Education and Science tedmem

Vol 44 (2019) No 200 117-151

A Study on the Efficacy of the Integrated Program Design on Teaching the Theme of "Science and Technology" *

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Abstract

This study was made in order to determine the impact of the education, based on the integrated curriculum that was developed for the theme of "Science and Technology", on the academic success of the students and the views of the students and teachers, participating in the study, on the integrated curriculum. In this study, based on associating five different lessons, it was examined whether information that is learned in different lessons can be transferred, or not. The study was performed at a middle school, at a middle-class socioeconomic level in the province of Ankara, in the academic year of 2014-2015. In this study, in which the quantitative and qualitative research methods were used together, the mixed method was adopted. In the quantitative aspect of the study, the experimental pattern, with pretest-posttest control groups, was used. In the study, the social studies, Turkish language, sciences, visual arts and elective folk culture lessons were studied with the experimental group students by being associated with each other. And in the control group, the existing lessons were studied according to teachers' routine lesson plans with a disciplinary concept. As the academic success test was used in the quantitative aspect of the study, the semi-structured interviews were made with the students and the teachers who conducted the lessons of the experimental group, in the qualitative aspect. Furthermore, the students' study documents, researcher field notes and observations were benefited from as the qualitative data collection instruments. For the analysis of the quantitative sub-problems of the study, SPSS 17.0 package program was used. In the analysis of the quantitative data, two-way analysis of variance (ANOVA) was used; and content analysis in the analysis of the qualitative data. According to the analysis of the obtained data, it was determined that the lessons, performed with the integrated curriculum, were more effective than the existing one, in terms of academic success. As the result of the interviews that were made with the students, it was found that the students liked the lessons, studied with the integrated curriculum model, more.

Keywords

Integrated curriculum
Interdisciplinary program
Thematic learning
Social studies
Science
Turkish language
Visual arts
Folk culture
Middle school

Article Info

Received: 09.11.2018
Accepted: 07.09.2019
Online Published: 10.30.2019

DOI: 10.15390/EB.2019.8154

* This article is derived from Fitnat Gürgil's PhD dissertation entitled " The effect of integrated social studies curriculum on the academic success and motivation of students", conducted under the supervision of Turan Çetin.

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Together with this, it was concluded that the integrated curriculum -based education was more effective with regard to the teaching of the complex subjects. It was also found in the study that the students transferred information that they learned in a lesson to another lesson. It is thought that this study will give an idea to both researchers and teachers, who are the appliers of the lessons, at the point of associating and applying different lessons, based on the integrated curriculum in particular.

Introduction

With the Age of Enlightenment, the amount of knowledge produced by the humankind has grown exponentially. This increased knowledge has led to the question of what knowledge should be gained by new generations through educational practices. On the other hand, the need for high-quality human resources, equipped with the skills to adapt to changing conditions, has become one of the most important subjects of education systems. Along with all these, the changes have also affected the value hierarchy of societies. Both the traditional values considered as essential and important to be adopted by the new generations and the new values that are needed are included in the current educational systems. These developments in knowledge, value and skills are among the important milestones in the transformation of education systems. Many pedagogical strategies, methods and approaches have been developed in order to educate new generations to make sure that they have the targeted knowledge, skills and values. One of these approaches is the integrated curriculum.

Based on the idea of teaching the related lessons around a specified theme, the integrated curriculum is not a new approach, although it has been referred more frequently, recently (Loepp, 1999). The fundamentals of this education program was shaped with the thought of German pedagogue Johann Friedrich Herbart, living in the 1800s, on conducting the related lessons together (Drake & Burns, 2004). It can be said that the idea of 'whole is more significant and valuable in human perception' that the Gestalt Theory put forward (Koffka, 1999) contributed in the development of the integrated curriculum approach, together with John Dewey and the Progressive Movement (Drake & Burns, 2004). Again, in the development of the integrated curriculum, the finding, made by the brain-based learning, of human brain's constantly looking for meaningful patterns and links about the subject that it learns was also influential (Caine & Caine, 1991).

Integrated curriculum in the 1930s and 1940s, this idea was taken into account under the name of 'core program' (Vars, 1991); and today under 'interdisciplinary program, multidisciplinary program, thematic learning, concept-based learning, holistic learning, integrated curriculum' (Lake, 1994; Head, 1997).

Jacobs (1989) explains the necessity of the integrated curriculum with the examples that he gives through the medical education. According to him, just like a doctor, who learns a human being as a whole with all of its aspects during the medical training, the teachers must teach their students the subjects that they refer to with all of their aspects. According to Beane (1991), the students cannot see the links between the subjects due to the discipline-based lesson approach. Similarly, Yıldırım (1996) also states that the task of establishing links between learned information and the skills is left to the students in the disciplinary education in Turkey and this link can be established by a very few students. It is because a large amount of learned information and the skills were forgotten without being able to establish any link at different times (at the beginning, middle and end of the education) and different education levels.

The integrated curriculum application provides many benefits to the students from various aspects. The integrated curriculum is accepted to be one of the most convenient approaches for the human beings' natural learning process. The truths in nature are not realized on a discipline basis. It is argued that the lessons that have very little resemblance to the real life, are fragmented by adults and

created in an unassociated and artificial manner are not learned by the students (Beane, 1991; Drake & Burns, 2004; Tertemiz Işık, 2004). The realization of the learned things in the same episode allows both the students to easily see the links and to make what is learned has a permanent trace and meaning, in the integrated education program, in which the similar subjects are studied around the same theme. With the integrated curriculum, the students can comprehend the multidimensionality of the subject by seeing how different disciplines approach to that subject. This approach prevents unnecessary repetitions since the subject is addressed in different courses and at different times, and effective use of time is ensured. In addition, the information presented in a course is transferred to other courses, thus achieving the transfer of knowledge (Ackerman, 1989; Jacobs, 1989; Yıldırım, 1996; Aybek, 2001, 2008; Drake & Burns, 2004).

This teaching approach is seen to be beneficial not only for the students but also the teachers, in many ways. Above all, this teaching approach provides an opportunity to the teachers for learning and teaching together. The trainings and interests of the teachers who are educated in certain disciplines are generally related to their own disciplines. The knowledge, skills and values of different disciplines tend to be often ignored by teachers. At the phase of the preparation and applications of the integrated curriculum, teachers can see the approach of different disciplines to the subject, the way of their taking it into consideration, and even the different methods of use of the methods and techniques, used in the education of the subject. Integrated curriculum allows teachers to prepare their own course content. By applying the integrated curriculum, teachers become not only practitioners but also decision makers and regulators (Ackerman, 1989; Jacobs, 1989; Yıldırım, 1996; Aybek, 2001, 2008; Drake & Burns, 2004). It is also stated in the literature that communication between different subject teachers increases during the preparation and implementation phases of this curriculum. According to Drake and Burns (2004), teachers who communicate more frequently during the planning and implementation stages have the opportunities to get to know one another more closely. This also contributes positively to the development of friendship / camaraderie among teachers.

While criticisms and concerns about disciplinary-based curriculua are increasing day by day, the interest in integrated curricula is growing due to its characteristics such as allowing knowledge transfer to different courses and contributing to meaningful and permanent learning (Shoemaker, 1989; Kysilka, 1998; Jacobs, 1989; Mathison & Freeman, 1997). The research findings also confirm the positive learning outcomes obtained through integrated curriculum. LaVerdiere's (2008) associated 'Ancient Rome' unit with social studies, English, math, and painting arts courses, and concluded that integrated curriculum activities help students see the connections among various courses more clearly. Zhbanova, Rule, Montgomery, and Nielsen (2010) concluded that the integrated curriculum is more successful than traditional education in teaching complex subjects. In his study, Ford (2000) associated mathematics, English, and social studies courses, in which multiple intelligence theory is related to integrated curriculum. This study emphasizes the effectiveness of integrated multiple intelligence education in the language development of students.

In Turkey, interest in the integrated curriculum has intensified especially in the 2000s. Some of the integrated curriculum studies associate different courses around a specific theme while some others situate a course within the context of skills, values or different strategies. Tertemiz Işık's (2004) study focuses on life sciences, Turkish, and mathematics; Aksoy's (2011) study focuses on science and English; Demir (2008) associates science and technology, mathematics, social studies and Turkish lessons; Demir (2009) relates mathematics, Turkish and life sciences courses, according to the principles of integrated curriculum. In addition, in some other studies, social studies course is associated with higher level thinking skills (Kahveci & Atalay, 2015); social science lessons are associated with other social science courses (Aybek, 2001), and the science course is associated with values (Kunduroğlu, 2010). Furthermore, there are some skill-based integrated curriculum (Keskin Coşkun & Öztuna Kaplan, 2007; Ayvaz Tuncel, 2009) studies. In the literature, no research could be identified that was based on science and technology theme that associated Turkish, science, social studies, visual arts, and elective folk culture courses. This study elaborates on how different types of courses can be related. Therefore,

this study is expected to be a model for the researchers who want to conduct research on the integrated curriculum model, and teachers who want to practice integrated curriculum in their classes. In addition, the findings regarding the "transfer of information to different courses" presented in this study are expected to inspire future research.

Purpose of the Study:

Motived from the aforementioned benefits, the effect of the integrated pro integrated curriculum gram approach on the middle school students was intended to be examined with the data collection instruments and activities that were prepared in this study. In accordance with this purpose, the answers of the sub-problems were sought:

1. The academic success points of the students of the experimental and control groups toward the lessons that were studied with the integrated curriculum model and the current education programs;
   - Is there a differentiation according to groups (experimental-control)?
   - Is there a differentiation according to measurements (pretest and posttest)?
   - Is there a differentiation according to the shared impact of the group and measurement factors?
2. What are the views of the experimental group students on the integrated curriculum model?
3. What are the views of the teachers that conduct the experimental process, related to the integrated curriculum model?
4. What is the condition of the students in terms of seeing the link between lessons in the classes, in which the integrated curriculum model was applied?

Limitations and Assumptions of the Study

Many of the studies conducted in the field of education have various limitations. The limitations of the current study are as follows: The scope of this study only covers

i. The students and the teachers of the experimental and control groups studying in the sixth grade of a secondary school in the spring term of 2014-2015 academic year,
ii. Sixth grade social studies, Turkish, science, visual arts and elective folk culture classes, and
iii. The 'science and technology' theme selected for the integrated curriculum model.

This study assumes that

i. The uncontrolled variables equally affected the experimental and control groups,
ii. The students participating in the study gave accurate and honest answers to the test items,
iii. The elicited expert opinions were sufficient to create the data collection tools used in the study, and
iv. The experimental and control group students did not inform each other about the implemented classroom activities.

Method

Research Model

The mixed research model was used in this study. The mixed research model is defined as a research method which brings together the different qualitative and quantitative methods that complete and develop each other or reveal the contrasts between them at different levels in a single study (Creswell, 2012; Creswell & Plano Clark, 2011; Fraenkel & Wallen, 2008; Johnson & Onwuegbuzie, 2004). In the study, one of the mixed data collection patterns, the 'explanatory sequential design', was used. Creswell and Plano Clark (2011) called this design two-stage model. In this model, the quantitative data are collected at first, and the qualitative data are also needed in order to detail or explain these quantitative ones. For this reason, this pattern is named 'explanatory'. Because it follows the order of collecting the quantitative data after the qualitative ones, it is named 'sequential'. Because it follows the order of collecting the qualitative data after the quantitative ones, it is named 'sequential'.

One of the reasons for using the mixed data collection patterns in the study is that the problem that is intended to be studied contains both qualitative and quantitative paradigms. By the use of the quantitative and qualitative data in the same study, it was intended to make use of all of the contents of the examined subject; to have the collected data complement, detail and explain one another; and thus to increase the validity and reliability of the study, as well. Achieving richer evidence with the results that were taken from the quantitative and qualitative data sources is another goal of the study.

In the quantitative dimension of the study, pretest-posttest control group model was used as a quasi-experimental design. At this stage, a pool of classes with similar characteristics was created. After that, an experiment and a control group were randomly selected from this pool. Five different courses in the experimental group were interdisciplinarily taught based on integrated curricula. For the control group, five different courses were taught in a disciplinary way according to the current curricula of the Ministry of National Education. The quantitative data were obtained through the academic achievement test developed by the researchers.

In the qualitative dimension of the study, by applying data triangulation, the semi-structured interview dataset was used to examine the experimental group students' and teachers' views on the integrated curricula. The course observations, student study documents, and researcher field notes were also included in the qualitative data analysis.

Study group

a) The Study Group that is Included in the Quantitative Part

In the study, the typical case sampling, one of the purposive sampling types, was used. Büyüköztürk, Çakmak, Akgün, Karadeniz, and Demirel (2013) explains the typical case sampling as the selection of the most typical, average and ordinary ones of the situations, which are suitable for the purpose. In terms of reflecting the most average situations toward the integrated curriculum, being a new application for the students, a school, which represents the middle class socioeconomic level, was chosen.

The study was performed at a middle school, located in one of the central districts of the province of Ankara, in the academic year of 2014-2015. Because the activities, developed with the integrated curriculum model, included the compulsory lessons as well as the elective folk culture lesson, the study was commenced with the identification of the schools where this lesson is taught. In the light of the data, taken from the Statistics Department of the Ministry of National Education, the middle schools (5 schools) which choose the lesson of folk culture and have enough number of branches to constitute the experimental-control groups were determined. For the identification of these school, the necessary permissions were taken from the Ministry of National Education. Both school administrators and teachers were informed about the research by conducting interviews with each of these schools. The piloting and the actual implementation of the study were carried out in two different secondary schools in the central districts of Ankara city. The research piloting was carried out in the 2013-2014 academic year, and the experiment was conducted in the 2014-2015 academic year. To identify the

schools to be included in the study, the socio-economic development index developed by Turkish Statistics Institute (TURKSTAT), which is based on economic and social indicators was taken as the reference. The piloting was conducted at a secondary school with middle socioeconomic level (according to the 2013 TURKSTAT data), and the experimental implementation was performed in another middle-socioeconomic-level secondary school (according to the 2014 TURKSTAT data). The reasons for choosing these schools are as follows: The availability of elective folk culture courses in these schools, having an adequate number of students selecting this course to assign the experimental and control groups in a neutral manner, the convenience of access to school for researchers, and the willingness of school administrators and teachers to participate in the study. Based on the positive feedback received from piloting, the actual implementation of the research was conducted in the spring term of 2014-2015 academic year. In order to determine the groups in the experimental implementation school, the pre-test results from the personal information forms and the academic achievement tests were analyzed in the light of the opinions expressed by the teachers and school administrators. Based on this analysis, an experiment and a control group were selected by random assignment from four classes with similar characteristics. Table 1 provides the information on the study group at the quantitative stage of the research.

Table 1. The study group that is included in the quantitative part of the study

		Experiment Group		**Control Group**	
		f	**%**	***f***	**%**
Gender	Girl	15	50	16	51,6
	Men	15	50	15	48,4
	Total	**30**	**100**	**31**	**100**
Mother Education Status	Secondary school	3	10	4	12,9
	High school	12	40	8	25,8
	Undergraduate	14	46,7	17	54,8
	Graduate	1	3,3	2	6,5
	Total	**30**	**100**	**31**	**100**
Father Education Status	Secondary school	2	6,7	-	**0**
	High school	10	33,3	11	35,5
	Undergraduate	17	56,7	18	58
	Graduate	1	3,3	2	6,5
	Total	**30**	**100**	**31**	**100**
Number of Siblings	Only child	1	3,3	2	6,5
	Two siblings	9	30	12	38,6
	Three siblings	19	63,4	15	48,4
	Four siblings	1	3,3	2	6,5
	Total	**30**	**100**	**31**	**100**

As it is seen in Table 1, while 15 in the total of 30 students that are included in the experimental group were girls (50 %) and 15 of them were boys (50 %), 16 in the total of 31 students in the control group are girls (51.6 %) and 15 of them were boys (48.4 %). When the educational status of the mothers of the students in the experimental group is examined, it can be seen that 14 (46.7%) have undergraduate, 12 (40%) have high school, 3 (10%) have secondary school, and one (3.3%) has graduate degree. When the education status of the mothers of the control group is examined, it can be seen that 17 (54.8%) have undergraduate, 8 (25,8%) have high school, 4 (12,9%) have secondary school and two (6,5%) have graduate degree. A closer look at the educational status of the experimental group students' fathers reveals that 17 (56.7%) of them have undergraduate, 10 (33.3%) of them have high school, two (6.7%) have secondary school, and (3.3%) one has graduate degree. An analysis of the educational status of the control group students' fathers shows that 18 (58%) of them have undergraduate, 11 (35.5%) have high school, and two (6.5%) have a graduate diploma. Regarding the number of siblings that each student in the experimental group has, 19 students (63.4%) have three siblings, nine have two siblings

(30%), one has four siblings (3.3%), and one is the only child (3.3%). The number of siblings of the students in the control group is as follows: 15 students have three siblings (48.4%), 12 of them have two siblings (38.6%), two have four siblings (6.5%), and two do not have any siblings (6.5%).

b) The Study Group that is Included in the Qualitative Part:

In the qualitative part of the study, the criterion sampling, a type of purposive samplings, was used. Besides, in the qualitative aspect of the study, the data triangulation was made. Accordingly, interviews were made with the students, included in the experimental group, and the teachers who are giving the lessons of the integrated curriculum with regard to the integrated curriculum model. In the qualitative aspect of the study, the observations of the application classes about the process, the field notes of the researchers and the study documents that were made by the experimental group students in the lessons were examined. The semi-structured interviews were made with 4 teachers and 30 students. With the document examination, 30 experimental group students were included in the observation process.

Table 2. The study group in the qualitative phase of the research and the distribution of the applied scales

Data Type	Teacher (N)	Student (N)	Lesson (N)
Interview	4[3]	30	
Document Examination		30	
Observation			5

The Preparation and Application Process of the Integrated Curriculum Model

The preparations for the integrated curriculum commenced with the identification of the lessons, to be associated. Since the researchers specialize in the field of social studies education, the study began by determining the other courses that could be related to the social studies course. As such, some tables were prepared that show topics that are appropriate for associating social studies with other secondary school subjects. In parallel with these tables, submitted to the views of 2 academic members, who are working under the department of education programs and teaching, it was decided that the social studies, Turkish language and visual arts lessons are the ones that are most convenient for the association. Nevertheless, as the fact that all of these given lessons are heavily verbal lessons would have been in contrast with the nature of the integrated p integrated curriculum, it was decided that the science lesson, representing the quantitative ones, should be included in the model. Again, because all of these determined lessons were the compulsory lessons, it was decided to add the elective folk culture lesson into the integrated curriculum model. Therefore, the lessons that were going to be included in the integrated curriculum model were determined.

After the determination of the lessons, a commission, in which the persons who had studied on the integrated curriculum in the past, was created. In this commission, academic members, working in the departments of social studies, science, Turkish language and painting-art education under the faculty of education, were assigned for each lesson, and two teachers that teach these lessons at the middle schools were assigned again for each lesson. Moreover, all of the prepared activities and lesson plans were submitted for the views of the experts that work in the fields of education programs and teaching, social studies, Turkish language, science, painting-art education and assessment and evaluation education. The commission began to work with the task of determining the most convenient theme in terms of creating an association. After deciding that the determined five lessons can be associated with the theme of 'Science and Technology', it was proceeded with the design phase. The design phase of the integrated curriculum model is, as such:

[3] In the study, the integrated curriculum model was applied with the lessons of Turkish language, social studies, science, visual arts and folk culture. However, because the teacher of the social studies was also giving the lesson of folk culture, the number of teachers, with whom the interview was made, was four.

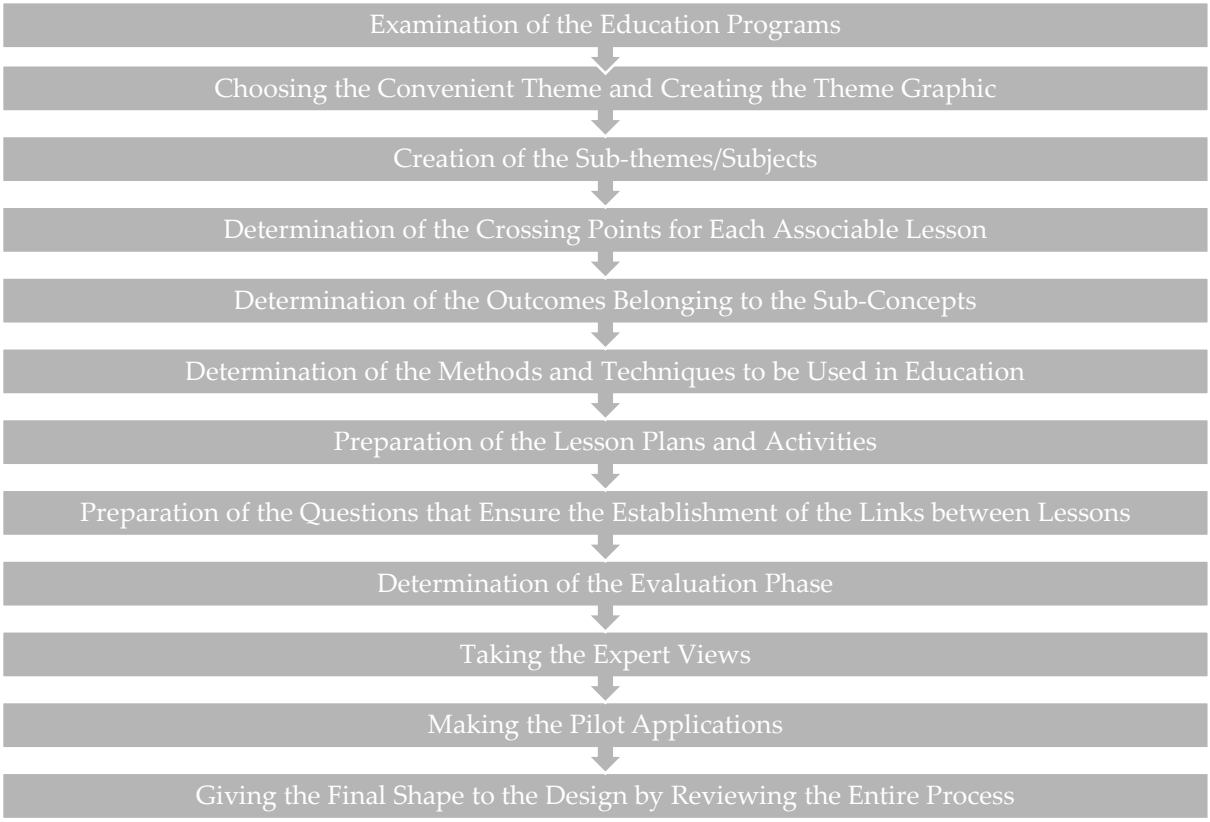

Figure 1. The development process of the integrated curriculum that was used in the study

Due to the fact that the theme of 'Science and Technology' directly covers the learning area of 'Science, Technology and Society', included in the education program of social studies, the integrated curriculum plans and activities were shaped around this learning area. The contents of weekly lessons that were prepared in the integrated curriculum were presented below.

Table 3. Association status of the lessons

Weeks	Lesson Subjects of the Social Studies	Turkish Language	Science	Folk Culture	Visual Arts
1.Week	Inside Life	X	X	-	X
2.Week	Life in the Future	X	X	X	X
3.Week	Solidarity for Health	X	X	-	X
4.Week	Respect to Labor	-	-	X	-
	Path that Atatürk Showed	X	-	-	X

First Week:

Social Studies Lesson: In the first lesson, various social sciences were introduced to the students in parallel with the acquisition of "Social sciences give examples for the impact of social sciences on the life of society with reference to the studies and findings in the social sciences" (History, geography, philosophy, psychology, archeology, anthropology etc.). Afterwards, the important social scientists (Jale İnan, Halet Çambel, Ekrem Akurgal, Mübeccel Kıray, Mümtaz Turan, Niyazi Berkes, Sırrı Erinç, Besim Darkod, Faik Sabri Duran, İlber Ortaylı, Kemal Karpat, Halil İnalcık etc.) and examples from their studies were presented to the students. The impacts of social sciences on our lives were explained with examples. Finally, the work sheets that had been prepared in relation to the subject were given place.

Science Lesson: In this course, some scientists (Marie Curie, Thomas Edison, Albert Einstein, Johannes Kepler, Nicolaus Copernicus, Galileo Galilei, Oktay Sinanoğlu, Mehmet Öz, Gazi Yaşargil, Gökhan Hotamışlıgil, Takiyyuddin, Ali Kuşçu etc.) and the scientific research steps taken by these

scientists were included. The similar and different aspects of the methods used by physical scientists and social scientists to obtain scientific knowledge were also emphasized during these lessons. Afterwards, the impacts of the science on the social life were explained. Finally, the work sheets that had been prepared in relation to the subject were given place.

Turkish Language Lesson: In the Turkish language lesson, the small reading texts which tell, inform and narrate the lives of the scientists of social studies lessons and science lessons that the experimental group students had seen were given place (Ekrem Akurgal, Halil İnalcık, Marie Curie, Thomas Edison, Albert Einstein, Johannes Kepler, Nicolaus Copernicus and Galileo Galilei etc.). Afterwards, the work sheets about the reading texts were distributed. The answers in these work sheets were answered.

Visual Arts Lesson: In this lesson, the students were told that "Imagine yourself as a scientist and describe yourself while working". Therefore, it was wanted to learn if the students can transfer information that they learned in one lesson to another one. Besides, it was wanted to learn from which one of the science fields that they had seen in the lessons of social studies, science and Turkish language the students were impacted.

Second Week:

Social Studies Lesson: In the study, the activities that were prepared for the acquisition of "It puts forward the creative ideas about the impact of scientific and technological developments on the life in the future" was given place in this lesson. The subjects, such as nano-technology, genetically modified organisms, cloning, nuclear energy, space studies, developments in the scientific technologies, were told to the students with visuals. The activities that were prepared about these subjects were given place. The views of the students on the future were taken by directing them the question of 'How do you think the world in the future will be?' Afterwards the activities that were prepared about the subject were given place.

Turkish Language Lesson: In the first hours of this lesson, it was told that "Write a letter to the scientists that develop the scientific or technological products that you find important for your life." In the second hour of the Turkish language lesson, it was asked from those, who were volunteer among the students, to read the letters that they had written. At the third hour of the Turkish language lesson, the discussion activity, the topic of which had been given to the students to let them prepare before a week, was made. One group of the students, who volunteered to participate in this activity, was asked to defend their thesis that refers to the positive aspects of technology, and the other group to defend their thesis that refers to the negative aspects. At the end of the lesson, the application class reached the decision that the technology is an undeniable part of life, but still it must be used by reducing its damages to minimum. Therefore, all of the themes of writing, reading and speaking were given place in the Turkish language lesson.

Science Lesson: In this lesson, the scientific and technological developments in the field of science were explained to the students by creating a timeline, from the past to the present. By explaining the living conditions of the past, the students were asked to compare the life in the past and present. Afterwards, the energy resources were categorized by making it remembered that the resources of the world are not limitless and the energy is an important problem of the states. Later on, the students were informed about the nuclear energy. At the end of the lesson, the question of how they will find a solution to the energy problem was directed to the students. In this matter, the students were asked to be divided into groups and create a project until the next week.

Visual Arts Lesson: In this lesson, the students were asked to draw a picture that depicts how the world will be in the future. It was wanted to see the students' both dreams and perspectives to the scientific and technological developments in their future-oriented predictions.

Folk Culture Lesson: In this lesson, the research assignments that had been given to the students before were presented. Firstly, it was told what kind of change from the past until today in the fields of

clothing and ornament. Later on, again the students were asked to compare their own games and toys with those of their parents (mother, father, grandmother, grandfather etc.) as it had been given as an assignment to them a week before. The students were asked to question the reasons by ensuring them to see the changes in both clothing and games. Later, they were asked to predict what kind of changes will occur in terms of clothing and games.

Third Week:

Social Studies Lesson: With the experimental group students, the lesson studies, which were studied in parallel with the acquisition of "How the inventions and developments in the field of medicine affect the relation between human life and social solidarity", were made. Such topics as the importance of organ-tissue and blood donation, how it was made, who can donate organ-tissue or blood were discussed. Later, the issue of contagious diseases was brought forward and examples were given. The work sheets that were prepared about these subjects were applied.

Turkish Language Lesson: In this lesson, the texts that narrate and inform about the importance of organ-tissue and blood donation were read and these texts' questions were answered.

Science Lesson: By explaining the structure of a kidney and its tasks inside our body, the explanations for the protection of the kidney health were made. After explaining the structure and tasks of the circulatory, skeleton and nerve systems, information about the protection of these systems were given. By explaining the protection methods against the contagious diseases and their treatment processes, the importance of the correct medicine was emphasized. Afterwards, blood exchange was clarified by explaining the structure of blood and its tasks. Finally, the students were ensured to contribute in the activities about the importance of blood donation.

Visual Arts Lesson: The students were asked to draw pictures with the theme of 'Health and Science'. Therefore, it was intended to see whether the students can make an association with the pictures that they drew and what they saw in the lessons of social studies, Turkish language and science throughout the week.

Forth Week:

Social Studies Lesson: In the first hour of this lesson, the activities that were prepared in parallel with the acquisition of "The copy and patent rights advocate the necessity of the provision of the products, under protection, by the legal means" were given place. In the final two hours of the lesson, the activities about the acquisition of "He realizes the importance that Atatürk gave to rationalism and science, based on his applications and works" were implemented. After referring to the quotations from Atatürk on science, the steps that he took for the scientific developments in Turkey. Regarding to the subject, the lessons were complemented with activities.

Turkish Language Lesson: The students were asked to write a composition with the theme of "Atatürk and Science" in the first hour of the Turkish language lesson. In the second hour of the Turkish language lesson, it was asked from the volunteered students to read the letters that they had written. By evaluating the compositions that the students wrote, the lesson was completed.

Folk Culture Lesson: In this lesson, the importance of the certification of the cultural heritage products was studied within the frame of copy-patent rights. It was emphasized that some of our cultural products were claimed by other nations (Baklava, Hacivat-Karagöz, some handcrafts, some of our verbal assets etc.). The importance of the certification of national products just like personal products was emphasized in the folk culture lesson. The lesson was completed with the work sheets, prepared in relation to the subject.

Visual Arts Lesson: In this lesson, the students were asked to draw a picture that depicts "importance that Atatürk gave to science and rationalism". Therefore, it was intended to see whether the students can transfer the subjects that they studied in the social studies and Turkish language lessons to the visual arts lesson.

Table 4. Weekly course hours of the integrated curriculum model

Courses	First Week	Second Week	Third Week	Fourth Week
Social Studies Lesson	3 hours	3 hours	3 hours	3 hours
Turkish Language Lesson	3 hours	3 hours	2 hours	2 hours
Science Lesson	2 hours	2 hours	3 hours	-
Visual Arts Lesson	1 hours	1 hours	1 hours	1 hours
Folk Culture Lesson	-	2 hours	-	2 hours
Total	**9 hours**	**11 hours**	**9 hours**	**8 hours**

The experimental applications of the study were completed as three lesson hours for the first week for the social studies and Turkish language lessons; and the two hours were completed as science and one lesson as visual arts. In the second week of the study, the social studies and Turkish language lessons were applied as three hours; the folk culture and science as two hours; and the visual arts lesson as one hour. In the third week of the study, the social studies and science lessons were applied as three hours; the Turkish language lesson as two hours; and the visual arts lesson as one hour. In the final week of the study, the social studies lesson was applied as three hours; the Turkish language and folk culture as two hours; and the visual arts lesson as one hour. Therefore, thirty-seven hours of integrated curriculum model was applied with the prepared activities in total as twelve hours of social studies, ten hours of Turkish language, seven hours of science, four hours of folk culture and visual arts.

Because the contents and plans of the lessons were prepared by the commission that was created independent from the executing teachers, the teachers of the application school were informed about the process. Before the application, some meetings were made with the teachers. At the meetings at the school, it was emphasized that the knowledge, skills and experiences of the teachers from each field were needed. The teachers were informed about the purpose, principles and application types of the integrated curriculum. The prepared lesson plans and activities were distributed to the teachers of the related lessons and these teachers were asked to examine these plans and activities and give their opinions about how to organize them in a better manner in respect to the levels of the students and the conditions of the school. The teachers were asked to give their opinions about whether they want an activity, subject or concept to be added or removed. In this process, it was emphasized that every single view is very important, and cooperation and communication constitute the key point for the healthy conduct of the program. The Turkish teacher reported that the students had some shortcomings about reading. Therefore, some new reading texts were added to the activities. Not any requests of addition or removal were made from the other teachers.

The teachers were given the tables and schemes, on which they can see the association between lessons in a better way. The lesson activities, planned to be made, and how they were prepared were explained to the teachers one by one. After completing all necessary preparations before the applications, the changes that the teachers wanted to add were asked by taking their feedbacks throughout the application process both before the lesson hours and in the free time of them.

Activities Conducted with the Control Group:

First, the academic achievement test was applied to the control group students as a pretest. In the control group, five lessons were taught based on the curricula of Ministry of National Education (MONE). All these five different lessons in the control group were observed by the researchers. There are two aims behind observing the control group. The first aim is to prevent problems that may arise from teacher behavior in teaching via the integrated curriculum model. During the pilot implementation phase of the study, some teachers wanted to apply the activities / questions prepared for the Integrated Curriculum model in the control group. In the school where the experiment was conducted, similar requests were made by the teachers in the first meeting held before the experimental implementation.

To avoid any problems caused by teacher behavior, all courses in the control group were observed to intervene immediately to the problems that could be experienced. As the control group did not associate the courses between the courses, all the related courses were observed by the researchers. The second aim is to prevent participants from demonstrating a lower or higher performance when they feel any 'group difference'. The control group was observed in order to prevent this problem which is frequently encountered in scientific research. In this way, it was aimed to prevent any potential group awareness (i.e. they belong to the control group) by these students that might have resulted in low or high performance. After the courses were completed in accordance with the disciplinary approach, the achievement test was administered to the control group as a posttest.

Data Collection Instruments

The data collection instruments that were used in the study were presented under two subjects as the quantitative data collection instruments and the qualitative data collection instruments.

a) Quantitative data collection instrument:

Academic Achievement Test: The researchers created an "Academic Achievement Test" with 'Science and Technology' theme for this study. Multiple choice test was preferred because it provides ease of use and objective evaluation. On the other hand, increasing the content validity of the test by including a large number of questions is another reason for using such a multiple choice achievement test. Determining the content of the achievement test began by taking the topics and outcomes within the 'Science, Technology and Society' learning domain of the social studies course as the basis. Afterwards, the related topics in the integrated curriculum were listed and new outcomes were created for the Academic Achievement Test. After the topics and course outcomes were created, MONE's central exams (SBS, OKS, TEOG etc.) and test preparation books published by various publishing houses in recent years were examined. A question pool comprising 84 questions covering each topic and outcome was prepared. By examining these 84 questions in the achievement test, the researchers removed the questions that measured similar qualities from the item pool, which reduced the total number of items on the test to 55. In order to increase the validity of the achievement test, which was reduced to fifty-five items, expert opinions (4 field experts, 1 assessment expert and 1 Turkish language expert) were consulted. Of the 15 questions included in the test, eight were removed from the test since they did not have sufficiently strong distractors, 6 were too similar, and 1 did not serve the purpose. On the basis of the expert opinions, the question and distractors of an item were changed. Having been reduced to 40 items after these revisions in line with the expert opinions, the Academic Achievement Test was administered to 200 students studying at three secondary schools in Ankara. The items on the Achievement Test were also analyzed in terms of their item difficulty and item discrimination indexes.

Table 5. Difficulty and discrimination values of the academic achievement test items

Item No	Item Difficulty Index (P)	Item Discrimination Index (D)	Item No	Item Difficulty Index (P)	Item Discrimination Index (D)
1.	0,17	-0,01	21.	0,36	0,38
2.	0,61	0,33	22.	0,26	0,05
3.	0,58	0.31	23.	0,22	0,03
4.	0,45	0,5	24.	0,47	0,38
5.	0,52	0,31	25.	0,40	0,51
6.	0,46	0,48	26.	0,23	0,09
7.	0,49	0,35	27.	0,63	0,70
8.	0,49	0,44	28.	0,33	0,26
9.	0,49	0,68	29.	0,49	0,31
10.	0,46	0,51	30.	0,53	0,31
11.	0,52	0,33	31.	0,49	0,31
12.	0,47	0,42	32.	0,31	0,11
13.	0,52	0,46	33.	0,58	0,61
14.	0,75	0,33	34.	0,28	0,38
15.	0,13	-0,27	35.	0,57	0,33
16.	0,49	0,46	36.	0,49	0,33
17.	0,50	0,79	37.	0,47	0,64
18.	0,49	0,31	38.	0,53	0,55
19.	0,49	0,31	39.	0,66	0,48
20.	0,46	0,37	40.	0,45	0,35

The items 1, 15, 21, 22, 23, 25, 26, 28, 32 and 34 were found not to have adequate item difficulty and discrimination, and were removed from the test. Thus, the 'Academic Achievement Test' was finalized to have 30 items with four choices each. The reliability of the test was calculated to be .875. Fraenkel and Wallen (2008) state that this value should be .70 and above for reliability. Thus, considered to be reliable, the test was used in the study.

b) Qualitative data collection instruments:

Interview Forms: In order to learn the views of the experimental group students and teachers participating about the integrated curriculum model in an in-depth way, semi-structured interview forms were prepared. In addition to enabling determining the content of the questions to be asked to the participants in advance, semi-structured interviews allow asking questions to learn more about participants' feelings and thoughts. By reviewing the integrated curriculum literature (Ayvaz Tuncel, 2009; Azevedo, 2013; Demir, 2008; LaVerdiere, 2008; MacMath, 2011; Yan, 2009), the questions that could be included in the interview forms for students and teachers were identified. At the first phase, 17 questions were asked for the 'Teacher Interview Form'. For the 'Student Interview Form' 11 questions were asked at the first phase. The ambiguous and overlapping questions were removed from the form in parallel with the views of the field experts, Turkish language experts and experienced experts on qualitative research. A piloting was conducted to increase the validity and reliability of the semi-structured interview questions. In the pilot study, made before the real application, the final forms were given to some questions by adding probing questions in both teacher and student interview forms. The prepared interview forms were applied after the end of the experimental process and the collection of the quantitative data. The interviews were made at the free hours of the teachers. And the interviews, made with the experimental group students, were made for two weeks before the beginning of the lesson hours of the students (between 10.30-13.00). The semi-structured interviews were recorded after securing permission from the participants.

Observation Forms: In this study, the observation forms, related to the sub-problem of "how was the situation of the students of the experimental group, in which the integrated curriculum model was applied, in terms of realizing the association between the lessons?", were benefited from. A semi-structured observation form was used in this study. The points to be paid attention by the observer during the observations are determined in advance. However, in order to enable the observation of different behaviors that may occur apart from these points and to allow the observers to interpret the situations they consider important for the research, using a semi-structured observation form was preferred by the researchers. Wragg (1999) states that the objective of the observation must be clearly defined before making it. By determining the fundamental instruments of the lesson observations, these observation results were recorded according to these objectives, during the experimental process. In the observation form, the answers for the questions of " what are the association situations of the teachers about evaluating the lessons; what are the methods of the teachers in address an issue; what are the situations of the students about using the knowledge, skill and values that they learned in other lessons; what is the situation of the new learned information, value and skills' transfer and how is are the interest and participation of the students in the lessons?" were sought.

The observation form was revised by consulting the opinions of qualitative research experts. In addition, the effectiveness of the observation form was tested during the pilot study. The observations were carried out to cover each course time during which the experimental procedure was performed. The course observations were recorded as observation notes.

Video Records: With the theme of 'Culture and Heritage'(excludes the pilot study), a preliminary study, in which the Turkish language, social studies and folk culture lessons were employed in order to test the functionality of the integrated curriculum approach and understand; take measurements against the difficulties that can be experienced in the process; and understand the functionality of the data collection instruments that were going to be used, was made before the given study. In this preliminary study, the interviews were made with the experimental group students and the teachers that make the application, as well, and the lessons were observed. After this preliminary study, it was ensured that a video record is also taken in the real application because of realizing that the collection of data with stand-alone observation forms caused data loss. Different records were made for each lesson by receiving the necessary permissions for the video records. The video recordings were used during the elaboration of observation notes, student study documents, and the researchers' field notes.

Documents: One of the important arguments of the integrated curriculum is the issue of the students' transferring information that they learn in different lessons. In this matter, the study documents that the students created in five different lessons were examined by being considered to be a data collection instrument within the scope of the study, in terms of the transfer of information.

Researcher Field Notes: After the preliminary study including Turkish, social studies, and folk culture courses, during the analysis of student study documents, some problems arising from failing to consider the thoughts and feelings of the students were identified. Therefore, taking field notes during the piloting and experimental study was deemed necessary. The field notes were used especially while students were creating their study documents or immediately after their completion of these documents. By talking with the students, the questions like '*What did you get inspiration while creating your project, was there any lesson/activity that affects you while creating your project?'* were asked. By giving codes to each student, the students' statements were recorded in the field notes.

Personal Information Form: A 'Personal Information Form' was created to equalize the control and experimental group, and to obtain more detailed information about the students. During the creation of this form, qualitative data analysis experts were also consulted. The Personal Information Form included questions on the student's name, surname, age, parental education status, number of siblings, the ownership status of the house, the courses they like and dislike the most, how much time they devote to study, the time they spend watching TV, the time they spend on computers and the Internet, and for what purposes they use computers and the Internet.

Data Analysis

a) Analysis of the quantitative data: When analyzing the quantitative data, the assumptions and descriptive statistics of the groups were examined. The normality assumption was analyzed using the Shapiro-Wilk test because the sample was smaller than 50. The homogeneity of variance was measured through the Levene test. Since the assumption of normality and variance homogeneity was ensured, two-way analysis of variance for repeated measures was used on one factor. The significance level was accepted as ,05.

b) Analysis of the qualitative data: In the analysis of the data in the qualitative part of the study, all of the data were analyzed with the content analysis after being transferred to the digital environment. Some of the views of the users were presented in the findings part with direct quotations. To all of the participants of the study, one code was given. The student codes that represent the experimental group of the study were given to be 'Stu1'. The part of 'Stu' shows that the view belongs to a student, and the number of 1 shows that the order of the interview is 1. The codes were developed to be 'TF1' for the teachers. The codes were used as follows; TF1: Turkish language teacher, TF2: folk culture and social studies teacher, TF3: science teacher and TM4: visual arts teacher. All of the teachers, except for the teacher of visual arts, are female.

Validity and Reliability

In the studies, which were made in the field of education sciences, the researchers cannot assign mostly the participants, randomly. It means that the groups (classes) had been created in the education system independent from the study, beforehand. This situation is at the top of the most important problems about the internal validity of the study. In order to minimize the impact of not being able to make a random assignment, some means were applied. The determination process of the groups were performed as follows: The school, where the research was made, gives education in two parts as in the morning and in the afternoon. The teachers' classes were adjusted accordingly. For instance, there are 4 social studies teachers at the school. Two of them teach to the morning groups and other two to the afternoon groups. The same situation is applicable for the situations of the science and Turkish language teachers. The study was made in the afternoon groups. The application teachers' having all of their lessons at the level of 6th grade allowed a great opportunity in terms of determining the experimental and control groups. First of all, a pool was created from the classrooms that have similar features. Afterwards, an experimental group and a control group was chosen from this pool with the random method. Thus, despite the fact that the sample could not be formed randomly, the experimental and control groups were assigned randomly.

In the conducted study, the same academic success test was given to the experimental and control groups as pretest and posttest, as in a different assessment instrument was not used in the groups. Also, the assessments were made by the same person. Likewise, the distribution of the assessment instruments were made by the same person (the social studies teacher) according to the same guideline. Therefore, it was tried to prevent the threats against the internal validity that can be caused due to the biased collection of the assessment instrument.

The interaction between the experimental and control groups confronts us as another factor that affects the study's result. The location of the experimental and control groups that take place in this study in different levels and blocks of the school, minimized the possible interaction between the groups.

In researches, the conduct of the experimental and control groups by different persons can also affect the study results. In the cases, in which the teachers who teach to the experimental group are more knowledgeable and successful, the study results are affected, directly. Again for the students, that the teacher (researcher) who comes to their classrooms is a new or familiar person can also affect the results of the study. In such cases, the students can show the reactions that they may not show to the normal lesson teachers. For this reason, it is recommended that the same people should make an application in

the experimental and control groups. In this study, all of the lessons, both in the experimental and control groups, were conducted by the same teachers. Therefore, the dependent variable that can be caused by the implementing person were intended to be prevented. Besides, the results that were taken in the study were associated with the studies that were completed with similar samplings as much as possible.

Validity of Qualitative Data

Qualitative research is carried out in order to obtain in-depth knowledge. Compared with quantitative researchers, qualitative researchers usually spend more time with participants in the process of acquiring in-depth knowledge, which may result in researcher bias. In order to avoid such a problem in the present study, another person other than the researchers, analyzed the data. During the analysis of the data, the raw data sets were frequently reviewed and compared with what the participants intended to say. During the semi-structured interviews, the data were often summarized for the students and teachers and the researchers confirmed that they had correctly interpreted what the participants had reported. In addition, the participants' opinions were presented with direct quotes in the findings section to minimize any potential researcher bias. Further, all the qualitative data sets were analyzed separately by two different experts in qualitative research. For the reliability of the study, the Reliability = consensus /consensus + disagreement formula developed by Miles and Huberman (1994) was used. The points of disagreement were discussed until a consensus was reached.

This study employs data triangulation to obtain richer and deeper knowledge. By utilizing different types of qualitative data collection tools (interview, observation, document review, etc.), the data were verified and the results were elaborated. The internal validity of the research was increased by using purposive sampling.

By their nature, qualitative research cannot be repeated, and thus they introduce reliability problems. Therefore, the researcher is expected to provide a detailed explanation of all stages of the research. In this study, the qualitative dimension of the study is explained in detail.

Results

a) Findings about the first sub-problem:

The findings that were taken from the analysis of the quantitative data of the study were presented below by being analyzed in parallel with the sub-problems of the study. Whether there was a significant difference between the pre-test mean scores obtained by the experimental and control group students from the Academic Achievement Test was calculated through independent samples t-test, and the results are shown on Table 6.

Table 6. t-test results of pre-test scores by group variable on the Academic Achievement Test

Group	N	$\bar{X}$	S	sd	t	p
Experimental Group	30	13,90	2,17	59	,109	,913
Control Group	31	13,84	2,21			

As can be seen on Table 6, the pre-test analysis results show that the total scores of the experimental and control groups do not show a statistically significant difference by group (t(59)= 0,109, p>,05). The experimental group's mean score ($\bar{X}$= 13,9) and control group's mean score ($\bar{X}$= 13,84) are similar, indicating that the readiness of the groups was similar before the experimental procedure. The pretest and posttest results that the experimental and control groups received from the academic success test were presented in Table 7.

Table 7. The pretest-posttest average point and standard deviation values that the students received from the academic success test

Group	Pretest			Posttest		
	N	$\overline{X}$	S	N	$\overline{X}$	S
Experimental Group	30	13.90	2.17	30	22.43	3.58
Control Group	31	13.84	2.21	31	16.29	2.47

When Table 7 is examined, it is seen that there is a significant difference between the pretest ($\bar{X}$=13.90) and posttest ($\bar{X}$=22.43) points, which the experimental group students received from the academic success test, in favor of the posttest. It is seen that there is a significant difference between the pretest ($\bar{X}$=13.84) and posttest ($\bar{X}$=16.29) points, which the students of the control group, in which the lessons were studied with the current education program, received from the academic success test, in favor of the posttest. On the basis of this finding, it can be said that an increase was observed in the success levels of both the students of the experimental group, in which the integrated curriculum was applied, and the students of the control group, in which the current education program was applied.

Table 8. ANOVA results of the success points of the students in the pretest-posttest that belong to the 'science and technology' theme

Source of the Variance	KT	sd	KO	F	p
Between Groups	984.508	60			
Group (E/C)	293.433	1	293.433	25.052	.000
Error	691.075	59	11.713		
Inside Groups	1892.882	61			
Assessment (Pretest-Posttest)	919.854	1	919.854	372.815	.000
Group* Assessment	281.953	1	281.953	114.275	.000
Error	145.572	59	2.467		
Total	2877.39	121			

There is a significant difference between the total success points of the pretests and posttests of the experimental group, which studied on the basis of the integrated curriculum, and the control group, which studied on the basis of the current program [$F_{(1-59)}$= 25,052; p< ,05]. This finding shows that the success points of the students of the experimental and control groups differentiated without any distinction between the assessments.

When Table 8 is examined, it is understood that there is a significant difference between the average success points of the students' pretests and posttests [$F_{(1-59)}$= 372,815; p< ,05]. On the basis of these findings, it can be said that the academic success points of the students changed according to the applied education program without any distinction between the groups.

According to the data of Table 8, it was determined that the academic success points of the students in the experimental and control groups, in which two different education models were applied, with the theme of 'Science and Technology' showed a significant difference, before and after the experiment. In other words, it was found that the common impacts of the repeated measures factors (pretest-posttest) on the academic success levels with the theme of 'Science and Technology' were significant as well as being in different process groups (experimental and control groups) [$F_{(1-51)}$= 114,275; p< ,05]. On the basis of this finding, it can be said that the education programs directly affect the success points of the students and makes success levels to increase in different ways. This obtained finding shows that the education applications, made with the integrated curriculum model, and the education applications, based on the current program (disciplinary), had different impacts in terms of improving the success of the students in the theme of "Science and Technology". Accordingly, it can be said that the integrated curriculum model increased the student success more than the current program and was more effective.

b) Findings about the second sub-problem:

In the second sub-problem of the study, it was intended to determine the views of the experimental group students about the integrated curriculum model. The question of "Could you please explain your emotions in the process of studying with the integrated curriculum?" was directed to the students.

Table 9. The emotional situation of the students about the process of studying with the integrated curriculum

Theme	Sub-theme	Frequency (f)
	I Had Fun	19
Positive Emotion	I Learned Better	6
	I Got Curious	2
Complex Emotion	I Felt a Complex Emotion	2
Negative Emotion	I Got Bored	1
Total		30

27 of 30 students that participated in the interview made positive statements about the integrated curriculum, while 2 of them said they had complex emotions. In relation to the same question, 1 student stated negative emotions. According to the sub-themes that occurred in the analysis of the student answers, 19 students said "they had fun" in the process of studying with the integrated curriculum; 2 students said their "sense of curiosity was dominant"; 2 students said "they felt complex emotions"; and 1 student said "s/he got bored in this process". The opinions of some of the students were as such:

> *Stu18: "I felt good emotions. So, I understood the lesson better. I mean, I gained interest even in the lesson that I did not like." Stu2: "I have liked that, so far. I learned somethings, I did not get bored. It was very fun. I wanted the lesson to not end ever." Stu4: "I understood that the lessons were associated. So, I reinforced what I learned better. It was very different and fun. Thanks to these lessons, I learned the social studies, folk culture, Turkish language, science and visual arts lessons better. Stu25: "In the process of studying with the integrated curriculum, I felt myself clever (...) I mean, I felt clever when a teacher moved on to another subject at the science lesson; I had already seen that subject in the social studies and Turkish language lessons. Also, in the painting and folk culture lessons (...) Before, the teacher used to explain the subject, and it would end at that class. Then, we forgot. But, this time, it was not like that. What we learned in all of the lessons got linked like a chain. As though, it had been for the students' learning better (...)."Stu19: "I felt complex emotions in the course of studying with the integrated curriculum. Sometimes I felt very curious and sometimes very sad. When the subjects became more difficult, I could not understand and felt sad. Afterwards, I learned well and became happy when I saw that other lessons also have the same things (...)"Stu29: "I was very excited at the first time. Toward the end, I got very bored. Because it was boring to see the same subject at each lesson. There were different subjects before, it was more beautiful, in my opinion."*

It is seen that the students' emotions in relation to studying in the integrated curriculum were generally as positive emotional expressions, such as 'I liked, enjoyed it, I learned better, I gained interest, I felt clever'. Furthermore, it was also found that this program was also effective for increasing the sense of self-confidence in terms of lesson success. These findings can be interpreted as studying with the integrated curriculum can be effective for creating positive emotions on the students.

What the most difficult subject was when studying with the integrated curriculum was asked to the students with another question in the interviews.

Table 10. The most difficult subjects while studying with the integrated curriculum

Theme	Lessons	Activities/Subjects	Frequency (f)
It was not hard for me	-	-	8
It was difficult, but I learned better in the next process	Social Studies	Social sciences	8
It was difficult for me	Turkish Language	Reading texts	2
		Essay writing	2
		Discussion	1
	Science	Medicine and technology	2
	Social Studies	Social sciences	3
		Scientific technological developments	2
	Folk Culture	Common heritage	1
	Visual Arts	Picture drawing activities	1
Total			30

According to the analysis of the collected data, 8 students stated that "they did not have any difficult subject or activity", 8 students stated that it was difficult at the beginning, but they stated that they learned the subjects, which they found difficult, in this process. Also 14 students stated that "they had difficulties in the lessons and subjects which included new and a lot of concepts" in relation to the same question. Some of the students' opinions about this question are as follows:

> *Stu15: "Actually I did not have any difficult subject. It was easy."Stu1: "At the beginning, I was confusing Halet Çambel, Jale İnan, Ekrem Akurgal, Mümtaz Turan, Mübeccel Kıray (...) for one another. However, I learned all of them better in the following lessons. We studied many of them at the Turkish language lesson, in the quiz contest, as well (...) I mean, I did not have any subject, with which I had difficulties, later. It was nice."* Stu10:"*It was hard for me at the social studies lesson. Because, I got confused a lot about the subjects. It was difficult for me to keep the names in my mind. The names of both the works of the people and their names (...) I think it was difficult, but I learned better when I saw the same people in the Turkish language lesson, too. The parts that I had difficulties flew away (...)" Stu3: "The most difficult subject for me was the texts that we read in the Turkish language lesson. Because there are confusing words and I cannot keep them in my mind." Stu25: "The subject, which was the most difficult for me while studying the integrated curriculum, was 'Medicine and Technology'." It was because, there were many subjects that we did not know in medicine. I think it was very general. The science lesson was also boring already (...)"*

According to the statements of the students, the social sciences activities in the social studies lessons were at the top of the lessons, in which they had the most difficulty. The students were forced by so many names and terms that they encountered for the first time. However, with similar subjects taught in the integrated curriculum activities in different courses, the confusing or unfamiliar subjects became clearer for the students. According to this finding, it can be said that the integrated curriculum is beneficial for the students in the education of the complex subjects, which included too many names and terms.

In the semi-structured interviews, made with the experimental group students, it was asked them which activity was the one that they enjoyed the most in this process. Again, it was asked from the students why they liked these activities.

Table 11. The most enjoyed activities while studying with the integrated curriculum

Subjects	Activities	Frequency (f)
All	All	5
Social Sciences	Letter writing	1
	Picture drawing	3
	Quiz contest	4
	Work sheets	6
	Discussion	1
	Picture drawing	3
Scientific Technological Developments	Work sheets	3
Medicine and Technology	Work sheets	1
	Picture drawing	2
Atatürk and Science	Essay Writing	1
Total		30

According to the analysis of the data, 5 students stated that they enjoyed all of the activities; 14 students stated that they liked the activities, which were the subjects of the social sciences; 7 students stated that they liked the activities, which were the subjects of the science and technological developments; 3 students stated that they liked the activities, which were the subjects of the medicine and technology and 1 student stated that s/he enjoyed the activities, which were the subjects of Atatürk and Science. Some of the views of the students are as follows:

> Stu28: *"I enjoyed the applications of imagining and drawing. I drew myself as an archaeologist like Halet Çambel. It was an application which was meant for me. I really enjoyed it."* Stu12: *"The activity that I enjoyed the most was the papers about the social sciences. It was because I was proud of learning about the social scientists who live with us."* Stu30*: "The activity of our world in the future was very beautiful. I loved it while drawing." Stu21: "Quiz contest. It was because we learned too much new information. But I got confused. It was as if I had not had anything in my mind. In the quiz contest, I saw that I had learned, and I learned the subjects that I was confusing, better. I was very fun."* Stu16: "*The subject of writing a letter to a scientist affected me a lot. It was very enjoyable to write that letter. I felt like the person was before me; we had learned about scientists before. But I had difficulties at the time when I was deciding whom to write. Later, I remembered those that we read at the Turkish lesson, I wrote to Ekrem Akurgal. While writing, I felt like it was not a homework, but I was writing to someone that I knew. My teacher also liked it. So, I enjoyed (…)"* Stu24: *"The subjects that I liked the most were the activities of scientific-technological development. It was because I learned the meanings of the words that I had heard before like nano-technology, GDO, cloning, and I learned how they were performed and what they were. (…) I can say that I reinforced information that I knew before. So, I enjoyed them."* Stu27: *"I liked the essay writing lesson about Atatürk and science. I already love Atatürk, so much. Also, we had learned what he had done for the sake of science in other lessons. This situation allowed me to write essays easily."*

In the interviews with the students, it was asked to them in the previous question what was the subjects that were difficult for them. The students generally stated that they had many names and terms that they did not know and they had difficulties in the subjects which were difficult to keep in mind. By the students, the social sciences subject was showed at the top of the most difficult subjects. Following this question, the question of 'which activity did you like the most?' was asked to the students. Almost half of the students referred to the social sciences subject as the most liked activity. In the answers of the students, it is seen that they explain the reasons of their liking with the statements like "I learned a lot, it helped me to get rid of confusion, it was fun, it allowed me to understand". For this reason, it is thought that both of the questions must be commented on by taking both of the questions into

consideration. This finding can be interpreted as the students had difficulties in the subject of social sciences, yet they learned the subject better with the applied different activities and it allowed them to enjoy the subject. In other words, it can be said that the subject, which was abstract and complex for the students, made it easier to learn thanks to the different kinds of activities and similar contents in various lessons.

In the semi-structured interviews, the question of "Did the information that you had learned in the lessons that were prepared with the integrated curriculum model affect your learning other lessons? If so, can you give an example?" was asked.

Table 12. Effect of the learned information on other lessons

	Effecting Lessons	**Frequency (f)**
It affected	Social Studies -Turkish Language	18
	Social Studies - Science	15
	Social Studies -Visual Arts	2
	Social Studies -Folk Culture	1
	Science-Visual Arts	1
	Three or More Lessons	4
It did not affect		2
Total		43

Apart from two students, all of them stated that the information which they learned in the integrated curriculum was effective in learning different lessons. The students gave various examples about this question. Some of the examples of the students were given below:

> *Stu1: "(…) For example, the subject of Ekrem Akurgal, Halil İnalcık, two of the social scientists, were in the Turkish language lesson (…) This allowed me to understand social sciences. It was because, there were many words that we did not know. The subject was very complex for us."* Stu9: *"(...) We studied the scientific studies that Atatürk made in the social studies lesson, these things that I learned helped me while writing an essay in the Turkish language lesson."* Stu13: *"Yes, I can give an example. For instance, while studying organ transplantation in the Turkish language lesson, it helped the social studies lesson. The assignments in the Turkish language about science helped me a lot in my social studies lesson." Stu3: "Yes, it helped. For example, the subject of blood transfusion that we studied in the social studies lesson allowed me to create an association with the subject of blood donation that we studied in the science lesson; I understood this subject, better." Stu27: "While drawing a picture about the science people in the visual arts lesson, I could get inspired by Marie Curie, who we had studied in the science lesson. I also enjoy doing science (...) I put myself in Marie Curie's position and drew." Stu1: "Galileo, who we had studied in the science and Turkish language lessons, helped me to imagine and draw myself like an astronaut in the visual arts lesson."*

According to the answers that they gave, it is seen that they associated the information between the social studies and Turkish language lessons, the most. Afterwards, it is seen that they established a link between the lessons of social studies and science. It is also seen that the lessons, which the students stated to have associated the most, were in directly proportional with the lesson hours that are included in the integrated curriculum. In this respect, it can be said that the durations of the lessons, which were associated in the subject of the conveyance (transfer) of the learned information to different lessons, were effective.

c) Findings about the third sub-problem:

In another sub-problem of the study, the opinions of the social studies, Turkish language, visual arts and science teachers, who were thought to have a certain experience due to having conducted the process, wanted to be taken about the integrated curriculum. To the teachers, the question of "What can be the positive events that can be experience in the preparation and application of the integrated curriculum model?" was directed, at first.

Table 13. The positive events that can be experienced in the preparation and application level of the integrated curriculum according to the teachers' opinions

Theme	Frequency (f)
Its provision of lasting learning	3
Its making students more active	3
Its being more attractive	2
Its providing the establishment of association between lessons	2
Its allowing an opportunity to complement the learned information each other	2
Its contribution in the development of the high-level learning skills	2
Its convenience for the activities toward different intelligence types	1
Total	15

The teachers stated opinions in seven different themes about the positive sides of the integrated curriculum. The thoughts of some of the participants in this matter were as such:

> TF3: *"(….) The students have more attention to the lesson. They ask what we will do in the lessons now. Before, I was complaining about their indifference, now they began to pay attention so much, I think the included games also affected them. If I began from the observations that I made during the study period, the students learn in a more lasting manner as there will not be any open point in the subjects (...) I think these applied studies affected their problem solving status, as well (...)" TF2: "(…)I think what they learned got reinforced by complementing each other. It means what they learned become more effective. The situation of their forgetting is eliminated, what is learned becomes more permanent (...)" TF1: "(…) It also increased participation in the lesson, except for one or two students. (...) It provided the contribution of all students that have different intelligence levels in the lesson. It was important for me because I was their class teacher. My colleagues also observed similar situations. For this reason, I can say that the integrated curriculum increases the participation in the lesson (...)" TM4: " (…) I mean, the students drew the pictures in the visual arts lesson by being influenced by the subjects that they studied in other lessons, all the time. I think, this removes the border lines of the lessons, so that it removes the sense of science and mathematics are bad inside the student's mind. (...) What the student learned in different lessons complete each other like a puzzle (riddle) inside the student's mind."*

When the answers that the teachers gave were examined, it is seen that they focused on the application phase of the integrated curriculum, only. There is not any teacher who gives an opinion about the preparation level. The related literature underlines that the integrated curriculum benefits teachers and students in many ways in both preparation and implementation stages (Fogarty, 1991, 2009; Jacobs, 1989; Drake & Burns, 2004). It was also found that during the interviews, regarding the benefits of the integrated curriculum, the teachers never mentioned the teacher factor. According to the statements of the teachers, the integrated curriculum is an education model which provides some benefits at the application level and to some students. Regarding to this finding, it can be said that the integrated curriculum was not correctly positioned in the perceptions of the teachers.

By asking another question to the teachers who participated in the study, the question of "What are the difficulties that can be confronted in the process of preparation and application of the integrated curriculum?" was directed. The answers that the teachers gave are analyzed and presented in Table 14.

Table 14. The negative events that can be experienced in the preparation and application level of the integrated curriculum according to the teachers' opinions

Theme	Sub-theme	Frequency (f)
Teacher's Aspect	It Requires Heavy Labor	3
	It Takes Too Much Time	2
	The Integrated Curriculum Is Not Known by the Teachers Enough	1
Educational Aspect	The Intensity of the Current Education Programs	3
	The Crowdedness of the Classrooms	3
	The Lack of Convenient Education Materials and Equipment for the Integrated Curriculum Model	2
	Insufficiency of Lesson Hours	2
	Official Permission Process	1
Student's Aspect	The Indifferent Students Can Easily Distract the Program's Order	1
	The Personal Differences between Students	1
Total		19

The answers that the teachers gave in respect to the negative events that can be experienced in the preparation and application level of the integrated curriculum were examined under three main and ten sub themes. Some of the participants' opinions about this subject are as such:

> *TF1: "I think it is a very hard work. Preparing the activities by determining the subjects one by one and contacting with the teachers of other lessons make it difficult to do. I think it also requires time to prepare and apply, compared to normal lessons. (...)" TM4: " (…) After all, what would the Ministry of Education would say, even if I and my colleagues said 'let's do that' (!). Of course, there must be an official process for this, as well. This also makes it difficult. (…) Besides, it can be difficult to apply in crowded classes. Some lessons are also intense in the curriculum, if lesson hour is also few, teachers may not be able to find much time to make an inclusion." TF3: " (…) Some students may disturb the order of the classroom and hinder the application. All the preparations go down the drain when it happens. In every class, there are types that think themselves in the Hababam Class. They are constantly looking for ways to disturb the order of the classroom. They can easily disturb the lessons that you prepared with intense labor and affect the students who are paying attention (...) The students, out of this group, may not readily have the same background information about the subject, always. Particularly, I think it may not be beneficial for the students who have a learning disability (...)"*

It is seen that many of the disadvantages of the integrated curriculum, which are covered in the literature, are stated by the teachers (Kysilka, 1998; Drake & Burns, 2004). However, it is also seen that none of the teachers mention the central exams, holding an important place in our country and emphasized the most by Kysilka (1998). Again, being one of the important criticisms, the issues of the disciplines' losing their traits and become serving to other disciplines (Brewer, 2002) and the lessons' straying away from their main goals (Brophy & Alleman, 1991) were not mentioned as one of the problems that can be experienced by any of the teachers. The difficulties that the teachers referred were generally the stereotypical problems that can be said about different methods. In this matter, it can be said that the awareness level of the teachers about the difficulties that can be experienced at the point of preparing and applying the integrated curriculum was inadequate.

In the interviews with the teachers the questions of "Do you want to give place to the integrated curriculum in your new plans? Why?" were asked. The answers that the teachers gave are analyzed and presented in Table 15.

Table 15. The status of the teachers' giving place to the integrated curriculum in the following years

Theme	Frequency (f)
Yes, I give place.	2
I may give place if the conditions are suitable.	2
Total	4

The answers of the teachers to these questions were gathered under two topics: While two teachers said that they wanted to give place to the integrated curriculum in their lessons, other two teachers stated that they would apply the integrated curriculum, providing that the suitable conditions are provided. Some of the answers of the participants is as such:

TF2: "Certainly yes. It is because the reinforcement of the subjects and concepts will be very beneficial. I certainly think that I will use. The students also liked it. It is being a change for us, as well. I certainly want."TM4: "Yes, I want. The students can establish the link between information. The lessons are being more meaningful and effective for the students. Yes, it requires a little more labor, but it is fine, I think it is worth it. TF1: "If the convenient conditions are provided for the integrated curriculum, of course, I would like to apply. For instance, what I can do with the teacher of the lesson, how the materials will be prepared, which class level etc., if they are suitable, yes I want. It is beneficial for the children. (…)"TF3: "I mean if I can find the suitable environment and if we have teachers who want it, of course I want it. After determining the success levels of the classes, I would like to give place to the integrated curriculum. It is because the classes that you teach change every year. It will be difficult to suddenly use this program for the classes that you do not know. It will be necessary to their prior knowledge. Because the learned information will be reinforced in this model, I would like to do."

When the aforementioned statements were examined, it is seen that the teachers have some hesitations about the integrated curriculum. Despite all of the hesitations of the teachers, it can be said that they have positive opinions on giving place to the integrated curriculum in terms lessons, in the following years.

Finally, the question of "What are your suggestions to the people who will prepare lessons with the integrated curriculum?" was asked. The answers that the teachers gave are presented in Table 16.

Table 16. The suggestions of the teachers about the integrated curriculum

Theme	Frequency (f)
Careful examination of the text books and education programs	2
Careful preparation of the lesson plans	1
Taking the students' levels into consideration	1
Preparation of the activities according the educational goals	1
Taking the lesson hours into consideration	1
Total	6

The answers of the teachers to these questions were gathered under five themes. Some of the teachers' opinions about this subject are as such:

TF1: "If you had told me to make such a change, I think I would not have said that the lessons of science had such similar subjects with the Turkish language and social studies lessons. The teachers, who want to make such a program, need to have text books, education programs and technical method scheme before them. Certainly, text books and programs must be analyzed in detail in terms of concepts, subjects and acquisitions. (…)" TF3: "As I told before, our classes change every year. Sometimes we teach to the

students that we do not know, at all. When it is like that, we need to know about the levels and development traits of the students. This or that plan must not be made without knowing the students."TM4: "If the purpose in the integrated curriculum is to have the children see the entirety of the subject, the programs that were to be prepared must be according to this. (…) So, ever kind of study must be educational. All of them need to have the students acquire new information and skill. I think if it is paid attention, it will be more beneficial for the students."

The suggestion, which the teachers, participated in the interview, emphasized the most for the people who wanted to use the integrated curriculum, is the issue of the examination of the text books and education programs. In this matter, it can be said that the teachers take the lesson programs and text books as guidelines for themselves in the preparation of the integrated curriculum.

d) Findings about the fourth sub-problem:

The last sub-problem of this study is founded on the question of "What is the condition of the students in terms of seeing the link between lessons in the classes, in which the integrated curriculum model was applied?" The students' establishing links between the lessons means that the learned information could be also transferred to other lesson/lessons by them at the same time. For this reason, the samples of the activities that the students made in different lessons, researcher's field notes, class observation forms and video records were used in order to find the answer of this sub-problem. In this part of the study, some of these examples were given place.

Observation of visual arts lesson

Lesson: Visual Arts	***Teacher: TM4***
Class Size: 29	***Duration: 1 lesson hour***

Teacher: Look here, son. Listen (!). Today, I will ask you to imagine yourself as a science man.
(Most of the students did not like the subject and noise broke out in the class.)
A Student: All of us?
Teacher: Yes, my son (!). Listen, be silent for a minute (!)
(The teacher is angry, he increased the volume of his voice gradually.)
Teacher: "Imagine yourself as a scienceman and draw your picture while studying in this field of science. That's all (!)".
A Student: Sir, it is very difficult. Shall we draw something else?
Teacher: No, it is not difficult, at all.
A Student: Sir, will I also draw myself as a man?
(A female student is asking this)
Teacher: No my dear, I used scienceman as a synonym to science people, regardless of their gender. You will draw yourself as a science woman.
A Student: There is not any science woman (!)
Another Student: No, there is (!) Our teacher told us at the social studies lesson already (...)
Another Student: There are Halet Çambel and Jale İnan.
Another Student: There is also Marie Curie.
Teacher: Alright, so they are there, right (?) This is what happens if you do not listen to your lessons!

During the study, 5 different lessons were observed for 37 lesson hours. One of the observations that was made in the visual arts lesson is given above. Although all of the lesson teachers were warned in the meetings that were made with the teachers, the visual arts teacher sometimes used the word of "science men" and sometimes "science people". It can be said that the visual arts teacher's using the word of 'scienceman' regardless of these warnings might have provided some students to transfer the information that they learned in other lessons to the visual arts lesson. "The discussions of the students about whether there were women scientists" of the students revealed their status of using what they

learned at the lessons of social studies, science and Turkish language lessons, as in the learned information is transferred.

The statement of one of the students as *"No, there is (!) Our teacher told us at the social studies lesson already (...)"* and another student's saying "*There are Halet Çambel and Jale İnan."* show that what is learned both at the Turkish language and the social studies lessons were used in the visual arts lesson. Again, another students' statement of *"There is also Marie Curie"* also shows that the information that are learned at the science and Turkish language lessons were used in the visual arts lesson. Another finding that supports the result of the learned information's being transferred was determined with the examination of the students' study documents. In the lesson, mentioned below, some of the picture examples that the students drew and the statements that they made at the visual arts lesson were given below.

Figure 2. An example from the student's works

Figure 3. An example from the student's works

While the student who drew the picture in Figure 2 stated that she was inspired by Marie Curie while drawing herself as a scientist and that her and her spouse's works were very important for the sake of science. Regarding the work that the student prepared in the visual arts lesson, it can be said that the information that is given about Marie Curie in the science and Turkish language lessons were affective.

In the example that is given in Figure 3, it is seen that the student drew himself as an archaeologist. In the interviews, which were made while he was creating his work, the question of '*While creating this work, was there any lesson or subject that affect you?'* was directed. The student said that the source of inspiration of the picture that he drew was the archaeologists that he saw at the Turkish language and social studies lessons. He mentioned that he was inspired by the works of Halet Çambel for the protection of the found materials in the excavations and Jale İnan's efforts for bringing the sculpture of 'Tired Heracles' to Turkey. The statement of '*Hello my friends': I am an archaeologist and I have just found a new artifact. I must not harm them. This is why I am excavating with a brush"* in the speech bubble shows that the importance of the subjects in the lessons about delicately excavating and protecting the archaeological artifacts were also understood.

Another example for the lesson that was prepared with the integrated curriculum model was given in the Turkish language lesson. It was intended to display the students' writing skills in the Turkish lessons and their situations of using the information that was used in the previous lessons. Some of the students' works are presented below with the observation of the given lesson.

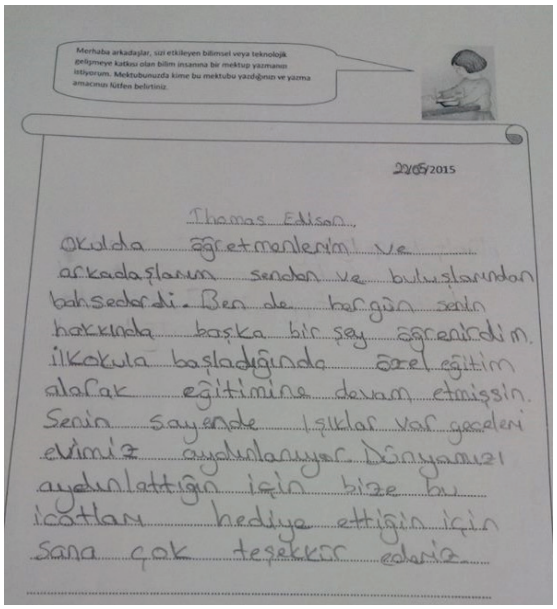

Figure 4. An example from the student's works

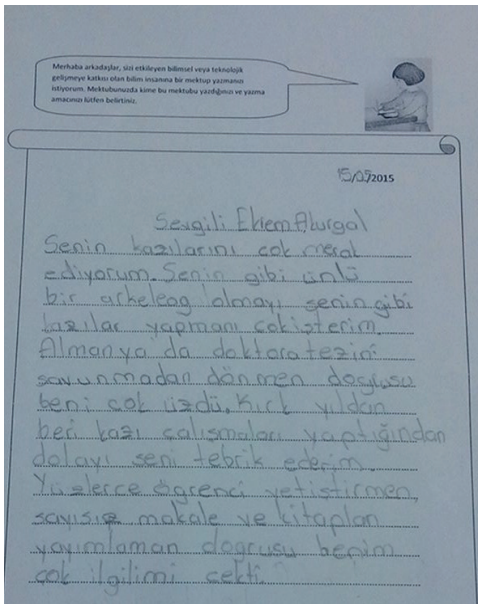

Figure 5. An example from the student's works

In the activity of "Choose one of the scientists, who developed the scientific or technological products that you found important for our life, and write a letter to her/him", which was given to the students at the Turkish language lesson, the student wrote the letter, given in Figure 4, to Thomas Edison. In the letter that he wrote, the student gave place to the information of Edison's taking a special education and how he changed it by working. The given information took place in the Turkish language and science lessons that the student took before. In the interviews that were made with the student, he stated that he was affected by these lessons. The student's given place to these details in his letter shows that he used what he learned in the Turkish language and science lessons, so the learned information was transferred to another lesson.

In the same lesson, some of the students wrote a letter to the social scientists. The student who wrote the letter, given in Figure 5, wrote it to Ekrem Akurgal. When we look at the contents of the letter that the student wrote, it is seen that he mentioned Ekrem Akurgal went to Germany for his education and returned to Turkey without writing his Doctorate Thesis when the Second World War broke out. All of these details are the information that was given to the students in both the social studies and Turkish language lessons. Again, in the letter, in which the excavations that Ekrem Akurgal made for long years and the students that he raised at the university, it can be said that the student used the information that he gained at the Turkish language and social studies lessons.

Another examples that can be given for the use of the information that is learned in different lessons are the different studies of two students.

Figure 6. An example from the student's works

Figure 7. An example from the student's works

In the lesson, the example of which was given in Figure 6, the assignment of depicting '*How will the life be in the future?'* in a picture by their teacher to the students. In this example of picture, the student tried to depict the future by drawing skyscrapers. During the interviews with the student, the student said that he thought that people would get less in touch with the earth in the future and that the transfers in skyscrapers would occur through bridges between them. He also stated that people will travel in astronaut-style clothes and will not have any contact with the earth. To the researcher's question of *'While drawing this picture, was there any lesson or activity, by which you were inspired?'*, the student gave the answer of *"Yes, I got inspired by the pictures of the movies that our social studies teacher showed us at the lesson"*. Accordingly, it can be said that the student was affected by the scenes of the movie of *"Back to the Future"*, which was showed by the social studies teacher and cast in the 1980s, and this lesson contributed in the completion of the picture that he drew in the visual arts lesson.

The study of picture drawing, with the theme of *'Organ Donation'* in Figure 7, was given in the final example for the visual arts lesson. In the picture, the student divided the drawing paper into three parts. In the first square, he pictured the condition of the patient before organ donation and his condition after organ donation in the second picture. In the part below the picture, he told the theme of the picture with the slogan of "*Organ Donation Give Life!..."* The first two squares that take place in the picture of the student show that he was affected by the text, in which the story of a kidney patient that was studied in the Turkish language lesson, before. The statement of '*It is wonderful to drink water thirstily!..."* that the student gave place in the second square in the speech bubble was given in this respective text. In the interviews that were made with the student, he used the statement of *'It came to my mind from the paper, in which the sick girl was told'* while preparing his work. And this statement confirms that what was learned in the Turkish language lesson was transferred to the visual arts lesson. According to this finding, it can be said that the information that the student learned in the Turkish language was effective in creating his own work.

Another lesson observation on the students' exploring the association between the lessons and using the information that he learned in a lesson, in another one was made in the science lesson. A part of the observation process of the science lesson, in which the importance of blood circulation, blood exchange between blood groups and the importance of blood donation was studied, is presented below.

Observation of science lesson

Lesson: Science	***Teacher: TF3***
Class Size: 30	***Duration: 1 lesson hour***

(…)
Teacher: What can be the benefits of blood donation? Children, let's answer one by one. You, my dear.
Student: It provides solidarity of society.
Teacher: What else?
Another student: People help each other, madam.
Teacher: Yes, what else?
Another student: When it donates blood, the body creates new blood, madam.
Teacher: Nice, what else?
Another student: Madam, we become more vigorous with new blood.
Teacher: Yes, what else?
Another student: When we give blood, it is good for headache and high tension, madam.
Teacher: Yes, they are all correct. Now, let's move on with another subjects (…)
(Some of the students still raise their hands. And two of them loudly shout 'there are more, it did not finish, madam'.)
Teacher: That's it, children.
(The teacher looked at the reference book that the used at the lesson.)
Teacher: That's all, children, we counted all of them (!).
Student: No, they did not finish, madam. There is one more.
Teacher: Let's say (...) tell us what it is (!)
Student: Madam, when we give blood, the blood that we give gets analyzed at the hospital and we can start to get a treatment by learning in advance if we have a disease in the analyses.
(By thinking what the student said, the teacher affirmed what the student said by nodding her head)
Teacher: Yeees, that's right. (Stu19) Children, what your friend said is true, when we give blood it gets revealed if we have a disease, so we start to get a treatment, early. We do not lose time.
Another student: Madam, our social studies teacher explained this as the benefit of early diagnosis.
Teacher: Very nice, note it below your book. Good work (Stu19). You caught it well.
(…)

In the aforementioned lesson observation, we see that the students count down the items that are included in the science text book about the benefits of donating blood in order. Although all of the items were finished, some of the students' still raising their hands and their warnings about the fact that not all of the items were completed show that they transferred the information that they learned in the social studies lesson to the science. The statement of one of the students as "*Madam, our social studies teacher explained this as the benefit of early diagnosis"* also supports this finding.

Discussion, Conclusion and Suggestions

In this study, the effect of integrated curriculum approach on the learning of secondary school students was examined. According to the analysis of the data obtained, it was found that the academic achievement scores of the experimental and control groups were equal before the experimental procedure, but they changed at the end of the experimental process. Accordingly, it was found at the end of the experimental process that the integrated curriculum model increased the student success more than the current program and was more effective. In different studies that were made in the previous years, similar findings were also taken in the experimental groups, in which the integrated curriculum was applied (Ford, 2000; Tertemiz Işık, 2004; Kunduroğlu, 2010; Aksoy, 2011; Baştürk, 2009; Demir, 2008; Katılmış, Ekşi, & Öztürk, 2010; Konukaldı, 2012; Pinney, 2015; Çıray, 2010). In this matter, it can be said that the findings of the study is in convenience with the literature. In the study, which was made by MacMath (2011), it was found that the lessons that were studied with the integrated curriculum gave successful results both at the level of learning information and of remembering the academic information. In the study, which was made by Azevedo (2013), it was found that there was an increase both in the affective and cognitive fields of the students at the lessons, in which the integrated curriculum was applied.

The experimental group, in which the integrated curriculum was applied, a large part of the experimental group students stated their emotions about the process of studying with the integrated curriculum with positive statements like 'I enjoyed, I learned better, I felt myself clever, I became curious'. This finding can be interpreted as the students liked the integrated curriculum. In the previous studies that were covered in the literature, it is indicated that the students liked the studies that were made with the integrated curriculum models and their participation in the lesson increased (K. Demir, 2008; E. Demir, 2009; MacMath, 2011; Azevedo, 2013; Kahveci & Atalay, 2015; Gürkan & Doğanay, 2016). It can be said that this result of the study matches with the literature, too.

In the interviews, made with the students, it was wanted to determine what were the studies that had been the most difficult for them. Among the subjects, which had been the most difficult for the students, the subject of social sciences was brought forward. Again, in the question of what the activities are that the students enjoyed the most, it was found that they emphasized the subject of social sciences. A majority of the students reported that they felt challenged in the beginning, but thanks to the similarities among the lessons they learned in other courses, they were able to consolidate what they had learned. Therefore, it can be said that students feel challenged by too many new concepts and terms, but learn complex issues better with contributions from other subjects. A similar result is seen in the study that was made by Zhbanova et al. (2010), too. Zhbanova et al. (2010) found that the integrated curriculum gives more successful results than the traditional education in teaching the complex subjects in the lessons, in which the social studies, science, English language and mathematics were studied by being integrated.

As part of another sub-problem of the study, the social studies, Turkish, visual arts, and science teachers' opinions about the integrated curriculum model were examined. Overall, the teachers found the integrated curriculum useful for the students. They stated that students were more interested in the lessons taught through this curriculum. The teachers also reported that their students were more actively engaged in the course. Moreover, the teachers stated that the information that was learned with this program complemented each other and what was learned became more lasting. However, it was found that teachers did not mention any of the benefits of the integrated curriculum for teachers (Fogarty, 1991, 2009; Jacobs, 1989; Drake & Burns, 2004). This finding shows that the integrated curriculum was not correctly positioned in the perceptions of the teachers.

The teachers found the education, based on the integrated curriculum, beneficial. However, it is seen some of the teachers answer to the question of 'Do you want to give place to the integrated curriculum model in your lessons in your new plans?' as 'I want to give place if the necessary conditions are prepared'. One of the most important reasons of the teachers' hesitations is the possibility of other

teachers may not meet this kind of study positively. Kysilka (1998), Drake and Burns (2004) and Yan (2009) state that the most important pillar is the teachers in the studies of the integrated curriculum. Drake and Burns (2004) state that the teachers' being open and eager for cooperation affects the success of the program in the studies of the integrated curriculum. Kysilka (1998) studied the reasons of why the schools and teachers need to stay away from the integrated curriculum. According to Kysilka, the central exams are the most important reasons in this matter. Many parents prefer taking high points from the central exams over meaningful and lasting learning. For this reason, school principals and teachers tend toward the central exam-oriented exam. According to Kysilka (1998), another reason of the teachers' being reluctant about the integrated curriculum is that the design of the integrated curriculum takes more time and requires more labor, compared to the ready-made program applications. According to Kysilka, the teachers do not want to spend extra effort. Kysilka's (1998) findings are supported by the teachers' statements in this study that this curriculum requires more labor and time.

It is seen that the teachers refer to the inadequacy of tool-equipment in terms of the negativities that can be experienced in the course of the integrated curriculum's preparation and application. Similar findings were taken in the studies of Lam, Alviar Martin, Adler, and Sim (2013) and MacMath (2011). In these studies, the teachers emphasized the inadequacy of the document and materials about the integrated curriculum applications, as well. In the study, one participant stated that the teachers prevented the popularization of the program because of not knowing the integrated curriculum enough. Similarly, Lam et al. (2013) and Kysilka (1998) also emphasize that the teachers do not know the program and are inexperienced in terms of association between lessons.

In the final sub-problem of the study, it was intended to examine whether the students could transfer the information that they learned in a lesson to another in the classes, in which the integrated curriculum model was applied. It was concluded that the students transferred the information and skill that they learned by establishing links between different lessons in the classes, in which the experimental process was made. In the study that was made by LaVerdiere (2008), it was concluded that the students could transfer the learned information and skills to different lessons thanks to the integrated curriculum model. In this matter, it can be said that the result of the study is in convenience with the results of LaVerdiere's study.

As much as there is not only one medicine for the treatment of all diseases, there is not only one strategy, method or model that is affective for all students and lessons. For the solution of all of the school-related problems, the integrated curriculum must not be seen like a magical wand. The subjects and themes that are convenient for the integrated curriculum must be determined one by one and the preliminary applications about its effectiveness must be made (Jacobs, 1989). In this matter, it will be accurate to say that it is not possible to apply the integrated curriculum model in all lessons and subjects. Jacobs (1989) explains that the expected benefits from the integrated curriculum models, prepared and applied in a compulsive manner for the sake of achieving an integration, will not be achieved. Another important issue that must be paid attention is the necessity of teachers' constantly renewing themselves in terms of the integrated curriculum models (Ackerman, 1989). Brophy and Alleman (1991) advocate in their criticism for the integrated curriculum the integrated curriculum prevents the realization of the main goals of the lessons. Brewer (2002) also similarly criticizes that the teachers ignore the specific study fields of their own specializations and make their fields serve to other disciplines in the preparation of this model. Jacobs (1989), by taking these warnings into consideration, advocates that the teachers must be certainly given authority as a designer in order to be able to prepare convenient programs for students. Researchers advocate that, especially from early childhood to adolescence, the lessons should be taught by associating them as much as possible because in these age periods students' perceptions are holistic (Jacobs, 1989; Drake & Burns, 2004). Jacobs (1989) suggests that in primary and secondary schools, all aspects of events and cases should be given to learners in an integrated manner, followed by a more in-depth education with a disciplinary approach at the high school and university level.

The education programs that were prepared in the Turkish education system within the frame of the new education paradigms have an integrating approach (Çalışkan, 2010). Kaymakcı (2012) states that the is an association in three different dimensions as being between units, lessons and cross curriculum in the prepared programs. Kaymakcı draws attention to the fact that there are some demonstration mistakes in the dimension of association between lessons. Doğanay (2008) also similarly states that the social studies program is prepared with an inter-disciplinary approach, but the activities in the social studies lesson are away from the interdisciplinary associations. A review of the official curricula and the instructions by the Ministry of National Education reveals that the Turkish education system is suitable for the implementation of such models. However, it is thought that this kind of applications are insufficient in terms of both teacher and research dimensions.

In the light of the findings that were taken from the study, the following recommendations can be made:

Considering the inadequacy of the studies in Turkey in the literature, it is thought that applied studies are needed in different class levels and themes. In the future studies, the results can be compared by studying the students that are at different learning levels. Again, in the studies that are going to be made in the future, the difference between the results can be determined by the means of making similar applications at different socioeconomic levels. Besides, the persistence levels of the information that is learned with the integrated curriculum can be studied in the studies.

In this study, the integrated curriculum applications were made within the scope of social studies, folk culture, visual arts, science and Turkish language lessons. Similar studies can be organized in a manner that covers different lessons at different class levels. The integrated curriculum applications, with wider participation and content, are needed in the literature.

It is thought that having teachers make exemplary applications by introducing the integrated curriculum applications to the teachers is an important subject. In this matter, it is recommended that in-service trainings must be provided in order to allow the teachers to see the logic, benefits and development levels of the integrated curriculum.

The greatest challenge experienced in this study was that the integrated curriculum was not prepared by the teachers themselves who were involved in the experimental research process. This was because these teachers did not have any prior knowledge about the integrated curriculum. Therefore, the course plans and tools to be used in the classroom implementation were all prepared by a commission who had prior experience with the integrated curriculum. Although all the processes in the research were explained to the teachers in detail, it cannot be said that they have gained complete mastery of it by doing and experiencing this new approach. In future studies, for teachers to fully adopt the integrated curriculum, it is essential that they are actively involved in the design, implementation, and evaluation stages of the integrated curriculum.

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