criteria. These steps were specified below;

1. Determining the decision which is to be made,

2. Determining the aim and reason of the decision which is to be made,

3. Collecting information on the issue,

4. Ranking the options,

5. Decision making,

These steps were transformed into the shape of rubrics by the researcher along with an assessment and evaluation expert and two field experts, and behaviours needed to be shown by the students at each steps within decision making process were specified. The decision making steps were expressed again by rearranging in accordance with the content. For each steps, three behaviors were specified depending on the argumentation process and each behavior was scored as 1, 2, and 3 according to the evaluation rubrics. As in the previous rubrics, also in this rubric the students can get a minimum of 5 points and a maximum of 15 points. In this way, the minimum and maximum scores that can be reached by the students from both the arguments evaluation rubric and decision making skills rubric were equalized. Decision making evaluation rubric was shown in Table 4.

Table 4. Decision Making Skill Evaluation Rubric

Decision Making Steps	Point	Skill
Determining the decision which is to be made	1	There was an indirect claim on the issue to be decided
	2	There was a simple claim on the issue to be decided
	3	There were a simple claim and a counter claim on the issue to be decided.
Determining the aim and reasons of the decision which is to be made	1	Any kind of reason was not presented about the issue to be decided.
	2	A reason was presented about issue to be decided.
	3	More than one reason were presented about the issue to be decided.
Collecting information on the issue	1	Data were not used to support the decision
	2	One datum was used to support the decision
	3	It was benefited from more than one datum in order to support the decision.
Ranking the Options *Situations when the decisions may be invalid*	1	A weak rebuttal was used about the case in which the decision may be invalid
	2	A clear rebuttal was used about case in which the decision may be invalid
	3	More than one rebuttal were used about case in which the decision may be invalid
Decision Making	1	Argumentation process was not used while making the decision.
	2	Argumentation process was used partially while making the decision.
	3	Argumentation process was used completely while making the decision

The students' statements written on the worksheets transferred to computer were evaluated by researcher for the second time by using this rubric. The 7th grade students' levels of using the decision making steps in argumentation based instruction was specified in the following way.

After this process, correlation between students' total points which were received from both rubrics were analyzed. Relationship between students' argument levels and decision making skills was analyzed separately for each activity and the obtained findings were given in figures and in tables representing relationships. The results related to whether correlation coefficient between the argument levels and the decision making skills is positive or negative and whether its level is low, medium or high were stated by using the related literature. In this context, the correlation coefficient in terms of the direction can be the followings:

+1.00 is a perfect positive relation

-1.00 is a perfect negative relation

0.00 is no relation

The correlation coefficient in terms of size can be the followings:

0.00-0.30 is a low level relation

0.31-0.70 is a middle level relation

0.71-1.00 is a high level relation (Büyüköztürk, 2011).

Findings

The research data were analyzed in two steps as mentioned above. Firstly, the student' levels of arguments were specified. This process was done separately for all students participating in each activity. Thus, 150 findings were obtained from an average of 30 students participating in total of five activities. In this study, only one example from each level of the argument was given. These examples were obtained as a result of the analysis of the fifth activity (Let's establish a foundation). In this context, firstly the question "At which level were the student arguments prepared by the argumentation method and created in the seventh grade social studies course?" was searched for an answer. Findings of this problem were shown below.

Example of the first level argument

As a result of the research, the first level argument of simple assertion was not reached. This result can be interpreted as each student used a datum or warrant with at least one claim.

Example of the second level argument

E-32: The foundation name is "The Martyr Miners' Foundation"

"*Children of martyr miners need help (Claim) and I established this foundation to help them with food and money (Warrant).*"

E-32 student's analysis of the argument: <u>Claim + Warrant</u>

Example of the third level argument

E-12: The foundation name is "The Abandoned Children's Foundation"

"Abandoned children need help (Claim). Abandoned children can be provided with clothes, meal and drinks, money, education and training aids (Warrant). I went to a foundation and I searched how a foundation would be established. We established this foundation to help abandoned/orphan children and children exposed to violence. But if the funds coming to the foundation are reduced, the foundation can not be established (Weak Rebuttal)."

E-12 student's analysis of the argument: Claim+Warrant+Rebuttal (Weak)

Example of the fourth level argument

E-18: The foundation name is "Turkish Foundation for Fighting Disease"

"In Turkey, some patients who should be operated on may not have surgery opportunities and so their diseases may progress or they may die (Claim). I established this foundation to prevent this (Warrant). Before I established this foundation, I watched the news and saw that this foundation was needed (Data). I supported this knowledge with my own acquaintances' cases (Data). Because there are people around me who were rejected to be treated because of their financial situation (Backing). Thanks to this foundation, since young, children and elderly patients can recover from their diseases and continue their lives. If the surgery or other services become free in hospitals there would be no need to establish this foundation (Rebuttal)."

E-18 student's analysis of the argument: Claim+Warrant+Data+data+Backing+Rebuttal (One, clear)

Example of the fifth level argument

E-7: The foundation name is "Foundation for Inviting Artists to Adıyaman"

"I established this foundation to invite artists for making sick children who want to see them in Adıyaman (Warrant). No such foundation was established in Adıyaman until today (Claim). There are 5000 children in Adıyaman who are suffering from a fatal disease (Data) and I established this foundation to reach at least 1000 of them. Before I establihed this foundation, I visited the website of the foundation called "Bir Dilek Tut Vakfı" (Make A Wish Foundation) and I saw how they make sick children happy (Data). If the founders of the foundation die or can not collect donations for the foundation or if the people do not want the foundation to be established, I would give up my intention and not establish the foundation (Rebuttal)."

E-7 student's analysis of the argument: Warrant+Claim+Data+Data+Rebuttal (More than one, clear)

In the second part of the analysis of the data on this study in which the relationship between student argument levels and decision-making skills in the social studies course in which argumentation-based instruction was made, students' decision making skills were analyzed using the above rubrics. Then, the correlation between the scores of the students' decision-making skills evaluation rubrics and the scores of the argument-level evaluation rubrics were examined one by one for the weekly activities. The tables and figures presenting findings obtained as the result of the data analysis are shown below.

Findings Related to First Week Activity
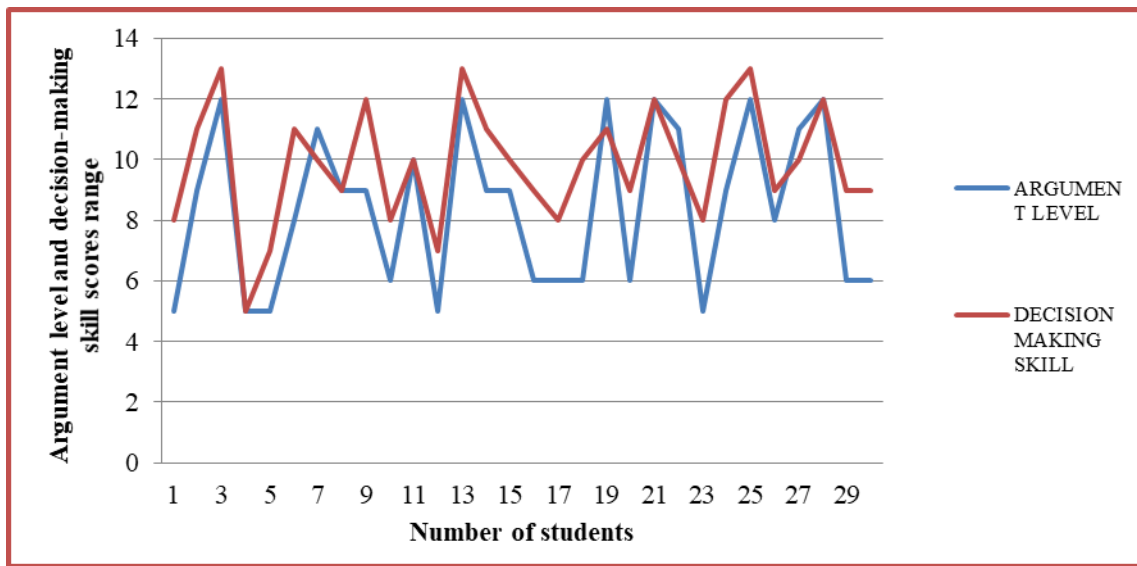
Figure 1. Graphical Representation of the Relationship between Students' Argument Levels and Decision Making Skills during First Week Activity

When evaluating findings related to the first week activities shown in the Figure 1 a similar pattern can be observed between students' decision making skills and argumentation levels. The argument level points of students' numbered 7, 19, 22 and 27 were higher than their decision making skills points. This finding indicates that the argumentation-based instruction had less effect on the students' decision making skills. Students', numbered 8, 11, 21 and 28, the argument level and decision making skills points of the numbered are same. Decision making skills points of the other students are higher than the argument level points. This finding shows that there is a positive relation between the argument production level and decision making skills of the majority of the students. As a result, the obtained findings showed that argumentation-based instruction has a positive effect on decision making skills.
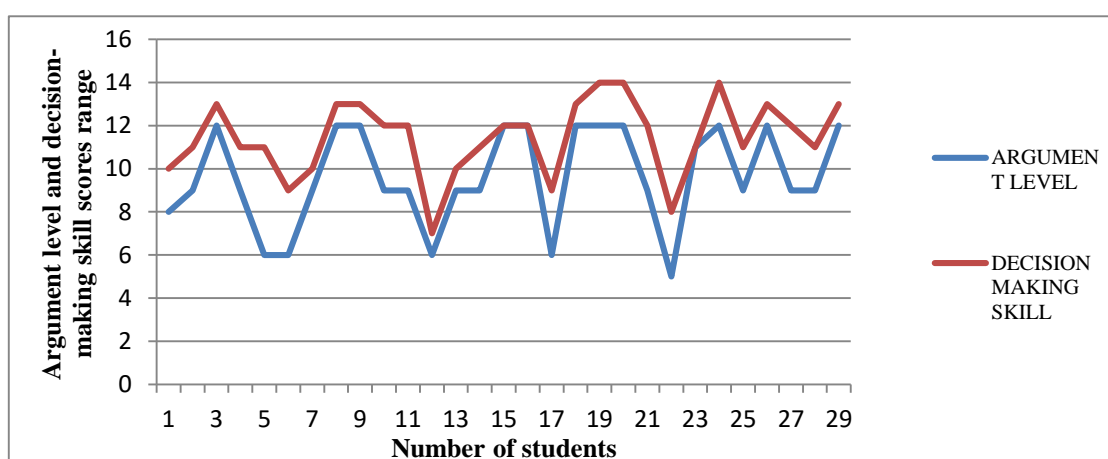
Table 5. Result of the Relationship between Students Argument Level and Decision Making Skills during the First Week Activity

		Argumentation Level	Decision Making Skill
Argumentation	r	1	,812**
Level	p		,000
	N	30	30
Decision Making	r	,812**	1
Skill	p	,000	
	N	30	30

**P<..01

When evaluating Table 5 which shows the results of the relationship between students' argument levels and the decision making skills during the first week activity, a positive relationship was detected between students' argument level and decision making skills (Pearson's=0,812, p<0,01). This finding showed that there was a high level positive relationship between two variables (r>0.70). These results showed that there was a positive high level relationship between students' argument levels and the decision making skills during the second week. Therefore, it can be stated that the argumentation process had positive effect on students' decision making skills.

Findings Related to the Second Week Activity

Figure 2. Graphical Representation of the Relationship between Students' Argument Levels and Decision Making Skills during Second Week Activity

When evaluating Figure 2 that shows the relationship between students' decision making skills and their argumentation levels during the second week activity, it was detected that students who are numbered as 15, 16 and 23 have same total points of the argumentation level and decision making skills while the other students had higher decision making skill points. This finding showed that there was a positive relationship between the argument production level and decision making skills formed by students. It is also observed that comparing to previous week activity students' decision making skills was improved.
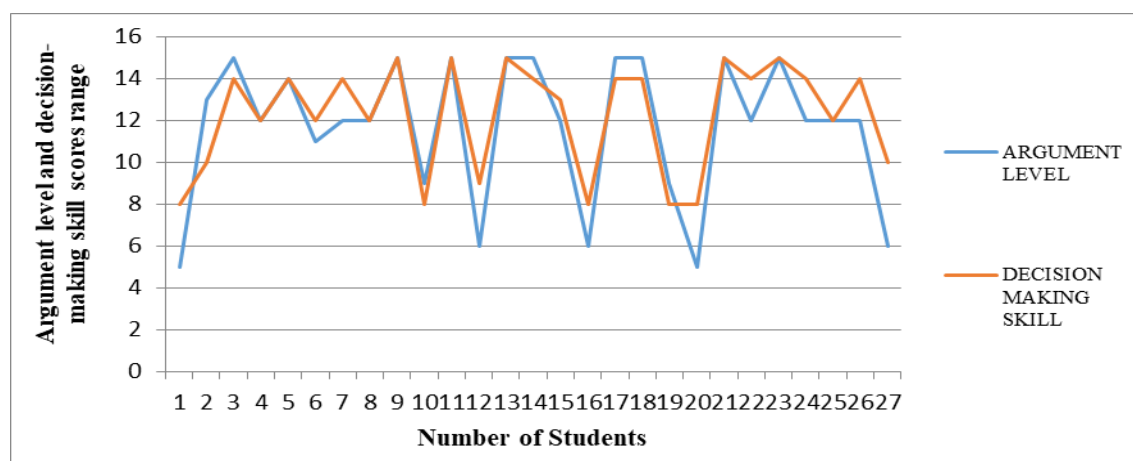
Table 6. Result of the Relationship between Students Argument Level and Decision Making Skills during the Second Week Activity

		Argumentation Level	Decision Making Skill
Argumentation Level	r	1	,872**
	p		,000
	N	29	29
Decision Making Skill	r	,872**	1
	p	,000	
	N	29	29

**P<.01

When evaluating Table 6 which shows the results of the relationship between students' argument levels and the decision making skills during the second week activity, a positive relationship was detected between students' argument level and decision making skills (Pearson's=0,872, p<0,01) . This finding showed that there was a high level positive relationship between two variables (r> 0.70). These results showed that there was a positive high level relationship between students' argument levels and the decision making skills during the second week. Therefore, it can be stated that the argumentation process had positive effect on the decision making skills of students.

Findings Related to Third Week Activity

Figure 3. Graphical Representation of the Relationship between Students' Argument Levels and Decision Making Skills during Third Week Activity

When evaluating Figure 3 that shows the relationship between students' decision making skills and their argumentation levels during the third week activity, it was detected that students who are numbered as 3, 4, 11, 15, 18 and 19 had higher total points of the argumentation level than their points of decision making skills while the students', numbered as 5, 6, 9, 10, 12, 14, 22, 24, 26, total points of the argumentation level and the decision making skills were same. Other students' decision making skill points were higher than their argument level scores.
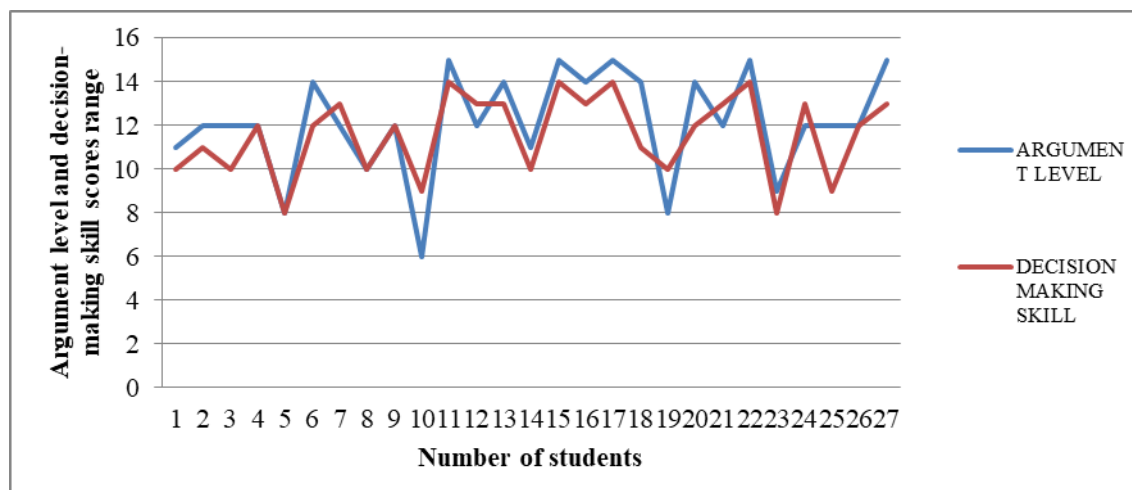
Table 7. Result of the Relationship between Students' Argument Level and Decision Making Skills during the Third Week Activity

		Argumentation Level	Decision Making Skill
Argumentation Level	r	1	,888**
	p		,000
	N	27	27
Decision Making Skill	r	,888**	1
	p	,000	
	N	27	27

**P<.01

When evaluating Table 7 which shows the results of the relationship between students' argument level and the decision making skills during the third week activity, a positive relationship was detected between students' argument level and decision making skills (Pearson's=0,888,p<0,01). This finding showed that there was a high level positive relationship between two variables (r> 0.70). When considering the findings related to all other activities, it was detected that relationship between students' argument level and decision making skills were the highest in this activity.

Findings Related to Fourth Week Activity

Figure 4. Graphical Representation of the Relationship between Students' Argument Levels and Decision Making Skills during Fourth Week Activity

When evaluating Figure 4 that shows the relationship students' decision making skills and their argumentation levels during the fourth week activity, it was detected primarily that 22 students got more than 10 points from the total of 15 points from argument level evaluation and decision making skills rubrics. Only students, as numbered 5, 10, 19, 23 and 26, got less than 10 points from argumentation level evaluation and decision making skill rubrics. When analyzing Figure 5, another findings showed that students' argumentation level and decision making skills points were improving towards a direction which was very close to each other. In this activity, student's argument level was higher than the decision making skills points.

Table 8. Result of the Relationship between Students' Argument Level and Decision Making Skills during the Fourth Week Activity

		Argumentation Level	Decision Making Skill
Argumentation Level	r	1	,802**
	p		,000
	N	27	27
Decision Making Skill	r	,802**	1
	p	,000	
	N	27	27

**P<..01

When evaluating Table 8 which shows the results of the relationship between students' argument level and the decision making skills during the fourth week activity, a positive relationship was detected between students' argument level and decision making skills (Pearson's=0,802,p<0,01). This finding showed that there was a high level positive relationship between two variables (r> 0.70).
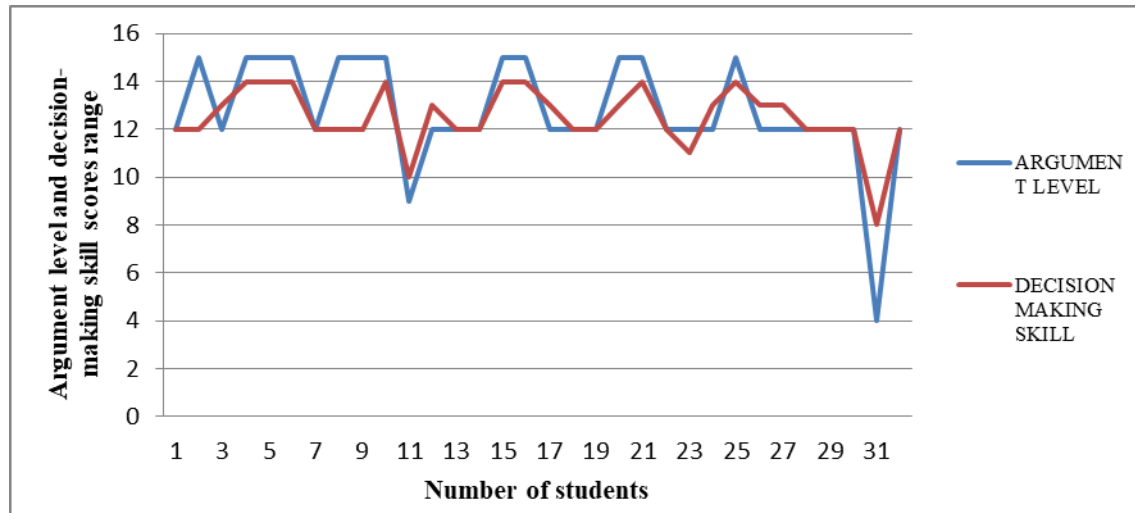
Findings Related to Fifth Week Activity

Figure 5. Graphical Representation of the Relationship between Students' Argument Levels and Decision Making Skills during Fifth Week Activity

When evaluating Figure 5 that shows the relationship between students' decision making skills and the argumentation levels during the fifth week activity, it was detected that only 3 of the 19 students got less than 12 points. All the other students got 12 and more points from the rubrics of both the argument level and decision making skills. This finding showed that the students were affected positively from argumentation-based social studies instruction and both students' argument levels and decision making skills were improved.

Table 9. Result of the Relationship between Students' Argument Level and Decision Making Skills during the Fifth Week Activity

		Argumentation Level	Decision Making Level
Argumentation Level	r	1	,835**
	p		,000
	N	32	32
Decision Making Level	r	,835**	1
	p	,000	
	N	32	32

**P<..01

When evaluating Table 9 which shows the results of the relationship between students' argument level and the decision making skills during the fifth week activity, a positive

relationship was detected between students' argument level and decision making skills (Pearson's=0,835, p<0,01). This finding showed that there was a high level positive relationship between two variables (r>0.70).

When evaluating the results obtained from study data generally; it was detected a positive and high level relationship between students' argument level and the decision making skills. This finding showed that the argumentation-based social studies instruction had a positive effect on students' decision making skills. It can be interpreted that students, who create good quality arguments, could make decisions which are more effective and appropriate to the decision-making process. It was determined that generally there was a relationship above 0.80 between students' argument level and decision making skills, the highest relationship was during the 3rd week while the lowest one was during the 4th week.

Discussion

The relationship between the argument level and decision making skills of students attending argument–based social studies instruction was analyzed in this research. Arguments formed by students within the scope of the activities prepared for the research were evaluated by using two instruments. The first one is "Decision Making Skill Evaluation Rubric" developed by researcher. And the second one is "Argument Evaluation Rubric" which was transformed by the researcher from Erduran, Simon and Osborne's (2004) argument evaluation scale. Both rubrics were divided into 5 sub-dimensions and were evaluated at a total of 15 points. When analysing the relationship between students' scores obtained from both rubrics, a positive and high correlation was detected between students' argument levels and decision making skills. It was revealed that students creating qualified arguments had higher decision making skills while students creating unqualified or less qualified arguments had lower level of decision making skills.

Research studies in related literature expressed that students' decision making skills were improved in classes where argumentation-based instruction methods applied. Paralleling to this results, research studies in literature also stated that there was a strong relationship between decision making skills and argumentation levels.

Demirbağ and Günel (2014) conducted a study in which they investigated the effects of argumentation based science instructions on academic achievement, creating and writing argument. They have reached the conclusion that the argumentation method has developed university students' skills to create and write arguments. As expressed above, there is a relationship between level of argument and decision-making skills. When these two results are evaluated together, it can be interpreted that the argumentation method improves students' argumentation skills, thus it positively effects decision making skills.

Siegel (1999) determined as the result of his study which was conducted in accordance with the argumentation process by using scientific evidence in order to improve students' decision-making skills that there was a high relationship between students' understanding of argumentation and decision making skills. Kolsto (2006) concluded as a result of his research in which he aimed to specify students' sanity skills in contradictive socio-scientific topics, that the instruction model had effect on the students' decision making skills. In this research which was carried out by argumentation method, it was understood that students' decision were affected by

the contradictive discussions made in class. In Lee's (2007) research in which he aimed to develop students' decision making skills on socio-scientific issues, students were asked to make argument by interclass discussions. After analyzing the result of student's arguments, it was understood that the students were affected by discussions and the presented arguments so that their decision making skills were improved. Khishfe (2012) aimed to specify the relationship between students' decision making skills and argumentation levels by giving natural science lecture in his own science lesson by using argumentation method. As a result of this research, he stated that there was a positive correlation between the argument quality and students' decision making skills. Kim, Anthony and Blades (2014) specified that the argumentation process affected the decision of the teacher candidates in their research which aimed to specify the teacher candidates' decision making skills on socio-scientific issues. Maloney (2007) determined that the role which was undertaken by the students during decision making process and during forming arguments had impacts so that they made decisions which were appropriate to this role and used evidences which supported this role. Tonus (2012) carried out the research about the effect of the argumentation method on students' critical thinking and decision making skills, by two different working groups having different financial situation. Gutierrez (2015) conducted a study with the aim of improving students' decision-making skills in relation to socio-scientific issues. It has emerged that students' bioethical decision-making skills have been improved in the experimental group which argumentation and discussion techniques were used in the study. As a result of the research it was determined that the argument quality of the students who had good financial situation had improved and the argumentation method had more effects on the decision making skills of the students having good financial situation.

When evaluating the results related to this sub-problem and the studies in the literature supporting these results, generally it can be stated that the argumentation process affected the students' decision making skills and that there was a positive relationship between level or quality of arguments and students' decision making skills.

Conclusion

In this research, it was aimed to determine the relationship between the argument level and the students' decision making skills by using scenarios causing dilemmas for students in social studies classes. As a result of this research, it was determined that there was an improvement in the arguments formed by students for this scenarios and there was a positive correlation between argument level and students' decision making skills.

In this respect, followings are suggested to teachers;

- Preparing scenarios or worksheets which can attract the student's interest when there isn't any topic appropriate for the argumentation method in textbooks,

- Designing activities to encourage students to make arguments on news or stories which are brought to the class,

- Besides these, providing opportunities for students to meet real life problems by transforming a problem related to their school into social studies topic.

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Genişletilmiş Özet

Giriş

Karar verme, pek çok seçenek arasından düşüncemize veya eylemimize uygun olanı seçme sürecidir (Khishfe, 2012). Karar vermeyi sosyal bilgiler öğretiminin kalbi şeklinde ifade eden Engle (2003) sosyal bilgilerin en temel işlevinin iyi vatandaş yetiştirmek olduğunu ve iyi bir vatandaşın en temel göstergesinin ise toplumsal konularda iyi/kaliteli karar vermek olduğunu belirtmiştir. Ayrıca karar vermenin gerçekler ve kurallar bilgisinden daha fazlasını gerektirdiğini; iki kollu bir terazinin kolları arasındaki gibi bir dengeyi ve kişinin sahip olduğu bilgi ve değerlerin bir sentezini gerektirdiğini ifade etmiştir. Bireyin geçmişten gelen inanç ve tutumlara sahip olduğunu, karar verirken inanç ve tutumlarını gerçeklere ve değerlere karşı test etme fırsatına sahip olduğunu ifade etmiştir. Karar verme becerisinin sosyal bilgiler öğretimi tarafından organize edilmesi gereken bir yapı olduğunu iddia etmiştir.

Doğru kararlar verebilmek için karar verme sürecini doğru yönetmek gerekir (Butt, 2010). Karar verme sürecini doğru yönetebilmek için bireyler etkili karar verme yöntemlerini bilmek zorundadır. Özgür bir toplum bu şekilde yapılandırılmıştır ve kararlarına tartışarak ulaşır. Karar verme sürecinde bireyler farklı yöntemler deneyebilirler. Beyin fırtınası, grup tartışması veya argümantasyon bu yöntemlerden bazılarıdır. Bireyler genellikle önemli kararları alırken tartışma yöntemine başvururlar. Doğru kararlar alabilmek için bireylerin bilimsel tartışma yollarını bilmeleri gerekmektedir (Aymen Peker, Apaydın ve Taş, 2012).

Bilimsel tartışmanın doğasına en uygun yöntemlerden biri olan argümantasyon karar verme sürecinde kullanılabilecek etkili yöntemler arasındadır. Yapılan çalışmalar argümantasyon yönteminin karar verme sürecinde etkili olduğunu ortaya koymuştur (Siegel, 1999; Cho, 2001; Nussbaum, 2008; Tonus, 2012; Gutierez, 2015).

Karar verme becerisinin sosyal bilgiler dersi açısından oldukça önemli olduğu ifade edilebilir. Bu becerinin öğretiminde öğrencilerin bilimsel tartışmalar yapabilecekleri, alternatifleri değerlendirilecekleri, alacakları kararın olumlu ve olumsuz yönünü fark edebilecekleri yöntemlerin kullanılması gerekmektedir. Eğitimde bir öğretim yöntemi olarak kullanılan ve bir çeşit yapılandırılmış tartışma tekniği olan argümantasyonun, karar verme becerisinin öğretiminde etkili olduğu belirlenmiştir. Bu durumdan hareketle hazırlanan bu çalışmanın amacı argümantasyon temelli yürütülen sosyal bilgiler dersinde öğrencilerin argüman düzeyleri ile karar verme becerileri arasındaki ilişkiyi belirlemektir.

Yöntem

Bu çalışma nitel araştırma türlerinden eylem araştırması ile yürütülmüştür. Bu araştırmanın çalışma grubunu Adıyaman ili merkez ilçede 2013-2014 eğitim-öğretim yılında eğitimlerine devam etmekte olan 15'i erkek, 18'i kız olmak üzere toplam 33 yedinci sınıf öğrencisi oluşturmaktadır. Bu öğrenciler amaçlı örnekleme yöntemlerinden ölçüt örnekleme ile belirlenmiştir. Bu araştırmanın çalışma grubunu belirlerken öğretim programı, okul idaresi, okula erişilebilirlik ve çalışmanın yürütüleceği öğrencilerde aranan özellikler ölçüt olarak belirlenmiştir. Araştırmada veri toplama aracı olarak öğrencileri ikileme düşürecek senaryoların yer aldığı etkinlikler tasarlanmıştır. Ayrıca her etkinlikte öğrencilerin bir karar vermelerini gerektirecek durumlar oluşturulmuştur. Etkinlikler çalışma yaprakları şeklinde düzenlenmiştir. Her çalışma yaprağı farklı bir kazanım için tasarlanmış, bazıları gerçek hayat haberlerinden

alınırken, bazıları kurgusal bir yapıya sahip bir şekilde geliştirilmiştir. Araştırmada verilerin analizi iki aşamada gerçekleşmiştir. Problem durumuna bağlı olarak öncelikle öğrencilerin üretmiş oldukları argüman düzeyleri belirlenmiştir. Bunun için öncelikle öğrencilerin çalışma yapraklarında yazmış oldukları argümanlar bilgisayar ortamına aktarılmış ve her çalışma yaprağı üç farklı uzman tarafından değerlendirilmiştir. Öğrencilerin argüman düzeyini belirlemek için Erduran, Simon ve Osborne (2004)'un Toulmin Argümantasyon Modeli (TAM)'nden yola çıkarak hazırlamış oldukları argüman değerlendirme ölçeği kullanılmıştır. Veri analizinin ikinci kısmında çalışma yaprakları tekrar incelenerek öğrencilerin argüman üretirken aynı zamanda karar verme düzeyleri belirlenmiştir. Araştırmada öğrencilerin karar verme becerilerini belirlemek için araştırmacı tarafından "Karar Verme Becerisi Değerlendirme Rubriği" geliştirilmiştir. Bunun için ilk olarak öğrencilerin karar verme becerisini kullanırken izlemeleri gereken basamakları belirlemek için alanyazın taraması yapılmış ve karar verme basamakları tespit edilmiştir. Belirlenen basamaklar arasından bu çalışmanın içeriğine uygun olarak MEB (2005) Sosyal Bilgiler 7. Sınıf öğretim programında yer alan karar verme basamakları ölçüt olarak kabul edilmiştir. Bu işlemlerden sonra öğrencilerin her iki rubrikten aldıkları toplam puanlar arasındaki korelasyon (ilişki düzeyi) analiz edilmiştir.

Sonuç ve Tartışma

Çalışma sonucunda öğrencilerin her iki rubrikten aldıkları puanlar arasındaki ilişki incelendiğinde öğrencilerin argüman düzeyleri ile karar verme becerileri arasında yüksek düzeyde olumlu bir ilişkinin olduğu tespit edilmiştir. Kaliteli argüman üreten öğrencilerin karar verme becerilerinin daha yüksek, kalitesiz veya daha az kaliteli argüman üreten öğrencilerin karar verme becerilerinin ise daha düşük olduğu ortaya çıkmıştır. Sonuçlar ile ilgili alanyazında yapılmış argümantasyon yönteminin kullanıldığı sınıflarda argümantasyon yönteminin öğrencilerin karar verme becerilerini olumlu etkilediği ve geliştirdiği, aynı zamanda öğrencilerin oluşturdukları argüman düzeyleri ile karar verme becerileri arasında olumlu bir ilişki olduğu şeklinde desteklenmektedir.

Siegel (1999) öğrencilerin karar verme becerilerini geliştirmek için bilimsel kanıtlar kullanarak argümantasyon sürecine uygun yürütmüş olduğu çalışma sonucunda öğrencilerin argümantasyon anlayışları ile karar verme becerileri arasında yüksek bir ilişki olduğunu tespit etmiştir. Kolsto (2006) öğrencilerin tartışmalı sosyobilimsel konularda muhakeme becerilerini belirlemeyi amaçladığı çalışma sonucunda öğretim modellerinin öğrencilerin karar verme durumlarını etkilediği sonucuna ulaşmıştır. Argümantasyon yöntemi ile yürütülen bu çalışmada öğrencilerin kararlarının sınıfta yapılan argümantatif tartışmalardan etkilendiği sonucu ortaya çıkmıştır. Lee (2007) öğrencilerin sosyobilimsel konularda öğrencilerin karar verme becerilerini geliştirmeyi amaçladığı çalışmada, sınıf içi tartışmalar yapılarak öğrencilerden argümanlar üretmeleri istenmiştir. Öğrenci argümanlarının incelenmesi sonucu, öğrencilerin yapılan tartışmalardan ve sunulan argümanlardan etkilendikleri ve karar verme becerilerinin geliştiği sonucu ortaya çıkmıştır. Khishfe (2012) argümantasyon yöntemi ile yürüttüğü fen dersinde bilimin doğasının öğretimi ile öğrencilerin karar verme becerileri arasındaki ilişkiyi belirlemeyi amaçlamıştır. Çalışma sonucunda öğrencilerin argüman kaliteleri ile karar verme becerileri arasında olumlu bir ilişkinin olduğunu ifade etmiştir. Kim, Anthony ve Blades (2014) öğretmen adaylarının argümantasyon süreci ile yürütülen sosyobilimsel konularda karar verme durumlarını belirlemeyi amaçladığı çalışma sonucunda argümantasyon sürecinin öğretmen

adaylarının verdikleri kararları etkilediğini belirtmiştir. Maloney (2007) öğrencilerin vermiş oldukları kararlarda ve oluşturdukları argümanlarda üstlenmiş oldukları rolün etkisi olduğunu, role uygun kararlar verdikleri ve bunu destekleyecek nitelikte kanıtlar kullandıkları belirlenmiştir. Tonus (2012) argümantasyon yönteminin öğrencilerin eleştirel düşünme ve karar verme becerileri üzerine etkisini incelediği çalışmayı ekonomik düzeyi farklı iki çalışma grubu ile yürütmüştür. Çalışma sonucunda ekonomik düzeyi yüksek olan grupta yer alan öğrencilerin argüman kalitelerinin geliştiği ve argümantasyon yönteminin ekonomik düzeyi yüksek öğrencilerin karar verme becerilerini daha fazla etkilediği belirlenmiştir. Gutierez, (2015) sosyobilimsel konular ile ilgili öğrencilerin karar verme becerilerini geliştirmek amacı ile yürütmüş olduğu çalışma sonucunda, argümantasyon ve tartışma tekniklerinin kullanıldığı deney grubunda öğrencilerin biyoetik karar verme becerilerinin geliştiğini ortaya çıkarmıştır. Bu alt probleme ait sonuçlar ve bu sonuçları destekleyen alan yazındaki çalışmalar genel olarak değerlendirildiğinde argümantasyon sürecinin öğrencilerin karar verme becerilerini etkilediği ve öğrencilerin oluşturduğu argüman düzeyi veya kalitesi ile karar verme becerisi arasında olumlu bir ilişkinin olduğu söylenebilir.