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Opinions of 7th Grade Students about Enriched Educational Practices in the Scope of Science Course

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Abstract

The purpose of this research was to determine the opinions of the students about 7th grade science courses carried out with enriched educational practices. The research was conducted throughout fall semester of 2014-2015 academic year in the scope of Systems within our Body Unit (SBU), Force and Motion Unit (FMU), and Electric within our Lives Unit (ELU). Qualitative research was adapted as the method in this study. The State study strategy was benefited in the research scope. A semi-structured interview form, observation form and student journals were used as data collection tools. Semi-structured interview forms and journals were used to determine the opinions of the students about the carried out practices. Observation data were acquired by observing the course teaching. Content analysis and descriptive analysis techniques were used for the analysis of the interview data; and descriptive analysis technique was used for the analysis of the observation data. Based on the held interviews and findings obtained from the journals, the students indicated that they found science course more fun, more effective, interesting and good, and they liked the course more and understood and learned the subjects in the course as a result of the enriched educational practices carried out in science courses. The students stated that they wanted the subjects of other units of science courses to be taught by enriched educational practices. Considering the research findings, teaching science courses can be suggested by enriched educational practices carried out in the scope of this research directed to the students who don't like the course within classroom, don't do the assigned homework, and aren't interested in the course.

Key words: Science; Qualitative; Enriched educational practices

Introduction

Countries build their futures by the significance they attach to their education systems. In this context, science education is related with the development level of the countries in the developing and changing world. Kaptan (1998), science courses programs in Turkey have been changed ever since the establishment of the Republic until today. Course programs in the Village Institutes were changed three times (1943 (Nature and School Health), 1947 (Natural History) and 1953 (Nature and Science)). The changes were not limited with the course titles and it was observed that radical modifications were made in the structure and content of the course. Dindar and Taneri (2011), In 1992, the title of the course was changed to "Science". In 2000, another change was made in the course structure. MNE (2005), radical modifications were made in the class structure. The title of the course was changed to "Science and Technology". MNE (2013), course structure and content was modified again, and the title of the course was changed to "Science".

Despite all of these modifications made in course structure and content, national and international examination outputs of our students have revealed that the desired success level has not been reached in Science course. 2010 Level Determination Examination (LDE), given in the national level, 7th grades Science test average was found as (4,77), and Transition from Fundamental Education to Secondary Education (TFESE) examination, which is continuing to be given to the 8th graders, Science (2014) written examination average was found as (54,42) (Büyüköztürk, Çakan, Tan, & Atar, 2014; MNE, 2010).

Sak (2011), in a research conducted in the scope of Education Program of the Gifted (EPG), has revealed that there is no or very limited utilization of a technique only once during an education process. Kenan and Özmen (2012), have detected that the number of researches that are prepared by combining different methods in Science is not adequate. British Columbia (2008), It may not be feasible that the curriculum may be sufficient on its own for ensuring learning completely in school settings.

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Adhering to a single teaching approach, method and technique in a single learning setting is not appropriate to the requirement of the era to improve the Science course success of the students and for their attitudes to the course to progress in a positive direction. Rather than a single method in the teaching process of a course, enrichment of a program, which is generated by using different learning approach/method/techniques together, must be ensured. In this context, different learning approaches, methods and techniques can be integrated and used to teach the gains included in the concerned subjects of the course. It can be stated that teaching of the course by supporting with various applications in the teaching processes of Science course can be realized by the enriched education practices. In the scope of this research, in the teaching process of the course, only the approaches, methods and techniques in the Teaching Program of MNE (2005) Science and Technology course were not adhered. In the teaching process of Science Course; education practices that have been enriched in the teaching process of the gains included in SBU, FMU and ELU have been benefited.

Research Problem

What are the opinions of the students, who participated in the research, about the enriched education practices and process?

Research Sub-Problems

1.What are the opinions of the students about the taught courses?
2.What are the opinions of the students about the course based on the data acquired from the student journals?
3.How were the behavior of the students in the teaching processes of the course?

Purpose

MNE (2013) changed the title of the course to "Science" with a decision. However, the application date of the class for 7th graders was determined as 2015-2016 academic year. In this context, the enriched education practices were prepared in this research by considering the gains in MNE (2005) Science and Technology Course Teaching Program. In the scope of the research, the authors found the change of the course title from Science and Technology to "Science" appropriate. The purpose of this research was to determine the opinions of the students about 7th Class Science courses taught by the enriched education practices.

Method

Research method

A qualitative research method and techniques were adapted in this research. In this context, a case study strategy was benefited. Case study is one of the qualitative strategies widely used in qualitative researches. More than one data collection methods can be used in case studies to achieve data variety (triangulation). These are; interview, observation, and document analysis techniques (Yıldırım & Şimşek, 2011). Interview, observation, and document analysis techniques were used to ensure variety in data acquisition in the research. Hence, improvement of validity and reliability of the qualitative section of the research was aimed by using different data resources and different data analysis methods. The course where the practices were carried out were recorded. It was thought that the researcher needed to be a participating researcher since the researcher was both the instructor of the course and observer of the course. Interviews were held with the students who participated in the research during and after the applications by using a semi-constructed interview form. Journals were handed out to the students to determine their emotions and thoughts about the studies conducted during the applications, and their thoughts about Science course. The journals were collected from the students at the end of 2014-2015 academic year following teaching of the entirety of the units.

Participants

This research was conducted on seventh grade students. The research was conducted during the entire fall semester of 2014-2015 academic year with 32 seventh graders and one Science teacher. 14 of the students who

participated in the research were females and 18 were males. Interviews were held with 17 students who participated in the research by using the semi-constructed form.

Practices Conducted with the Study Group

The courses were taught to the students in the study group by enriched education practices that were prepared to teach a total of 90 gain teaching included in Systems within our Body Unit, Force and Movement Unit, and Electric in our Lives Unit. In this context, a course plan was prepared for each gain. Distinctive activities were formed in the scope of the relevant subjects for teaching the courses. During the teaching process of SBU, FMU and ELU units; other learning approaches/methods/techniques were used including a learning-approach based on questioning, Scientific Discussion, Learning Approach Based on Problem, teaching of the subjects in Science Center, Project studies and using Technology, teaching of the relevant subjects by their experts (doctor, academician, engineer, nurse, PDR experts, etc.), Creative Drama Method, Active Learning Techniques, and giving seminars. The enriched education practices developed based on this were used in the process of the learning of the gains of the relevant subjects by the students.

Data Collection Tools

Semi-constructed interview forms and student journals were used as the data collection tools in the research. Semi-constructed interviews were held with (17 students) who participated in the study to reveal the tendency of the students about Science class and about the practices and activities that were carried out. Opinions of the students about the class were determined in detail following the practices in the scope of the interview form. In this context, seven questions were asked to the students. The interviews held with the students lasted approximately 10-15 minutes. The interview data were examined by two experts and themes and codes were formed as independent from each other. "Compatibility percentage" formula suggested by Miles and Huberman (1994) was used to determine the reliability of the codes and themes obtained by the interview forms. It was expressed as; Compatibility percentage= (Agreement)/(Agreement + Disagreement)X100. According to this formula, the compatibility percentage in the interview form was found as 89,36.

The students were made to keep a journal during the process of the studies to determine their feelings and opinions about the practices carried out in the research scope. Determination of the opinions of the students about science class and what they learned at the end of the class was aimed at the end of the conducted study by means of the journals. The information about the purpose of handing out the journals and how they should be kept was provided by the class teacher. The journals were collected after the practices ended in the scope of the research in (February 2015). The researcher observed the courses. The data about his observations are indicated in the finding section in the scope of the research questions.

Application of Data Collection Tools

Interviews were held with 17 students who participated in the study following the practices. The concerned interviews were held in the classroom where the course was taught. Interview data were recorded by a tape recorder. Prior to the practices; journals were handed out to the students to exhibit their thoughts at the end of the day about what they did in the class. The journals were collected from the students at the end of all practices.

Data Process and Analysis

The research data were acquired by using interview, observation and document analysis techniques. Accordingly, raw data of the interviews were revealed by the researcher and academicians, expert in their field. The field experts and researcher separated the data into codes first of all. Subsequently, the data obtained from the codes were collected in themes. The journals, which were handed out to the students to reflect their feelings and opinions about what they did in science course, were examined and analyzed by the researcher.

Ethic

Secondary school students, students' parents and teachers were cooperated in the research scope. "Parent Approval" Forms were prepared for the students to participate in the research, and "Volunteer Participation Forms" were prepared approving that the students participated in the research voluntarily, and approvals of the parents and students were received. Subsequently, legal permits were received from Hacettepe University Ethics Commission and Ankara Provincial Directorate for National Education in order to conduct the research. The researcher explained to the entirety of the participants that their participation in the research was based on voluntarism, and explained the reason and period of the research, what type of data would be acquired and where they would be used with which purpose.

Results

The findings obtained based on the research data are included in this section. The findings are scrutinized under the headings of the findings obtained from the interviews and journals, and the findings obtained from the observation data.

Findings Obtained from the Interviews and Journals

Two sub-problems were determined in the scope of this section of the research. These were: "What are the opinions of the students about the taught courses? What are the opinions of the students based on the data acquired from the student journals?" The findings of the first and second sub-problem are presented together for this section of the research to be whole.

The data of the interviews held with the students and the journals kept by the students and observations were benefited for the analysis of the problem and sub-problems. Content analysis and descriptive analysis was used to analyze the interview data. Themes and codes were determined based on the interview data. The theme and code frequencies and percentage values are shown in the content analysis table. The journals reflecting the opinions of the students were benefited by descriptive analysis.
Seven questions were directed to the students about the practices carried out in science course in the interviews held with the students.

Question 1: How would you evaluate the practices/activities that you carried out during 1 semester (1st Semester) in the scope of Science and Technology/Science course?
The frequency and percentage values gathered from the student opinions about the first question are given in Table 1.

Table 1. Interview form- 1st question findings

Themes and Codes	f	%
Learning		
Better understanding	4	23.52
Comprehension	2	11.76
Self-learning	1	5.88
Motivation		
Willingness	1	5.88
Attitude and Value		
Enjoyment	1	5.88
Finding interesting	1	5.88
Impressive	1	5.88
Finding entertaining	3	17.64
Good	9	52.94

The codes of the answers of the students provided in the scope of the first questions were formed under the themes "learning", "motivations" and "attitude and value". In the learning theme; "better understanding", "comprehension" and "self-learning" codes were included. In the Attitude and Value theme, "enjoyment", "finding it interesting", "impressive," "finding it entertaining" and "good" codes were included. In the learning theme; 4 of the students indicated that they understood the subjects better during and after the practices, and 2 of them indicated that they comprehended them better, and 1 of them indicated that they contributed to self-

learning. 1 of the students answered that "I am very willing to the activities that are carried out". 9 of the students stated that they found the practices good, 3 said they found them entertaining, 1 found them impressive, 1 found them interesting, and 1 enjoyed them. Samples of the journals of some students who were not interested in Science class during the process of the practices kept to reflect their opinions about the carried out practices are presented below.

> Dear diary, today a doctor came to teach our science course. He explained what could happen to us if we did not have kidneys and their contribution, and the respiratory system. This subject gives me enjoyment and I can understand better. As the doctor explained them to us, he showed them on our friend in other words I understood a lot of things in this course… (06.10.2014-Student 30)

> The trip we took to the dialysis center was very nice. Dialysis patients in other words kidney patients are treated in the dialysis center. They go there 3 times a week and stay there 5 hours each time. Their blood-cleaning process is achieved thanks to the machine. I am more interested in the course. It was useful. Because I learned everything I was wondering. The nurse explained it very well. I enjoyed it. I liked this trip very much… (15.10.2014-Student 4)

> Today Mr. Kaan came. He taught us things about electric. The life of the scientist we watched was very nice. This documentation taught how to come up with an idea and walk on that path. Scientists come up with an idea with imagination. Imagination is very important. We learned about electric current. We filled out the forms with my group very nice. Our course was very nice… (16.01.2015-Student 12)
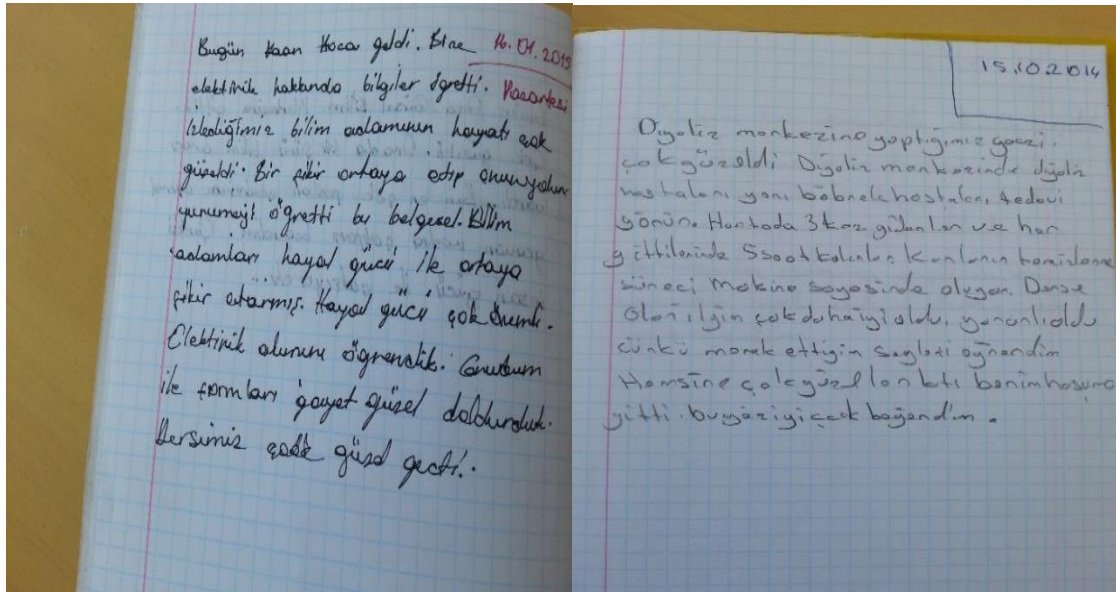
Student 12's journal(16.01.2015)   Student 4's journal (15.10.2014)

Opinions of some of the students, who are uninterested in Science class and whose course success is low, and their emotions they felt during the process about the practices carried out in the class scope were taken from the student journals exactly and conveyed above. It was observed that the students liked the studies, and their interest and curiosity about the class increased, and their motivation improved both based on the data of the interviews held with the students, and the data gathered from the student journals. In the first question as a sub-dimension, the students were asked "Have the studies/practices/activities carried out helped you to understand the subjects? How?" The content analysis data about the student answers are given in Table 2.

The codes of the answers of the students to the question in the scope of the first sub-dimension question were established under the themes "they were effective", "academic success" and "contribution to attitude" and "contribution to learning". In the theme "they were effective"; "trips", "experiments", "expert participation", "journal keeping" and "activities" codes were included. In the "academic success" theme, the code "my course success improved" was included. In the theme "contribution to attitude and learning", the code "they helped" was included. 3 of the students indicated that the trips were effective on their understanding the subjects, 1 indicated the experiments, 3 indicated the course teaching by the experts, 1 indicated journal keeping, and 2 indicated the activities. 3 of the students stated that their class success improved after the studies that were

carried out. 5 of the students expressed that their attitudes to the class improved following the practices. All of the students (17 students) reported that all studies helped them to learn.

Table 2. Interview form- 1st question, 1st sub-dimension findings

Themes and Codes	f	%
They were effective		
Trips	3	17.64
Experiments	1	5.88
Expert participation	3	17.64
Keeping a journal	1	5.88
Activities	2	11.76
Academic success		
My class success improved	3	17.64
Attitude	5	29.41
Contribution		
They helped	17	100

The expressions of two of the students written in their journals about the activity studies are taken exactly and given below.

> Dear diary. Today, the first two hours were Science and Technology course. Today, we performed a drama about the nervous system. I did it for the first time. I was rather entertaining. I understood the subject better due to the drama. It was more effective…(20.10.2014-Student 5).

> Today, it was very nice. We did activities like the other day. And it was very nice. Our activity was what type of illnesses occur if we eat harmful food. We did and completed our subject nicely. We achieved a very nice result. Our result was we should not eat harmful food. And we should care about our health and we should have a balanced diet. We achieved a good result… (29.09.2014-Student 10)

The sentences written in the journals of the two students are given exactly above. It is understood from the student journals that the practices helped students understand the subjects. In the scope of the second question as the 2nd sub-dimension, the students were asked "Have the studies/practices/activities carried out interested you?" The student answers for the question are given in Table 3.

Table 3. Interview form 1st question 2nd sub-dimension findings

Themes and Codes	f	%
My attitude to the course changed	3	17.64
My motivation improved	3	17.64
Yes	17	100
No	-	0

The student answers to this sub-dimension question were gathered under the themes "my attitude to the course has changed", "my motivation has improved", and "yes". 3 of the students indicated that "my attitude to the course has changed", 3 of them said "my motivation has improved following the practices", and all of them said the studies were interesting. Examples of the explanations of the students who answered this question are given below:

> I support it positively. Because I think that it helped me a lot. Because we took trips and had fun in the course. Although we normally enter and get out of the subject directly, our teacher made the course more fun and we did nice things to motivate us more. (2nd Student)

> Of course it did. I understood the subject better. I was interested more. Because last year I got bored in science course a lot and I couldn't understand the subjects. But, thanks to the practices in course this year, I am more interested in the course and I do my homework better. I used to could not understand. I was shy to ask questions but after the studies, they helped me understand the subject. (3rd Student)

> I used to did not want to go to Science and Technology courses. Mr. Kaan came. We did activities. Mr. Mehmet came. He did activities for us about the kidneys. (4th Student)

As it is clear from the answers of the students, following the practices carried out in the course scope, the students indicated that they started to like the course, they started to understand the subject, they had fun during the practices, they started to do their homework, and they did not avoid the course anymore.

Question 2: How did your opinions about the course change as a result of the practices such as activities, practices, experiments, trips, and studies with scientists in Science and Technology/Science course?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the second question are given in Table 4.

Table 4. Interview form 2nd question findings

Themes and Codes	f	%
Motivation		
My motivation improved	5	29.41
Being curious	1	5.88
Attitude		
Enjoyment	5	29.41
I started to like the class.	9	52.94
My interest increased.	7	41.17
To value		
Doing the homework	4	23.52
Doing research	1	5.88
I ask my family.	1	5.88
I search the Internet.	1	5.88
Asking questions.	2	11.76
Better learning and understanding	5	29.41
Success		
Academic success	2	11.76
Participation in the class	1	5.88
Behavior change		
I am no longer shy about asking questions.	2	11.76
My behavior improved.	1	5.88

The codes of the student answers in the scope of the second question were formed under the themes "motivation", "attitude" and "to value", "better learning and understanding", "success", and "behavior change". As a result of the practices; 5 of the students indicated that their motivation improved, 1 indicated that he started to be more curious about the course, 5 indicated that they are more interested in the course, 4 indicated that they now do their homework, 1 indicated that he started to do research in the course scope, 1 indicated that he asked questions to his family about his homework, 1 indicated that he started to do search in the Internet, 2 indicated that they started to ask questions to the teacher, 5 indicated that they started to learn and understand the course better, 2 indicated that their class success improved, 1 indicated that his participation in the course improved, 2 indicated that they were not shy about asking questions to the teacher any longer, and 1 indicated that her behavior improved. The examples of the explanations of the students who answered this question are given below.

> Yes, it happened. I used to listen to the course involuntarily but now my interest in the course increased a lot because of the practices. My motivation improved. I used to not like the course but now I like it a lot. (1st Student)

> My motivation improved a lot. Because Mr. Kaan brought the materials that our school doesn't have about electric and we did experiments. (3rd Student)
> To tell you the truth, I did not used want to do the homework, I did not care. Now, I listen to the teacher carefully and do my homework. (5th Student).

As it is clear from the answers, it was determined that positive change occurred in the students about the course, and they developed positive attitudes about the course, and their motivation improved following the practices carried out in the course scope. The statements of a student written in his journal about the change that occurred towards the course following the practices are taken exactly and given below.

> Dear diary. Today, the first two hours were science and technology course. Today, we discussed argumentation and scientific discussion in the course. We learned about our sight organ by discussing it

with the course and our teacher. The eye subject caught my interest because my eyes are unwell. My illness is that my prescription is very high, I have myopia. In other words, it was something that I wondered about. When I understood it, my curiosity was satisfied…(27.10.2014-Student 5)

As it is clear from the writings of the concerned student, it was determined that the practice ensured this student to be focused on the subject and the student satisfied his curiosity as a result of this practice.

Question 3: How did you participate in the activities and practices carried out in Science and Technology/Science course? Would you explain it?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the third question are given in Table 5.

Table 5. Interview form 3rd question findings

Themes and Codes	f	%
Motivation		
I participated willingly.	16	94.11
I participated sometimes willingly.	1	5.88
Attitude		
I enjoyed it.	17	100
I liked the experts to teach.	8	47.05
I liked taking trips.	7	41.17

The answers of the students to the third question were formed under the themes "motivation" and "attitude". The codes "I participated willingly" and "I participated sometimes willingly" were included in the motivation theme; and the codes "I enjoyed it", "I liked the experts to teach", and "I liked taking trips" were included in the attitude theme. 16 of the students indicated that they participated in the practices willingly and 1 indicated that they participated sometimes willingly. 17 of the students reported that they enjoyed the practices, 8 reported that they liked the experts to teach, and 7 reported that they liked taking trips. Examples of the explanations of the students who answered this question are given below.

> I liked it very much. I was satisfied very much. (3rd Student)
> Mr. teacher, I participated willingly. I was more willing because there were questions that I understood. (4th Student).

As it is clear from the answers, the students participated in the practices carried out in the course scope, and they liked taking trips and liked the experts to teach the course.
Question 4: Do you see any difference between Science and Technology/Science courses in the past years and Science and Technology course in the first semester?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the fourth question are given in Table 6.

Table 6. Interview form 4th question findings

Themes and Codes	f	%
Last year's courses		
Reading and writing on the board	7	41.17
He was only explaining.	3	17.64
This year's courses		
I thought that I wouldn't understand-the teacher came and I learned	1	5.88
There is a big difference.	4	23.52
I understand better this year.	3	17.64
Better activities, experiments	4	23.52
I have fun.	1	5.88
I like it.	1	5.88
Our interest increased	1	5.88
Very enjoyable	2	11.76

The answers of the students to the question "Do you see any difference between Science and Technology/Science courses in the past years and Science and Technology course in the first semester?" are shown in Table 6. The answers were formed under the themes "last year's course" and "this year's course". 7 of the students described the course as reading and writing on the board and 3 of them indicated that the teacher only explained the subject during the class. Under the theme "this year's course", the students answered under the codes; 1 of the students answered "I thought I wouldn't understand – the teacher came and I understood and learned the course", 4 of them answered "there is a big difference between this year's course and the last year's classes", 3 of them answered "I understand the course better this year", 4 of them answered "we do nicer experiments and activities this year", 1 of them answered "we have fun", 1 of them answered "our interest in the class increased", and 2 of them answered "the course is very enjoyable." Examples of the explanations of the students who answered this question are given below.

> A lot of changes happened for me and my friends in terms of teaching the course. And I think that there will be additions to these changes. The courses have changed a lot. My friends would not participate in the course despite my friends got spoiled, and punished by my teachers. Now, we participate in the course, listen to it very carefully, focus on the course, just like that…(3rd Student).

> I see a very big difference. Like I said, I used to feel like getting away. I wouldn't want the course to start. We would read the book and write things, we would get bored. But this time, we do experiments. You feel like to participate more (4th Student).

> Yes, I see a very big difference. Also, since I work more willingly in my writings, my notes are different. I used to be not interested at all as we learn the course. Our teacher explains very nicely (5th Student).

As it is clear from the answers, positive changes occurred in the perspectives of the students about science course following the practices carried out in the course scope. The students found important differences between the last year's science courses and this year's science courses. They indicated that the course enriched by the activities was effective on their comprehension and understanding, and their motivation increased and provided a fun learning setting. The statements written in the student journals are taken exactly and given below to determine the opinions of some students about last year's (2013-2014 academic year) science course and this year's (2014-2015 academic year, fall semester) science courses.

> Today, we learned about the systems in our body. Mr. Mehmet told us about the systems in our body, he taught us a lot of things and I want the course to pass like this always… (14.11.2014-Student 11).

> Today, in science and technology course, we discussed the eye, one of our sense organs and it was a very enjoyable course. We learned this course with a very different technique and this technique was very nice. It was a beautiful day. I understood the course very well. I would like it to be this way always…(20.10.2014-Student 18).

Considering the journals of student 11 and student 18, as it is clear from the sentences of both students "I would like the course to be this way always…I want the class to pass like this always", it was determined that the students liked Science classes better taught with the practices that were carried out in the scope of this research and they preferred the class taught by this type of practices.

Question 5: Has any difference occurred in your success in Science and Technology/Science course after the activities and practices that you did? Would you explain it?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the fifth question are given in Table 7.

Table 7. Interview form 5th question findings

Themes and Codes	f	%
Academic success increased.	15	88.23
My interest in doing a project increased.	5	29.41
My activity in the class increased.	10	58.82
Better understanding and comprehension	2	11.76

According to the answers of the students in the scope of the fifth question, the themes were determined as "my academic success increased", "my interest in doing a project increased, "my activity in the course increased, and "better understanding and comprehension". Accordingly; 15 of the students indicated that their class success increased, 5 of them indicated that their interest in doing a project increased, 10 of the indicated that their participation in activities within course increased, and 2 indicated that they understood and comprehended the course better. Examples of the explanations of the students who answered this question are given below.

> Generally, my interest is increasing very much. When my interest increases, I listen to the class. When I listen to the course, my exam scores increase. My science grades this year are higher than last year's. (1st Student).

> Mr. teacher. My grades in science and technology course in the 5th and 6th course were low. It was 2 and such. But this year I received 4 since I understood better this year. (3rd Student).

> I used to raise my hand timidly. I thought my teacher would get angry if it was wrong. But now it is not like that. I raise my hand according to my knowledge. I raise my hand and tell even if it is wrong or write. (5th Student).

As it is clear from the answers, following the practices carried out in the course scope, it was determined that there was increase in the academic success and class participation of the students in science course and these increases affected their course success positively.

Question 6: Would you want this type of practices/activities carried out in teaching all subjects and units in Science courses? Why?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the sixth question are given in Table 8. Considering Table 8, it is clear that the student answers were gathered under the theme "I would like-because" in various coded. The entirety of the students (17 students) reported that they wanted doing this type of practices in the whole science course. 5 of the students gave answers in the light of the code "I understand and comprehend the course better", 5 of them indicated that they found the course "entertaining", 3 of them indicated that "all subjects must be taught with activities", 1 of them indicated that "the research is guiding", 1 of them indicated that "it makes me study with a plan", and 2 of them indicated that "my academic success is increasing.

Table 8. Interview Form 6th Question Findings

Themes and Codes	f	%
I would-Because		
I understand and comprehend better	5	29.41
It is entertaining.	5	29.41
All subjects must be taught by activities.	3	17.64
The research is guiding.	1	5.88
It makes me study with a plan.	1	5.88
My academic success is increasing.	2	11.76

Examples of the explanations of the students who answered this question are given below:

> I would like it because I get bored in other courses. If it was like this, if there were activities like these, it would be better (2nd Student).

> I would like it. In other courses, there is constant writing, reading, drawing. Constantly but doing activities in science courses is entertaining. I would like this done in other courses (3rd Student).

> I would like it because we could understand it better. The activities would stick in our mind. These things that we did can make us successful in examinations. We do experiments. They make our study easier. We do projects. We ask the teacher about the places we don't understand and he helps us (4th Student).

As it is clear from the answers, following the practices carried out in the course scope, it was determined that the entirety of the students wanted such type of practices carried out in science course. They expressed that such type of practices made them understand and comprehend the course by making the course interesting and

entertaining. "Would you like this type of different practices to be carried out in science course in other units and subjects?" The statements of student 18 written in her journal are given exactly below.

> I had a lot of fun today in Science and Technology course. And I liked the day a lot because we did a drama in this course. I would like to do creative drama in our following courses very much because it is very entertaining. They get into my mind and I understand better with drama. If there was drama always, I would have more interest in the course and I think that it will happen…(20/10/2014-Student 18).

As it is clear from the statements of Student 18, using different methods and techniques in Science course revealed that the students wanted usage of these methods and techniques in other science courses as well. Question 7: Do you do this type of practices in your other courses as well? Would you like to do these practices in your other courses as well?

The frequencies and percentage values about the themes and codes acquired from the student opinions on the seventh question are given in Table 9.

Table 9. Interview form 7th question findings

Themes and Codes	f	%
We don't do it but I would like it.	17	100
We don't do it therefore I don't understand it.	1	5.88
We don't do it therefore I am not interested-I get bored.	6	35.29
The courses must be taught by activities.	8	47.05
It would be more entertaining.	3	17.64

The answers of the students to the seventh questions were gathered under the themes "we don't do it but I would like it (17 students)", "we don't do it therefore I don't understand it (1 student)", "we don't do it therefore I am not interested-I get bored (6 students)", "the courses must be taught by activities (8 students)", and "it would be more entertaining (3 students)". Examples of the explanations of the students who answered this question are given below.

> We don't do it. Yes, I would like it. For instance, I get bored in Turkish course because we always do the same thing. I would like to do more different things like in science course (1st Student).

> Unfortunately the teachers don't do it. I would like to apply it. Spending better time with my teachers. Making the course more entertaining (4th Student).

> We don't do it. I would like such practices done in other courses as well (5th Student).

The students expressed that such type of activities and practices would be effective in other courses as well, and their interest in the courses would increase, they would have fun more, and their understanding-comprehension skills would improve.

Findings Obtained from the Observations

The studies and courses during courses teaching were recorded by camera recording equipment. The observation data obtained from the examination of the records are given in this section of the research. Based on the observations, as science course was discussed by the students, some subjects and units were taught out of course and out of school. For example, in SBU scope, it was observed that a trip was paid to a dialysis center in the Urinary System subject to learn about the "dialysis" subject. It was observed that the students were taught by the specialist health personnel at this dialysis center. In addition, it was observed that trips were taken to science centers and science museums and health institutions. In the practices carried out within classroom (in the scope of teaching the subjects "Health of our Kidneys and Structures and Organs working in the Urinary System"), it was observed that an academic member teaching at a university taught the course in the scope of "Electric in our Lives Unit" by the "Modeling" method. Based on the observations, the physical size of the classroom where the class was taught was appropriate to the student number (32 students) and the interior of the classroom was furnished with the posters, banners, and various materials concerned with Science. The students worked together as groups and teams during the course teaching process, and the concerned subjects and units. The students did not accept the information given to them as correct immediately during the class teaching process

and they questioned, researched and discussed them among themselves and this way, they reached the correct information in the guidance of their teacher. During the classes, it was observed that all students were willing in the practices both within the classroom and outside the classroom and school and they were active in the courses and they participated in the courses willingly and by asking right to speak.

Discussion

Interviews were held with the students who participated in the research following the completion of the practices by means of an opinion form. Furthermore, since the data gathered from the journals kept by the students and from the observations reflected the opinions and behavior of the students about the carried out practices, the discussion of these findings is presented in this section. Based on the findings on the first question, the students indicated that they found the course more entertaining, more effective, more interesting and nice and they liked the course better as a result of the enriched education practices carried out in science course. It can be stated that these opinions revealed that the attitudes of the students to science course changed positively. At the same time, the students reported that they understood and comprehended the subjects in the course better and they learned more easily. In addition, they expressed that their motivation in the course improved as a result of the enriched practices carried out in the course. The students reflected in their journals that they started to like the course more, their attitudes toward the course changed positively and they started to be motivated. Both the interview findings of the students and student journals have revealed that the emotions and opinions of the students were similar as a result of the enriched education practices carried out in the scope of Science course.

In the scope of this research, both in-class activities and out of course practices were carried out. There are researches reporting results similar to the data obtained in this research. Atmaca (2012) has determined in a research conducted on teacher candidates that out of classroom activities affected self-confidence of the teacher candidates positively and made practice-oriented contributions. Moreover, it was gathered from the interviews held with the teacher candidates and the discussion of these activities enthusiastically that they would carry out science activities out of the classroom when they start their professional life.

Following the practices carried out in the second question, the students were asked about the changes occurred in their opinions about the course. Based on the gathered findings, the student opinions were collected in the themes, "motivation", "attitude", "to value", "better learning and comprehension", "success", and "behavior change". These opinions expressed by the students in the scope of this question illustrate that there are outputs that an effective science education must have. In MNE (2005) program; it has been aimed that the students gain the opinions that they expressed in Science Course Teaching Program Vision under the titles "BSB", "Attitudes and Values" and "FTTC"; and in MNE (2013) science course teaching program, "Knowledge", "Skill", "Perception" and "FTTÇ". From this perspective, the opinions of the students have revealed that the targets have been reached in the scope of the course vision as a result of the run program. Considering the student journals, it was determined that the findings obtained by the interviews and the findings obtained from the journals contained similar feelings and opinions. We can assert that following the practices the entirety of the students started to like Science course, their motivation increased, and they started to learn the course more willingly based on their statements written in their journals.

In the scope of the third question, the students were asked whether they were willingly participated in the practices. Nearly all of the students indicated that they participated in the studies willingly and one of them stated that he participated in the studies willingly sometimes. The entirety of the students stated that they enjoyed the practices. The enjoyment of the students of the studies supports the idea that they participated in the practices carried out in the course. The findings obtained in the observations support the findings obtained by the interviews and the journals.

As the fourth question, the students were asked whether they found any difference between the last year's science courses and science course where practice studies were carried out. Accordingly, the student opinions were: in the past years, the course teacher wrote the subject on the board and the teacher only discussed the subject. About science course taught this year, the students reported that there were great differences between this year's courses and the past year's courses, and they understood this year's courses better, and they did plenty of nice experiments and activities this year, and they thought that they would not understand the subjects however they understood the subjects as a result of the practices that were carried out. The teacher who conducted the research was at the same time the researcher himself. The researcher has been teaching science courses of the students for three years. As it is clear from the student opinions, the students did not like the way Science classes were taught in the past years and their experiences in the course process, and they criticize these.

Nevertheless, they indicated that they liked the practices carried out in science courses in the scope of the research, and their motivations increased and they ensured them to be more interested in the course. As the fifth question, the students were asked whether there was any change in their success in Science course as a result of the carried out practices. The students expressed that the course improved their academic success, their in-class participation increased, their interest in doing a project increased, and they comprehended the course better. As the sixth question, the students were asked whether they wanted the enriched education practices that were carried out when Science course was taught in other science course and they were asked to explain the reason behind it. The entirety of the students who participated in the interview stated that they wanted such type of practices to be carried out in their other course as well. They expressed their reasons as; they understood and comprehended the course better and they found the course entertaining, and all subjects must be taught with activities, and they improved my academic success, and they ensure me to study with a plan, and this type of practices direct me to research. The most significant purpose of an effective Science Course Teaching Program is to raise science-literate individuals (Akcay & Akcay, 2015).

As the seventh question, the students were asked whether they carried out such type of practices in other courses. The entirety of the students who participated in the interview indicated that such type of practices was not done in other courses. A part of the students reported that they did not learn the course by this type of practices in other courses, and they were disinterested in the course and they got bored. A part of the students stated that such type of practices should be carried out in other courses. Thus, they indicated that the course would become more entertaining. When the student opinions were considered, it was revealed that the course was boring due to not listening to the other course. As a result of this, it was stated that the assignments given in the course were not done completely. Considering the student opinions provided in the scope of this question, it is thought that carrying out such type of practices in the scope of course plan would make the students like the course and effective and meaningful teaching would be achieved by especially gaining the students who are disinterested in the course, who don't like the course, and who are occupied with other things during course.

Recommendations

The data obtained from the interviews held with the students and the journals have revealed that the students started to like the course, they followed up the course with interest and they did the assignments given in the class scope at the end of the enriched education practices carried out in the scope of the research. Considering these, teaching of science courses can be suggested by the activities carried out in the scope of this research directed to the students who don't like the courses within classroom, who don't do the given assignments, and who are disinterested in the course. Based on the findings of the interviews held with the students and data obtained from the student journals, it has been revealed that the students like the practices in the scope of the research and they want to do this in other units and subjects of Science course. It can be suggested that the methods used in the scope of this research are related with other science subjects and science courses are taught this way.

Note

This research has been taken from a part of the PhD dissertation titled "The Effect of Enriched Educational Practises on 7. Grade Student's Academic Achievement, Attitude and Retention of Knowledge in Science Courses" and prepared by Dr. Şahin İDİN under the advisory of Assoc. Prof. Dr. Cemil AYDOĞDU.

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