The Effects of Authentic Learning Approach on Academic Achievement and Attitudes in Social Studies Course*

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ABSTRACT

In this study, the effects of the authentic learning approach in social studies on academic achievement, retention of knowledge, and attitude towards the course were investigated. In the study, a quasi-experimental pre-test-post-test design with a non-equivalent control group was used. The study group consisted of 50 6th grade students. In the process, the authentic learning approach was used in the experimental and control group, the texts and instructions given in the course book were followed. The study data were collected by the "Social Studies Course Academic Achievement Test" and "Social Studies Course Attitude Scale". As a result of the experimental process, it was obtained that the academic achievement levels of the students in the experimental and control groups in the social studies course increased and differed significantly compared to the pre-experimental process. It was observed that the measurement results in the follow-up studies conducted five weeks after the measurement after the application did not differ significantly from the post-test scores of the students in the control and experimental groups. The difference between the achievement test scores of both groups was significant, favouring the students in the experimental group. The changes in the attitudes of the students in the control group towards the social studies course were not found to be significant when compared to the pre-experimental process, while the changes in the attitudes of the students in the experimental group were significant. While there was no significant difference between the pre-test attitude scores of the students in the experimental and control groups, a significant difference was found between the post-test attitude scores favouring the experimental group. In this respect, the authentic learning approach has created an important alternative to methods based on knowledge transfer. In addition, it was observed that the authentic learning approach positively changed students' attitudes towards the course.

1. Introduction

The rapid changes experienced in production and access to knowledge inevitably necessitated a change in the educational field. Based on this, information turned into a living organism rather than being a ready-made and packaged product (Ministry of National Education [MoNE], 2018a, p. 22). This situation has changed the traditional roles of students, teachers, and the school environment. Based on this, students are no longer individuals who only take, memorise, store information, and repeat it when asked. On the contrary, students are expected to access information with their own efforts, to verify the information they have obtained through a literacy filter, to associate them with daily life contexts, to solve problems they encounter by transferring

them to different situations, and thus to be individuals equipped with 21st-century skills. In the new understanding of education, teachers consider the differences between students as a natural richness and act as guides who strive to reveal the student's capabilities (MoNE, 2018a, p. 21). According to Rousseau, a good teacher does not teach students the principles and the ways of acting; but tries to make them find themselves, just like Socrates. In this respect, teachers should organise their lessons based on experience rather than instruction (Günay, 2018, p. 94). On the other hand, schools should be a part of life rather than an artificial world surrounded by four walls and isolated from its environment and society. Additionally, schools should be places where students are prepared to solve the difficulties of life (Laur, 2013, p. 13). As can be understood, a new understanding of education is emphasised for learners to acquire the skills required to cope with the challenges of the 21st century. As in other countries worldwide, it has become a crucial issue in Turkey to transform society through education. As a result, curriculum studies have gained momentum in Turkey. According to the constructivist approach, the new curriculum was launched in 2004 to solve the problems raised by the artificiality of traditional programs. The new curriculum has been updated several times following the new requirements, and in 2018 some changes were added to the new curriculum. The new curriculum aims to make major changes in all subject areas and student-centeredness, encouraging active engagement of learners and providing a learning environment in which research, discovery, and cooperation are emphasised (Ocak & Karafil, 2021). Additionally, it is stated in the new curriculum that it has become one of the most important educational goals of the developed countries to equip the students with the ability of developing innovative solutions to the problems they encounter in their environment from an early age and producing these solutions by blending them with different disciplines (MoNE, 2018a, p. 72).

When the literature is examined, it is seen that the importance of contemporary approaches and educational understanding are regarded as key factors. On this issue, Lombardi (2007, p. 2) stated that solving real-world problems motivates students. In addition, the majority of educators agree that learning by experience is more effective than learning by listening or observing. Educational theories and research studies support this claim (Pearce, 2016, p. 1). According to Dewey (2008, p. 40), students are all unique learners and differ. They show their differences when they take part in activities. Francis W. Parker claimed that people learn to do by doing, learn to hear through hearing, and learn to think through thinking. According to Parker, children should have the ability to compare, contrast, reflect on, and make generalisations (Parker, 1883; cited in Zarrillo, 2016, p. 6). Focusing on practical real-life experiences helps students increase their academic success, establish stronger ties with their society and the environment they live in, understand the value of nature, and grow up as active citizens (Sobel, 2004; cited in Açıkalın, 2018, p. 129).

As seen, in contemporary approaches, students are expected to question, the teachers should guide, and the school should be a place where life continues. Although there are many approaches used in contemporary approaches, authentic learning is regarded as an approach that can effectively provide the transformation in teaching required by the age with its flexible structure offered to teachers in practice. Authentic learning focuses on the real world, complex problems, and solutions using role-playing exercises, problem-based activities, case studies, and participation in virtual practice communities (Lombardi, 2007, p. 2). Individuals are faced with unusual situations every day that they have to solve, adapt, and make decisions in their professional and personal lives. Individuals try to cope with these problems by using and manipulating the knowledge they have acquired and using their experiences and skills. Authentic learning aims to equip students with these basic life skills, show the link between learning and real life, and provide students with problem-solving skills that are necessary beyond school (Pearce, 2016, p. 2). According to Renzulli (1997, p. 3), when content and processes are learned in authentic contexts, more meaningful results are obtained than learning in highly structured and regulated classroom situations using knowledge and problem-solving skills. When learners participating in authentic learning experiences are offered some choices in the areas and activities in which they are involved, and the current experience is directed towards realistic, personalised goals, this type of learning creates interest and meaning. According to Dewey, basic thinking includes the problems faced by the individual and solved following the scientific method. Students must work on everyday social, economic, and political problems that strain them for real learning. There should be discussions in the classrooms about war, peace, poverty, epidemic, and pollution. Similarly, students should be taught how to catch and solve problems outside the school, and this teaching should continue until they become adults and have the right to vote (Gutek, 1997, pp. 103-104). Social studies courses teach students these skills.

Social studies course has a curriculum that can be easily associated with the real world in its content. However, until the end of the 19th century, with the effect of the tradition of "citizenship transfer", social studies was considered as a course in which students memorised information such as the history of events, place names, and articles of international treaties were considered successful (Maxim, 2010; cited in Açıkalın, 2018, p. 155). This tradition has been effective in the long term in social studies education in Turkey. However, due to the effect of the constructivist approach, the social studies curriculum was also updated in 2004. After the new curriculum was launched in 2004, and with the revisions made in the following years, practitioners were asked to give importance to the traditions of "social studies as social sciences" and "social studies as reflective thinking" while the tradition of "social studies as citizenship transfer" was not included in the curriculum. Therefore, in the new curriculum, students are advised to perceive the scientific methods used by social scientists (geographers, historians, etc.) to make use of events inside and outside school to compare them with real-life problems and contradictory situations and to reflect on these social problems (MoNE, 2018b). With these changes, the course aims to train a human model with the qualities required by the age. However, research shows that the methods and techniques that evoke "transfer of citizenship" continue to be used in the classes. Studies revealed that teachers frequently use direct instruction and question-answer methods/techniques in the teaching of social studies course (Çelikkaya et al., 2009; Okur-Akçay et al., 2016; Fırat-Durdukoca, 2018; Karasu-Avcı et al., 2019), which shows that in the courses, the methods and techniques appropriate for the tradition of citizenship transfer are dominant in social studies teaching.

When the course is completely disconnected from the real world and only focuses on exams, it becomes clear that teacher-centred applications are used. Therefore, knowledge is transmitted to students by the teacher, and learning occurs when students memorise the information and give the desired answers in the exams. In this understanding, teaching activities are regarded as acquiring knowledge, skills, and experience. However, learning cannot occur in such a learning environment because the skill and experience dimensions are lacking. On the contrary, associating the subject with current events ensures that the subject is learned in depth. Students can concretise knowledge and concepts by seeing the real-life equivalent of the content of the social studies course. In addition, current events make it easier for students to perceive the world and enable them to lead a qualified life by affecting their lives (Şimşek, 2017, p. 155). Students who can find a solution to a problem in their environment gain the real-life skills required to solve possible problems they will encounter in the future. While the students are busy with the solution of the problem, they find the opportunity to use many skills such as researching, searching for sources, discovering, using information, communication, cooperation, taking responsibility, asking questions, discussing, and making observations (Tokcan, 2015, p. 29).

On this issue, Bruner stated that the best way for students to learn problem-solving is to do the same type of activities themselves as adult practitioners. If children learn history, they should examine primary sources, such as diaries and old newspapers, just like historians (cited in Zarrillo, 2016, p. 7). Therefore, social studies courses should provide many opportunities for children to solve problems and answer complex questions. In the social studies course, students can play out current or historical events. They can imitate real processes, such as the debate committee, and demonstrate their knowledge, skills, and tendencies. As a result, students will have the opportunity to apply skills they can use in real life (Kottler et al., 2013, p.119-120). Based on this information presented in the literature, it is seen that authentic learning, which is an instructional design that stimulates and enables students to explore, is one of the effective approaches that can be used in the courses, especially in the social studies course. Many studies have determined the positive effects of the authentic learning approach on increasing course success, attitude development, and skill acquisition. In the studies conducted for the social studies course, the effects of authentic learning approach on academic achievement, attitude and permanent learning in learning areas at different grade levels were revealed (Baştürk, 2019; Gürgil, 2018; İneç, 2017; Önger, 2019).

Although the new curriculum is based on contemporary approaches and educational understanding, it is seen that the effects of traditional education approaches have not been eliminated yet in Turkey. This situation is also reflected in the 2023 Education Vision Document prepared by the Ministry of National Education (MoNE). In the document, it is stated that; "we have witnessed in recent years that the function of education, which only serves to pass exams and find a job, is prioritised. Therefore, the only indicator of success in education cannot be lecture notes, exam results, intelligence tests and the salaries of professions acquired after

graduation." In the 2023 Education Vision Document, the expressions and goals that point to change and transformation, such as establishing design-skill workshops for schools, adopting process and result-oriented integrated assessment and evaluation approach, considering practice and experience as the main axis, and supporting students to gain the motivation to seek solutions to social problems show that the ongoing practices of traditional approach create problems (MoNE, 2018a, pp. 15-16). Therefore, students, teachers, and school roles in educational activities should be redetermined to eliminate this problematic situation.

On the other hand, in Turkey, the success of education and training activities is mostly evaluated by students' academic success in the entrance exam. However, nowadays, to the end of the first quarter of the 21st century, it is seen that the traditional structure based on the transmission of knowledge continue to exist in schools in Turkey. The results of the PISA exams, which are one of the most important indicators in measuring the skills and acquisitions specific to this century, and the goals set in the 2023 Education Vision Document confirm this situation. Although the average scores of Turkey in the PISA 2018 exam were higher than the previous exam, the results were very far from the desired level. Turkey ranked 42nd in Math, 40th in reading skills, and 39th in science, among 79 countries participating in the 2018 PISA. Moreover, among 37 OECD countries, Turkey ranks 31st in reading skills, 33rd in mathematics, and 30th in science (MoNE, 2019, p. 10). These results indicate that in Turkey, the success rate of the students is not at the desired level.

In summary, in the 21st century, it is not possible to carry out education and training activities with a structure that prioritises the transfer of knowledge of the past to students, sees the teacher as the only authority, and makes students passive and disconnected from the environment and society. Although in the updated social studies curriculum in Turkey there are expressions about bringing real-life topics to the classroom and the statement in the curriculum (MoNE, 2018b, p. 10), it is seen that the activities based on authentic learning, which is one of the techniques that can be effective in terms of social studies course, are limited. In this respect, the social studies course cannot train students expected by today's educational approach. Based on this, this study is based on the assumption that the authentic learning approach will significantly contribute to students' academic achievement and attitude scores in social studies courses. In addition, students are expected to gain the necessary skills to solve real-world problems. Therefore, this study is important in offering teachers an alternative learning process that they can use in their courses. From this view, this study aims to determine the effects of teaching social studies course following the authentic learning approach on students' academic achievement and attitudes towards the course. For this purpose, the study's problem statement was determined as; "What are the effects of teaching social studies courses following the authentic learning approach on students' academic achievement, retention of information, and attitudes towards the course"? The following sub-problems were tried to be answered:

- Is there a statistically significant difference between the students' academic achievements in the experimental and control groups?
- Is there a statistically significant difference between the students' academic achievement test scores (pre-test, post-test, retention test) of the experimental group?
- Is there a statistically significant difference between the students' academic achievement test scores (pre-test, post-test, retention test) in the control group?
- Is there a statistically significant difference between the students' attitudes in the experimental and control groups?
- Is there a statistically significant difference between the attitude scale scores (pre-test, post-test) of the students in the experimental group?
- Is there a statistically significant difference between the attitude scale scores (pre-test, post-test) of students in the control group?
- The study is limited to;
- The 2018-2019 academic year
- The learning outcomes of the "Production, Distribution, and Consumption" learning field covered in 6th grades
- 50 6th grade students studying in two different classes of a secondary school located in the central district of Kütahya Province, in Turkey

- The learning approaches used in the experimental and control groups during the research
- The data obtained from the "Social Studies Course Academic Achievement Test (SSCAAT)" and "Social Studies Course Attitude Scale (SSCAS)"

2. Method

2.1. Research Model

This study is the quantitative part of the research conducted with the mixed method. A quasi-experimental pretest-posttest design with a non-equivalent control group was used in the quantitative part of the research. This design gives importance to the similarity of the participants as much as possible. The control and the experimental group are assigned randomly (Karasar, 2016, p. 137). The pre-test is applied to both groups at the same time. Then while the experimental process is applied to the experimental group, the normal procedure is applied to the control group. After the experimental process, the same test is given to both groups simultaneously as the final test. Pre-test and post-test differences of each group are obtained. The average and standard deviation of the scores are taken. Finally, it is checked whether there is a significant difference between the means of the two achievement tests (Büyüköztürk et al., 2010; Sönmez et al., 2017).

In this study, two groups at the same grade level were formed. One group was assigned as the experimental group, and the other as the control group by random assignment. After the pre-tests (Social Studies Course Academic Achievement Test-SSCAAT and Social Sciences Course Attitude Scale-SSCAS) were applied to both groups, the experimental process took eight weeks. In the experimental group, the social studies course was taught according to the authentic learning approach. On the other hand, in the control group, the current social studies course curriculum and the instructions given in the textbook were followed. After the experimental process was completed, the same tests were applied to both groups as a post-test. In addition to the model, SSCAAT was applied as a retention test to determine the retention levels five weeks after the post-test application. The data obtained at the end of the process were compared and interpreted. The symbolic representation of the quasi-experimental design is shown in Table 1.

Table 1. *Representation of the Quasi-Experimental Design*

Group	Pre-Test	Procedure	Post-Test	Retention Test
G_1	$M_{1,1}$	X	$M_{1,2}$	$M_{1,3}$
G_2	$M_{2,1}$		$M_{2,2}$	$M_{2,3}$

G_1: Experimental Group G_2: Control Group M: Measurement X: Experimental Process (Based on authentic learning approach)

2.2. Research Sample

The study group of the research consisted of two 6th grade classes of a secondary school located in the central district of Kütahya Province, Turkey. The same teacher taught the social studies course of these classes. One class was assigned as the experimental group and the other as the control group. There were 28 students in the experimental group and 22 students in the control group. The balancing process was carried out so that the experiment and control groups consisted of students with similar characteristics. In this process, students; 5th-grade year-end achievement scores, grade levels, socioeconomic levels, and being taught by the same teacher were taken into account.

2.3. Data Collection Tools and Procedure

2.3.1. Social Studies Course Academic Achievement Test: The Social Studies Course Academic Achievement Test (SSCAAT), which was prepared to measure students' academic success, was prepared by the researchers as a multiple-choice test. The average difficulty of SSCAAT consisting of 25 questions was calculated as 0.51. This value is close to 0.50, indicating that SSCAAT is at the average difficulty level (Atılgan, 2009, p. 333). The reliability of the test was calculated using the Kuder Richardson (KR-20) method, and the reliability coefficient was found to be .92. A KR-20 value above 0.70 indicates that the test is reliable (Metin, 2015).

2.3.2. Social Studies Course Attitude Scale: The "Social Studies Course Attitude Scale (SSCAS) developed by Gömleksiz and Kan (2013) in a five-point Likert-type was used to determine students' attitudes towards social studies course. The scale consists of 29 items. 14 of the items measure positive attitudes, and 15 measure

negative attitudes. The Cronbach Alpha value calculated for the scale's reliability was found as .61 in the original study.

2.3.3. Procedure: The study was carried out during the spring terms of the 2018-2019 academic year. The process lasted eight weeks. In the study, the students in the experimental group were taught according to authentic learning application steps suggested by Mims (2003). On the other hand, the students in the control group were taught following instructions in the social studies textbook, which was prepared based on the 2018 social studies course curriculum. Textbooks are distributed free of charge by the state in Turkey. These textbooks are the main resource to be used in the classes for students. The Ministry of National Education prohibits using other resources as a primary resource by teachers during the course. For this reason, teachers mostly teach their lessons in line with the instructions in these textbooks. The procedures applied to experimental and control groups are presented in Table 2 below.

Table 2. *Experimental Process*

PROCESS	PROCEDURES	
	Experimental Group (Authentic learning approach)	Control group (Social Science Curriculum)
Before Application	Application of Pre-Tests	
Application — Week 1	• Establishing the theoretical infrastructure of "Our resources." o Our lands, waters, mines, forests, and tourism resources • Forming study groups • Giving scenarios to the groups	• Teaching the topic "Our resources turn into gains." o Our lands, waters, mines, forests, and tourism resources o An analysis of Aşık Veysel's "Black Soil" song o "Production stages of bread" activity
Week 2	• Sharing the information of the groups • Out of school activity o Visit to the Revenue Office	• Addressing the topic of "Let's protect our world." o Renewable energy resources o Non-renewable energy resources • Mining exhibition
Week 3	• Mining exhibition • Unconscious consumption of natural resources • Tax awareness activity • "Pay tax for service." • "Keloğlan's moneybox" • Out of school activity • Trip to Medicinal and Aromatic Plants Research Center • Trip to Solar Power Plant • Trip to Sapling/Flower Sale and Landscape Business	• Addressing the topic of "I have a project." o "I am preparing an investment and development project for Kütahya" activity
Week 4	• Out of school activity • Visit to Zafer Development Agency • Information sharing on Kütahya investment group • Review of group work • Professions activity task distribution • Out of school activity • Trip to Cattle Farm	• Addressing the subject of "To bright tomorrows with our taxes." o Tax slogan writing activity
Week 5	• E-conference with Dr. Umut Yıldız • Review of group work • Out of school activity • Visit to Agriculture and Rural Development Support Institution (TKDK) • Sharing the experiences at TKDK visit • What can be done to save energy at school? • Evaluation of the work done on professions	• Addressing the topic "I choose my profession." o E-conference with Dr. Umut Yıldız o "Professions I'm interested in" activity
Week 6	• Exam week break • Energy-saving project • "Future is in Your Hands! Save Energy for the Future" • Thermal tourism needs research • Out of school activity • Trip to Recycling Factory	• Exam week break o The activity of "Kütahya's mineral sources."
Week 7	• The activity of "Kütahya's mineral sources." • Preparation for professions activity	• Exam week break

Week 8	•Professions activity •"Group therapy" •"Promotion of professions" •Presentation of the "Needs of Kütahya Thermal Tourism" report to the Mayor of Kütahya	• Addressing the topic "Qualified people, strong Turkey." o "Help wanted" activity o Sample entrepreneurship stories
After Application	Application of Post-Tests Application of Retention test for SSCAAT (five weeks later)	

The functioning of the authentic learning process applied in the experimental group according to the plan determined by Mims (2003) is as follows:

Course Framework: The aim is to raise the awareness of 6th-grade students about energy efficiency, energy-saving, tax, career choice, and potential of their area of residence within the social studies course "Production, Distribution and Consumption" learning area. Students are expected to gain research, problem-solving, decision-making, creativity, communication, cooperation, social participation, empathy skills and values such as sensitivity, savings, responsibility, patriotism, and being scientific. These skills and values have been acquired by associating them with an authentic context.

Scenarios: The students were divided into four groups that have a balanced distribution in the classroom. Each group was given a different scenario.

Scenario 1: Industrialisation activities, orientation towards new technologies, improvement of living standards and increasing population in our country cause more energy consumption every year. Efficient use of energy, implementation of savings measures in public, and diversification of energy sources (especially renewable energy sources) are among the goals of our country. Well, how much do we obey austerity measures in our homes and schools? More importantly, what can we do about energy efficiency and saving?

Related learning outcome: SB.6.5.1. - SB.6.5.2.

Scenario 2: According to 2017 data published by TUIK, Kütahya was among the provinces with a high level of migration. The majority of migrants are young people. The main reason for this is that the job opportunities in Kütahya are not sufficient. Kütahya cannot use its resources efficiently and receive external investments. In this context, an advertising campaign will be organised to encourage business people to invest in Kütahya. You will also take an active role in this campaign. Your task is to discover the potential of Kütahya and reveal in which areas it can be invested. In which areas does Kütahya need investment?

Related learning outcome: SB.6.5.3.

Scenario 3: According to research conducted, 84% of employees in Turkey do not like their job. So, how productive can a person be by working in a job they do not like? How do you think professional choices should be made? What are the future professions? Can you help your friends with the promotion of professions and career choices?

Related learning outcome: SB.6.5.5. - SB.6.5.6.

Scenario 4: Services such as health, education, national security, and infrastructure, which are indispensable needs of a society, are provided by the state. Taxes paid to the state are very important to pay these needs. Public awareness needs to be raised on taxes. Can you fulfil this task?

Related learning outcome: SB.6.5.4.

Phase 1 – Engagement and Inquiry: Each group determined a group name compatible with the scenario given to them (Energetic Children, Kütahya Investment, We Are the Future, Tax Volunteers). Group leaders were elected. Each group created a WhatsApp group to keep communication strong outside of school. Later, the group members divided labour among themselves for the work and operations. The students primarily researched various sources to obtain preliminary information about the topics mentioned in the scenario. At this stage, the students discovered the people or institutions from which they could get expert opinions. Then they visited persons/institutions individually or in groups. In addition to their existing knowledge, they learned new information from experts. These studies were shared with other students in the classroom, and discussions were made on them. At the end of this stage, all students learned about the problems in the scenarios. Students have put the outputs of their research in their portfolio files.

Phase 2 - The Learning Process: The students decided what work they would do and what kind of products they would develop to solve the problems specified in their scenarios. At this stage, students were expected to develop various materials and activities such as brochures, posters, slides, short films, skits, banners, boards, sports activities, and class visits to convey their messages to other people and raise awareness. Preparations were made for the materials and activities determined by the joint decision of the group members.

Phase 3 – Communication: Materials developed to solve the problems were distributed, projects started, events were exhibited in front of the audience, and reports were presented. At the end of this stage, the students had the opportunity to share their gains with other people, which they gained during the learning process. They made efforts to solve the problems. The activities and their results were disseminated through various tools (press, social networks, etc.).

The products and activities that emerged at the end of this process are:

- In line with Scenario 1, the "Future is in Your Hands! Save Energy for the Future" project was initiated.
- In line with Scenario 2, the "Needs of Kütahya Thermal Tourism" report was prepared. The report was presented to the Mayor of Kütahya by the students.
- Three different events were organised in line with Scenario 3.
  - An e-conference event was held with Astrophysicist Dr Umut Yıldız and information was received on future space professions.
  - With the skit named "Group therapy", the problems caused by the wrong choice of profession were pointed out. In the skit, displayed in front of students and teachers, the students played doctors, homemakers, and self-employed people who lived an unhappy life due to their profession and applied them to a psychiatric clinic to find a solution.
  - Students introduced the professions to other students at the school with the profession promotion activity. Each of the students wore special clothes and equipment of a profession. In addition, they presented the personality traits of the profession, the skills that should be possessed, and the education process with posters they prepared.
- In line with Scenario 4, they prepared a public service announcement (PSA) with the theme "Pay tax for service" to draw attention to the importance of taxing. They presented the cartoon named "Keloğlan's Moneybox" and public service announcements in different classrooms and raised students' awareness about tax.

Before starting the research, some publications (national and international theses, books, articles, etc.) that constitute the theoretical framework of authentic learning were sent to the course teacher to provide information about the theoretical structure of authentic learning. Additionally, the applications for the experimental process were planned together with constant communication between the researcher and the teacher.

The implementation process was carried out by the course teacher. In this process, volunteering was taken as a basis. The course teacher was informed about the aim, content, and context of the study. During this process, the researcher took place as an observer in all the experimental and control groups' lessons. In the lessons conducted with the experimental group, the researcher studied with the course teacher to carry out the process according to the authentic learning approach. On the other hand, in the lessons conducted with the control group, the researcher presented in the classes, and the researcher observed the entire lesson. However, the researcher did not interfere with the lessons to eliminate the threats that may affect the result of the experimental process, and the course teacher implemented the lessons.

2.4. Data Analysis

The data obtained by SSCAAT and SSCAS were transferred to the computer environment and analysed using a statistical package program. Firstly, to determine the appropriate statistical methods, it was checked whether the data distributed normally or not. The p-value obtained from the Shapiro-Wilks test was examined to test the normal distribution of the data

The Shapiro-Wilks test is recommended to be used in small samples (Abbott, 2017, p. 232; Büyüköztürk, 2008, p. 42; Pole et al., 2010, p. 933). The p-value higher than α=.05 in the analysis indicates that the scores at this significance level are suitable for a normal distribution (Büyüköztürk, 2008, p. 42; Coşkun et al., 2017, p. 174; Pallant, 2017, p. 75; Pole et al., 2010, p. 933; Yazıcıoğlu et al., 2007, p. 192). The analyses conducted on the normality of the SSCAAT and SSCAS scores of the study group are presented in Table 3 below.

Table 3. *Normality Test Results for the SSCAAT and SSCAS Scores of the Students in the Working Group*

Scale	Group	Measurement	N	Shapiro-Wilk	
				Statistic	p-value
SSCAAT	Experimental group	Pre-test	28	.932	.070
		Post-test	28	.936	.087
		Retention test	28	.943	.135
	Control group	Pre-test	22	.943	.228
		Post-test	22	.974	.802
		Retention test	22	.977	.854
SSCAS	Experimental group	Pre-test	28	.961	.366
		Post-test	28	.931	.063
	Control group	Pre-test	22	.939	.193
		Post-test	22	.961	.510

The fact that p values of the Shapiro-Wilk test conducted to determine the normality of the data obtained from the scales pre-test, post-test, and retention test scores were higher than α=.05, shows that the scores do not deviate excessively from the normal distribution and shows a normal distribution.

As a result of the normality test results, it was found that the scores obtained from the SSCAAT, SSCAC, pre-test and post-tests, and the SSCAAT retention test normally distributed in all groups, and therefore parametric tests were used in the analysis of the data.

Effect size shows the strength of the interpretations made about the differences between groups or correlations between variables in quantitative studies (Creswell, 2013, p. 165). In this study, Cohen's d and eta squared (η^2) values were used to determine the effect size of the differences between averages. While interpreting the obtained effect size coefficients, the d value of .20, .50, .80 were considered as a small effect, medium effect, and large effect, respectively (Cohen, 1988, pp. 25-26). While interpreting the eta squared (η^2) effect size, the values of .01, .6, and .14 were taken as small, medium, and large, respectively (Büyüköztürk, 2008, p. 44).

3. Findings

The results of the tests to determine the differences between the mean scores obtained from SSCAAT, which was applied to determine the experimental and control groups academic success levels, the SSCAS, which was applied to determine their attitudes towards the course, are presented below.

3.1. Findings Regarding the Social Studies Course Academic Achievement Test

To determine the differences between the pre-test, post-test, and retention test mean scores of students in the experimental and control groups, paired samples t-test for independent samples, t-test for impaired samples, and a one-way repeated measures ANOVA were conducted. Cohen's d and eta squared (η^2) values were used to determine the effect size of the differences between the mean scores.

3.1.1. Findings on the comparison of independent samples pre-test, post-test, and retention test scores: To compare the students' SSCAAT scores in the experimental and control groups, independent samples t-test was conducted, and the obtained results are presented in Table 4.

Table 4. *Independent Samples t-test Results*

Scores	Variables	n	$\bar{X}$	S	*t*	sd	*p*	η^2	*Cohen's d*
Pre-test	Experimental	28	38.00	5.38	.69	48	.491	.01	.19
	Control	22	39.27	7.57					
Post-test	Experimental	28	67.28	13.55	1.31	48	.196	.03	.37
	Control	22	62.18	13.78					
Retention Test	Experiment	28	70.28	17.29	2.82	48	.007	.14	.80
	Control	22	56.18	17.78					

Comparison of pre-test scores: There is no significant difference between the scores obtained from the experimental group (X̄=38.00, S=5.38) and the control group (X̄=39.27, S=7.57; t(48)=.69, p=.491). The difference between the mean scores (mean difference=1.27, 95% confidence interval: between -2.41 and 4.95) is very small (Cohen's d=.19). The obtained η^2 value (.01) also indicates a small effect (Table 4). Accordingly, 1% of the variance of pre-test scores of the experimental and control groups obtained from SSCAAT is explained by the group variable. In addition, these results show that before the experimental procedure, the experimental group and the control group were equivalent to each other in terms of academic achievement in social studies course.

Comparison of post-test scores: According to the results of the test, there was no significant difference between the scores obtained from the experimental group (X̄=67.28, S=13.55) and the control group (X̄=62.18, S=13.78; t(48)=1.31, p=.196). The difference between the mean scores (mean difference=5.10, 95% confidence interval; between -12.97 and 2.72) is very small (Cohen's d=.37). Accordingly, 3% of the variance of post-test scores of the experimental group and control group obtained from SSCAAT is explained by the group variable (η^2=.03).

Comparison of retention test scores: It was found that there was a significant difference in favour of the experimental group in terms of the scores obtained from the experimental group (X̄=70.28, S=17.29) and the control group (X̄=56.18, S=17.78; t(48)=2.82, p=.007). The difference between the mean scores (mean difference=14.10, 95% confidence interval; between -24.13 and -4.07) is higher (Cohen's d=.80). The obtained value of η^2 (.14) also indicates a large effect (Table 4). Accordingly, 14% of the variance of retention test scores of the experimental group and control group obtained from SSCAAT is explained by the group variable. This finding shows that the authentic learning approach has a greater effect on the retention of information than the social science course implemented according to the instructions given in the textbook.

3.1.2. Findings regarding the comparison of paired samples pre-test, post-test, and retention test scores: To evaluate the effect of the experimental process on the pre-test, post-test, and retention test scores of the students in the study group, the one-way repeated measures ANOVA test was conducted, and the findings are presented in Table 5.

Table 5. *One-Way Repeated Measures ANOVA Results*

Group	Source of Variance	Sum of Squares	sd	Mean of Squares	*F*	*p*	Significant Difference*	*Partial* η^2
Experimental group	Between groups	5550.28	27	205.56	58.14	.000	1-2, 1-3	.86
	Measurement	17817.52	2	8908.76				
	Error	8273.14	54	153.20				
	Total	31640.94	83					
Control group	Between groups	4764.36	21	226.87	18.44	.000	1-2, 1-3	.69
	Measurement	6209.46	2	3104.73				
	Error	7070.55	42	168.35				
	Total	18044,37	65					

* 1= Pre-Test, 2= Post-Test, 3= Retention Test

Comparison scores of experimental group: It was found that there was a statistically significant difference between the SSCAAT pre-test scores, post-test, and retention test scores of the students in the experimental group (Wilks' Lambda=.13, $F_{(2, 26)}$=58.14, p=.000, partial η^2=.86). The obtained partial η^2 (.86) indicates a large effect (Table 5). Post-test mean scores (X̄=67.28, S=13.55) and retention test mean scores (X̄=70.28, S=17.29) were found to be higher than the pre-test mean score (X̄=38.00, S=5.38). On the other hand, the difference between post-test and retention test scores was not significant. This finding indicates that the authentic learning approach used in the course teaching caused a statistically significant increase in the students' academic achievement after the application and the retention test scores. It also showed that the measurement results

obtained after the application and the results of the subsequent follow-up measurement did not differ from each other; that is, the effect of the application on academic achievement continued.

Comparison scores of control group: It was found that there was a statistically significant difference between the SSCAAT pre-test scores and the post-test and retention test scores of the control group students (Wilks' Lambda=.31, $F(2, 20)$=18.44, p=.000, partial η^2=.69). The obtained partial η^2 (.69) indicates a large effect (Table 5). Post-test mean score (X=62.18, S=13.78) and retention test mean score (X=56.18, S=17.78) was found to be higher than the pre-test mean score (X=39.27, S=7.57). On the other hand, the difference between post-test and retention test scores was not statistically significant. This finding indicates that the social science course curriculum implemented according to the instructions given in the textbook caused an increase in students' academic achievement after the application. It also showed that results obtained from the measurement conducted after the process did not differ from the measurement results in the subsequent follow-up measurement. Still, there was a decrease in the mean scores compared to after the application.

3.2. Findings Obtained from Social Studies Course Attitude Scale

To determine the differences between the pre-test and post-test mean scores obtained from SSCAS, which was applied to determine the students' attitudes in the experimental and control groups towards the social studies course, paired samples t-test and independent samples t-test were carried out. Cohen's d and eta squared (η^2) values were used to determine the effect size of the differences between the mean scores.

3.2.1. Findings regarding the comparison of independent samples pre-test and post-test scores:
Independent samples t-test was conducted to compare the students' SSCAS pre-test and post-test scores in the experimental group and the control group. The obtained findings are presented in Table 6.

Table 6. *Independent Samples t-test Result*

Scores	Variable	n	$\overline{X}$	S	t	sd	p	η^2	Cohen's d
Pre-test	Experimental	28	106.21	13.39	.68	48	.499	.01	.19
	Control	22	108.86	13.95					
Post-test	Experimental	28	118.17	10.43	2.60	47.93	.012	.12	.72
	Control	22	111.45	7.84					

Comparison of pre-test scores: As seen in Table 6, there was no significant difference between the scores obtained from the experimental group (X=106.21, S=13.39) and the control group (X=108.86, S=13.95; t(48)=.68, p=.499). The difference between the mean scores (mean difference=2.65, 95% confidence interval: between -10.46 and 5.16) is very small (Cohen's d=.19). The obtained η^2 value (.01) also indicates a small effect (Table 6). Accordingly, 1% of the variance of pre-test scores of the experimental and control groups obtained from SSCAS is explained by the group variable. In addition, these results show that the experimental group and the control group were equal to each other in terms of attitudes towards the social studies course before the experimental procedure.

Comparison of post-test scores: A statistically significant difference was obtained in the SSCAS scores of the students in the experimental group (X=118.17, S=10.43) and the control group (X=111.45, S=7.84); t(47.93)=2.60, p=.012. The mean difference in SSCAS scores was 6.72, and the values have a 95% confidence interval ranging from -11.92 to -1.53. Cohen's d value (.72) indicates a medium effect size. The obtained η^2 statistic (.12) also indicates a medium effect size (Table 6). This value shows that the group variable explains 12% of the variance of post-test scores of the students in the experimental group and the control group obtained from SSCAS. This finding shows that the use of authentic learning approach practices in social studies lesson is more effective than the process based on the instructions given in the textbook in developing positive attitudes towards the course.

3.2.2. Findings regarding the comparison of paired samples pre-test and post-test scores:
Paired samples t-test was conducted to determine the effect of the experimental process on the study group students' SSCAS scores. Analysis results are given in Table 7.

Table 7. *Paired Samples t-test Results*

Scores	Variable	n	$\bar{X}$	S	t	sd	p	η^2	Cohen's d
Experimental group	Pre-test	28	106.21	13.39	3.60	27	.001	.32	.68
	Post-test	28	118.17	10.43					
Control group	Pre-test	22	108.86	13.95	.83	21	.417	.03	.18
	Post-test	22	111.45	7.84					

Comparison scores of experimental group: When the pre-test (X=106.21, S=13.39) and post-test (X=118.17, S=10.43) scores of the students obtained from SSCAS were examined, it was seen that there was a statistically significant increase, t (27)=3.60, p=.001 (two-way). The increase in the SSCAS scores was 11.96, and the values have a 95% confidence interval ranging from -18.78 to -5.14. Cohen's d value (.68) indicates a medium effect size. The obtained η^2 statistic (.32) indicates a large effect size (Table 7). This value shows that 32% of the variance of post-test scores of the experimental group obtained from SSCAS is explained by the approach applied in the teaching. Therefore, it can be interpreted that authentic learning approach practices in social studies course greatly affect developing students' attitudes towards social studies course.

Comparison scores of control group: There was no significant difference between the scores obtained from the pre-test (X=108.86, S=13.95) and the post-test (X=111.45, S=7.84; t (21)=.83, p=.417). The difference between the mean scores (mean difference=2.59, 95% confidence interval; ranging from -9.09 to 3.91) is very small (Cohen's d=.18). The obtained η^2 value (.03) also indicates a small effect (Table 7). Accordingly, 3% of the variance of post-test scores of the control group obtained from SSCAS is explained by approaches used while teaching. The result shows that using a curriculum-based learning approach in social studies course does not cause any significant change in students' attitudes towards the course.

4. Conclusion and Discussion

The effect of authentic learning approaches on the academic achievement and the attitude towards the course was investigated in terms of social studies course, and the following results were obtained;

As a result of the experimental process, it was found that the academic achievement levels of the students in the experimental group and the control group increased and significantly differed when compared to the pre-experimental process. While the difference between the post-test scores of the two groups was not statistically significant, a significant difference was found in the retention test scores in favour of the experimental group. This result shows that the authentic learning approach has a greater effect on the retention of information.

When the literature is examined, it is seen that there are some similar results in many studies investigating the effect of the authentic learning approach on the academic achievement of students at various educational levels. The conducted studies showed that using a geo-media supported authentic learning approach in social studies course (İneç, 2017) and using authentic learning activities (Gürgil, 2018); including technology-supported authentic learning activities (Karabulut, 2018) and authentic learning practices in the science course (Aynas, 2018); including authentic task-oriented practices in foreign language education (Karakoç, 2016); the use of authentic learning environments in mathematics lessons (Aydın, 2019) has yielded more effective results than traditional approaches in increasing students' academic achievement and retention of knowledge.

The studies conducted with undergraduate students, including authentic task-oriented practices in programming teaching (Pullu, 2019) and implementing the curriculum prepared following an authentic task-oriented constructivist approach (Koçyiğit, 2011), have been more effective for students' academic success than implementing the current curriculum. Authentic chemistry problem-solving competency module developed for chemistry teaching (Muhamad et al., 2017), digital thinking authentic learning environment developed for computer literacy course (Mingo, 2013), and teaching mathematics lessons with authentic methods (Blum, 2002) have shown the effectiveness of using these approaches in teaching. There are also studies concluding that authentic learning does not increase academic achievement at the desired level. Maddox (2012) expressed that authentic pedagogy on student performance in graduation exams was small but positive. Gulikers et al. (2005) found that students in authentic learning environments do not perform better than students in non-authentic learning environments, contrary to expectations. The conducted studies show that an authentic learning approach is an approach that can be applied in all education levels and many

disciplines. When compared to teaching methods based on knowledge transfer, authentic learning is a teaching approach in which the students construct the information by reaching it themselves and discovering the contexts in which they will use it. In addition, in the classes where the authentic learning approach is used, students reinforce their learning by collaborating and assuming various roles and tasks in outdoor activities.

As a result of the experimental process, the changes in the students' attitudes in the control group towards the social studies course were not found to be significant compared to the pre-experimental process, while the changes in the attitudes of the students in the experimental group were found significant. These results show that using an authentic learning approach in social studies course positively changes students' attitudes towards the course.

Furthermore, while there was no significant difference between the pre-test attitude scores of the students in the experimental and control groups, a significant difference was found between the post-test attitude scores favouring the experimental group. The positive effect of the authentic learning approach on students' attitudes towards the course has also been determined in different studies. In these studies, positive changes were obtained in students' attitudes towards the course in social studies (İneç, 2017; Baştürk, 2019), life studies (Gündoğan, 2017), Turkish (Hamurcu, 2016; Güner, 2016), mathematics (Aydın, 2019), and science (Karabulut, 2018; Aynas, 2018) courses which were based on authentic learning approach in primary and secondary school levels. The use of an authentic learning approach in the visual arts (Dilmaç & Dilmaç, 2014) and mathematics (Blum, 2002) courses at secondary education levels; the use of an authentic learning approach in programming teaching (Pullu, 2019), community service practices (Horzum & Bektaş, 2012), and special teaching methods (Koçyiğit, 2011) at higher education level contributed to students' positive attitudes towards the course. Students must have a positive attitude towards the course to increase their motivation and bring success with it. Students' enjoyment of the course, finding the lesson enjoyable, and their willingness to participate in the lesson will make them active in the classroom and classroom interaction will develop positively. As in this study, most of the studies indicated that students' academic achievement increased. Students gained permanent knowledge and developed positive attitudes towards the course conducted according to the authentic learning approach. In this respect, the authentic learning approach constitutes an important alternative to the methods based on knowledge transfer, which teachers still use intensively. The student is in the position of passive information receptors.

5. Recommendations

In line with the results obtained from this study, the following recommendations are presented;

- In line with the authentic learning approach, social studies and other courses should include more activities involving daily life problems. Students should be faced with real-world problems and should be asked to offer solutions to these problems. Thus, students will have the opportunity to discover which area of daily life they can use the learning outcomes they achieve in knowledge, skills, and values.
- The authentic learning process is a process that needs to be planned well. If it is not planned well, the desired results will not be obtained, and it may cause a significant loss of time. For this reason, teachers should discuss and decide at the beginning of the year which learning outcomes will be processed with methods appropriate for authentic learning, what kind of activities will be planned and how much time will be allocated.
- Complex problems with more than one solution should be preferred instead of problems with a single solution in the authentic learning process. Solutions should not be presented as ready-made; students should be asked to find their own solutions. Different ideas and solutions should emerge in the process, and students should find the best solution with a common decision.
- Field trips play an important role in establishing the link between the school and the real world. Due to the field trips held in this study, the students could get information from experts and experience the work. In addition, the trips have been effective in ensuring the permanence of the knowledge and developing the students' positive attitude towards the course. Trips should be considered an integral part of education and training activities, and they should be arranged in the relevant fields by considering the courses' learning.

- Authentic learning is a teaching process that is not limited to classroom activities and includes classroom and even out-of-school activities. Therefore, it is important to get the support of the stakeholders in the implementation of the process. The school management should cooperate with teachers and parents, and their support should be obtained in the necessary areas, starting from the planning process of the activities. Therefore, the possible problems will be minimised, and the activities will have a wider effect with the multiplier effect.

- The products and the tasks produced by students in the authentic learning process should be exhibited and disseminated using various communication tools. For this purpose, panels in classrooms and corridors can be used to display products. In addition, official websites of schools, social media accounts, and media outlets broadcasting at a local or national level can contribute to disseminating these activities.

- Since authentic learning is an activity-based approach, students and parents may be anxious about gaining the academic knowledge required for central exams. However, in this study and other studies investigating the effects of authentic learning, it has been concluded that there is no difference in terms of students' academic success rate in authentic learning environments and students who learn in non-authentic environments. The teacher should follow the students' academic progress and support them with supplementary extracurricular activities to minimise these concerns.

- This study was carried out in terms of social studies course and secondary school grade. Similar studies can be conducted in different courses and at different grades. Therefore, comparisons can be conducted between the grade levels.

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