




<http://www.tayjournal.com>

<https://dergipark.org.tr/tr/pub/tayjournal>

## **The Role of Conceptual Change Texts in Concept Teaching: Active Citizenship Learning Space**

---

 Elif Meral, Asst. Prof. Dr., Corresponding Author  
Atatürk University, Türkiye  
[elif.meral@atauni.edu.tr](mailto:elif.meral@atauni.edu.tr)  
Orcid ID: 0000-0002-2560-0120

**Article Type:** Research Article  
**Received Date:** 31.07.2022  
**Accepted Date:** 31.10.2022  
**Published Date:** 31.12.2022

**Plagiarism:** This article has been reviewed by at least two referees and scanned via a plagiarism software  
**Doi:** 10.29329/tayjournal.2022.510.02

**Citation:** Meral, E. (2022). The role of conceptual change texts in concept teaching: active citizenship learning space. *Türk Akademik Yayınlar Dergisi (TAY Journal)*, 6(2), 146-174.

## Abstract

The aim of this study is to examine the impact of conceptual change texts in teaching the concepts that are challenging and often misunderstood in the field of active citizenship learning contained in the 6<sup>th</sup> grade social studies course. A total of 67 sixth graders studying in two different classrooms at the same secondary school participated in this study, in which a quasi-experimental design was used as one of the quantitative research approaches. The experimental group was instructed through conceptual change texts during the implementation, while the control group was taught with the existing curriculum. Data were collected with a concept comprehension test and a concept-related academic achievement test. Descriptive and predictive analytics were used for analysing the data. The students in the experimental and control groups were found to have limited understanding to the extent of not understanding the related concepts. After the activities, it was observed that the final knowledge level of the students in the control group as regards concept comprehension did not show a significant change when compared to their prior level of knowledge, while that of the experimental group showed a considerable increase. A statistical significance was found between the scores of the experimental and control groups in favour of the experimental group in the concept-related academic achievement. In this sense, it can be argued that the use of conceptual change texts to teach the concepts determined in the field of active citizenship learning enables students to learn such concepts more easily and is effective in eliminating students' misconceptions.

**Keywords:** Conceptual change texts, misconception, social studies course

## Introduction

The unit in which two or more entities are grouped together according to their common characteristics as a result of our experiences in the life process and are distinguished from other entities and stored as a way of thinking in our minds is called a concept. Concepts are an abstraction based on general properties of events, situations, objects or ideas, not concrete objects, entities or situations, and there are only examples of concepts in the real world (Akbaş, 2021; Çaycı, 2007; Naish, 1982). People need concepts to understand and make sense of the world they live in besides sharing their experiences. In other words, concepts enrich our life and perception, make it easier for us to communicate with people, learn and remember, apart from playing a critical role in our language development (Doğanay, 2002; Naish, 1982; Martorella, 1996). However, when the concepts are structured correctly in people's minds, they form the basis for understanding the social and physical environment in which people live, and for acquiring the knowledge, skills and values that are desired to be instilled in through lessons in formal education (Akbaş, 2019, p.228). As the basic building block of cognitive structure and the basis of all thinking skills (Martorella, 1996; Ülgen, 2001), concepts, therefore, should be taught correctly. As a matter of fact, in order for students to acquire various skills and values such as decision making, problem solving and critical thinking effectively, their conceptual structures must first be built on the right information and the right network of relationships between concepts. Without this achievement, our understanding of who we are and what the world is really like will be largely limited (Akbaş, 2021; Alkış, 2009). In addition, in the effective teaching of concepts, students' prior knowledge about that concept and their relevant experiences, meanings and knowledge about the concept to be taught are very crucial (Yılmaz & Çolak, 2011; Dove, 2000; Milburn, 1972). This is so important that what children can learn depends on what is in their minds and what kind of learning environment they find themselves in (Platten, 1995). The reason for its significance lies in the fact

that students' prior knowledge and concepts play an important role in the meaningful acquisition of necessary knowledge and skills to achieve intended results by students during the education process. Research has shown that students' prior knowledge of the concepts define the starting point of the learning processes for the educators (Deisenrieder et al., 2022). However, it is often emphasized in the literature that if students have difficulty understanding basic concepts, it makes it even harder for them to learn new information meaningfully during the course and negatively affects new learning (Akbaş, 2021; Dove, 1999; Dove, 2000; Nelson et al., 1992; Platten, 1995). In addition, it is also suggested that unless students' information gap in their prior knowledge are fulfilled, it may lead to the emergence of misconceptions that may hinder further learning (Akbaş, 2021, Dove, 2000). Taking this into consideration, it can be argued that it is necessary to eliminate misconceptions in order to teach the concepts correctly.

Misconception is the contradiction between the cognitive structure that students create in their mind regarding a concept and scientific facts and assumptions (Gilbert & Watts, 1983; Lane, 2008). In other words, incomplete, erroneous, or intuitive information about any subject matter prior to teaching is defined as preliminary concepts, whereas the connotations, ideas and mental models that students form based on alternative and incorrect information to scientific definitions are expressed as misconceptions (Dove, 1999; Schmidt, 1997). It should be noted that students' misconceptions that do not coincide with scientific facts are indeed consistent for them, however, and contain wholeness (Platten, 1995). Since these misconceptions are based on logical reasons for students, they are likely to be conservative in replacing them with scientific facts and inclined to protect them (Driver, 1989; Schmidt, 1997). For this reason, it is not always easy to convince students about their own misconceptions. It is, however, necessary to identify students' misconceptions and to convince them about the misconceptions. In the relevant literature, a number of studies have identified certain misconceptions about the social studies course including those related to geographical terms, such as "*geographic location*", "*climate*", "*maps*", "*deserts*", "*continents*", "*population and settlement*", and "*earthquakes*" (Cin, Engin & Akbaş, 2005; Çakmak, 2006; Demirkaya & Karacan, 2016; Henriques, 2002; Kuzey & Değirmenci, 2019; Nelson et al., 1992; Pınar & Akdağ, 2012; Turan & Kartal, 2012; Wiegand & Stiell, 1996), those related to citizenship such as "*state*", "*national will*", "*constitution*", "*democracy*", "*public opinion*", "*local governments*", and "*rights*" (Akpınar, 2019; Bal & Akış, 2010; Dağdelen, 2017; Kürümlüoğlu, 2019; Şener, 2019), and those related to history such as "*age*", "*century*", "*civilization*", "*conquest*", and "*holy war*" (Kaya & Çiviler, 2012; Şarlayan, 2017). At this point, it is very important to identify students' prior knowledge and eliminate any misconceptions in the effective teaching of a course that includes many abstract concepts from social sciences such as social studies, with a rich concept pool. The relevant literature review has shown that various approaches and techniques are used, unlike traditional approaches, to ensure that the concepts are learned in accordance with their accepted scientific meanings and to eliminate misconceptions. One of these approaches is the conceptual change approach, which is believed to be effective in eliminating misconceptions.

The conceptual change approach, which focuses on eliminating misconceptions, is based on the constructivist learning theory, which takes students' prior knowledge into account, and advocates the understanding that new knowledge is built on previous knowledge/experiences (Duit & Treagust, 2003; Widodo & Duit, 2002). In the conceptual change process, students first need to be aware of their lack of knowledge and mistakes in their own ideas and have an

awareness of changing them. In this process, efforts should be made to enable students to see the contradictions between their own beliefs in their minds and scientific ideas. Unless such a cognitive conflict is created, students will not be able to construct the correct conceptual knowledge in their minds, and therefore their misconceptions will not be eliminated (Chi & Roscoe 2002; Hewson & Hewson, 1984; Hewson & Hewson, 1983; Scott et al., 1992; Posner et al., 1982). The conceptual change process is a challenging and time-consuming process for students, and it is very difficult to accomplish with traditional teaching methods (Duit & Treagust, 2003; Palmer, 2003).

Based on Piaget's principles of assimilation, accommodation and equilibrium (Duit & Treagust, 2003), the conceptual change model was first introduced by Posner et al. (1982). The conceptual change was suggested to take place in four stages. In the *dissatisfaction* stage, which is the first of these stages, students are expected to realize the inadequacy of their own knowledge and mental model; in the second, *intelligibility*, stage, they are expected to regard the new information given to them as understandable/comprehensible; in the third, *plausibility*, stage, they are expected to find the new information (conceptual structure) given to them logical and plausible, and in the last stage, i.e., *fruitfulness*, on the other hand, they should be able to make use of the new concept they have acquired in solving the problems they encounter (Posner et al., 1982). Concept mapping, the Vee diagramming, mind mapping, concept cartoons, analogies and models can be used in classroom teaching practices based on the conceptual change approach (Aydın & Balım, 2013; Novak, 2002). One of these methods is using conceptual change texts (CCT). In these texts, misconceptions about the concept to be taught are emphasized and students are asked questions about the subject in order to activate their prior knowledge and to reveal incomplete or wrong information/contradictions. They are informed about why their misconceptions are wrong, and they are also explained some scientific facts in a meaningful and logical way. In addition, the texts evaluate how students' conceptual schemes are altered (Akbaş, 2021; Aladağ & Yılmaz, 2014; Canpolat & Pınarbaşı, 2002; Chambers & Andre, 1997; Kılıçoğlu, 2020; Köroğlu, 2019; Şarlayan, 2017; Yıldırım, 2016). Research has shown that, unlike traditional texts, the CCTs, which include direct misconceptions and explanations for the purpose of correcting them later with understandable and logical reasons, gives successful results in eliminating misconceptions (Akbaş & Gençtürk, 2011; Chambers & Andre, 1997; Çaycı, 2007; Palmer, 2003). In this context, studies in which the CCTs are used to eliminate misconceptions in social studies teaching have been encountered more frequently in recent years. In these studies, the effectiveness of conceptual change texts in eliminating the misconceptions about the groups of concepts such as "climate, weather, map, continent, location" (Kılıçoğlu, 2011; Köroğlu, 2019), "constitution, republic, independence" (Dağdelen, 2017; Yıldırım, 2016), and "age, conquest, reform" (Şarlayan, 2017) were examined. However, the number of studies seems to be limited in relation to the subject matter in social studies teaching. Given that there are many abstract concepts in the content of the social studies course and that many misconceptions have been identified in the literature, it is clear that more studies are needed on this subject. In this sense, we believe that this study will contribute to closing the gap in the relevant field since we have dealt with the effects of conceptual change texts in eliminating the misconceptions in the field of active citizenship learning. Considering that one of the main purposes of the social studies course is to raise active citizens, it is very important to structure the basic concepts in the minds of the

students correctly and based on scientific facts. This is due to the fact that the most basic building block of a democratic society are individuals who are knowledgeable about the most basic concepts about democracy, rights and freedoms, with democratic consciousness and values (Misco, 2005). In addition, we believe that the CCT samples prepared for the scope of the present study will be a guide for future studies. In this context, answers were sought to the following questions:

- 1- What is the impact of conceptual change texts in eliminating students' misconceptions?
- 2- What is the impact of conceptual change texts on students' academic achievement as regards concepts?

## **Method**

### **Research Design**

This study was conducted using a quasi-experimental design with pre-test and post-test control groups, as one of the quantitative research approaches. In experimental designs where a certain variable is affected, at least one independent variable is manipulated to control other related variables and to examine the effect of the independent variable on one or more dependent variables. The main purpose of experimental research design is to examine the cause-effect relationship (Fraenkel et al., 2012; Gay et al., 2012; McMillan & Schumacher, 2014). In this study, a quasi-experimental design was preferred with the aim of determining the effect of conceptual change texts on students' understanding of related concepts and eliminating misconceptions.

### **Sample Group**

This study was conducted with a total of 67 sixth grade students studying in two different classes of a secondary school in Erzurum in the 2021/22 academic year. One of the classes was selected as the experimental group (EG, n= 34) with whom the conceptual change texts were used for teaching purposes, and the other as the control group (CG, n= 33), with whom no conceptual change texts were used. Demographic data about the sample group is presented in Table 1.

Table 1. *Demographic data about the sample group*

Groups	Gender	Frequency	Percentage (%)
EG	Male	18	52.94
	Female	16	47.06
CG	Male	14	42.42
	Female	19	57.58
Total		67	100

### **Identification of Concepts**

In order to determine the concepts, first of all, the concepts in the 6<sup>th</sup> grade social studies course in the field of active citizenship learning were identified. Then, 15 teachers were interviewed in order to determine the concepts with which students have often difficulty in learning and that are considered to lead to misconceptions. A total of 60 students were administered a concept comprehension test including the concepts in the relevant learning field so as to determine the students' prior knowledge of the concepts in the field of active citizenship learning and whether they have any misconceptions about the said concepts. Based on the teachers' views and the students' responses to the concepts, it was determined that the concepts

that were difficult to learn and were misunderstood include *republic, democracy, national sovereignty, constitutionalism, pluralism, and constitution*, as well as *legislative, executive and judiciary powers*. In this sense, this study has focused on teaching the given nine concepts.

### Data Collection Tools

The Concept Comprehension Test (CCT), consisting of open-ended questions was used to determine the level of students' understanding the concepts in the relevant learning area, and Academic Achievement Test of Concepts (AATC) to determine the effect of the study procedure on concept teaching.

#### Concept Comprehension Test

In order to determine the knowledge of the students about the concepts in the relevant learning area, the CCT was prepared to consist of open-ended questions containing nine concepts. The students were asked to explain what the concepts in the CCT meant by writing. In order to compare the students' understanding of related concepts before and after the procedure, the CCT was administered to the sample group as pre-test and post-test.

#### Academic Achievement Test of Concepts

The Academic Achievement Test of Concepts (AATC) was prepared in order to determine the effect of conceptual change texts (CCT) on students' level of understanding of concepts. Figure 1 illustrates the preparation process of the AATC.

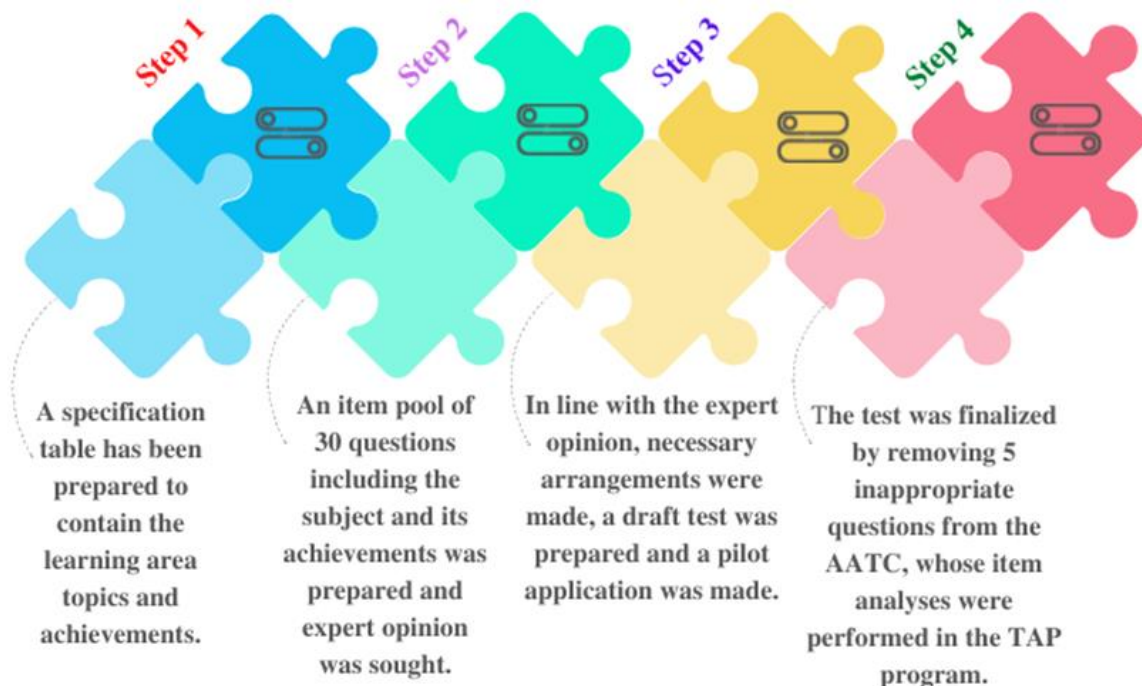


Figure 1. AATC preparation process

The average difficulty of such a test must be around .50, in order to make it more reliable and more distinctive (Tekin, 2000). In addition, it is preferred that the Kuder-Richardson-20 (KR20) value of a test that provides reliable measurements be at least .70 and above (Fraenkel et al., 2012). While the average difficulty index of the prepared academic achievement test was calculated as .51, the KR-20 reliability coefficient was found as .83.

## **Implementation Procedure**

### ***Development of Conceptual Change Texts***

The conceptual change texts used in the implementation process had been developed by taking into account the basic stages (inadequacy, intelligibility, plausibility, and fruitfulness) put forward by Posner et al. (1982). In this connection, the students were asked questions for the purpose of determining their prior knowledge and misconceptions about the related concepts. They were also given some hints in order to enable them to express their thoughts about the questions with ease. Then, the misconceptions identified were presented and the students were encouraged to discuss about them. As a result of the discussions, the possible reasons for their misconceptions were elaborated in such a way as to ensure that the students questioned their own misconceptions about the related concepts and realized their lack of knowledge about them, so the first stage of the concept change texts- the inadequacy stage- was completed. In the second stage, the students were presented new concepts related to the subject matter and scientifically accepted ideas, which could be replaced with wrong perceptions. New concepts were supported with examples and presented in an emphatic form in order to ensure that they could be easily understood by the students. In the third stage, the principle of plausibility was taken into consideration and utmost attention was paid to ascertain that new concepts were consistent with the concepts that the students had learned before. In the last stage of the CCT, the new concepts were tried to be taught in a way that would help students to use them in different fields, while enabling the solution of problems arising from their prior knowledge. In addition, "Let's Think Together" section was added at the end of the text in order to enable students to express what they learned about the concept. This way, draft texts were prepared by paying attention to the specified stages. The prepared texts were examined by two expert lecturers and two social studies teachers who had studies on this subject. In line with the feedback from the experts, necessary arrangements were made and the texts were finalized before the implementation procedure.

### ***Implementation***

The present study was conducted with a total of 67 students studying in two different classes [Experimental Group (EG) and Control Group (CG)] of a secondary school located in the Palandöken district of Erzurum province in the 2021/22 academic year, lasting for a total of 7 weeks, 3 course hours per week in the experimental and control groups. During the implementation process, the lessons were conducted by the teacher of the lesson in association with the researcher participating in the lesson process as an observer. The first and last weeks of the implementation procedure were reserved for pre-tests and post-tests, and the other 5 weeks for teaching the concepts in the relevant learning area. Figure 2 illustrates the implementation procedure.

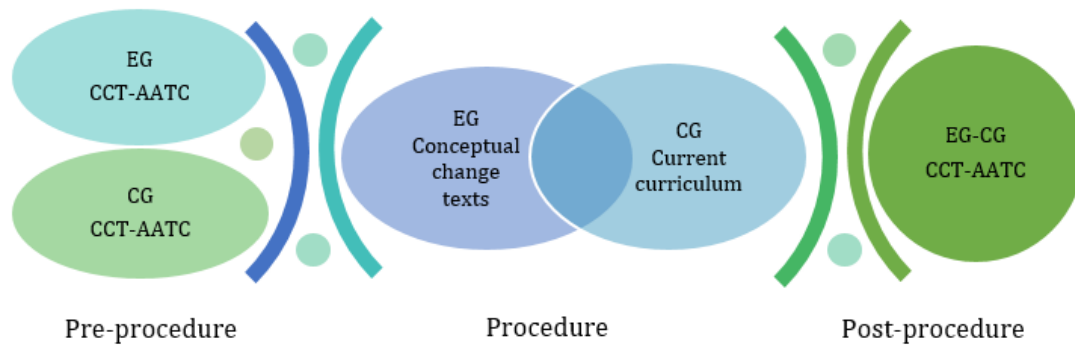


Figure 2. Implementation procedure

In the first week of the implementation procedure, students were informed about the purpose of the study and the implementation procedure, followed by the Concept Comprehension Test and the Academic Achievement Test of Concepts being administered to the students both in the EG and CG as pre-tests. After the pre-tests being applied in the first week, the procedure continued by teaching the students the concepts contained in the field of active citizenship learning, with a special emphasis on those that seemed quite difficult to learn and were thought to be mistaken. The students in the control group were instructed by adhering to the current curricula and no other teaching method was used for teaching the concepts determined in the relevant learning area, while those in the experimental group were instructed through the CCT used for teaching the determined concepts. The students were handed out the CCT of the related concept and asked questions at the beginning of the texts, after which in-class discussions were encouraged. After in-class discussions, the misconceptions in the conceptual change texts were read and the students were asked to give reasons for their possible accuracy. After the explanations of the students, valid explanations/information about the concepts was presented, enabling the students to compare the explanations, justifications and the ideas that were likely to contain errors. After the lesson hour finished in the experimental and control groups, the students in the experimental group were administered the CCT and AATC as post-tests in order to finalize the research process. Figure 3 demonstrates the pictures from the implementation procedure.



Figure 3. Pictures from the implementation procedure



## **Data Analysis**

### ***Analysis of Concept Comprehension Test***

In the analysis of the data obtained from the CCTs, the students' levels of comprehension were taken into account. The relevant literature has shown that in order to determine the level of comprehension, some categories are formed as follows: "*understanding*" (statements that can be accepted as true about the concept), "*limited understanding*" (one or several aspects of the expressions that can be considered true about the concept), "*misunderstanding*" (the words that can be considered contradictory to the concept), "*failing to understand*" (rewriting the concept itself or making explanations that are not related to the expression that can be accepted as correct), "*failing to respond*" (leaving unanswered or expressions such as "I don't know") (Akbaş, 2008; Cin, 1999; Harwood & Mcshane 1996). The data obtained from the CCTs was analysed in conformity with the specified categories.

### ***Analysis of the Academic Achievement Test of Concepts***

First of all, normality analysis was performed for the data analysis of the AATC. For normality analysis, histogram, normal Q-Q plot, detrended normal Q-Q plot graph, Skewness and Kurtosis values were taken into account to examine whether the data showed a normal distribution (Pallant, 2005). However, Kolmogorov-Smirnov normality test was preferred in the normality analysis since the number of students in the sample groups was over 30 (Ak, 2008). As a result of the normality analysis, since the data showed a normal distribution, the independent samples t-test from the parametric tests was used in the analysis of the data. Before the independent samples t-test was performed, it was checked whether or not the necessary assumptions (normality, equal variance of groups, and each data being independent of the other) for the analysis of the data had been met (Can, 2017). In addition, the effect size value was calculated as a result of the analysis. In general, 0.2 is considered a small, 0.5 a medium, and 0.8 a large effect for the effect size value (Green & Salkind, 2005).

## **Ethical Approval**

This study complied with all the rules specified to be followed within the scope of "Higher Education Institutions Scientific Research and Publication Ethics Directive". None of the actions specified under the title of "General Actions Contrary to Scientific Research and Publication Ethics", which is the second part of the directive, were executed.

### ***Ethics Committee Permission Information:***

Name of the committee that made the ethical evaluation= Social and Human Sciences Ethics Committee

Date of ethics review decision =25.03.2022

Ethics assessment certificate issue number = 04/01

## **Results**

The students were administered the Concept Comprehension Test (CCT) consisting of open-ended questions as a pre-test and post-test to in order to determine the students' prior knowledge/misconceptions about the concepts of *national sovereignty, republic, democracy, constitutionalism, constitution, pluralism, judiciary, legislative and executive powers*. The data analysis of the CCT was made according to the categories of understanding, limited understanding,

misunderstanding, failing to responding, and failing to understand, and the students' level of understanding of the concepts was presented in graphics. Figures 4 and 5 present the students' prior knowledge levels as regards relevant concepts.

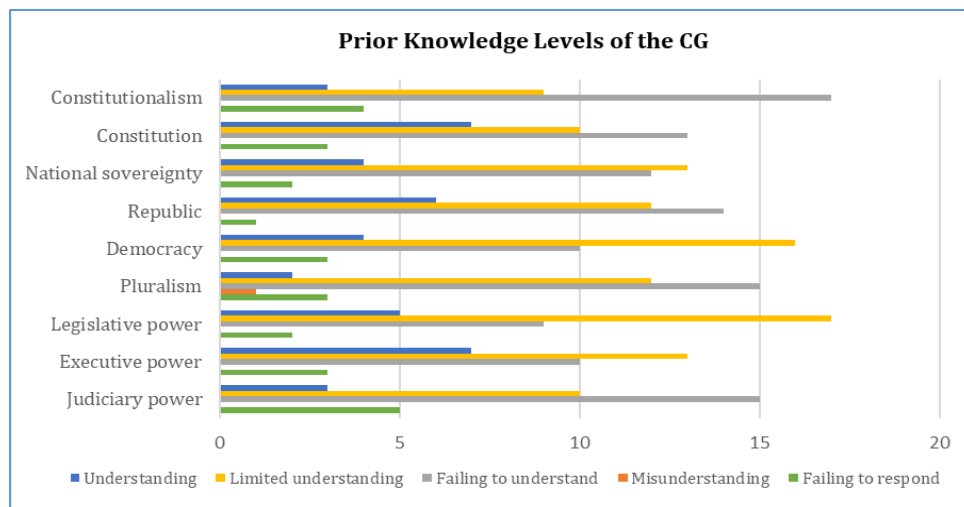


Figure 4. Prior knowledge levels of the CG as regards concepts

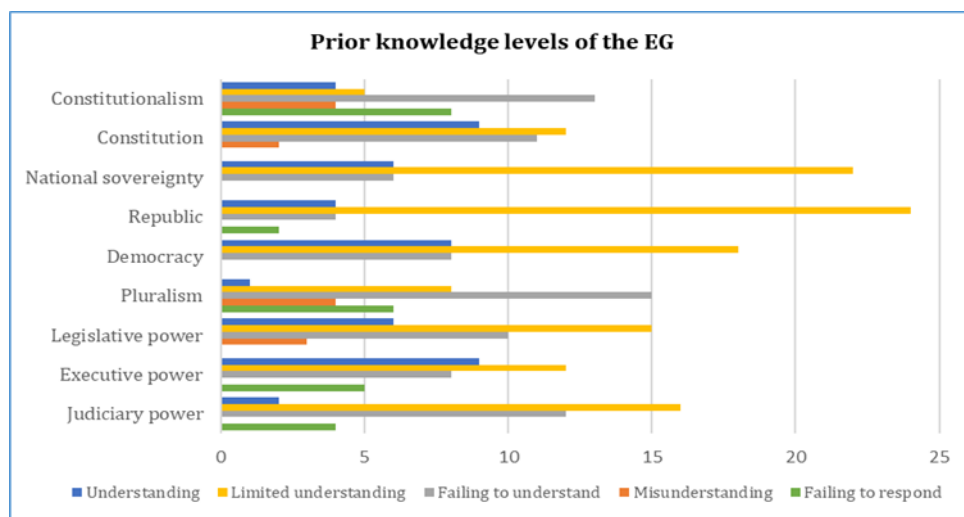


Figure 5. Prior knowledge levels of the EG as regards concepts

As can be seen in Figures 4 and 5, the prior knowledge levels of the EG and CG students to understand the related concepts are quite low. The CG students' answers about the concepts of "democracy", "legislative power", "national sovereignty", and "executive power" fell into the category of *limited understanding*, while the answers they gave about the concepts of "constitutionalism", "republic", "constitution", "pluralism", and "judiciary power" into the category of *failing to understand* (Figure 4). However, the answers of the EG students about the concepts of "constitution", "national sovereignty", "republic", "democracy", "legislative power", "executive power", and "judiciary power" fell more in the category of *limited understanding*, whereas their answers about the concepts of "pluralism" and "constitutionalism" (Figure 5) mostly fell into the category of *failing to understand*. The CG and EG students were administered the concept comprehension test as a post-test after the procedure. Figures 6 and 7 illustrate the students' new level of concept understanding after the post-tests.

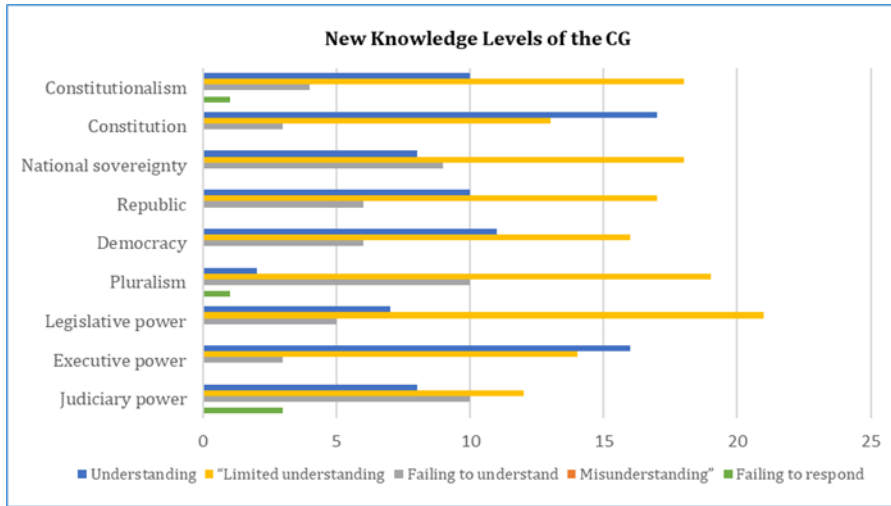


Figure 6. New knowledge levels of the CG as regards concepts

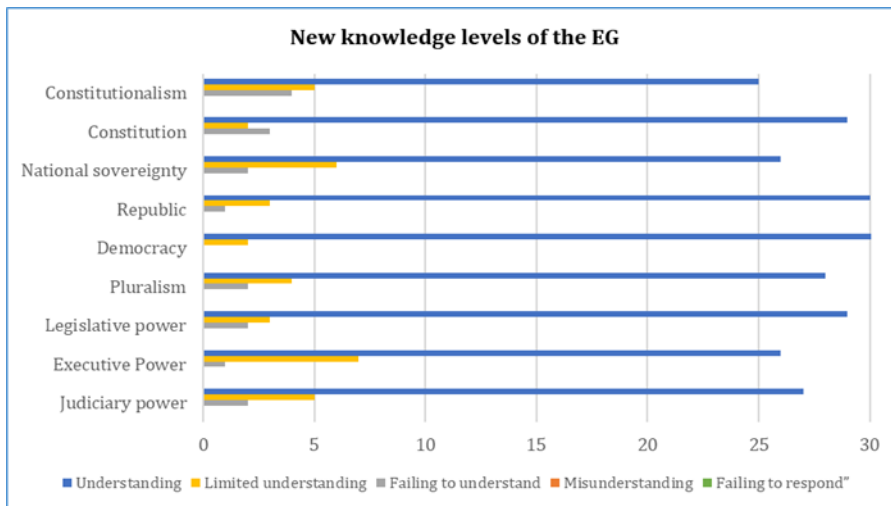


Figure 7. New knowledge levels of the EG as regards concepts

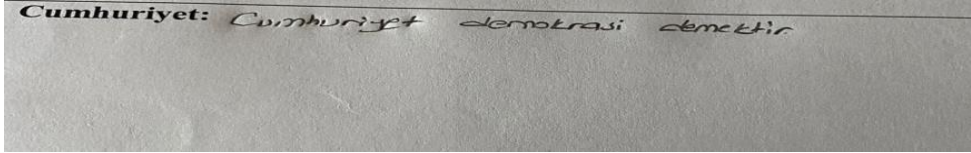
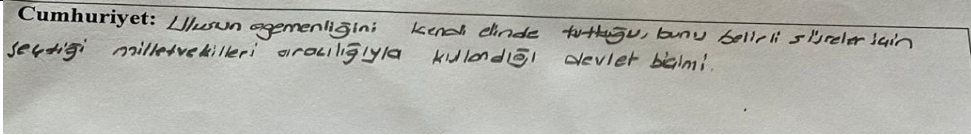
As can be seen in Figure 6, the new knowledge level of the CG students regarding the understanding of related concepts is mostly at the level of *limited understanding*. The students' answers about the concepts of "constitutionalism", "national sovereignty", "republic", "democracy", "pluralism", "legislative power", and "judiciary power" fell into the category of *limited understanding*, while the answers that they gave regarding the concepts of "constitution", and "executive power" mostly fell in the category of *understanding*.

The students appeared to give answers regarding the concepts of "constitutionalism", "national sovereignty", "republic", "democracy", "pluralism", "legislative power", and "judiciary power", which fell into the category of *limited understanding*, while more to the category of *understanding* regarding the concepts of "constitution" and "executive power". Nevertheless, it is noteworthy that the EG students' post-test knowledge level of understanding concepts is mostly at the level of *understanding* (Figure 7). It was also apparent that the students gave answers about the concepts of "constitutionalism", "constitution", "national sovereignty", "republic", "democracy", "pluralism", "legislative, executive and judiciary powers" that all fell into the

category of *understanding* (Figure 7). In this case, it can be assumed that conceptual change texts are effective in eliminating students' misconceptions and in enabling them to learn concepts.

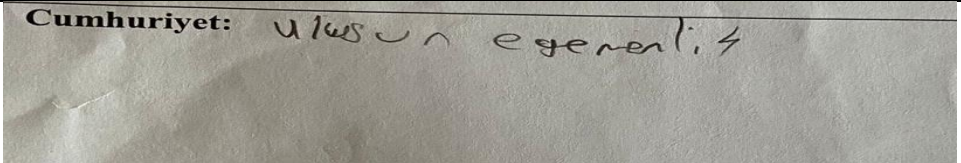
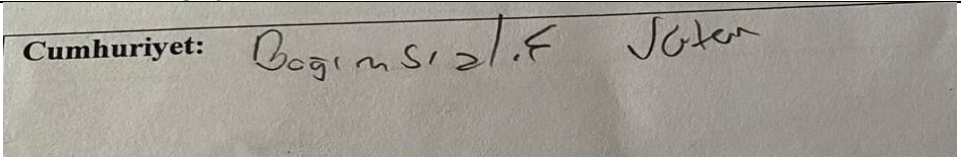
Sample answers related to students' prior knowledge of concepts and post-test knowledge levels are presented below.

Regarding the concept, "Republic"

<p>EG Pre-test (S1) Failing to understand</p>	
<p>EG Post-test (S1) Understanding</p>	
	<p>Republic means democracy.</p>
	<p>It is a form of state in which the nation holds the sovereignty and uses it through the deputies elected for certain periods.</p>

As can be seen from the answers given by S1, one of the students in the EG, regarding the concept of "republic", which is quite difficult to learn and often misunderstood by many students, it appears that the student could not fully explain the concept of republic and had a misconception about it. It is noteworthy that S1 first responded at the level of *failing to understand* the concept of republic in the pre-test. However, S1 later seemed to have understood that the concept of republic was not the same as the concept of democracy in the post-test, and answered at the level of *understanding*, indicating that the student's level of understanding of the related concept increased.

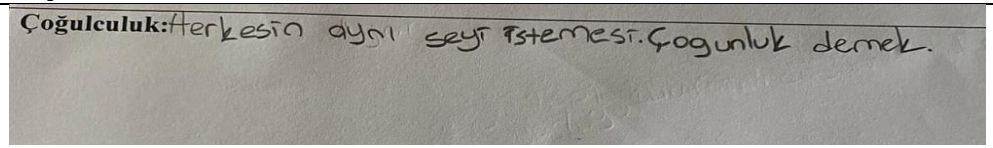
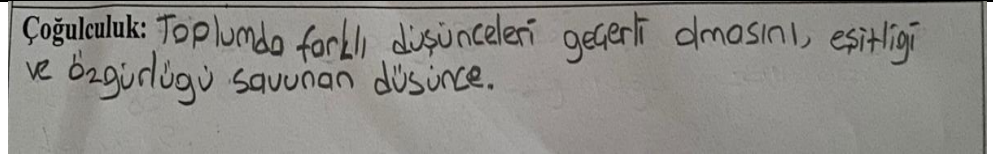
Regarding the concept, "Republic"

<p>CG Pre-test (S1) Failing to understand</p>	
<p>CG Post-test (S1) Failing to understand</p>	
	<p>National sovereignty</p>
	<p>Independence, homeland</p>

As can be seen from the answers given by S1, one of the students in the CG, regarding the same concept- "republic", it is clear that the student could not fully explain the concept of republic and had a misconception about it too. It is remarkable that S1 answered at the level of *failing to understand* the concept of republic in the pre-test. Besides that, S1 explained the concept of republic with some other concepts like *independence* and *homeland*, in the post-test and answered at the level of *failing to understand*, indicating that the misconception of the student persisted. No change was observed in the level of the student's understanding of the related concept. Another

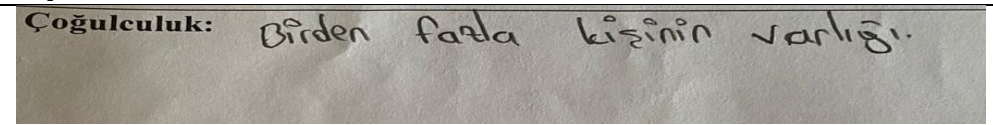
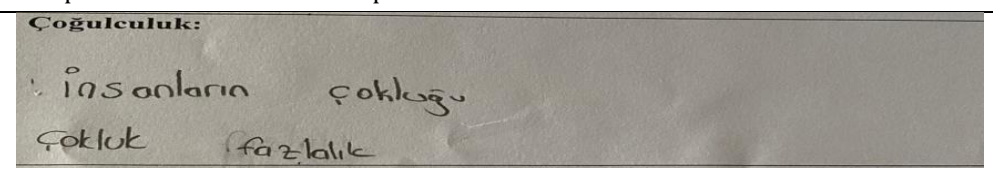
concept that students have often difficulty learning and have misconceptions about is “pluralism”, which was explained in the EG and CG as follows.

Regarding the concept, “Pluralism”

EG Pre-test (S5) Failing to understand	 <p>Çoğulculuk: Herkesin aynı şeyi istemesi. Çoğunluk demek.</p>
	It refers to the idea that everyone wants the same thing. It means majority.
EG Post-test (S5) Understanding	 <p>Çoğulculuk: Toplumda farklı düşünceleri geçerli olması, eşitliği ve özgürlüğü savunan düşünce.</p>
	The idea that defends the validity of different ideas in society, equality and freedom.

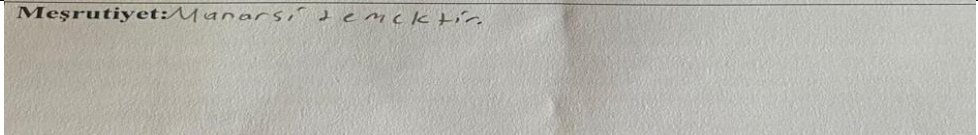
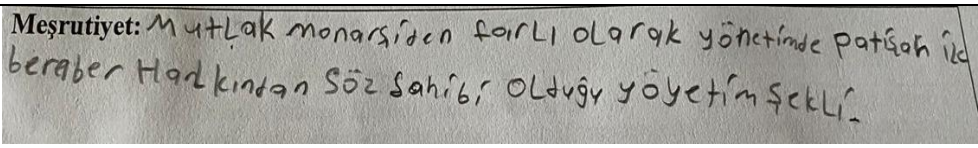
As is seen from the answers given by S5, one of the students in the EG, regarding the concept- “pluralism”, it is evident that the student could not fully explain the concept of pluralism and had a misconception about it. It is apparent that S5 answered at the level of *failing to understand* the concept of republic in the pre-test and defined the concept of pluralism as *majority*. However, it seems that S5 understood that the concept of pluralism was not the same as the concept of majority in the post-test and answered at the level of *understanding*. Based on the student’s statements, it could be stated that the student’s level of understanding of the related concept increased.

Regarding the concept, “Pluralism”

CG Pre-test (S5) Failing to understand	 <p>Çoğulculuk: Birden fazla kişinin varlığı.</p>
	The presence of more than one person
CG Post-test (S5) Understanding	 <p>Çoğulculuk: İnsanların çokluğu. Çokluk fazlalık</p>
	Multitude of people, plenitude, excess

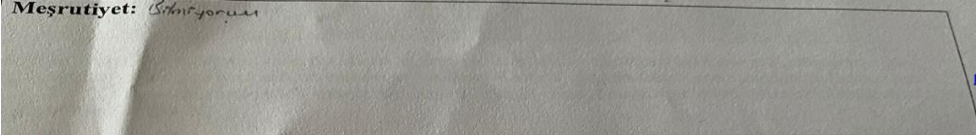
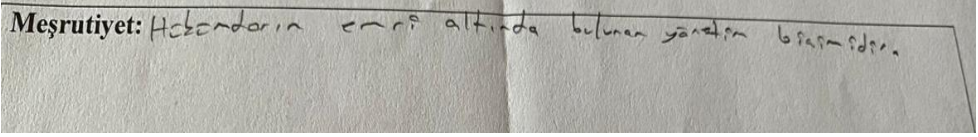
Based on the answers given by S5, one of the students in the CG, regarding the concept- “pluralism”, it seems that the student could not fully explain the concept of pluralism and also had a misconception about it. It is apparent that S5 answered at the level of *failing to understand* the concept of republic in the pre-test and defined the concept of pluralism as the *presence of more than one person*. However, S5 defined the concept of pluralism in the post-test as *multitude of people, plenitude, and excess*, and explained it at the level of *failing to understand* as in the pre-test, indicating that the misconception about the concept of pluralism persisted. In this case, no change was observed in the level of the student’s understanding of the relevant concept. Another concept that students have difficulty in learning and have misconceptions about is the concept, “constitutionalism”, which was explained in the EG and CG as follows.

Regarding the concept, “Constitutionalism”

<p>EG Pre-test (S16) Failing to understand</p>	
	<p>It means monarchy.</p>
<p>EG Post-test (S16) Understanding</p>	
	<p>Unlike absolute monarchy, it is a form of government in which the people have a say together with the sultan.</p>

As seen from the answers given by S16, one of the students in the CG, regarding the concept- “constitutionalism”, it is clear that the student first attempted to define it at the level of *failing to understand*. Besides that, S16 explained the concept of republic with another concept, *monarchy*, indicating a misconception. However, it turned out that S16 understood that the concept of constitutionalism was not the same as the concept of monarchy in the post-test and answered later at the level of *understanding*. Based on the student’s statements, it could be considered that the student’s level of understanding of the related concept increased.

Regarding the concept, “Constitutionalism”

<p>CG Pre-test (S16) Failing to respond</p>	
	<p>I don’t know.</p>
<p>CG Post-test (S16) Failing to understand</p>	
	<p>The form of government under the command of the ruler</p>

As can be seen from the answers given by S16, one of the students in the CG, regarding the concept of “constitutionalism”, which is quite difficult to learn and often misunderstood by many students, it appears that the student could not fully explain the concept of republic. It is noteworthy that S16 had first answered at the level of *failing to respond* in the pre-test. However, it can also be seen in the post-test that S16 tried to define the concept of “constitutionalism” as *the form of government under the command of the ruler*, which is an indication of the level of *failing to understand*. In this case, it can be stated that there is no significant change in the student’s level of understanding the relevant concept.

In general, the sample answers related to the students’ prior knowledge and post-test knowledge levels as regards the concept showed that the prior knowledge levels of the students in the CG and EG were at the same level before the implementation procedure. After the implementation procedure, however, no significant change was observed in the CG with respect to the students’ levels of understanding related to the concepts, whereas those levels in the EG turned out to have remarkably increased compared to the pre-procedure. This finding shows that conceptual change texts exert a positive influence on students in terms of learning the concepts and eliminating previous misconceptions.

In order to determine the effect of conceptual change texts (CCTs) on students' concept comprehension levels, the participants were administered the Academic Achievement Test of Concepts (AATC) as a pre-test and post-test, in addition to the Concept Comprehension Test (CCT). Table 2 presents the analysis results of the independent samples t-test and of descriptive statistics performed to determine whether or not the effect of the CCTs on students' academic achievement was significant.

Table 2. Independent sample t-test results on pre-test & post-test data of AATC

AATC	Groups	N	$\bar{X}$	ss	sd	t	p
Pre-test	EG	34	57.76	16.60	65	-.226	.82
	CG	33	58.67	16.05			
Post-test	EG	34	80.24	6.52	65	5.286	.00
	CG	33	70.18	8.89			

As shown in Table 2, the descriptive statistics of the pre-test data of the AATC demonstrate that the mean score (EG;  $\bar{X} = 57.76$ ; CG;  $\bar{X} = 58.67$ ) of the students in the EG and CG appears to be close to each other. Table 2 also shows that there is no statistically significant difference between the groups in terms of academic achievement ( $t_{(65)} = -.226, p > 0.05$ ). Taking this into account, it can be considered that the academic achievements of the students in the EG and CG before the application were close to each other related to the given concepts. In addition, the data obtained from the AATC administered to the experimental and control groups as a post-test (Table 2) indicate that the mean score of the students in the EG (EG;  $\bar{X} = 80.24$ ) was higher than that of the students in the CG (CG;  $\bar{X} = 70.18$ ). Such difference between the mean scores of the students was found statistically significant ( $t_{(62)} = 5.286, p < 0.05$ ). As a result of the analysis, the effect size value was calculated as  $d = 1.29$ , indicating a high level of effect.

## Conclusion, Discussion and Recommendations

This study aimed to examine the effect of conceptual change texts on teaching the concepts (republic, democracy, constitutionalism, national sovereignty, pluralism, constitution, as well as legislative, executive, and judiciary powers) that are difficult to learn and leading to misconceptions in the field of active citizenship learning (generally includes concepts specific to social sciences such as political science and law) in the sixth grade social studies course. Taking into account the advantages of conceptual change texts in the concept teaching process, this study tested the effect of using conceptual change texts based on a process through a quasi-experimental design by integrating conceptual change texts into the teaching process in order to eliminate the misconceptions of students in the field of active citizenship learning and to teach the particular concepts that are difficult to learn. The use of different conceptual change texts within the process of five weeks revealed a result in favour of the experimental group students in learning the concepts specific to the social studies course and eliminating misconceptions (Table 2). This significant change was clearly presented in the concept definitions that the experimental group students made directly in their own writings. Similar results have been obtained in different studies in the literature conducted on conceptual change texts that contribute positively to the learning of the concepts in the field of active citizenship learning in the social studies course (Akbaş, 2008; Kılıçoğlu, 2011; Aladağ & Yılmaz, 2014; Yıldırım, 2016; Çelikkaya & Şarlayan, 2019; Kürümlüoğlu, 2019; Köroğlu, 2019; Sel & Sözer, 2019). There are important effects of conceptual

change texts in the background of the conceptual change and development experienced by the students in the field of active citizenship learning in the social studies course. In the conceptual change process, students first need to be aware of their lack of knowledge and mistakes in their own ideas and be aware of the necessity to alter them. To this end, students should make an effort to clearly see in their minds the contradictions between their own beliefs and scientific ideas (Duit & Treagust, 2003). After the misconceptions have been identified, appropriate environments should be created where students can discuss the misconceptions so that they can feel that these thoughts are incomplete, inadequate, and inconsistent. Furthermore, students should be provided with specific evidence proving that their ideas are erroneous, and they should finally be presented with the necessary and relevant scientific information on the subject matter (Akbaş, 2008). For this reason, different methods that emphasize thinking, questioning, and developing a critical approach are needed instead of traditional knowledge transfer in the concept teaching process. The conceptual change approach, which is the focus of this study, is a student-centred approach with a focus on students' prior knowledge, advocating the understanding that new knowledge is built on previous knowledge/experiences. By including this approach in the learning process, students were given the opportunity to actively participate in the activities and express their thoughts freely. In-class discussions on concepts such as republic, democracy, national sovereignty, pluralism, and constitution led students to socialize, to be aware of the ideas and opinions of their friends, and to construct knowledge. Moreover, in-class discussions over conceptual change texts proved effective in students' active participation in the process, enabling them to have the opportunity to test their ideas, and distrusting their wrong ideas. In doing so, students were naturally encouraged to think, search, and examine different ideas on the learned concept. Thus, in the process, the misconceptions about the concepts in the field of active citizenship learning, which carried social life into the classroom environment, were eliminated and the concepts were learned effectively.

Having integrated conceptual change texts into the teaching process of abstract concepts such as legislative, executive, judiciary powers, constitutionalism, and sovereignty, Kürümlüoğlu (2019) emphasized the effect of the conceptual change texts on eliminating the misconceptions specific to the social studies course and learning the concepts in accordance with their scientific nature. In another study focusing on concept teaching through conceptual change texts, Köroğlu (2019) dealt with various geographical concepts (map, scale, geographical location, mathematical location, special location, continent and ocean), which are included in the social studies course and considered to be difficult for students to understand. As a result of that study, conceptual change texts proved very efficacious in increasing students' understanding of concepts and eliminating misconceptions. As another example, Yıldırım (2016) included conceptual change texts in the teaching process of five different concepts (e.g., management, public opinion, national sovereignty, national independence, democracy) in the social studies course to the fourth grade students, whereas Aladağ and Yılmaz (2014) included conceptual change texts to identify and eliminate existing misconceptions about concepts such as *culture*, *national culture*, and *value* contained in the fourth grade social studies curriculum. Both Yıldırım (2016) and Aladağ and Yılmaz (2014) reported that the process carried out through conceptual change texts enabled students to learn the concepts correctly. In a different study focusing on conceptual change texts, Şarlayan (2017) added such texts to the process of eliminating misconceptions about *age*,



*aesthetics, conquest, holy war, reform and settlement*, and teaching them in conformity with their conceptual meanings, emphasizing that conceptual change texts were effective in teaching related concepts as a result of the process. Having integrated the conceptual change texts into the teaching process about the misconceptions about such concepts as *mukhtar (a local authority)*, *local government*, and *election* in the social studies course, Sel and Sözer (2019) pointed out that the conceptual change texts were effective in eliminating the misconceptions about these concepts and in learning in accordance with the scientific definition. Using the conceptual change texts to eliminate the misconceptions about the concepts specific to the social studies course, Kılıçoğlu (2011) stated that the use of texts revealed a significant result in eliminating the misconceptions of the students about the concepts of *maps, scales, location, climate, and weather conditions* and learning these concepts correctly. The holistic evaluation of the findings of different studies focusing on different class levels and different concepts through conceptual change texts brought to the conclusion that the studies were effective in eliminating the misconceptions about the concepts specific to the social studies course and teaching such concepts in accordance with the scientific content. In the context of active citizenship, this study can be considered to meet at a similar point with the other relevant studies in the literature.

Integrating different social science fields with an interdisciplinary approach, the social studies course aims to raise individuals who are literate in social studies by gathering rich content, skills, and values under its umbrella (Başcı-Namlı, Kayaalp & Meral, 2021). In order for this knowledge, skill and value cycle included in the social studies course to function properly and effectively, first of all, students' conceptual structures specific to the social studies course should be based on the right information and the right network of relations between the concepts. Given this requirement, this study has confirmed the positive effect of conceptual change texts, which is a student-centred approach, in teaching concepts that are often difficult to learn and cause misconceptions in the field of active citizenship learning in the sixth grade social studies course. In the light of the findings obtained from this study, the following recommendations can be made:

This study found out that concept teaching through concept change texts is concentrated in the field of science education, with very little use in other disciplines. Concept change texts can be included more in the social studies course, which includes many concepts from different disciplines.

This study was conducted in the field of active citizenship learning in the sixth grade social studies course. Similar studies can be carried out in the future in different classrooms and learning areas.

This study concluded that concept change texts were effective in detecting misconceptions. Concept change texts can be included especially in subjects and learning areas where misconceptions seem to be intense.

This study determined to what extent the CCTs were effective in teaching certain concepts through quasi-experimental design. With qualitative or mixed studies, researches can conduct further studies on why conceptual change texts are effective in teaching concepts or detecting misconceptions.

## References

- Ak, B. (2008). Verilerin düzenlenmesi ve gösterimi [Organizing and displaying data]. In Ş. Kalaycı (Ed.), *SPSS uygulamalı çok değişkenli istatistik teknikleri* (ss. 3-47). Asi Yayın Dağıtım.
- Akbaş, Y. (2021). Kavramsal değişim yaklaşımı [Conceptual change approach]. In R. Sever (Ed.), *Sosyal bilgiler eğitiminde kavram öğretimi* (ss. 55-75). Pegem Akademi.
- Akbaş, Y. (2008). *Ortaöğretim 9. sınıf öğrencilerinin iklim konusundaki kavram yanlışlarının giderilmesinde kavramsal değişim yaklaşımının etkisi [The effect of conceptual change approach to eliminate 9th grade high school students' misconceptions about climate subject]*. (Dissertation Number. 235834). [Doctoral dissertation, Atatürk University], YÖK Thesis Center.
- Akbaş, Y. (2019). Kavramlarla sosyal bilgiler öğretimi [Social studies teaching with concepts]. In T. Çelikkaya, Ç. Ö. Demirbaş, T. Yıldırım & H. Yakar (Eds.), *Sosyal bilgiler öğretimi II* (ss.227-266). Pegem Akademi.
- Akbaş, Y., & Gençtürk, E. (2011). The effect of conceptual change approach to eliminate 9th grade high school students' misconceptions about air pressure. *Educational Sciences: Theory & Practice*, 11(4), 2217-2222.
- Akpınar, B. (2019). *İlkokul 4. sınıf sosyal bilgiler dersinde vatandaşlık ile ilgili kavram yanlışlarının incelenmesi ve giderilmesi: Bir eylem araştırması [Investigation and elimination of the misconceptions related to citizenship in 4th grade primary school social studies curriculum: An action research]*. (Dissertation Number. 586653). [Master Thesis, Marmara University], YÖK Thesis Center.
- Aladağ, S., & Yılmaz, E. (2014). Kavramsal değişim metinlerinin öğrencilerin sosyal bilgiler dersindeki kavram yanlışlarını gidermeye etkisi. [The effect of conceptual change texts reducing misconceptions in social studies]. *Trakya University Journal of Social Sciences*, 16(2), 163-176.
- Alkış, S. (2009). Sosyal bilgilerde kavram öğretimi [Concept teaching in social studies]. In M. Safran (Ed.), *Sosyal bilgiler öğretimi* (ss.70-89). Pegem Akademi.
- Aydın, G., & Balım, A. G. (2013). Kavramsal değişim stratejilerine dayalı olarak hazırlanan fen ve teknoloji plan ve etkinlikleri. [Science and technology course plans and activities based on conceptual change strategies]. *Journal of Research in Education and Teaching*, 2(1), 327-337.
- Bal, S. M., & Akış, A. (2010). Sosyal bilgiler dersi "insanlar ve yönetim" ünitesinde karşılaşılan kavram yanlışları. [Misconceptions faced in the section about "humans and governance" in social science lessons]. *Education Sciences*, 5(4), 2062-2072.
- Başcı-Namlı, Z., Kayaalp, F., & Meral, E. (2021). "Sosyal bilgiler okuryazarlığı" kavramına yüklenen anlamların zihin haritalarına yansımaları. [The reflection of the meanings attributed to the concept of "social studies literacy" on mind maps]. *Journal of Computer and Education Research*, 9(18), 869-903.
- Başbüyük, A., Doğan, Ç., Gürses, A., & Yazıcı, H. (2004). Yükseköğretim öğrencilerinin hava ve iklim olaylarını anlama seviyeleri ve kavram yanlışları. [Understanding levels and misconceptions of higher education students about weather and climate events]. *Milli Eğitim Dergisi*, 162.
- Can, A. (2017). *SPSS ile bilimsel araştırma sürecinde nicel veri analizi [Quantitative data analysis in the scientific research process with SPSS]*. Pegem Akademi
- Canpolat, N., & Pınarbaşı, T. (2002). Fen eğitiminde kavramsal değişim yaklaşımı-I: Teorik temelleri. [Conceptual change approach in science education-I: Theoretical foundations]. *Kastamonu Education Journal*, 10(1), 59-66.
- Chambers, K. S., & Andre, T. (1997). Gender, prior knowledge, interest and experience in electricity and conceptual change text manipulations in learning about direct current. *Journal of Research in Science Teaching*, 34, 107-123. [https://doi.org/10.1002/\(SICI\)1098-2736\(199702\)34:2%3C107::AID-TEA2%3E3.0.CO;2-X](https://doi.org/10.1002/(SICI)1098-2736(199702)34:2%3C107::AID-TEA2%3E3.0.CO;2-X)
- Chi, M.T.H., & Roscoe, R. D. (2002). The process and challenges of conceptual change. In M. Limon & L. Mason (Eds.), *Reconsidering conceptual change: Issues in theory and practice* (pp. 1-27). Kluwer Academic.
- Cin, M. (1999). *The influence of direct experience of the physical environment on concept learning in physical geography* [Unpublished doctoral dissertation]. University of Durham.

- Cin, M., Engin, İ., & Akbaş, Y. (2005). İlköğretim 6. sınıf öğrencilerinin Türkiye'nin matematik konumunu anlama düzeyleri ve yanlış anlamaları. [6th grade primary school students' understanding of Turkey's location in mathematics and their misunderstandings]. *Eastern Geographical Review*, 10(14), 121-140.
- Çakmak, F. (2006). *İlköğretim 6. sınıf öğrencilerinin sosyal bilgiler dersi nüfus ve yerleşme konusunda geçen kavramları anlama düzeyleri ve kavram yanlışları [6th grade primary school students understanding level and misconceptions in the subject of population and settlement]*. (Dissertation Number. 187454). [Master Thesis, Afyonkarahisar Kocatepe University], YÖK Thesis Center.
- Çaycı, B. (2007). *Kavram öğreniminde kavramsal değişim yaklaşımının etkililiğinin incelenmesi [Examining of the effectiveness of conceptual changing approach on concept learning]*. (Dissertation Number. 189747). [Doctoral dissertation, Gazi University], YÖK Thesis Center.
- Çelikkaya, T., & Şarlayan, R. (2019). Kavramsal değişim metinlerinin sosyal bilgiler dersindeki kavram yanlışlarının giderilmesine etkisi. [The effect of conceptual change texts on overcoming the misconceptions in the social studies courses]. *Kastamonu Education*, 27(6), 2403-2412.
- Dağdelen, O. (2017). *İlkokul 4. sınıf sosyal bilgiler dersi insanlar ve yönetim ünitesindeki kavram yanlışlarının giderilmesinde kavramsal değişim yaklaşımının etkisi [The impact of the conceptual change approach in the elimination of the misconceptions in 'human and management' unit of the fourth grade social studies course at primary school]*. (Dissertation Number. 477548). [Master Thesis, Amasya University], YÖK Thesis Center.
- Deisenrieder, V. Müller, S., Knoflach, B., Oberrauch, A., Geitner, C., Keller, L., & Stötter, J. (2022). Young people's pre-conceptions of the interactions between climate change and soils – looking at a physical geography topic from a climate change education perspective. *Journal of Geography*, 121(2), 51-66. <https://doi.org/10.1080/00221341.2022.2037011>
- Demirkaya, H., & Karacan H. (2016). Ortaokul 6. sınıf öğrencilerinin sosyal bilgiler dersindeki bazı coğrafi kavramları anlama düzeyleri ve kavram yanlışları. [Middle school sixth graders' level of understanding and misconceptions about the some geographical concepts in social studies course]. *International Journal of Field Education*, 2(2), 38-57.
- Doğanay, A. (2002). Öğretimde kavram ve genellemelerin geliştirilmesi [Developing concepts and generalizations in teaching]. In C. Öztürk & D. Dilek (Eds.), *Hayat bilgisi ve Sosyal bilgiler öğretimi* (ss.227-255). Pegem Akademi.
- Dove, J. (1999). *Immaculate misconceptions, the geographical association*. Colorcraft Ltd.
- Dove, J. (2000). Conceptions of rainforests. *Teaching Geography*, 25(1), 32-34.
- Driver, R. (1989). Students' conceptions and the learning of science. *International Journal Science Education*, 11, 481-490. <https://doi.org/10.1080/0950069890110501>
- Duit, R., & Treagust, D.F. (2003). Conceptual change: A powerful framework for improving science teaching and learning. *International Journal of Science Education*, 25, 671-688. <http://dx.doi.org/10.1080/09500690305016>
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). *How to design and evaluate research in education*. McGraw-Hill.
- Gay, L. R., Mills, G. E., & Airasian, P. W. (2012). *Educational research competencies for analysis and applications*. Pearson.
- Gilbert, J. K., & Watts, D. M. (1983). Concepts, misconceptions and alternative conceptions: Changing perspectives in science education. *Studies in Science Education*, 10, 61-98. <https://doi.org/10.1080/03057268308559905>
- Green, S. B., & Salkind, N. J. (2005). *Using Spss for windows and Macintosh: Analyzing and understanding data*. Upper Saddle River.
- Harwood, D., & Mcshane, J. (1996). Young children's understanding of nested hierarchies of place relationships. *International Research in Geographical and Environmental Education*, 5(1), 3-29. <https://doi.org/10.1080/10382046.1996.9964985>
- Henriques, L. (2002). Children's ideas about weather: A review of the literature. *School Science and Mathematics*, 102(5), 202-215. <https://doi.org/10.1111/j.1949-8594.2002.tb18143.x>

- Hewson, M. G., & Hewson, P. W. (1983). Effect of instruction using students' prior knowledge and conceptual change strategies on science learning. *Journal of Research in Science Teaching*, 20(8), 731-743. <https://doi.org/10.1002/tea.3660200804>
- Hewson, M. G., & Hewson, P. W. (1984). The role of conceptual conflict in conceptual change and the design of science instruction. *Instructional Science*, 13, 1-13.
- Kaya, Y., & Çiviler, M. (2012). İlköğretim 6. sınıf sosyal bilgiler dersi "yeryüzünde yaşam" ünitesinde yer alan tarih kavramlarının öğretiminde karşılaşılan kavram yanlışları üzerine bir eylem araştırması. [Investigation into students' misconceptions about historical concepts in the "living on the earth" unit at 6th grade level elementary social studies course: an action research]. *Turkish History Education Journal*, 1(1), 1-31.
- Kılıçoğlu, G. (2011). *Sosyal bilgiler derslerinde kavramsal değişim metinlerinin kavram yanlışlarını giderme üzerine etkisi* [The impact of conceptual change texts on misconceptions in social studies courses]. (Dissertation Number. 298398). [Doctoral dissertation, Gazi University], YÖK Thesis Center.
- Kılıçoğlu, G. (2020). Kavramsal Değişim Metinleri [Conceptual change texts]. In T. Çelikkaya & Y. Akbaş (Eds.), *Kuramdan uygulamaya sosyal bilgilerde kavram öğretimi* (ss.469-504). Nobel.
- Köroğlu, Y. (2019). *Bilgisayar destekli kavram karikatürleri ve kavramsal değişim metinlerinin kavram yanlışlarını giderme üzerine etkisi* [The effects of computer-aided concept cartoons and conceptual change texts on the elimination of misconceptions]. (Dissertation Number. 546410). [Master Thesis, Trabzon University], YÖK Thesis Center.
- Kuzey, M., & Değirmenci, Y. (2019). Sosyal bilgiler öğretmen adaylarının harita ve yön okuryazarlığına ilişkin kavramları anlama düzeyleri ve kavram yanlışları. [Social studies teacher candidates' understanding level and misconceptions with regard to the map and direction literacy]. *Milli Eğitim Dergisi*, 48(223), 207-230.
- Kürümlüoğlu, M. (2019). *6.sınıf sosyal bilgiler dersi demokrasinin serüveni ünitesindeki kavram yanlışlarını giderme: Bir eylem araştırması* [Eliminating the misconception on the 6th grade social studies in the unit adventure of democracy': An action research]. (Dissertation Number. 551157). [Master Thesis, Kırşehir Ahi Evran University], YÖK Thesis Center.
- Lane, R. (2008). Students' alternative conceptions in geography. *Geographical Education*, 21, 43-52.
- Martorella, P. H. (1996). *Teaching social studies in middle and secondary schools*. Prentice Hall.
- McMillan, J. H., & Schumacher, S. (2014). *Research in education: Evidence-based inquiry*. Pearson.
- Milburn, D. (1972). Children's vocabulary. In N. J. Graves (Ed.), *New movements in the study and teaching of geography*. Temple Smith.
- Misco, T. (2005). The moral nature of elementary social studies methods. *Theory and Research in Social Education*, 33(4), 532-547. <https://doi.org/10.1080/00933104.2005.10473294>
- Naish, M.C. (1982). Mental development and learning of geography. In N. J. Graves (Ed.), *New UNESCO source book for geography teaching*. UNESCO.
- Nelson, B. D., Aron, R. H., & Francek, M. A. (1992). Clarification of selected misconceptions in physical geography. *Journal of Geography*, 91(2), 76- 80. <https://doi.org/10.1080/00221349208979083>
- Novak, J. D. (2002). Meaningful learning: The essential factor for conceptual change in limited or inappropriate propositional hierarchies leading to empowerment of learners. *Science Education*, 86, 548-571. <https://doi.org/10.1002/sce.10032>
- Pallant, J. (2005). *SPSS survival manual: A Step by Guide to data analysis using spss for Windows*. National Library of Australia.
- Palmer, D. H. (2003). Investigating the relationship between refutational text and conceptual change. *Science Education*, 87, 663-684. <https://doi.org/10.1002/sce.1056>
- Pınar, A., & Akdağ, H. (2012). Sosyal bilgiler öğretmen adaylarının iklim, rüzgâr, sıcaklık, yağış, erozyon, ekoloji ve harita kavramlarını anlama düzeyi. [Social studies teacher trainees' comprehension level of climate, wind, temperature, precipitation, erosion, ecology and map concepts]. *Elementary Education Online*, 11(2), 530 -542.
- Platten, L. (1995). Talking geography: An Investigation into young children's understanding of geographical terms part-1. *International Journal of Early Years Education*, 3(1), 74-91. <https://doi.org/10.1080/0966976950030108>

- Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. *Science Education*, 66, 211-227. <https://doi.org/10.1002/sce.3730660207>
- Schmidt, H.J. (1997). Students' misconceptions-looking for a pattern. *Science Education*, 81(2),123-135. [https://doi.org/10.1002/\(SICI\)1098-237X\(199704\)81:2%3C123::AID-SCE1%3E3.0.CO;2-H](https://doi.org/10.1002/(SICI)1098-237X(199704)81:2%3C123::AID-SCE1%3E3.0.CO;2-H)
- Scott, P. H., Asoko, H. M., & Driver, R. (1992). Teaching for conceptual change: A review of strategies. In R. Duit, F. Goldberg & H. Niedderer (Eds.), *Research in physics learning: Theoretical issues and empirical studies* (pp. 310–329). IPN–Institute for Science Education.
- Sel, B., & Sözer, M. A. (2019). The effect of conceptual change texts on the level of conceptual understanding of students. *International Electronic Journal of Elementary Education*, 11(4), 383-391.
- Şarlayan, R. (2017). *Kavramsal değişim metinlerinin sosyal bilgiler dersindeki kavram yanlışlarının giderilmesine etkisi [The effect of conceptual change texts on overcoming the misconceptions in the social studies courses]*. (Dissertation Number. 477316). [Master Thesis, Kırşehir Ahi Evran University], YÖK Thesis Center.
- Şener, P. (2019). *Ortaokul öğrencilerinin etkin vatandaşlık öğrenme alanındaki kavramlara yönelik bilişsel yapılarının ve kavram algılarının belirlenmesi [Determination of the cognitive structures and concept perception of secondary school students about the concepts of effective citizenship learning]*. (Dissertation Number. 590140). [Master Thesis, Gazi University], YÖK Thesis Center.
- Tekin, H. (2000). *Eğitimde ölçme ve değerlendirme [Measurement and evaluation in education]*. Yargı.
- Turan, İ. (2002). Lise coğrafya derslerinde kavram ve terim öğretimi ile ilgili sorunlar. [Problems related to teaching concepts and terms in high school geography lessons]. *Gazi University Journal of Gazi Educational Faculty*, 22(2), 67-84.
- Turan, İ., & Kartal, A. (2012). İlköğretim 5. sınıf öğrencilerinin doğal afetler konusu ile ilgili kavram yanlışları. [The misconceptions of the fifth grade students on natural disasters]. *Ahi Evran University Journal of Kırşehir Educational Faculty*, 13(3), 67-81.
- Ülgen, G. (2001). *Kavram geliştirme kuramlar ve uygulamalar [Concept development theories and applications]*. Pegem Akademi.
- Widodo, A., & Duit, R. (2002, June). Conceptual change views and the reality of classroom practice [Paper presentation]. *Third European Symposium on Conceptual Change*. Turku, Finland.
- Wiegand P., & Stiell B. (1996). Lost continents? children's understanding of the location and orientation of the earth's masses. *Educational Studies* 22(3), 381-392. <https://doi.org/10.1080/0305569960220307>
- Yıldırım, M. E. (2016). *Kavramsal değişim metinlerinin ilkököl 4. sınıf öğrencilerinin kavram yanlışlarının giderilmesine ve başarısına etkisi [The effect of conceptual change texts in eliminating the misconceptions and in the success of primary school fourth-grade students]*. (Dissertation Number. 429921). [Master Thesis, Recep Tayyip Erdoğan University], YÖK Thesis Center.
- Yılmaz, K., & Çolak, R. (2011). Kavramlara genel bir bakış: Kavramların ve kavram haritalarının pedagojik açıdan incelenmesi. [A look at concepts: Investigation of concepts and concept maps from pedagogical perspective]. *Atatürk University Journal of Institute of Social Sciences*, 15(1), 185-204.

## **BIOGRAPHICAL NOTES**

### **Contribution Rate of Researchers**

Author 1: 100%

### **Conflict Statement**

There is no material or individual organic connection with the people or institutions involved in the research and there is no conflict of interest in the research



## Genişletilmiş Türkçe Özet

<http://www.tayjournal.com>

<https://dergipark.org.tr/tr/pub/tayjournal>

# Kavramsal Değişim Metinlerinin Kavram Öğretimindeki Rolü: Etkin Vatandaşlık Öğrenme Alanı

## Giriş

Yaşantı sürecindeki deneyimlerimiz sonucunda iki ya da daha fazla varlığı ortak özelliklerine göre bir arada gruplayıp, diğer varlıklardan ayırt ederek zihnimizde bir düşünme biçimi olarak depolama birimine kavram denir. Kavramlar somut eşya, varlık veya durum değil; olaylara, durumlara, nesne veya fikirlere ait genel özelliklere dayalı bir soyutlamadır ve gerçek dünyada kavramların ancak örnekleri bulunmaktadır (Akbaş, 2021; Çaycı, 2007; Naish, 1982). İnsanlar yaşadıkları dünyayı anlamak, açıklamak ve deneyimlerini paylaşmak için kavramlara ihtiyaç duyarlar. Bir başka ifadeyle, kavramlar hayatımızı ve algımızı zenginleştirir; insanlarla iletişim kurmamızı, öğrenmemizi, hatırlamamızı kolaylaştırır ve dil gelişimimizde önemli rol oynarlar (Doğanay, 2002; Naish, 1982; Martorella, 1996). Bununla birlikte kavramlar, bireylerin zihinlerinde doğru olarak yapılandırıldığı zaman, yaşanan toplumsal ve fiziki çevrenin anlaşılmasına; örgün eğitimde dersler yoluyla verilmek istenen bilgi, beceri ve değerlerin kazanılmasına temel oluşturmaktadırlar (Akbaş, 2019, s.228). Dolayısıyla bilişsel yapının temel yapı taşı ve tüm düşünme becerilerinin temeli olarak (Martorella, 1996; Ülgen, 2001) kavramların öğretiminin doğru bir şekilde yapılması oldukça önemlidir. Nitekim karar verme, problem çözme ve eleştirel düşünme gibi çeşitli becerilerin, değerlerin öğrencilere etkin biçimde kazandırılması için, öncelikle öğrencilerin kavramsal yapılarının doğru bilgiye ve kavramlar arasındaki doğru ilişkiler ağına sahip olması gereklidir. Bu kazanım olmadığı zaman, kim olduğumuzu ve yaşadığımız dünyanın nasıl bir yer olduğunu anlamamız büyük ölçüde sınırlandırılmış olacaktır (Akbaş, 2021; Alkış, 2009). Bunun yanı sıra, kavramların etkili öğretiminde öğrencilerin o kavram hakkındaki ön bilgilerinin ve öğretimi yapılacak kavrama ilişkin sahip oldukları deneyimler, anlamlar ve bilgiler oldukça önemlidir (Yılmaz & Çolak, 2011; Dove, 2000; Milburn, 1972). Öyle ki çocukların ne öğrenebileceği zihinlerinin içinde ne olduğuna ve kendilerini nasıl bir öğrenme

ortamında bulduklarına bağlıdır (Platten, 1995). Çünkü öğrencilerin sahip oldukları ön bilgi ve kavramlar eğitim sürecinde öğrencilere kazandırılmak istenilen bilgi ve becerilerin anlamlı öğretiminde önemli bir rol oynarlar. Nitekim öğrencilerin ön kavramlarının öğrenme süreçlerinin başlangıç noktası olarak kabul edildiği vurgulanmaktadır. (Deisenrieder vd., 2022). Bununla birlikte, alanyazında öğrencilerin temel kavramları anlamada eksiklikleri varsa ders sürecinde yeni bilgileri anlamlı olarak öğrenmelerini zorlaştırdığı ve yeni öğrenmeleri olumsuz etkilediği sıklıkla vurgulanmaktadır (Akbaş, 2021; Dove, 1999; Dove, 2000; Nelson vd., 1992; Platten, 1995). Ayrıca öğrencilerin ön bilgilerindeki eksikliklerinin düzeltilmediği takdirde daha fazla öğrenmeyi engelleyebilecek kavram yanlışlarının ortaya çıkmasına neden olabileceği belirtilmektedir (Akbaş, 2021, Dove, 2000). Bu bağlamda, kavramların doğru bir şekilde öğretilmesinde kavram yanlışlarının giderilmesinin de oldukça önemli olduğu söylenebilir.

Kavram yanlışlığı bir kavrama ilişkin öğrencinin kendi zihninde oluşturduğu bilişsel yapı ile bilimsel gerçekler ve kabuller arasındaki çelişkidir (Gilbert & Watts, 1983; Lane, 2008). Öğrencilerin bilimsel gerçeklerle örtüşmeyen kavram yanlışları onlar açısından tutarlıdır ve bir bütünlük içermektedir (Platten,1995). Bu yanlışlar öğrenciler açısından mantıklı gerekçelere dayandığı için onları bilimsel gerçeklerle değiştirme konusunda tutucudurlar ve onları koruma eğilimindedirler (Driver, 1989; Schmidt, 1997). Bu nedenle de, öğrencileri, kendilerinde var olan kavram yanlışları konusunda ikna etmek kolay olmamaktadır. Dolayısıyla öğrencilerin kavram yanlışlarını tespit etmek ve bu yanlışlar konusunda onları ikna etmek oldukça önemlidir. Alanyazın incelendiğinde, kavramların doğru kabul edilmiş bilimsel anlamlarına uygun bir şekilde öğrenilmesini sağlamada ve kavram yanlışlarının giderilmesinde geleneksel yaklaşımlardan farklı olarak çeşitli yaklaşım ve tekniğin kullanıldığı dikkat çekmektedir. Bu yaklaşımlardan birisi de kavram yanlışlarının giderilmesinde etkili olduğu düşünülen kavramsal değişim yaklaşımıdır. Kavram yanlışlarının giderilmesine odaklanan kavramsal değişim yaklaşımı, öğrencilerin ön bilgilerinin dikkate alan, yeni bilgilerin önceki bilgiler/deneyimler üzerine inşaa edildiği anlayışını savunan yapılandırmacı öğrenme kuramına dayanmaktadır (Duit & Treagust, 2003; Widodo & Duit, 2002).

Kavramsal değişim yaklaşımına dayalı sınıf içi öğretim uygulamalarında kavram haritaları, vee diyagramları, zihin haritaları, kavram karikatürleri, analogiler, modeller vb. kullanılabilir (Aydın & Balım, 2013; Novak, 2002). Bu yöntemlerden biri de kavramsal değişim metinleridir (KDM). Bu metinlerde, öğretimi yapılacak kavrama ilişkin yanlışlar belirtilip konu ile ilgili sorular yöneltilerek öğrencilerin ön bilgileri harekete geçirilir ve hatalı, eksik, yanlış bilgiler/çelişkiler ortaya konulmaya çalışılır.

Bu doğrultuda, etkin vatandaşlık öğrenme alanında geçen kavram yanlışlarının giderilmesinde kavramsal değişim metinlerinin etkilerini konu alan bu çalışmanın, ilgili alana katkı sağlayacağı düşünülmektedir. Sosyal bilgiler dersinin temel amaçlarından birinin de etkin vatandaşlar yetiştirmek olduğu düşünüldüğünde, bu konudaki temel kavramların öğrencilerin zihinlerinde doğru ve bilimsel gerçeklere dayalı olarak yapılandırılması oldukça önemlidir. Çünkü demokratik toplumun en temel yapı taşı; demokrasi, hak ve özgürlükler ile ilgili temel kavramlara sahip, demokratik bilinç ve değerlere sahip bireylerdir (Misco, 2005). Ayrıca çalışma kapsamında hazırlanan KDM örneklerinin ileride yapılacak çalışmalar için rehber olacağı düşünülmektedir. Bu bağlamda, bu çalışma kapsamında aşağıdaki sorulara cevap aranmaya çalışılmıştır:



- 1- Kavramsal değişim metinlerinin öğrencilerin kavram yanılgılarının giderilmesinde etkisi nedir?
- 2- Kavramsal değişim metinlerinin öğrencilerin kavram akademik başarıları üzerinde etkisi nedir?

## **Yöntem**

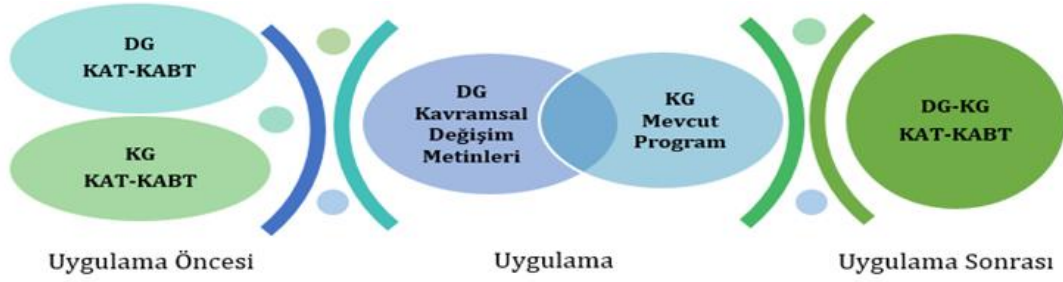
Bu araştırma, nicel araştırma yaklaşımlarından ön test- son test kontrol gruplu yarı deneysel desen kullanılarak yürütülmüştür. Belirli bir değişkenin etkilenmesinin söz konusu olduğu deneysel desenlerde, en az bir bağımsız değişkenin manipüle edilerek diğer ilgili değişkenlerin ise kontrol altına alınması ve bağımsız değişkenin bir ya da daha fazla bağımlı değişken üzerindeki etkisinin incelenmesi söz konusudur. Deneysel araştırmalarda temel amaç neden-sonuç ilişkisini incelemektir. (Fraenkel vd., 2012; Gay vd., 2012; McMillan & Schumacher, 2014). Bu araştırmada, kavramsal değişim metinlerinin öğrencilerin ilgili kavramları anlamaları ve kavram yanılgılarının giderilmesinde etkisini tespit etmek amaçlandığı için yarı deneysel desen tercih edilmiştir.

Bu araştırma, 2021-2022 eğitim-öğretim yılında Erzurum ilinde bir ortaokulun iki farklı şubesinde öğrenim gören toplam 67 altıncı sınıf öğrencisi ile yürütülmüştür. Sınıflardan birisi, kavramsal değişim metinlerinin uygulandığı deney grubu (DG, n= 34), diğeri ise kavramsal değişim metinlerinin uygulanmadığı kontrol grubu (KG, n= 33) olarak belirlenmiştir.

Kavramların tespiti amacıyla öncelikle altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında yer alan kavramlar belirlenmiştir. Daha sonra bu kavramlar arasında öğrenci tarafından öğrenilmesinde güçlük yaşanan ve yanılgıya düşünülen kavramları belirlemek amacıyla 15 öğretmen ile görüşülmüştür. Ayrıca etkin vatandaşlık öğrenme alanında yer alan kavramlara ilişkin öğrencilerin ön bilgi durumlarını ve bu kavramlarla ilgili yanılgıya sahip olup olmadıklarını tespit etmek için 60 öğrenciye ilgili öğrenme alanında yer alan kavramları içeren kavram anlama testi uygulanmıştır. Öğretmenlerin görüşleri ve öğrencilerin kavramlara ilişkin vermiş oldukları cevaplar doğrultusunda, öğrenilmesinde daha çok güçlük yaşanan ve yanılgıya düşülen kavramların *cumhuriyet, demokrasi, milli egemenlik, meşrutiyet, çoğulculuk, anayasa, yasama, yürütme* ve *yargı* kavramları olduğu tespit edilmiştir. Bu doğrultuda, araştırmada belirtilen dokuz kavramın öğretimi ele alınmıştır.

Araştırmada, öğrencilerin ilgili öğrenme alanında yer alan kavramları anlama düzeylerini tespit etmek için açık uçlu sorulardan oluşan Kavram Anlama Testi (KAT) ve uygulama sürecinin kavram öğretimindeki etkisini belirlemek amacıyla da Kavram Akademik Başarı Testi (KABT) kullanılmıştır.

Bu araştırma, 2021-2022 eğitim- öğretim yılında Erzurum ili palandöken ilçesinde bulunan bir ortaokulun iki farklı şubesinde [Deney Grubu (DG), Kontrol Grubu (KG)] öğrenim gören toplam 67 öğrenci ile gerçekleştirilmiştir. Uygulama deney ve kontrol gruplarında haftada 3 ders saati olmak üzere toplam 7 hafta sürmüştür. Uygulama sürecinde dersler dersin öğretmeni tarafından yürütülmüş, araştırmacı ders sürecine gözlemci olarak katılmıştır. Uygulama sürecinin ilk ve son haftası ön test ve son testler için, 5 haftası ise ilgili öğrenme alanı içerisinde yer alan kavramların öğretimi için ayrılmıştır. Uygulama süreci Şekil 1’de sunulmuştur.



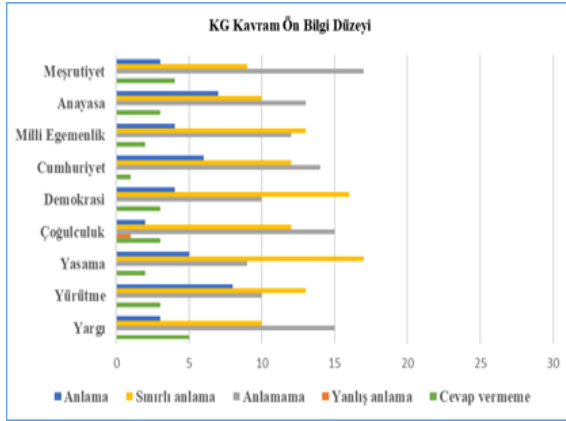
Şekil 1. Uygulama süreci

Kavram Anlama Testinden (KAT) elde edilen verilerin analizinde öğrencilerin anlama seviyeleri dikkate alınmıştır. Alanyazın incelendiğinde, anlama seviyelerini belirlemek amacıyla “*anlama*” (kavram ile ilgili doğru kabul edilebilecek ifadeler), “*sınırlı anlama*” (kavram ile ilgili doğru kabul edilecek doğru sayılabilecek ifadelerin bir ya da birkaç yönünü), “*yanlış anlama*” (kavram ile ilgili doğru kabul edilecek ifadeler ile çelişen ifadeler), “*anlamama*” (kavramı tekrar yazmayı veya doğru kabul edilebilecek ifade ile ilgisi olmayan açıklamalar), “*cevap vermeme*” (boş bırakma, “bilmiyorum” şeklinde ifadeler) kategorilerin oluşturulduğu görülmektedir (Akbaş, 2008; Cin, 1999; Harwood & Mcshane 1996). KAT’den elde edilen verilerin analizi belirtilen kategorilere bağlı kalınarak yapılmıştır.

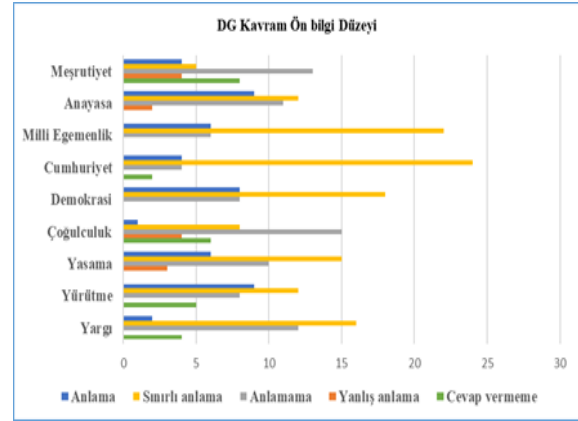
Kavram Akademik Başarı Testinin (KABT) verilerinin analizi için öncelikle normallik analizi yapılmıştır. Normallik analizi için histogram, normal Q-Q plot, detrended normal Q-Q plot grafiği, basıklık ve çarpıklık değerleri dikkate alınmış ve verilerin normal dağılım gösterip göstermediği incelenmiştir (Pallant, 2005). Bununla birlikte, uygulama gruplarındaki öğrenci sayısı 30’un üzerinde olduğu için normallik analizinde Kolmogorov Smirnov Normallik testi tercih edilmiştir (Ak, 2008). Yapılan normallik analizleri sonucunda, veriler normal dağılım gösterdiği için verilerin analizinde parametrik testlerden Bağımsız gruplar t testi kullanılmıştır. Bağımsız gruplar t testi yapılmadan önce verilerin analizi için gerekli varsayımların (normal dağılım, grupların varyanslarının eşit olması, her bir verinin diğerinden bağımsız olması) sağlayıp sağlamadığı kontrol edilmiştir (Can, 2017). Ayrıca analiz sonucunda etki büyüklüğü değeri hesaplanmıştır. Etki büyüklüğü değeri için 0.2 küçük, 0.5 orta, 0.8 büyük etki olarak kabul edilir (Green & Salkind, 2005).

## Bulgular

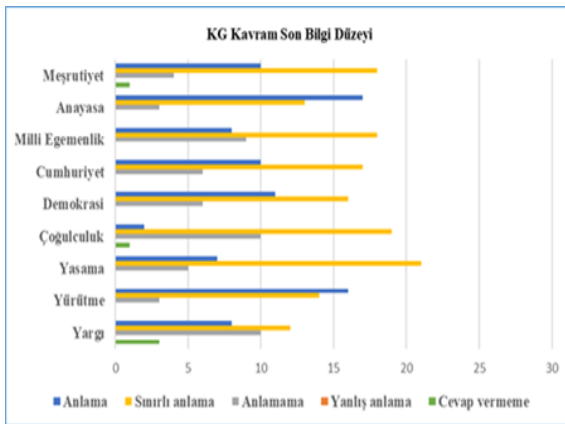
KAT’den elde edilen verilerin analizi, anlama, sınırlı anlama, yanlış anlama, cevap vermeme, anlamama kategorilerine göre yapılarak öğrencilerin kavramları anlama düzeylerine ilişkin bulgular aşağıda sunulmuştur.



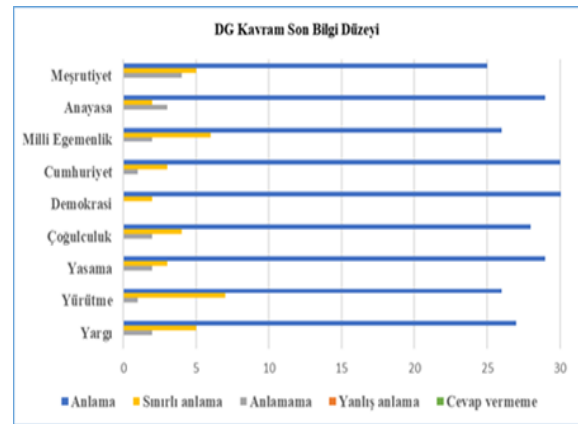
Şekil 2. KG kavram ön bilgi düzeyi



Şekil 3. DG kavram ön bilgi düzeyi



Şekil 4. KG kavram son bilgi düzeyi



Şekil 5. DG kavram son bilgi düzeyi

Şekil 2 ve Şekil 3 incelendiğinde, DG ve KG öğrencilerinin ilgili kavramları anlama ön bilgi düzeylerinin oldukça düşük olduğu görülmektedir. KG Öğrencilerin “demokrasi”, “yasama”, “milli egemenlik”, “yürütme” kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; “meşrutiyet”, “cumhuriyet”, “anayasa”, “çoğulculuk”, “yargı” kavramlarına ise daha çok anlamama kategorisine giren cevaplar verdikleri tespit edilmiştir (Şekil 2). Bununla birlikte, DG öğrencilerinin “anayasa”, “milli egemenlik”, “cumhuriyet”, “demokrasi”, “yasama”, “yürütme”, “yargı” kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; “çoğulculuk”, “meşrutiyet” kavramlarına ise (Şekil 3) daha çok anlamama kategorisine giren cevaplar verdikleri belirlenmiştir. Öğrencilerin kavram anlama son bilgi düzeyleri (Şekil 4 ve Şekil 5) incelendiğinde ise KG öğrencilerinin ilgili kavramları anlama son bilgi düzeylerinin daha çok sınırlı anlama seviyesinde olduğu görülmektedir. Öğrencilerin “meşrutiyet”, “milli egemenlik”, “cumhuriyet”, “demokrasi”, “çoğulculuk”, “yasama”, “yargı” kavramlarına daha çok sınırlı anlama kategorisine giren cevaplar; “anayasa”, “yürütme”, kavramlarına ise daha çok anlama kategorisine giren cevaplar verdikleri tespit edilmiştir. Bununla birlikte DG öğrencilerinin kavramları anlama son bilgi düzeylerinin daha çok anlama düzeyinde olduğu dikkat çekmektedir (Şekil 5). DG Öğrencilerinin “meşrutiyet”, “anayasa”, “milli egemenlik”, “cumhuriyet”, “demokrasi”, “çoğulculuk”, “yasama”, “yürütme”, yargı kavramlarına daha çok anlama kategorisine giren cevaplar verdikleri belirlenmiştir.

Kavramsal deęişim metinlerinin (KDM) öğrencilerin kavram anlama düzeyleri üzerindeki etkisini belirlemek amacıyla Kavram Anlama Testinin (KAT) yanı sıra uygulama öğrencilerine Kavram Akademik Başarı Testi (KABT) ön test ve son test olarak uygulanmıştır. KDM'nin, öğrencilerin akademik başarıları üzerindeki etkisinin anlamlı olup olmadığını belirlemek için yapılan bağımsız gruplar t testi analiz sonuçları ve betimsel istatistik analiz sonuçlarına göre DG ve KG'de yer alan öğrencilerin ön test puan ortalamalarının ( $DG; \bar{X} = 57.76$ ;  $KG; \bar{X} = 58.67$ ) birbirine yakın olduğu ve gruplar arasında akademik başarı açısından istatistiksel olarak anlamlı bir farklılığın olmadığı belirlenmiştir ( $t_{(65)} = -.226, p > 0.05$ ). Bu doğrultuda, uygulama öncesinde DG ve KG'de yer alan öğrencilerin kavram akademik başarılarının birbirine yakın olduğu ifade edilebilir. Bunun yanı sıra, deney ve kontrol gruplarına son test olarak uygulanan KABT'den elde edilen verilere göre DG'de yer alan öğrencilerin puan ortalamalarının ( $DG; \bar{X} = 82.24$ ) KG'de yer alan öğrencilerinin puan ortalamalarından ( $KG; \bar{X} = 70.18$ ) daha yüksek olduğu ve öğrencilerin puan ortalamaları arasındaki bu farklılığın istatistiksel olarak anlamlı olduğu tespit edilmiştir ( $t_{(62)} = 5.286, p < 0.05$ ). Analiz sonucunda etki büyüklüğü değeri  $d = 1.29$  olarak hesaplanmış ve bu değerin de yüksek düzeyde bir etkiye işaret ettiği görülmüştür.

## Sonuç ve Tartışma

Bu çalışmada altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında (genelde siyaset bilimi, hukuk gibi sosyal bilimlere özgü kavramları içermektedir) öğrenilmesinde güçlük yaşanan ve yanılıya sahip olunan kavramların (*cumhuriyet, demokrasi, meşrutiyet, milli egemenlik, çoğulculuk, anayasa, yasama, yürütme, yargı*) öğretilmesinde kavramsal deęişim metinlerinin etkisi incelenmiştir. Kavram öğretim sürecinde kavramsal deęişim metinlerinin avantajlarını dikkate alan bu çalışmada etkin vatandaşlık öğrenme alanında öğrencilerin tespit edilen kavram yanlışlarının gidermek ve öğrenilmesinde zorlanılan kavramların öğretimini gerçekleştirmek için öğretim sürecine kavramsal deęişim metinleri entegre edilerek yarı deneysel desen üzerinden kavramsal deęişim metinlerinin etkisi sürece dayalı test edilmiştir. Beş hafta farklı kavramsal deęişim metinleri üzerinden yürütülen süreç sosyal bilgiler dersine özgü kavramların öğrenilmesinde ve kavram yanlışlarının giderilmesinde deney grubu öğrencilerinin lehine bir sonuç ortaya çıkarmıştır. Öyle ki bu anlamlı deęişim deney grubu öğrencilerin doğrudan kendi yazılarıyla açıkladıkları kavram tanımlarına da belirgin bir şekilde yansımıştır. Sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında yer alan kavramların öğrenilmesine olumlu katkı sağlayan kavramsal deęişim metinlerinin alan yazında yer alan farklı araştırmalarda da benzer sonuçlara ulaşıldığı görülmüştür (Akbaş, 2008; Kılıçoęlu, 2011; Aladaę & Yılmaz, 2014; Yıldırım, 2016; Çelikkaya & Şarlayan, 2019; Kürümlüoęlu, 2019; Köroęlu, 2019; Sel & Sözer, 2019). Sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında öğrencilerin yaşamış olduğu kavramsal deęişim ve gelişimin arka planında kavramsal deęişim metinlerinin önemli etkileri söz konusudur. Kavramsal deęişim sürecinde, öğrencilerin öncelikle kendi fikirlerindeki eksiklik ve hataların farkına varması ve bunları deęiştirme konusunda farkındalığa sahip olması gerekmektedir. Bu süreçte, öğrenciler zihinlerinde kendi inanışlarına dayalı görüşleri ile bilimsel fikirler arasındaki çelişkileri görmeleri için çaba gösterilmelidir (Duit & Treagust, 2003).

## **Öneriler**

Bu araştırmadan elde edilen bulgular ışığında aşağıda verilen öneriler ileri sürülebilir:

Bu çalışmada, kavram değişim metinleri üzerinden kavram öğretimin fen eğitimi alanında yoğunlaştığı, farklı disiplinlerde bir boşluk olduğu tespit edilmiştir. Farklı disiplinlerden çok sayıda kavramı bünyesinde barındıran sosyal bilgiler dersinde kavram değişim metinlerine daha fazla yer verilebilir.

Bu araştırma altıncı sınıf sosyal bilgiler dersi etkin vatandaşlık öğrenme alanında uygulanmıştır. Farklı sınıf ve öğrenme alanlarında benzer çalışmalar yapılabilir.

Bu araştırmada kavram değişim metinlerinin kavram yanılgılarının tespitinde etkili olduğu görülmüştür. Özellikle kavram yanılgılarının yoğun olduğu konu ve öğrenme alanlarında kavram değişim metinlerine yer verilebilir.

Bu araştırmada yarı deneysel desen üzerinden KDM'nin kavram öğretiminde ne düzeyde etkili olduğu tespit edilmiştir. Yapılacak nitel veya karma araştırmalar ile kavram öğretiminde veya kavram yanılgıların tespitinde kavramsal değişim metinlerinin niçin etkili olduğu üzerine araştırmalar yapılabilir.