

Kukset Technique on Chronology Teaching

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Abstract

In this study, it was aimed to teach the chronology of National Struggle Period through KUKSET technique. The study was conducted through sequential -exploratory mixed method design which is characterized by qualitative and quantitative phases. The sample of the study consisted of 59 fourth grade students from two different classes attending at a school in Bakırköy, İstanbul. Of the participants, 32 were experimental group and 27 were control group. In the experimental group, chronology of National Struggle Period was taught by KUKSET technique whereas, in control group, the teacher used the methods of expression and question- answer without any intervention. The data was gathered by utilizing pre- test, end- test and permanency test. The students' misconceptions concerning chronology were determined by Word Association Test as pre- test and end- test. 10 voluntary students in the experimental group were interviewed. The results showed that KUKSET technique on chronology teaching of National Struggle Period in the experimental group was more effective on students' comprehension compared to the control group. KUKSET technique was revealed to be effective on eliminating students' misconceptions about the chronology of National Struggle Period. KUKSET technique was determined to enrich teaching- learning process and provide permanent learning. The students suggested KUKSET technique to be used in other lessons as well.

Keywords: Chronology Teaching, National Struggle Period, KUKSET Technique.

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INTRODUCTION

From the first educative stages, Atatürk and National Struggle Period as a course existed in the curriculum of the schools. The Kemalism issues have to be incorporated in the curriculum of each subject. The teachers have been expected to teach those compulsory Kemalism issues to their students. History of Turkish Revolution and Kemalism are included in the secondary school curriculum. In addition, this lesson and its content exist in high school curriculum. However, the students may be observed to have difficulty in learning the chronology of National Struggle Period. The teachers stated during the interviews that the students had difficulty in comprehension since the dates followed one another and historical events were abstract. The teachers exemplified this with Erzurum and Sivas Congresses. In the fourth grade where Social Studies lessons have been started, the students go through concrete operational stage according to Piaget's Theory of Cognitive Development. In this regard, the subjects and concepts are required to be concretized in order for those students to achieve. The concept of chronology and National Struggle Period are abstract issues for students. Ünsal and Er (2017) determined the difficult disciplines to learn in Social Studies curriculum. One of the difficult disciplines concerning history in Social Studies lesson determined by teachers is chronology due to its abstract statements. According to another approach, the students who go through concrete operational stage have difficulty in learning the concepts of past and future in Social Studies curriculum (Dolmaz, Kılıç 2017). The investigation carried out by Wineburg (2000) revealed that, during concrete operational stage, children used the language effectively but cannot manage to interpret the abstract statements in the topics on the grounds that they were not compatible with children's developmental properties. Those properties along with the abstract statements of History make things difficult. Therefore, it is essential that the activities which concretize the topics and concepts for those students are carried out. A new curriculum was put into effect by the Ministry of National Education as of 2005. With the new curriculum, constructivist teaching model was adopted. It has been suggested in program development studies carried out both in 2005 and following years that the activities should be included. Nevertheless, the teachers were observed via school visits, observations and investigations to have been engaged in answering multiple choice questions extracted from structured source books rather than preparing activities. The teachers prefer multiple choice questions instead of preparing activities in order to meet the parents' demands although there is no examination which is required for a certain grade in primary school. Furthermore, the students remain silent while answering test questions and teachers do not need to preliminary preparation for the test. Thus, the students tend to memorize the information rather than comprehending. This kind of information, apparently, is not remembered after a while. Therefore, retention plays a key role during teaching- learning process. Having permanent learning requires educational activities (Doğan, 2004). Çelikkaya and Kürümoğlu (2019) concluded that the students had difficulty in comprehending the notion of chronology as it refers to an abstract term. Başar, Doğan, Şener, Yurttaş and Topal (2018) investigated what the participants, who are over 40, remembered about their primary school years. The participants, first of all, remembered the social activities as well as teaching- learning activities in the class. Akan and Başar (2011) argued that educational activities during primary school period facilitate students' comprehension skills. Gözalan and Koçak (2014) suggested that playing a game arouses different feelings at the same time in a child. The educational activities appeal to multiplesenses, enhancing the students' comprehension skill. The student may be able to perceive what s/he cannot perceive through visual perception through touching or hearing. Hazar and Altun (2018) highlighted that the activities should not be carried out on the student but with the student so as to provide permanent and qualified learning. Arslan (2007) emphasized that educational games and activities were the most effective ways to foster students' engagement in the lessons detracting historical concepts and events from abstraction.

KUKSET technique is a method where learning process is carried out with the students. This technique, originated from Silent Telephone game, was developed by Başar, Batur and Karasu (2014) and employed in Word training activities. "This game has been played in Kazakhstan and Kyrgyzstan under the titles of 'Simsiz Telefon' or 'Bozulgan Telefon' (Başar et al., 2014). The students are able to

both learn and entertain at the same time thanks to KUKSET technique in which social learning is conducted effectively.

In the related literature review, it was found that numerous studies concerning chronology teaching have been conducted (Çelikkaya and Kürümoğlu, 2019; De Groot- Reuvekamp, Ros& Van Boxtel, 2018; Baloğlu Uğurlu and Üzen, 2017; Ünal andEer, 2016; Williams, 2016; Sağlam, Tınmaz and Hayal, 2015; Ulusoy and Erkuş, 2015; Mosco&Peterson, 2009; Acar, 2003; Koçak, 1999). However, in the literature review, it was found that there were no studies related to KUKSET technique on chronology technique and on the comprehension of National Struggle Period. This study has been thought to fill existing gaps in the related area.

Objective of the Study

This study attempts to explore the effect of KUKSET technique on chronology teaching in Social Studies lessons. Based on the study objective, the research questions guiding the study were as follows:

1. What is the effect of KUKSET technique on chronology teaching of fourth grade primary schools students?
2. Which concepts did the students learn in the acquisition of the chronology of the national struggle period with the KUKSET technique?
3. What are the students' opinions on the application of KUKSET technique on chronology technique?

METHOD

Explanatory sequential design, one of the mixed method designs in which quantitative and qualitative data are used together, was used in the study. In this study, focus group interview technique was carried out with 20 classroom teachers who teach fourth grades. The teachers were asked the subjects fourth grade students had difficulty in learning and comprehending in Social Studies lessons. The teachers stated that the students could not manage to comprehend chronology and, in particular, that of War of Independence. Therefore, this study is based on chronology teaching. In the study, the activities were realized based on the acquisitions that 'the students put the events in their lives in chronological order' in the Individual and Society Unit and that 'the students comprehend the importance of National Struggle depending on the lives of the heroes in National Struggle Period' in 2018 Social Studies Curriculum. The KUKSET (Silent Telephone) technique developed by Başar, Batur and Karasu (2014) was employed in this study based on the idea that it could be effective on chronology teaching.

In this regard, word association test was conducted with the purpose of determining students' misconceptions concerning chronology. Pretest- posttest experiment and control grouped design was used as a method in the study. Among the experimental patterns, pretest- posttest paired design was used in the research. Büyüköztürk, Akbaba and Yıldırım (2010) put forward that two of the groups are attempted to be paired on certain variables and those groups are appointed to experiment and control groups with random appointment method. Mixed method was utilized in this study. Gay, Mills & Airasian (2009) identified mixed method as providing a better understanding of a certain event or phenomena by combining quantitative and qualitative methods. The study was designed as an exploratory rank study, which is a part of mixed methods. In exploratory rank study, quantitative data of the study are primarily gathered and analysed; then, qualitative data are obtained. The researcher interprets how qualitative data assist quantitative data in the first phase of the study (Creswell & Plano Clark, 2014). In this study, quantitative data were gathered and analysed. In order to reveal the effect

of KUKSET technique on chronology teaching of National Struggle Period, qualitative data was obtained and combined with the quantitative data.

With this regard, the levels of chronological order and retention skills were inspected through the application of KUKSET technique which is thought to affect the students' achievement.

The Sample of the Study

That the students for whom one of the researchers was responsible within the framework of Teaching Practices I and II perform their application in this school, the researcher was familiar with the school structure and the teacher and students were engaged in participating in the study plays a key role in terms of determining the sample of the study. Therefore, among random sampling methods, cluster sampling method was used in this study.

Of two different classes, 59 students (32 students in experimental group and 27 students in control group) who attended in fourth grade in a primary school in İstanbul (Europe) were recruited to participate in the study through convenience sampling method.

Process

Focus Group Interview with teachers

In the study, a focus group interview with 20 fourth grade teachers in primary school were conducted. The teachers were requested to response to the question of the subjects that fourth grade students had difficulty in learning and comprehending in Social Studies lessons. The teachers stated that the students could not manage to comprehend chronology and, in particular, that of War of Independence. Therefore, this study is based on chronology teaching.

Introduction

The school where the fourth-grade students in the sample of the study have been educated was visited by the researchers within this stage of the study. The introduction activities were carried for the students not to have negative attitudes and prejudice towards the researchers. The situation was assessed by the researchers along with the parents and teachers, thereby informing parents and teachers about students' situations. A scheme was prepared with the parents and teachers. The scheme informed them about what to do during the process. A weekly report concerning the student's development level at the end of the practice and related activities was prepared by the researchers, parents, and teachers. No one, except teachers, parents, and researchers, was informed about the reports. The pseudonyms were used for the students. Thus, the relationship based on mutual trust was established both with the students and teachers.

The Determination of the Chronology of National Struggle Period

The dates and historical events which aimed to be taught to students were determined. The topics and dates in which the students had difficulty most were identified through the interviews with the teachers. Therefore, the historical process marked by the beginning from 19 May 1919, the day when Mustafa Kemal landed in Samsun for the first time, to the proclamation of Republic. In the light of interviews with teachers, it was found that students assumed Gallipoli Campaigns took place during National Struggle Period. In this regard, the purpose was to teach the chronology of National Struggle Period by playing games and to determine whether the games were effective in terms of students' retention. Fifteen days following the activities, the students were negotiated about the comprehension of National Struggle Period through KUKSET technique. It was aimed, in the interviews, to evaluate the contributions of KUKSET technique to the chronology teaching and to gather related suggestions. It was found out that six lesson hours were assigned to the acquisition that proclaimed, 'the child

comprehends the importance of National Struggle with reference to the lives of heroes.’ Accordingly, the same number of lesson hours was assigned to the processes of introduction (2 lesson hours) and common activities (4 lesson hours) within the study.

The Application Stages of KUKSET technique

The application stages of KUKSET technique are as follows:

1. The class are equally divided into two groups. As the experimental group includes 32 students, a group consists of 16 students.
2. The groups are arranged in a way that goes parallel with one another.
3. A group leader is decided by the group.
4. The rules of the game are explained to the students by the researchers.
5. The researchers, or teachers, whisper the date or historical event of the chronology of National Struggle Period to the group leaders.

A pilot application of the technique is performed twice. Subsequently, the group leader whispers the date of historical event, or the historical event taken place on a given date by the researcher or teacher. For example, when the researcher or teacher whispers 23 April 1920, the group leader requires to whisper to his/ her friend that the Grand National Assembly of Turkey was opened and vice versa. In case that the group leader does not know the date or the event, s/he whispers what is said by the researcher or teachers to his/her friend and asks the friend whether s/he knows the mentioned date or the event. On the condition that his/her friend knows the afore mentioned date or event, s/he whispers the correct answer to his/ her friend. The process lasts up to the last student in the group. There is a researcher or a teacher as an observer in the class in order for the students not to violate the rules of the game. The first group to come to the researcher or teacher to say the given date or historical event are permitted to speak only after both groups finish whispering. If the last student in the group says the given date or event correctly, the group gets 10 points. However, if the date or event is different from what the researcher or teacher utters, the right to speak is given to another group. Once the last student of this group says the date or event correctly, the group gets 10 points this time. If neither group manages to say the correct date or event, no group gets 10 points. The KUKSET technique is carried out at the appointed lesson hour. The application is displayed in Figure 1:

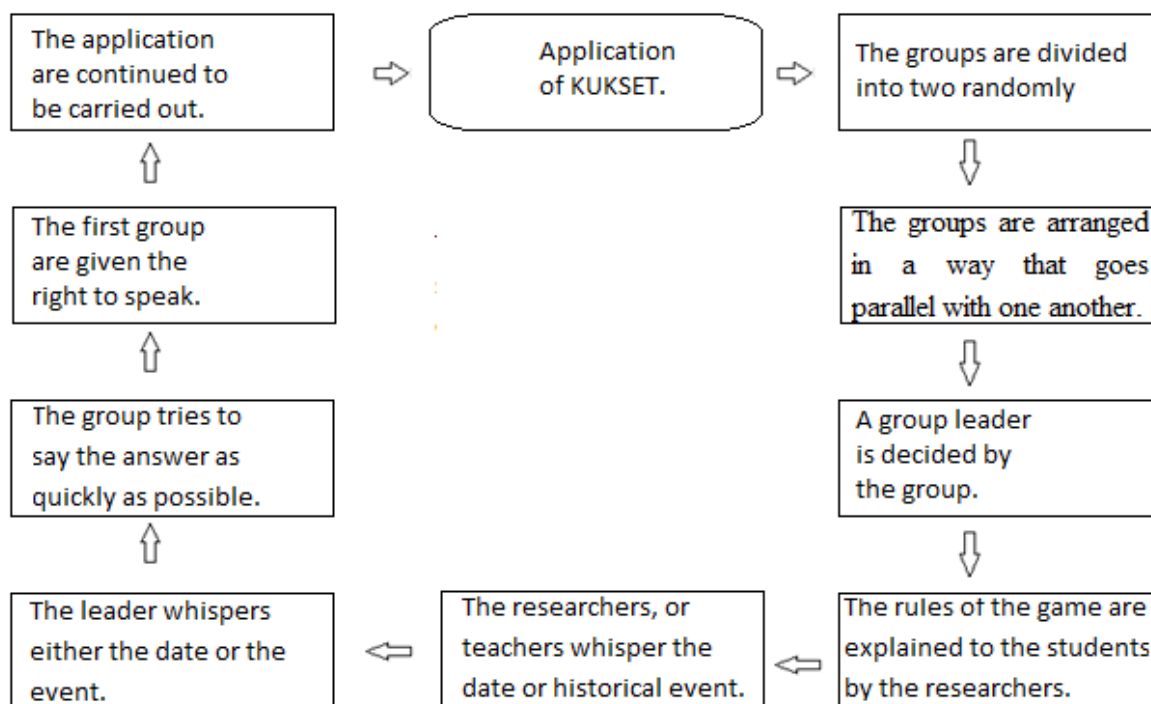


Figure1. KUKSET Technique

The chronology teaching of National Struggle Period was conducted by classroom teachers in control groups within the study. The teacher used the methods of expression and question- answer during two lesson hours and asked the students to complete the activities of student's workbook during a lesson hour. Lastly, s/he requested the students to answer test questions from their supplementary book during three lesson hours. The teacher did not interfere with the activities under no circumstances.

Data Collection Tools

Multiple- choice test (Chronology Knowledge Test) and Word Association Test were used in this study. In addition, semi- structured interview form was employed to obtain qualitative data.

Chronology Knowledge Test (CKT)

CKT was developed by the researchers in order to investigate knowledge levels of fourth grade students concerning the comprehension of National Struggle Period. With this aim, the data was obtained through 5-point multiple choice test of 20 questions. Pre- pilot training for the test was applied to 56 fourth grade students from different classes in a school where the current application was not carried out. Based on the findings of the pre- pilot training of the test, it was shown that there were not any questions whose item discrimination index was under 0,30. Therefore, no question was subtracted from the Chronology Knowledge Test. In the Chronology Knowledge Test, consisting of 20 questions, mean difficulty index was 0, 524; mean difficulty index of questions was 0, 566 and KR- 20 Cronbach's alpha coefficient was 0,886. According to Karaca (2010), Chronology Knowledge Test was proved to be at medium level in terms of test difficulty and to have a high level of item discrimination. For reliability analysis, Kuder- Richard 20 formule was estimated as 0.89.

Prior to the activities, preliminary test was applied in order to assess the students' knowledge concerning to the chronology of National Struggle Period. However, post- test was carried out to evaluate the difference in students' knowledge level related to the chronology of National Struggle

Period following the comprehension activities through KUKSET technique. A month after the post-test, a retention test was used. Thus, the students' comprehension levels concerning the dates and historical events during National Struggle Period through KUKSET technique was evaluated.

Word Association Test (WAT)

WAT was used as a preliminary test in order to reveal the misconceptions of the fourth-grade students in sample group of the study concerning the concept of chronology prior to the activities of National Struggle Period through KUKSET technique. After the activities, post- test was applied to the students with the aim of assessing the difference related to the concepts in their schemes thanks to the technique and activities. The concept of chronology on which the WAT is based was determined considering the chronology of National Struggle Period. The fourth-grade students were requested to generate a word for concept of chronology within a minute.

Semi- Structured Interview Form

Ten students in the classroom where KUKSET technique was used were requested to respond to the question of 'What is the effect of KUKSET technique in chronology teaching of fourth grade primary school students?' after completing the activities. Regarding the interview questions, the opinions of two academicians in the department of Social Studies Teaching, two academicians in the department of Classroom Teaching and an academician in the department of assessment and evaluation were asked. The experts examined the data based on content analysis. The issues on which the experts agreed as a result of the analysis were converted into questions and included in the interview forms by the researchers. Thus, semi- structured interview form, one of data collection tools, was developed for the study. The personal information of the participant students was in the first part of the form. However, the second part of the form was about the fourth-grade students' opinions on the effect of KUKSET technique on chronology teaching of National Struggle Period. Four weeks after the activities, the students' opinions on the effect of KUKSET technique were included in semi-structured interviews which were carried out with ten students attending at a class where KUKSET technique was used in the chronology teaching of National Struggle Period. The opinions of the students were written down by the researchers as audio recording disturbed the students. The students' opinions were coded as S1, S2, S3, etc. An interview with a students lasted for approximately 25 minutes. Each student was requested to read aloud their own opinion noted by the researcher at the end of the interviews. In addition, the students were asked whether they wanted to change their sentences. Necessary changes by the students were added and the sentences were reorganized.

Data Analysis

Chronology Knowledge Test Analysis

Normal distribution analysis was conducted through Shapiro- Wilk Test for the data obtained.

Table 1. Pretest- Posttest Normality Test

Group	Shapiro-Wilk		
	Statistics	df	p
Experimental Group Pretest	,943	27	,141
Control Group Pretest	,938	27	,107
Experimental Group Posttest	,909	27	,022
Control Group Posttest	,885	27	,006

The analysis indicated that preliminary tests of multiple-choice achievement test showed normal distribution. However, in posttest applications, as seen in Table 1, it did not show normal distribution. In posttest applications which did not show normal distribution, Mann Whitney- U test was conducted.

Word Association Test Analysis

The frequency for each concept was determined in WAT analysis. In pretest applications, the frequency for a word was determined 3 at the most. Therefore, cut- off points were figured out as 1-3 and concept maps were formed in the light of cut- off points. There were 32 students in an experimental group during posttest application. As a result, the frequency of a word or a concept was determined as 32 at the most and cut- off points were figured out as 30-35. According to an analysis in a study by Bahar, Johnstone and Sutcliffe (1999), the cut- off points were decreased depending on the decrease in the answers given to the concepts. The bottom cut- off point was determined as 1- 5 and concept maps were generated for each cut- off point.

Qualitative Data Analysis

The analysis of the data gathered from the interviews with students on chronology teaching of National Struggle Period was conducted through content analysis. Merriam (2013) described content analysis as a research tool in which similar data are brought together under the titles of theme, code, and sub-code in order that readers are able to interpret the concepts. In the study, the data obtained from the interviews with students and from the observations of researchers regarding the application of activities during application process were presented to the experts. The experts were from the departments of Assessment and Evaluation and Social Studies Teaching. Along with the three academicians, the data were presented to three classroom teachers working at fourth grades as well. The data were coded by three different experts and classroom teachers. The reliability value for coding was found %92 by the experts. The themes concerning the codings which experts and teachers agreed on were formed; code, sub- code and frequency were determined depending on the theme. The data were interpreted by generating a table and presenting students' opinions.

RESULTS

The results of Independent Sample t- test conducted on the data gathered from Chronology Knowledge Test which was applied as pretest prior to the application in order to assess fourth grades tudents' knowledge levels concerning the chronology of National Struggle were displayed in Table 2.

Table 2. The Pretest Analysis Results of Chronology Knowledge Test

	Group	n	Mean	sd	df	t	p
Pretest	Experimental G.	32	7,21	3,27	57	,052	,959
	Control G.	27	7,25	2,72			

According to the findings in Table 2, there is not significant difference between experimental and control group ($p > .05$). Therefore, it can be interpreted that students' levels of knowledge about the chronology of National Struggle are similar prior to the application.

However, after the application, Chronology Knowledge Test was conducted as post test to assess the students' knowledge related to the chronology of National Struggle. The analysis results of Mann Whitney- U- Test for the data obtained from post tests were presented in Table 3.

Table 3. The Posttest Analysis Results of Chronology Knowledge Test

Group	N	RS	MS	U	Z	p
Experimental G.	32	1333,00	41,66	59.000	-5,705	000
Control G.	27	437,00	16,19			

According to Table 3, there is a significant difference between experimental and control groups after the application ($p < .01$). Theme an rank has shown that the difference is found in favour of the experimental group where the KUKSET technique was carried out.

Table 4. The Analysis Results of Retention of Chronology Knowledge Test

Group	N	RS	MS	U	Z	p
Experimental G.	32	1336,00	41,75	56.000	-5,751	000
Control G.	27	434,00	16,07			

According to the findings in Table 4, there has been found a statistically significant difference between experimental and control groups through the analysis carried out to determine the level of retention ($p < .01$). The mean rank has shown that the difference is found in favour of the experimental group where the KUKSET technique was performed.

Word Association Test

C.P. 1-3

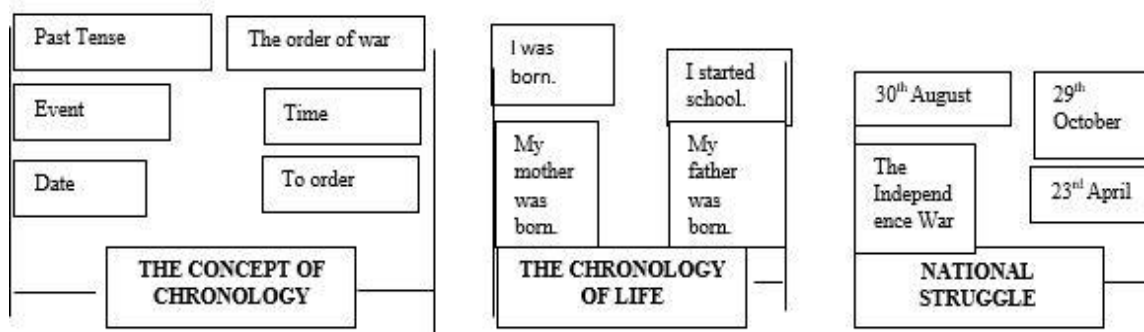


Figure 2. The Concept Map according to the Experimental Group Pretest Results of WAT

Depending on Figure 2, as cut- off point was determined as 1-3 based on pretest results and the students’ answers were investigated, three main concepts were generated which were the concept of chronology, the chronology of life and the chronology of National Struggle. A student in the experimental group wrote down an event for the concept of chronology and three students identified chronology as a date. The students identified chronology as past tense and also identified chronology through the order of date and battle for once. Depending on the chronology of life, for twice, the students wrote that they were born and started school. In addition, the students identified the chronology of life by writing that their mothers or fathers were born. For the chronology of National Struggle Period, a student wrote down the Independence War, 23 April, 29 October and 30 August for once. The students also wrote own such irrelevant concepts as technological tool, computer or computer part and a car part for the concept of chronology.

Control Group- Pretest

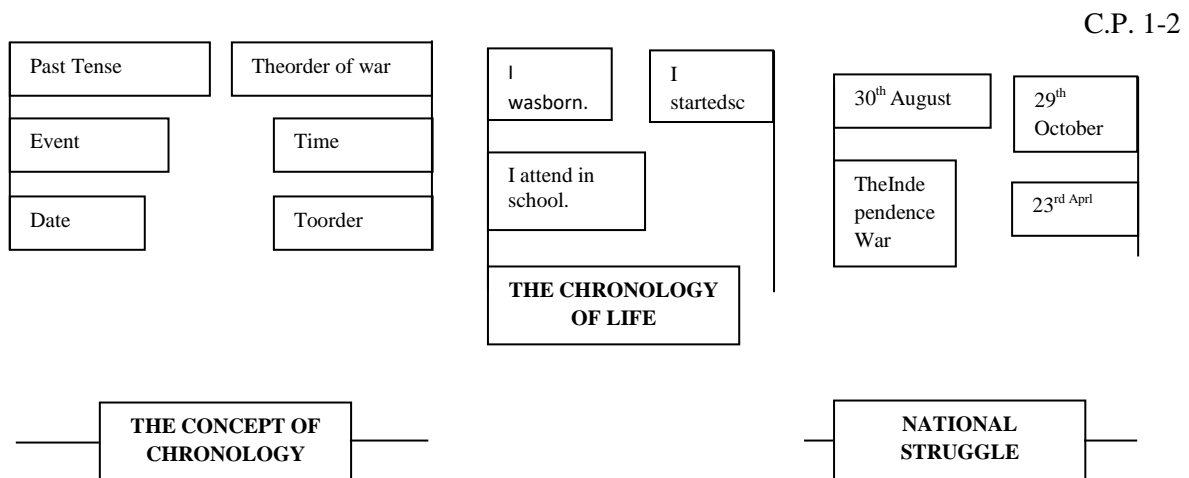
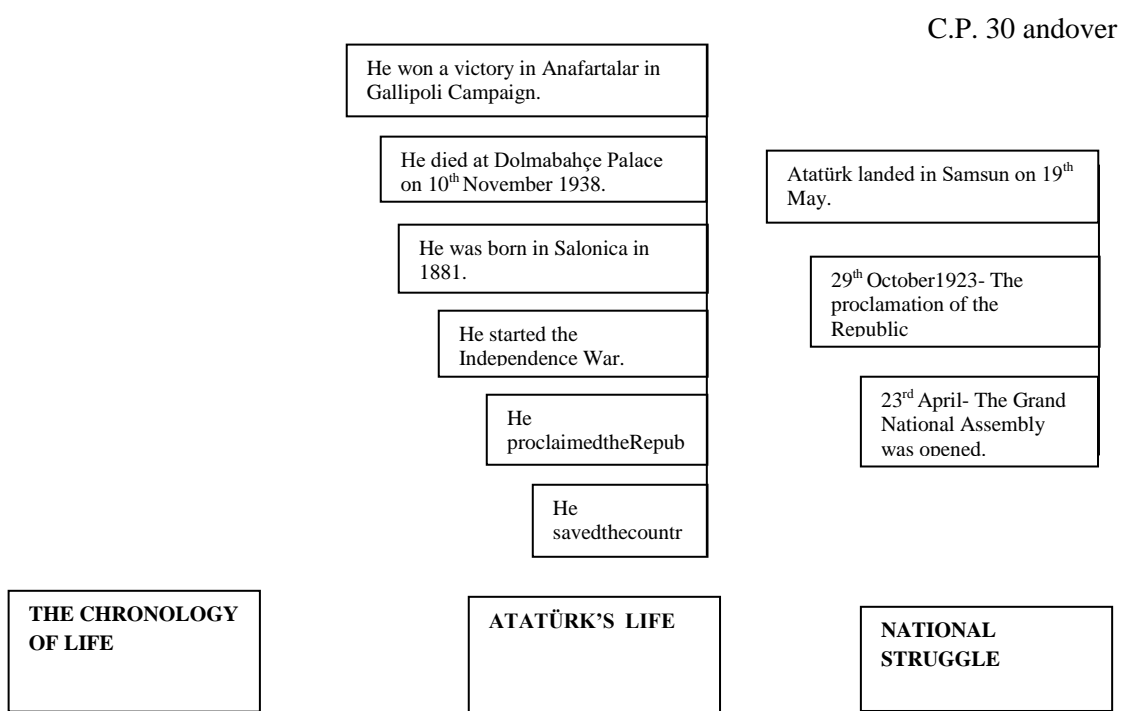
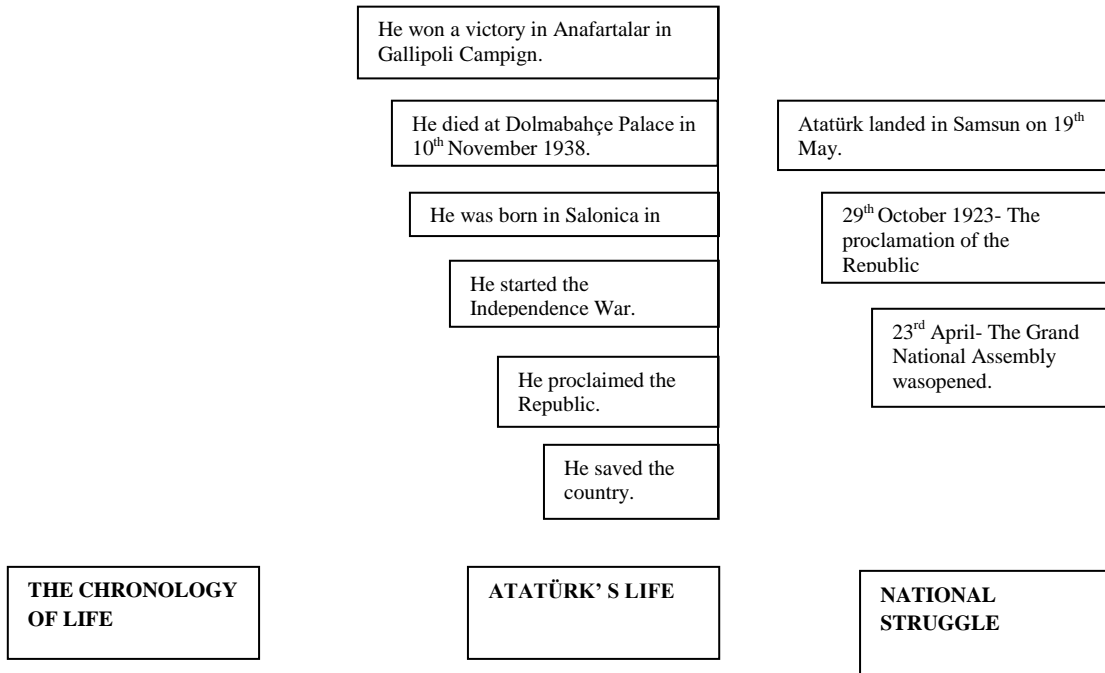


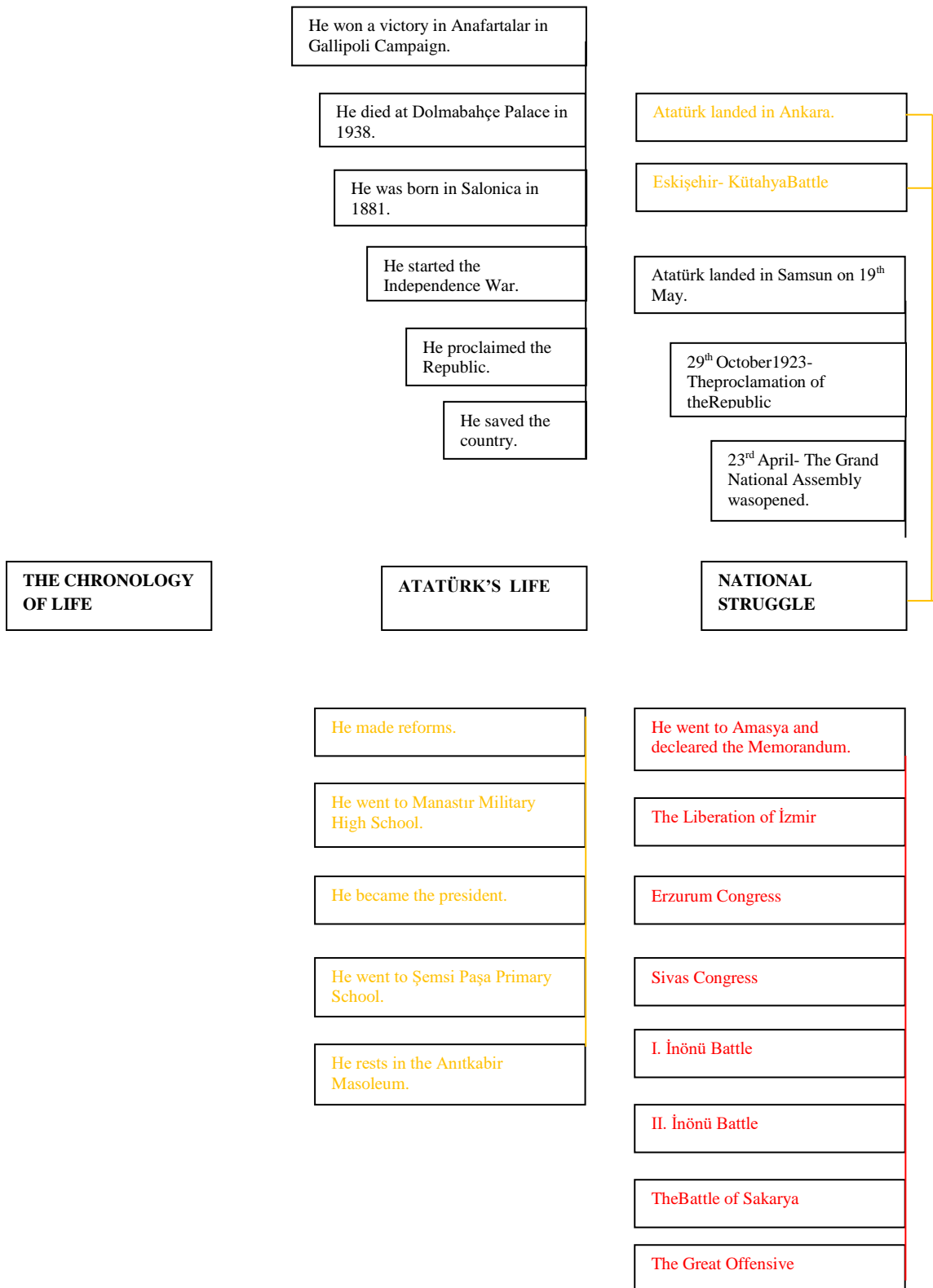
Figure 3. The Concept Map according to Control Group Pretest Results

Depending on Figure 2, as cut-off point was determined as 1-2 based on pretest results and the students' answers were investigated, three main concepts were generated which were the concept of chronology, the chronology of life and the chronology of National Struggle. The students in control group identified the concept of chronology as event, to order and date for once. The students identified chronology as past tense and the order of battle for twice. For the chronology of life, the students wrote down, for twice, that they were born, started school and studied at school. For once, the students also identified chronology through writing that their mothers or fathers were born. For the chronology of National Struggle Period, the students wrote down the Independence War, 23 April, 29 October and 30 August for twice. In addition, the students also wrote down such irrelevant concepts as technological tool, computer or computer part and a car part for the concept of chronology.

The Posttest Word Association Test Result of Experimental Group







C.P. 5

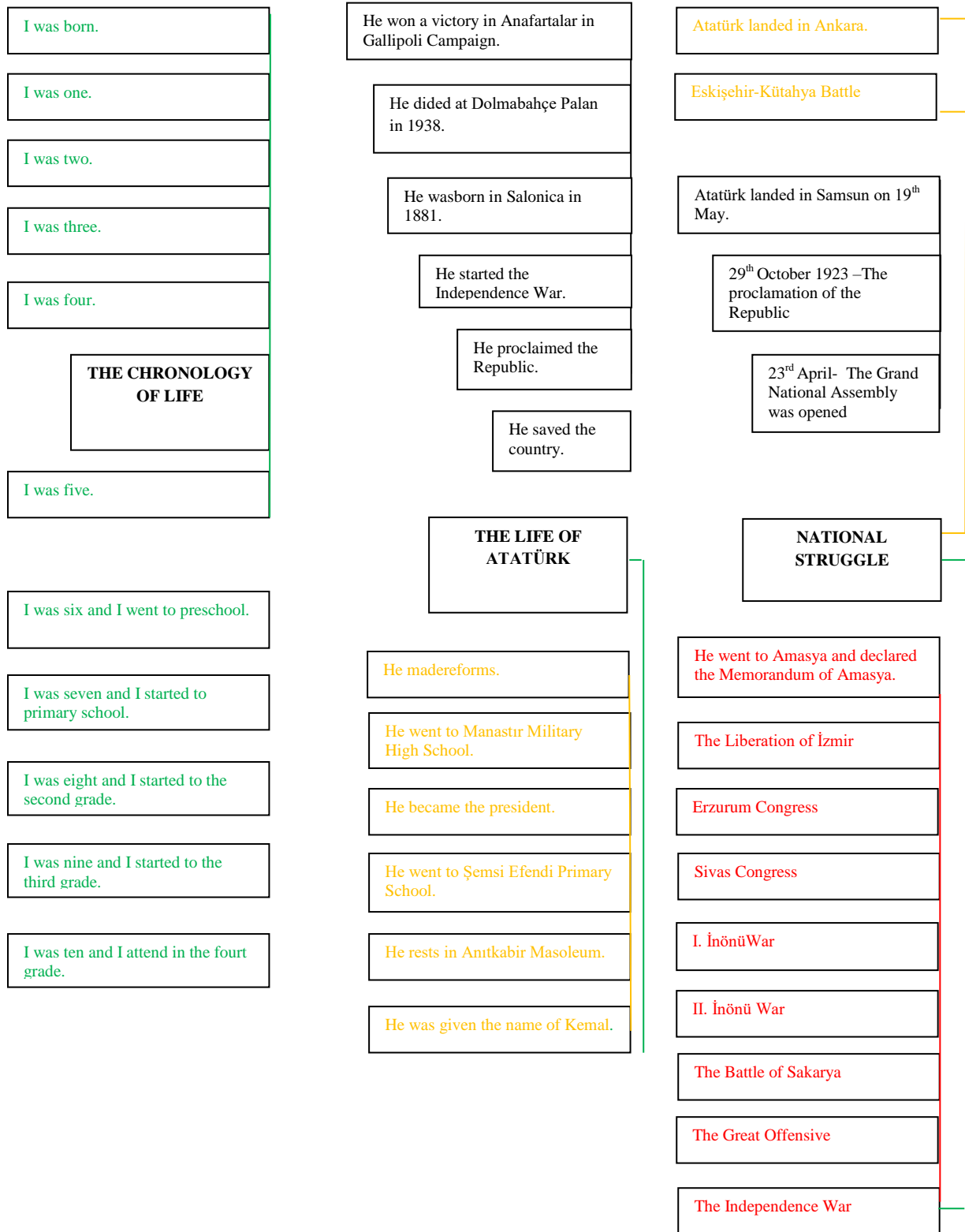


Figure 4. The Concept Map according to Experimental Group Posttest Results

In Figure 4, the concepts which were generated by the students in experimental group have been displayed as the cut-off point is determined as 30 and over. All the students in the experimental group put the chronology in order as follows: Atatürk landed in Samsun on 19th May, 1919; The Grand

National Assembly of Turkey was opened on 23rd April, 1920; The Republic was proclaimed on 29th October, 1923. As the cut- off point was determined as 22- 24 and the frequency as 24, students stated the declaration of the Amasya Memorandum and the liberation of İzmir. The frequencies of Congresses of Erzurum and Sivas, The First and Second İnönü Battles, Battle of Sakarya and The Great Offensive were determined as 22. As the cut- off point was determined as 12- 18, the frequencies of Atatürk’s landing in Ankara and Kütahya- Eskişehir Battle were determined as 15. Based on the cut- off point being 1- 5, the frequency of Independence War was 5. Concerning the chronology of Atatürk’s life, as the cut- off point was determined as 30 and over, all the students in experimental group stated that he was born in Salonica in 1881, he won a victory in Anafartalar, he started the Independence War, he proclaimed the Republic and he died in at Dolmabahçe Palace on 10th November, 1938. Depending on the cut- off point being 12- 18, the students stated twelve times that he attended in Şemsi Efendi Primary School and Anıtkabir is the mausoleum of Atatürk. 14 students stated that he went to Manastır Military High School and he became the president. Furthermore, 18 students wrote down that he made reforms. As the cut- off point was determined as 1- 5, 5 students noted that he was given the name of Kemal. Regarding the main concept of chronology of life, based on the cut- off point being 1- 5, 5 students wrote that they were born, they were 1, they were 2, they were 3, they were 4, they were 5, they were 6, they went to preschool, they were 7, they started primary school, they were 8, they were at the second grade, they were 9, they were at the third grade, they were 10 and they were still at the fourth grade. In experimental group, 32 concepts were answered incorrectly. Those were the statements related to technology. It was observed that there were changes in misconceptions during pretest and posttest applications in experimental group. KUKSET technique was revealed to be effective on reducing misconceptions in the chronology of National Struggle Period. 19 concepts were answered correctly during pretest application whereas, in posttest application, 633 concepts were answered correctly.

Control Group- Posttest

C.P. 1-2

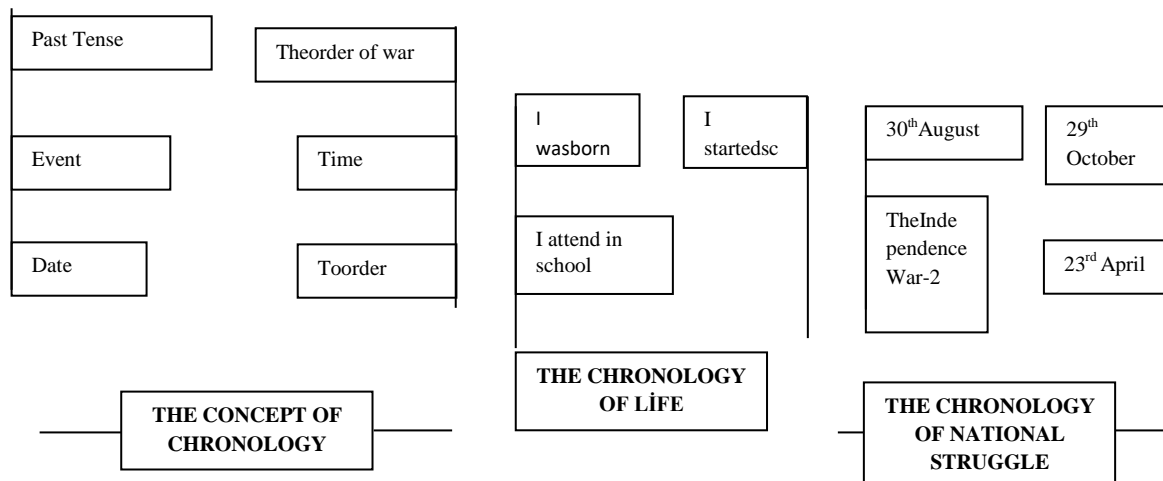


Figure 5. The Concept Map according to Experimental Group Posttest Results

In Figure 5, as the cut- off point was determined as 1- 5, based on the concept of chronology, the frequencies of time, order of battle, concepts of time was indicated to be 2. The concepts of event, to order and dates were written for once. Depending on the chronology of life, 3 students stated that they were born, they started to school and they were still attending in school. Based on the main concept of National Struggle, the Independence War was stated for twice; the concepts of 23 April, 29 October and 30 August were written for once. The number of misconceptions in control group was considerably high as shown in Table 4. It was found that there were no changes in terms of

misconceptions about the chronology of National Struggle during pretest and posttest application in control group.

Table 5. Pretest- Posttest Results of Word Association

Key Concepts	Experimental Group				Control Group			
	Pretest		Posttest		Pretest		Posttest	
Chronology	Correct Concept	Misconception	Correct Concept	Misconception	Correct Concept	Misconception	Correct Concept	Misconception
	19	296	633	32	20	302	24	314

As Table 5 displays, before the KUKSET technique, as 296 misconceptions in experimental group and 302 misconceptions in control group, a total of 598 misconceptions have been determined. 352 of them consisted of the concepts regarding technology such as computer label, computer game or computer components. 124 of the misconceptions, however, were related to the names and components of cars. 54 misconceptions were concerning the tools used in daily life. 31 of the misconceptions were about such concepts of Science as biology or space, etc. 13 of them was consisted of the names of the games played in daily life. The number of the correct concepts before the KUKSET technique was 33. The students who used the correct concepts stated their own chronology of life or the descriptions of chronology. In addition, a student wrote down National Struggle within the framework of correct concepts. After the KUKSET technique, a total of 657 correct concepts (633 in experimental group, 24 in control group) were determined. The correct concepts were the chronology of National Struggle (23rd April, 1920- the Grand National Assembly of Turkey was opened, 9th September, 1922- the liberation of İzmir or 29th October, 1923- the Republic was proclaimed) and the chronology of Atatürk’s life (he was born in 1881 or he went to ŞemsiPaşa Primary School), the individual chronology of the students (I was born ... or I was 1) and the arrangement of the events based on the meaning of chronology. The number of misconceptions in experimental group was reduced and of the correct concepts was increased after the KUKSET technique.

The Findings concerning Qualitative Data

The data obtained from the interviews with students who participated in KUKSET technique on chronology teaching were displayed in Table 6. Depending of the teaching of chronology theme, suggestions code about before and after the activity and the application of KUKSET technique was generated.

Table 6. Students’ Views on KUKSET Technique on Chronology Teaching

Theme	Code	Sub- codes	f
Chronology Teaching	Before the activity	Misconceptions	7
		Unable to comprehend the order of events in National Struggle	10
		Generating the chronology of life	2
		Attempting to memorize the topics	5
		Learning by having fun	10
	After the activity	The awareness of chronology	10
		Learning the chronology of National Struggle	10
		Generating the chronology of life	8
		Providing retention	7
		Enjoying the lesson	5
	Suggestions	Implementation of the technique in other lessons	4
		Implementation of the technique in other classes	5
		Development of new activities	7

Depending on the pre- activity code, 7 fourth grade students in the interviews highlighted misconception.

Student 3:

“I assumed that chronology was a computer label. Not just me, most of my friends assumed so.”

Student 3 stated the misconception resulting from considering chronology as technology.

Student 5:

“I considered chronology as somewhere in the space.”

Student 5 stated another dimension of misconception.

Student 1:

“I assumed chronology was a car label before the activities. I did not search about it in advance as we focused on answering test questions.”

Student 1 emphasized that they did not carry out studies aiming at investigation and research during test- based teaching- learning process.

Depending on the sub- code of unable to comprehend the chronology of National Struggle, they had difficulty in comprehending the concept of chronology since they confused the dates of the events in National Struggle Period.

Student 7:

“We had several lessons about the Independence War and Atatürk’s life but I always confused the order of events. Therefore, I have difficulty in recognizing the events. For example, I always confused whether Erzurum Congress was prior to Sivas Congress or vice versa. ”

Student 3 highlighted the difficulty in comprehending the chronology of National Struggle as mentioned by the teachers in focus group interviews.

Student 3:

“I confused the events related to the Independence War and the dates when the events took place. For example, I know that the Grand National Assembly of Turkey was opened in Ankara on 23th April, 1920 but I confused the date when Atatürk landed in Ankara.”

With regard to the sub- code of unable to comprehend the order of events in Atatürk’s life, the students highlighted the incomprehension problem of the order of events in Atatürk’s life.

Student 2:

“I was not able to comprehend whether Atatürk went to local school first or Şemsi Efendi Primary School.”

The student attracted attention to the chronology of life. The students had difficulty in comprehending the chronology of Atatürk’s life as well as the chronology of National Struggle Period.

Depending on the sub- code of generation of their own chronology of life, two students in the research emphasized that they were able to form their own chronology of life.

Student 4:

“In the light of our previous information, I and my mother generated the chronology of the events in my life. Therefore, I can write my chronology of life, but I confuse the dates and events of National Struggle.”

The students expressed that s/he was able to generate the chronology of life with the support of family; however, s/he was unable to comprehend the chronology of National Struggle.

Based on the sub- code of attempting to memorize the topics, the students said that they attempted to memorize the topics after a while once they were not able to comprehend the chronology of National Struggle.

Student 6:

“I memorize the topics in the lessons in an attempt to learn the topics and answer test questions. However, after a while, I either forgot or started to confuse.”

Another sub- code is learning by having fun under the code of after the activity. All the students stated that they both learnt the topics and had fun during the activity.

Student 8:

“The lessons were fun, we both learnt and had fun. I managed to comprehend the topics which I could not understand before. Learning by playing a game is better. Fortunately, we had such an activity.”

The student emphasized the importance of games for the primary school students

Student 5:

“We both played and learnt. We also learnt the things we did not know while playing games.”

The student highlighted the concepts of peer learning and social learning.

Based on the sub- code of awareness of chronology, students stated that we managed to understand what chronology was and added that they became aware of their misconceptions.

Student 1:

“I thought that chronology was a computer label before but, now, I am aware that it is the order of events.”

The student said that his/ her misconception was corrected through KUKSET technique.

Depending on the sub- code of learning the chronology of National Struggle, all the students expressed that they comprehended the chronology of National Struggle through the activity.

Student 7

“Up to now, I used to confuse the places and order of events of Independence War, but now, I both had fun and learnt the events and their chronology. I do not confuse test questions anymore.”

The student put emphasis on the effect of the activity on the comprehension of the chronology of National Struggle and his/ her academic achievement.

Depending on the sub- code of generation the chronology of life, students said that they were able to generate their families' and own chronology after they became aware of the concept of chronology.

Student 4:

"I could not understand what chronology was before. Now, I can form my family's and own chronology of life. We live with my grandparents. I also generated their chronology of life by gathering information from them."

Based on the sub- code of providing retention, the students said that they were able to comprehend the chronology of National Struggle which they forgot because they attempted to memorize and added that the activity provided retention.

Student 6:

"I used to forget the Independence War although we learnt it many times before, but now, I remember. I remember KUKSET technique when I am about to forget. I am not afraid of being unable to know the chronology of Independence War anymore."

The student emphasized that s/he overcame his/ her fear of being unable to comprehend the chronology of National Struggle.

Under the sub- code of enjoying the lesson, the students said that they enjoyed the lesson which was fun because KUKSET technique on chronology teaching of National Struggle consists of game.

Student 2:

"The lesson was very entertaining; we both had fun and learnt. I came to school willingly and happily as the lesson was not boring. I and my friends were looking forward to the lesson."

The student emphasized the effect of the activity on students' enjoying the lesson.

Another sub- code depending on the code of students' suggestions concerning KUKSET technique on chronology teaching of National Struggle Period is to implement the activity in other lessons. The students stated that they enjoyed their lessons and suggested the technique to be carried out in other lessons.

Student 9:

"We enjoyed our lesson as we learnt by having fun. For example, if this activity is carried out in Turkish lessons, we can comprehend the antonyms and synonyms better."

The student put forward a proposal regarding how different applications can be in other lessons and how the activities provided acquisitions to themselves.

5 students participating in the activity said that they learnt by having fun and suggested the activity to be carried out in other classes.

Student 8:

"We learnt by having fun. If other classes carry out this activity, they will be able to learn the topics better."

The student referred to the prevalent effect of KUKSET technique.

Based on the sub-code of the development of new activities, the students stated that those activities helped them understand and comprehend the topics better and suggested that new activities should be developed.

Student 10:

“We learn better through the activities with games. We can learn the topics better if new activities are developed. There should be different activities during the lessons.”

The student emphasized the effect of the activities on their learning.

DISCUSSION

KUKSET technique on chronology teaching was determined to be effective on students' comprehension of National Struggle Period. There was no significant difference in terms of pretest results whereas there was a significant difference in favour of experimental group regarding posttest and retention test. It was concluded that KUKSET techniques was effective on the comprehension of chronology of National Struggle Period, there by providing retention. Additionally, there are other studies complying with this study. Başar, Batur and Karasu (2014) observed that KUKSET technique was effective on students' comprehension of synonyms and antonyms. Accordingly, in a study by Özyürek and Çavuş (2016), it was determined that games provided retention and the students attended the lessons more actively. Altınbulak, Emir and Avcı (2016) emphasized that game and activity-based teaching in Social Studies lessons contributed to students' comprehension levels. Lieberoth (2015) stated that the students were more eager to learn as they regarded the games as activities. Babuğ and Adıgüzel (2019) concluded that creative drama activity in a museum was resulted in favour of experimental group. In short, different activities were indicated to contribute the students' learning and academic achievement.

The misconceptions of students concerning the chronology of National Struggle Period were determined. The students were observed to regard the concept of chronology as technological tools or their components. These misconceptions by the students may be due to the fact that they closely communed with the technology. The highest number of misconceptions by the students was related to National Struggle Period. Ulusoy and Erkuş (2015) determined that there were time misconceptions in students' history perceptions during Social Studies teaching. After KUKSET technique, it was found that the misconceptions of the students in experimental group were reduced and students managed to comprehend the chronology of life, National Struggle Period and Atatürk's life. Koçak (1999) determined that the students' being unable to comprehend the chronology of National Struggle Period in Turkey Republic and History of Turkish Revolution lesson adequately was associated with the variety of materials and activities of lesson contents. According to Misco and Peterson (2009), it was highlighted that the difficulty experienced by the students with regard to chronology learning might be resulted from students' in difference to lessons and limited learning content. De Groot- Reuvekamp, Ros & Van Boxtel (2018) inferred that 'Timewise' technique on history teaching was effective on history teaching of primary school students.

During the student interviews concerning KUKSET technique on chronology teaching of National Struggle Period, it was found that, before the activities, students had misconceptions, did not manage to comprehend the chronology of National Struggle Period and experienced mental fatigue and oblivion. Brooks & Brooks (1993) emphasized that rote-learning based education was a kind of mental slavery and added that the students were incapable of interpreting the information memorized. It can be inferred that KUKSET technique is able to develop students' interpretation skills. In addition, the technique can contribute students to establish a relationship among the concepts. Başar et al. (2018) asked 300 participants over 40 what they remembered about their years of primary school. The

participants said that they remembered the activities related to social learning and learning to learn activities most. KUKSET technique was found to contribute to learning by having fun, awareness of chronology, learning the chronology of National Struggle Period, generation of chronology of life, retention and students' engagement in the lessons. Bayram and Çalışkan (2017) stated that gamification of Social Studies lesson was useful and effective. They argued that gamification helped students attend the lessons actively, aroused interest and positive attitudes towards the lesson among students and enhanced their motivations. Akan and Başar (2011), however, revealed that the activities supported the students' learning and provided retention.

The students suggested that the activity required to be carried out in other lessons and classes and put forward proposals regarding the implementation of new activities. The KUKSET technique was proved to provide retention as well as entertain the students. Bayram and Çalışkan (2019) revealed that gamification of Social Studies lesson was useful and effective and added that it helped students attend the lessons actively, aroused interest and positive attitudes towards the lesson among students and enhanced their motivations. Hwang, Chiuandhen (2019) conclude that the students learnt effectively and their motivations were increased in Social Studies lesson through a computer game they developed. Zayımoğlu Öztürk and Öztürk (2018) carried out the activity of time capsule in Social Studies lesson and found that the students who participated in the activity were interested in the lesson.

In short, it has been concluded that KUKSET technique was effective on the comprehension of the chronology of National Struggle Period since it consisted of both game and learning and was suitable for the developmental properties of primary school students.

SUGGESTIONS

Suggestions concerning Research Results

It was determined that the students were able to comprehend the chronology of National Struggle Period through KUKSET technique. In this regard, conducting game- based activities in the lessons during primary school may provide retention.

The students participated in all the activities during the process of chronology teaching of National Struggle Period through KUKSET technique. The students stated that they took place in the activities willingly and eagerly. Using KUKSET technique in the lessons may provide social and peer learning.

Various techniques apart from KUKSET technique may be developed and employed in teaching process.

An in- service training for the teachers may be carried out in order to introduce the KUKSET technique.

Suggestions concerning the Researchers

The effect of KUKSET technique on different lessons may be investigated.

Various techniques, similar to KUKSET technique, in the lessons may be developed and investigated.

The efficacy of KUKSET technique may be assessed through different methods.

The efficacy of KUKSET technique on different teaching stages may be investigated.

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