EXAMINATION OF TEACHERS OPINIONS ON THE IMPORTANCE OF MNEMONIC STRATEGIES

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ABSTRACT
The aim of this study is to determine the teachers' views on "Mnemonic". For this purpose, subjects such as retention, easy recall, methods used in the lesson, memory supporters were examined in the study. The findings obtained as a result of the analysis of teachers' views were blended and the common results obtained from the study were emphasized. The research is a qualitative study that has been handled descriptively. The research is a descriptive qualitative study. The study group of the research consists of 100 teachers, 64 female and 36 male, who teach in different school types and different branches in the TRNC. The data of the study were obtained by semi-structured interview technique.
Keywords: Memory, Mnemonic, Learning.

Introduction

Studies on education, which is defined as bringing about the expected changes in the behavior of the individual, have led to the emergence of different learning strategies (Ertürk, 1975). By using the learning strategies that constitute the essence of effective learning, it is aimed that the student accelerates the self-learning process, processes the information and learns permanently. These strategies; conscious learning, learning with fun, efficiency in learning can be mentioned (Özer, 2002). Learning strategies are cognitive behavior and thinking processes used to place information in memory and retrieve it when desired (Senemoğlu, 2013). Numanoğlu and Şen (2007) mention that learning strategies cover the process of transmitting information to short-long-term memory and processing the messages in long-term memory.

TDK defines the concept of memory as 'the power to store information in the mind'. Persistence of knowledge is related to memory, and learning and memory are complementary factors. The processes of saving, protecting and recalling information are within the scope of memory. Recording, also referred to as coding, is learning information; protection, withholding information; calling means finding and bringing information when needed (Açıkgöz, 2003). Kant stated that it is possible to reveal the hidden potentials in human nature through education. Memory is one of these potentials in man. Since remembering is a learned skill, improving memory is like improving any other skill. Memory training helps to find, retrieve and store information whenever required (Higbee, 1977; Erden & Akman, 1998).

'Memory Boosters', called 'mnemonic', inspired by the Greek goddess of memory 'Mnemosyne', are methods used in memory training for many years. Memory supporters facilitate learning and remembering what has been learned (Ün, 1984). It has been seen that memory boosters, also known as "memory strengthening techniques", are methods that allow the mind to remember something easily and quickly, and then to remember certain things even after a long time has passed (Buzan, 1974). The main task of memory supporters is to connect newly learned information with information that is available in the person's long-term memories. The stronger the connection between newly learned information and existing information, the more permanent the information will be in the memory (Mastropieri, 1998). Korkmaz and Mahiroğlu (2007), memory promoters; emphasizes that it can be beneficial in activating all brain skills for effective learning and remembering what has been learned, especially in learning information that is difficult to remember. Mastropieri (1998) emphasizes that mnemonic strategies are also comprehension strategies and states that students get good results from comprehension tests in learning using mnemonic supporters.

According to Povio (1971):
1. Concrete objects are better remembered than abstract concepts.
2. Establishing a relationship between the concepts desired to be remembered and concrete objects is effective in remembering the concepts.
3. Visual images make it easier to remember.

Based on these three items, the following memory development principles are used, which ensure that the information stays in the memory more. (Er, 1996 ; Kıroğlu, 2010).

Meaningfulness: Any meaningful information is easily memorized. Meaningless information is difficult to retain in memory. If a piece of information is meaningless, techniques of making that information meaningful using rhymes, patterns or associations are applied. (Buzan, 1974; Hunt and Love, 1987; Mitchell and Hunt, 1989).

Organization: Information recorded in a certain order will be easier to retrieve when requested (Higbee, 1977).

Association: Establishing meaningful relationships between previous information and newly recorded information will strengthen recall (Higbee, 1977).

Animation: Visualizing objects as images in the mind has an important role in remembering (Mitchell & Hunt, 1989).

Attention and Interest: Interesting associations, images, associations will help to remember and keep the information in the memory longer (Higbee, 1977).

Memory supporters, which are also included in the literature as 'reminders', are methods that enable the learned information to be remembered quickly when desired (Buzan, 1974). The following techniques are shown as examples of memory support strategies used as a teaching strategy in line with the above principles:

1. Tying/Chaining Technique:
It consists of two stages. First, the images of the listed items are visualized. These visual images are then expressed by linking them in succession with the next visual image in a story. The more different, funny, moving, colorful and extraordinary this story is, the stronger the recall will be (Korkmaz and Mahiroğlu 2007; Er, 1996; Senemoğlu, 1997; Aydın, 2010; Baran, 2014; Kıroğlu et al, 2010).

The use of environmental pollution types in a way that reminds one another in the story can be given as an example of the tying technique:
Increasing air pollution has resulted in water pollution. One cause of water pollution is soil pollution. There was silence as the soil pollution consumed the beauty around us. It should not be surprising that the citizens of the city, who do not speak out against environmental problems, do not raise their voices against noise pollution (Tay, 2004).

2. Space Reminder/Loci Technique:
It is the recall of objects/concepts that are desired to be remembered by establishing a connection with well-known fixed spaces. It consists of two stages: First of all, well-known places are kept in mind in a certain logical order. Then, each item image that is wanted to be remembered is associated with any part of the previously determined space, and an imaginary walk is taken in this space (Açıkgöz, 1996; Korkmaz and Mahiroğlu 2007; Er, 1996; Senemoğlu, 1997; Aydın, 2010; Baran, et al., 2014).
Such as; *If the artists of the Tanzimat period (Şinasi, Namık Kemal, Ziya Paşa, Ahmet Tevfik Efendi, Recaizade Mahmut Ekrem, Muallim Naci etc.) are to be remembered, the images of the names in front of the television in the living room, on the refrigerator in the kitchen, inside the washing machine, on the toilet mirror in the bedroom, by walking around the house. is placed. When this information is wanted to be called, a mental tour is made in the house.*

3. Suspension Technique:
It is a technique that can be used to remember items given in order. There is a preparation process. Beforehand, numbers and objects are meaningfully matched. While matching, common points such as shape similarities and sound harmony are taken into account. For example, 1-candle (shape similarity), 2-Mickey -mouse- (sound harmony). These associations can be likened to a suspension. The hangers are fixed. The hanger does not change, the hangers can change. Items to be remembered are visualized in the mind in interaction with objects corresponding to numbers (Yıldız, 2004; Yetkin, 2006; Kıroğlu, 2010; Er, 1996).

For example; The following imaginary sentences can be formed with the words 1. mast, 2. Swan, 3. Stool, 4. Sailboat, 5. Hand hanger to learn the three big cities of Turkey in order:

A pole erected on the highest point of Istanbul can be seen from everywhere. There is no lake in Ankara, two swans are looking for a place to swim. Izmir is a city built on a stool. The best trip to Bursa is made by sailboat. A man as big as the fingers of a hand lives in Adana (Senemoğlu, 2007).

4. Keyword Technique:
It has been determined that this technique is especially effective in foreign language learning (Demirel, 1993; Tay, 2004; Senemoğlu, 2011). It is a technique in which new information is associated with a familiar word. A new word can be learned more easily by associating it with another word that is similar in sound or with an image (Yıldız, 2013).

For example; *By using the English word "top", which is "ball" in Turkish, in the same sentence with its Turkish meaning, or by cariculating it, the meaning of the word is evoked. "A fly landed top of the ball."* (Senemoglu, 2011).

5. Phonetic Alphabet Technique:
This technique is based on the principle of representing all numbers from 0 to 9 with consonants in a certain logic and forming meaningful words by adding vowels in between. Thus, higher numbers are used to express certain words. The numbers to be remembered are turned into meaningful words (Er, 1996).

e.g. Assuming 1:T, 2:N, 3:M, 4:R, 5:L, it can be stated that the number 432 can be used for the word "RoMaN". This technique can also be used as the "suspension technique".

6. Acronym Technique:
They are abbreviations made by combining the initials of the words to be remembered in a meaningful or sound harmony (Kırıoğlu, 2010). E.g; Islands conquered by Fatih:

When the initials of these islands are brought together in Thasos, Egriboz, Limni, Semadirek, Imroz and Bozcaada, the TELSIM-B acronium is formed. (Baran, 2014).

7. Acrostic Technique:
It is the formation of meaningful sentences with the initials of the words to be remembered. For example; the acrostic technique can be used to remember to colour of the rainbow (Red, Orange, Yellow, Green, Blue, Indigo, Violet). "Richard of York Gave Battle in Vain" (Uça ve Öksüz, 2016).

8. Rhyme Formation Technique:
It is a technique based on sound harmony at the end of words. Words ending in the same sounds create a certain rhythm when they come one after the other. This makes information easier to remember. E.g; The following rhyming expression in which the Turkish rhyming group of countries in the North is said together and the capital of Turkey is Ankara can be given as an example;
Sweden, Norway, Denmark;
Ankara, the capital of Turkey (Aydın, Kıroğlu, 2010).

In the studies examined in the literature, it is thought that it will be effective to consider memory promoters from the teaching programs in a constructivist view. Since the 1990s, research has been conducted on memory enhancement methods and memory-supporting strategies. Research on the effect of memory-supporting strategies on students' learning has shown that students' success increases and students' desire to learn occurs; shows that it contributes to the meaningful and permanent learning of students (Kaya and Çevik 2020). In recent years, it has been observed that the effect of memory supports on student success has been the subject of research in Turkey. It has been observed that these studies conducted to date mostly examine the effects of memory supports in Science, Social Studies, Mathematics, and English classes (Kıroğlu, 2010; Aydın, 2010; Yıldız,2013; Kayacan & Özlüleci & Arslan 2019; Korkmaz & Mahiroğlu 2007 et al).

In Kaya and Çevik's (2020) study, which investigated the effect of teaching science lesson with memory-supporting strategies on academic success and permanence, it is seen that acronium, acrostic, baglama, story, squabble and game are used as memory-supporting techniques. The following conclusion was reached in the study: "*Teaching with memory-supporting strategies is effective in terms of both academic success and*

permanence of what has been learned." In this study, it is recommended that program developers frequently include activities prepared according to memory-supporting strategies in their curriculum. Efficiency of the education-teaching process can be increased by giving acronyms and acrostics to teachers and teacher candidates during their education periods. (Kayacan & Özlüleci & Arslan, 2019).

Star (2013); Aydın (2010), Kıroğlu (2010) emphasize that in the conclusion part of the thesis study, students in the experimental group who used memory supports learned the information better and remembered the information better than the students in the control group. In the light of the findings obtained in the study, it is stated that if memory supplements are used correctly, they will make a significant contribution to both learning and the permanence levels of what has been learned. Also in this study:

1. Giving teachers in-service training on these techniques,
2. These techniques should be chosen according to the target behaviors and readiness of the student,
3. Conducting studies on the affective and psychomotor effects of techniques,
4. To investigate the effect of students' designing their own memory supports on permanence,
5. Investigation of how much teachers use these techniques,
6. To investigate the effect of permanence by using other methods,
7. To be able to apply to the entire Science and Technology course,
8. It is used in different courses and students with learning difficulties,
9. Researching whether boys or girls are successful in using the techniques,
10. It is recommended to investigate the possibilities of usability at all stages of education.

Korkmaz and Mahiroğlu (2007) also emphasize that students who study with memory supports are more successful at the end of the teaching process than students who study with traditional teaching approach. It is also stated that the success of the students is higher especially at the level of knowledge and comprehension. Şahin and Kil (2018), as a result of their research, say that using the keyword method, which is a memory support technique, is more effective than traditional methods in foreign language learning.

As a result of the researches, it is seen that the memory support hint developed on the order of operations, which is a complex rule in mathematics, is easily understood by the students. From this point of view, it is thought that it is important to use memory-supporting clues when teaching the complex rules and topics of the mathematics course and that the studies carried out with these strategies can have a positive effect on student achievement (Uça, 2010). Tay's (2007) study, in which he examined the effect of learning strategies on academic achievement in life studies and social studies teaching course, obtained a similar result and it was emphasized that learning learning strategies would increase success levels.

According to Weinstein and Mayer, good teaching includes teaching students how to learn, how to remember, how to motivate themselves, and how to control and direct their own learning effectively (cited by Senemoğlu 1997). In this context, memory-supporting strategies enable students to learn easily and easily remember what they have learned; It is thought that it will affect their academic success and interest in the course. Therefore, memory aids used by teachers and students are a matter of curiosity. Assuming that teachers are the main users of these strategies, it is worthwhile to investigate "Teachers' views on the importance of memory support strategies".

The general purpose of this study, which is thought to contribute to the literature, is to examine the views of teachers who teach students at different levels in the TRNC about the strategies of memory supporters. In line with this aim of the research, answers to the following questions were sought:

1. Are teachers aware of memory-supporting strategies?
2. Which branch/class teachers mostly use memory supports?
3. Which memory support strategies do teachers use?
4. Do teachers believe that memory-supporting strategies are effective in teaching lessons?
5. What are the teachers' views on the positive or negative effects of memory-supporting strategies?
6. What are the teachers' views on the applicability of memory supporters in the classroom environment?

In the study, it is desired to obtain information about teachers' awareness of mnemonic aids, how much the teachers think that mnemonic aids they use in their lessons contribute to the learning of the student, and which techniques are preferred according to the branch and level. It is thought that this study will contribute to teachers' teaching strategies and create awareness in teachers about memory promoters. Thus, it is assumed that effective and permanent learning will be developed for students.

Methodology

Research Methods and Model

The most basic feature of a qualitative case study is that it allows one or more cases to be investigated in depth. (Yıldırım and Şimşek, 2018) Case studies involve the analysis of a particular event from different perspectives. (Buyukozturk et al, 2018). In line with this context, since an in-depth study was conducted to determine teachers' views on "Memory Supporters", it was deemed appropriate to conduct a case study, one of the qualitative research designs, in this study. Purposeful sampling provides an opportunity to conduct in-depth research by selecting information-efficient situations related to the target of the study. It is preferred when it is desired to work in one or more special cases that meet certain criteria or have certain qualifications (Büyüköztürk et al., 2018).

Research Group

In order to provide an opportunity to conduct an in-depth study and to apply this study to people with certain qualifications selected by the researchers, convenient sampling method, which is one of the purposeful sampling methods, was used to determine the study group. The study group of this research consists of teachers working in different branches in different schools in the TRNC. According to the 2019-2020 data of the Ministry of National Education, the total number of teachers working in public schools is 4001. This research was carried out with the participation of a total of 100 (64 female, 36 male) teachers working in different districts.

Data Collection Tools

The data in the research were obtained by semi-structured interview technique. This method neither keeps the freedom of movement of the participants in the structured interviews at the lowest level, nor does it provide a wide range of movement to the participants like the unstructured interviews (Karasar, 2000). While creating the data collection tool, it was aimed to reveal teachers' opinions, awareness and usage rates about "memory supporters".

The data of the study were collected by the teachers filling in the interview forms created by the researcher in writing. The interview form developed by the researchers was rearranged in line with expert opinions. In the interview form, besides the demographic information of the teachers, their opinions about "Memory Supporters" were taken.

Data Analysis

In the research, the data were analyzed by content analysis method. With the content analysis method, it is aimed to reach the concepts and relations that serve to explain the data. The data, which are summarized and interpreted with descriptive analysis, are processed deeper with content analysis and new concepts are revealed. The process with content analysis is to gather similar data around certain themes and interpret them in a format that the reader can understand (Yıldırım & Şimşek, 2018). In this study, the data were organized according to the themes created according to the questions used in the interview form. For the first question “How the information will be remembered”, for the second question “The techniques used by the teacher for memorization” for the third question “Opinions on memory supporters”, for the fourth question “The techniques used by the teacher in the lesson for easy recall” for the fifth question “reminder remembered from the student” ” category was created and sub-themes related to “Memory Supporters” were obtained under these categories.

Findings

In this section, the data obtained in the research has been tried to be interpreted by subjecting it to content analysis. Obtained data are presented in tabular form, first as demographic information and then as themes under the categories given above.

Table 1. Demographic characteristics of teachers

		N	%
Gender	Female	64	64
	Male	36	36
	Total	**100**	**100**
Educational Status	Undergraduate	72	72
	Master Degree	28	28
	Total	**100**	**100**
School Type	Primary school	8	8
	Secondary School	57	57
	High school	35	35

	Toplam	**100**	**100**
Branch	Turkish/literature	17	17
	Science	15	15
	Physical education	13	13
	Foreign language	12	12
	Math	10	10
	Classroom teacher	7	7
	Psychological counseling and guidance	6	6
	Liberal arts	6	6
	Audio Visual Art Lessons	6	6
	Computer	6	6
	Others	2	2
	Total	**100**	**100**
Year of Duty	1-5 years	20	20
	6-10 years	12	12
	11-20 years	27	27
	20 years and above	41	41
	Total	**100**	**100**

As seen in Table 1, 100 teachers, 64 female and 36 male, participated in the study. Educational status of these teachers is 72 at undergraduate level and 28 at graduate level. Eight of the teachers work in primary school, 57 in secondary school and 35 in high school. 17 of the participants work as Turkish/literary, 15 Science, 13 Physical Education, 12 Foreign Language, 10 Mathematics teachers. The majority of the teachers participating in the research are those with 20 or more years of service.

Table 2. Teachers' views on how to keep the information in mind.

Category	**Theme**	**f**	**%**
How to keep information in mind	Repetition	46	27,22
	Audio/visual elements	26	15,38
	Application	22	13,02
	Coding	15	8,88
	Associating with life	14	8,28
	Examples	11	6,51
	Exercises	**7**	4,14
	Attribution	6	3,55
	Animation	6	3,55
	Interest	5	2,96
	Storytelling	4	2,37
	Similes	4	2,37
	Memory techniques	3	1,78
	Total	169	100

When Table 2 is examined, it is seen that teachers' views on how the information will be remembered mostly focused on the theme of "repetition" (27.22%/ f=46). Orkun and Bayırlı (2019) stated that because repetition strategies are based on memorization, information cannot be remembered for a long time and is forgotten; states that researchers also emphasize that meaning-making strategies should be used for repetition to be effective. On the other hand, opinions such as "the use of audio-visual elements, application, coding, associating with life" have also emerged. It is also thought to be remarkable that the least expressed opinion (1.78%/ f=3) is the theme of "memory techniques". Because all the themes mentioned are included in these techniques.

Table 3. Teachers' views on the techniques used for memorability.

Category	Theme	f	%
Techniques used by the teacher for memorability	Images	28	14,74
	Game/entertainment	24	12,63
	Application	21	11,05
	Associating with life	16	8,42
	Examples	14	7,37
	Repetition	13	6,84
	Question and answer	10	5,26
	Animation/drama	7	3,68
	Storytelling	7	3,68
	Auditory	7	3,68
	Coding	7	3,68
	Using educational materials	5	2,63
	Observation	5	2,63
	Research	4	2,11
	Experiment	4	2,11
	Attribution	4	2,11
	Presentation	4	2,11
	Project	3	1,58
	Writing	3	1,58
	Simile	2	1,05
	Summary	2	1,05
	Total	**190**	**100**

In Table 3, it is seen that teachers mostly use visuals (14.74%/ f=28) and games/entertainment (12.63%/ f=24) for memorability. Compared to the views in Table 2, it can be concluded that the "repetition" theme is underemphasized here, and it can be concluded that teachers believe in the importance of repetition for memorability, but they mostly use visuals for memorability. However, it is seen that the theme of “visuals” is repeated at close rates in both tables. According to Dursunoğlu (2010), what is taught in the teaching environment appeals to the eye, in other words, the use of visual elements makes teaching and learning more effective and permanent.

Table 4. Teachers' views on the methods used in the lesson for easy recall.

Category	Theme	f	%
Methods used by the teacher in the lesson for easy recall	Associating with life	22	11,89
	Images	21	11,35
	Again	19	10,27
	Question and answer	16	8,65
	Coding	12	6,49
	Stories	10	5,41
	Examples	10	5,41
	Similes	9	4,86
	Attribution	9	4,86
	Animation	8	4,32
	Humor	7	3,78
	Application	7	3,78
	Summary	6	3,24
	Homework	5	2,70
	Key words	3	1,62
	Auditory	3	1,62
	The game	3	1,62
	Problem solving	3	1,62
	Acrostics	2	1,08
	Brainstorming	2	1,08
	Connotation	2	1,08
	Formulas	2	1,08
	Observation	2	1,08
	Abbreviations	2	1,08
	Total	**185**	**100**

Table 4 lists the teacher's views on the support student's easy recall of the given information. Accordingly, it is observed that teachers mostly (11.89%/ f=22) emphasize on associating the subjects they tell with life so that the information can be remembered easily. Yadigaroğlu, Demircioğlu, and Demircioğlu (2017) state in the findings section of their study that students cannot fully associate concepts with events in daily life, and the reason for this is that students are bombarded with information during their education and that the learning method based on rote is adopted. On the other hand, it can be said that it has similar characteristics with the data in Table 2 and Table 3, based on the emphasis on the themes of "Visuals (11.35%/ f=21) and repetition (10.27/ f=19)".

Table 5. Opinions of teachers about mnemonics.

Category	Theme	f	%
Opinions about mnemonics	Useful	21	21
	Positive	20	20
	Makes it easy to remember	18	18
	Effective for retention	17	17
	Negative	7	7
	Education should be given	6	6
	Must be personal	6	6
	No idea	5	5
	Total	**100**	**100**

As can be seen in Table 5, the theme of “useful” (f=28) stands out in teachers' views on memory supporters. It is seen that the opinions of "positive (f=20), facilitates remembering (f=18), is effective in memorization (f=17)", which support this theme, are also emphasized. Kayacan, Münevver and Arslan (2019) states that in the conclusion part of their study, pre-service teachers emphasized that they are memorable and provide permanent learning in their views on memory supporters. Based on this result, it can be said that both data have similar characteristics. On the other hand, it was determined that some teachers stated negative statements about memory supporters such as that it would not provide permanent learning, cause memorization, have negative consequences, cause confusion. In addition, teachers who say "the training should be given" and "I have no idea" are also considered remarkable.

Table 6. Reminders that teachers remembered from their studentship.

Category	Reminder	Course	f
Öğrencilikten hatırlanan anımsatıcılar	Pistachio Sahap (hard consonants)	Turkish	11
	His mother was going to plant a grave (adjective-verb suffixes)	Turkish	1
	Explaining momentum on a bicycle wheel	Physical	1
	Hasan two idiots Osman four (formula of sulfuric acid)	Chemical	4
	Throws the Body of Ungrateful Rabia in Haydarpaşa Port	Chemical	1
	What's the hurry? Nacl	Chemical	1
	Thumbs up (fusing consonants)	Turkish	1
	Double Haseki Pasha (for hard consonants)		1
	Napkin cage with hash (hard consonants)	Turkish	1
	Professor Mete Phoned His Mother (cell division)	Biology	1
	KADI (edge mid-angle mid-perpendicular-twin border)	Math	1
	Jump like a kangaroo	Physical education	1
	All laundry is cleaned when it enters the machine (absolute value)	Math	1

In Table 6, the reminders that teachers remember during their student years and the lessons they are related to are given. According to the table, it is seen that the mnemonic “Pistachio Sahap”, which is mostly used to remind hard consonants in Turkish lessons, is repeated. On the other hand, it can be said that mnemonics used in science are remembered. It is seen that Kayacan, Özlüleci, and Arslan (2019) in their studies with the participation of

teacher candidates mostly remembered the acrostic "Haydarpaşa High School's Notorious Chemist Throws Rabian's Body", which is mostly about chemistry. This situation is directly proportional to the fact that a reminder belonging to a chemistry course is remembered the most after Turkish in the above table. While the teachers expressed their opinions about the mnemonics of their student years, they also stated that they remembered the lessons, experiments, acrostics and storytelling made with songs.

Table 7. Distribution of the most repeated themes according to branches

Theme	Branch	N	f	%
Repetition	Turkish/literature	17	17	21,79
	Science	15	10	12,82
	Physical education	13	12	15,38
	Foreign language	12	16	20,51
	Math	10	7	8,97
	Classroom teacher	7	4	5,13
	Psychological counseling and guidance	6	2	2,56
	Social sciences	6	5	6,41
	Audio visual art lessons	6	3	3,85
	Computer	6	0	0,00
	Other	2	2	2,56
	Total	**100**	**78**	**100**
Images	Turkish/literature	17	12	18,18
	Science	15	7	10,61
	Physical education	13	12	18,18
	Foreign language	12	10	15,15
	Math	10	4	6,06
	Classroom teacher	7	1	1,52
	Psychological counseling and guidance	6	7	10,61
	Social sciences	6	4	6,06
	Audio visual art lessons	6	6	9,09
	Computer	6	0	0,00
	Other	2	3	4,55
	Total	**100**	**66**	**100**
Associating with life	Turkish/literature	17	5	9,62
	Science	15	8	15,38
	Physical education	13	6	11,54
	Foreign language	12	6	11,54
	Math	10	9	17,31
	Classroom teacher	7	2	3,85
	Psychological counseling and guidance	6	1	1,92
	Social sciences	6	3	5,77
	Audio visual art lessons	6	7	13,46
	Computer	6	2	3,85
	Other	2	3	5,77
	Total	100	52	100

Table 7 shows the distribution of the three most repeated themes according to branches. Considering the number of teachers by branch, it is seen that English teachers emphasize the theme of "repetition" more. It is seen that physical education and Turkish teachers emphasize the theme of "images", while Mathematics and Science teachers emphasize the theme of "associating with life".

Table 8. Opinions of teachers about memory supporters according to their years of service

Category	Theme	1-5 years	6-10 years	11-20 years	20 years and above	Total
Opinions on memory supporters	Useful	2	4	6	9	**21**
	Positive	6	3	5	6	**20**
	Makes it easy to remember	4	2	6	6	**18**
	Effective for retention	3	1	3	10	**17**
	Negative	1	1	3	2	**7**
	Education should be given	1	0	2	3	**6**
	Must be personal	1	0	1	4	**6**
	No idea	2	1	1	1	**5**
	Total	**20**	**12**	**27**	**41**	**100**

When Table 8 is examined, teachers who have worked for 1-5 years express their "positive" opinion, teachers who have worked for 6-10 years say "useful", teachers who work between 11-20 years say "It is effective on retention" On the other hand, it is seen that the teachers who do this emphasize the themes of "useful and positive".

Conclusion and Discussion

In this study, it was tried to examine the opinions of teachers about "memory supporters". For this purpose, concepts such as memorability, easy recall, methods used in the lesson, and memory aids were used in the research. The findings that emerged as a result of the analysis of teachers' opinions on these concepts were combined and the common results obtained from the study are presented below. According to this;

In order for an information to be remembered and easily remembered, it is necessary to use audio-visual materials, to associate the subjects with life, and to benefit from repetition and application activities. In support of this result, Aydın (2010) states in the conclusion part of his study that the multiplicity of in-class activities that enable students to participate in the lesson with activities will motivate the students to the lesson, and the in-class arrangements made for this purpose will contribute to the affective development of the students. On the other hand, themes such as "the use of audio/visual elements, coding, association, animation, analogy, storytelling, humor, association, acrostic", which teachers especially emphasize, are the characteristics of memory supporters. (Korkmaz & Mahiroğlu, 2007; Kaya & Çevik, 2020, et al.) Based on this, it can be said that teachers generally benefit from and use memory-supporting strategies. As a result of the observations made while filling out the interview forms, it can be said that the use of memory-supporting strategies in the lesson is not conscious and teachers are generally unaware of these strategies. Erginer (1994) emphasizes that the teacher has to be aware of what to teach and how to teach. It can be said that teachers generally welcome the use of these strategies and find these techniques useful. On the other hand, it can be said that there is an expectation about teaching teachers about memory techniques. It is thought that teachers who express negative opinions are not aware of these strategies. It is thought that the examples given by the teachers to these strategies that they remember from their student years indicate that the teaching made with these techniques is permanent.

Recommendations

1. In this study, only the opinions of the teachers were taken, and it is thought that it will be useful to determine the effects of memory-supporting strategies on learning, permanence of knowledge and remembering.

2. In addition to the information taught to the students, it is thought that providing training on how learning takes place will contribute to conscious learning.

3. Teachers should be given training on what memory-supporting strategies are, how they can be used, their effects on learning, and information about the results of scientific studies conducted in different branches so far.

4. It is thought that our Ministry of National Education and Culture should lead such trainings for teachers and students.

References

Açıkgöz, K. Ü. (2003). *Etkili Öğrenme ve Öğretme*. (Dördüncü Baskı). İzmir: Eğitim Dünyası Yayınları.

Aydın, M. (2010). *İlköğretim 5. sınıf fen ve teknoloji dersinde uygulanan bellek destekleyici stratejilerin öğrencilerin erişi ve tutumlarına etkisi.* Selçuk Üniversitesi, Yayımlanmış yüksek lisans tezi, Konya.

Baran Z. (2014). *İleri Hafıza Teknikleri*. İzmir: Bilgivizyon.

Buzan, T. (2016) *Aklını Kullan: Zihinsel potansiyelinizi Kullanmak İçin Yeni Öğrenme Teknikleri.* (Çev. Emel Lakşe). İstanbul: Alfa Yayıncılık.

Büyüköztürk, Ş. , Kılıç Çakmak, E. , Akgün, Ö.E. , Karadeniz, Ş. ve Demirel, F. (2018) *Bilimsel araştırma yöntemleri* (24.Baskı), Ankara: Pegem Yayıncılık.

Dursunoğlu, H. (2010). *İlk Okuma Yazma Öğretiminde Sesi Sezdirmeye Yönelik Olarak Yararlanılabilecek Bazı Görseller.* Erzincan Eğitim Fakültesi Dergisi, Cilt-Sayı: 12-1.

Erden, M. ve Akman, Y. (1998), *Eğitim Psikolojisi "Gelişim-Öğrenme Öğretme.* Ankara: Arkadaş Yayınları.

Erginer, E. (1994). *Örenmeyi Öretmede Disiplini Gelitirme.* Eitim ve Bilim Dergisi, 94,15-21.

Er, N. (1996). *Belleğimizi geliştirmek mümkün mü?* Türk Psikoloji Bülteni, 2 (5), 100-108.

Ertürk, S. (1975). *Eğitimde Program Geliştirme.* Ankara: Orhun Matbaası

Higbee, K. L. (2012), (Çev. İrem Karay Yücel) *Hafızanızla Mucizeler Yaratın, Your Memory*. İstanbul: Yakamoz

https://sozluk.gov.tr/

Hunt, E. & Love, T. (1987). *How good can memory be?* In A.W. Melton, E. Martin (Eds.). Coding processes in human memory. New York: Winston and Sons.

Karasar, N. (2000). *Bilimsel Araştırma Yöntemi* (10. baskı). Ankara: Nobel Yayın ve Dağıtım.

Kaya, H. ve Çevik, A . (2020). *Fen Bilimleri Dersinde Kullanılan Bellek Destekleyici Stratejilerin Akademik Başarı ve Kalıcılığa Etkisi.* Eğitim Kuram ve Uygulama Araştırmaları Dergisi 6: 67-85

Kayacan, K. , Özlüleci M. ve Arslan A. (2019) *Fen Bilimleri Öğretmen Adaylarının Hafızalarında Yer Alan Bellek Destekleyiciler ve Bunlara Yönelik Görüşlerinin İncelenmesi.* Uluslararası Beşeri Bilimler ve Eğitim Dergisi, c. 5, sayı. 12, ss. 960-975.

Kayacan, K., Özlüleci, M., Arslan, A . (2019). *Fen Bilimleri Öğretmen Adaylarının Hafızalarında Yer Alan Bellek Destekleyiciler ve Bunlara Yönelik Görüşlerinin İncelenmesi*. Uluslararası Beşeri Bilimler ve Eğitim Dergisi, 5 (12) , 960-975.

Kıroğlu, Ş. (2010). *Fen ve teknoloji öğretiminde bellek destekleyici stratejilerin öğrencilerin başarıları üzerine etkileri*. Selçuk Üniversitesi, Yayımlanmış yüksek lisans tezi, Konya.

Korkmaz, Ö. ve Mahiroğlu, A. (2007). *Beyin, Bellek ve Öğrenme.* Kastamonu Eğitim Dergisi, 15(1), 93-104.

Mastropieri, M. A. & Scruggs, T. E. (1998). *Enhancing School Success With Mnemonic Strategies* , Intervention in School & Clinic, Vol. 33, Issue 4, EBSCOHOST No: 282340.

Mitchell, D.B. & Hunt, R.R. (1989). *How much effort should be devoted to memory?* Memory & Cognition, 3:337-348.

Numanoğlu, G. ve Şen, B. (2007). *Bilgisayar ve öğretim teknolojileri eğitimi bölümü öğrencilerinin öğrenme stilleri.* Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi (KEFAD). 8(2), 129-148.

Orkun, M. A., ve Bayırlı, A. (2019). *Öğrenme stratejileri ve öğretimi.* Uluslararası Sosyal ve Beşeri Bilimler Dergisi, 2(1), 64-74.

Özer, B. (2002). *İlköğretim ve Ortaöğretim Okullarının Eğitim Programlarında Öğrenme Stratejileri.* Eğitim Bilimleri ve Uygulama, 1 (1):17-32.

Pavio, A. (1971). *Imagery and verbal processes.* New York: Holt, Rinehart & Winston.

Senemoğlu, N. (2007). *Gelişim Öğrenme ve Öğretim: Kuramdan Uygulamaya.* Ankara: Gönül Yayıncılık.

Senemoğlu, N. (2011). *Gelişim Öğrenme ve Öğretim: Kuramdan Uygulamaya.* Ankara: Pegem Akademi

Şahin, H. ve Kil, G. (2018). *Yabancı dil öğretiminde bellek destekleyicilerden anahtar sözcük yönteminin öğrencilerin sözcük dağarcığını geliştirmeye ve kalıcılığa etkisi.* Abant İzzet Baysal Üniversitesi Eğitim Fakültesi Dergisi, 18 (1), 493-506.

Tay, B. (2004). *Sosyal Bilgiler Dersinde Anlamlandırma Stratejilerinin Yeri ve Önemi.* Kırşehir Eğitim Fakültesi Dergisi. 5 (2), 1-12.

Uça, S. (2010). *Matematik öğretiminde işlem sırasının kavratılmasında yeni bir yaklaşım: Mnemoni.* Yayımlanmamış yüksek lisans tezi, Adnan Menderes Üniversitesi, Aydın.

Uça, S. ve Öksüz, C . (2016) *Matematik Öğretiminde İşlem Sırasının Kavratılmasında Yeni Bir Yaklaşım: Mnemoni.* Pamukkale Üniversitesi Eğitim Fakültesi Dergisi 39: 51-67

Ün, K. (1984). *Yabancı Dil Sözcüklerinin Öğretiminde Bellek destekleyici Anahtar Sözcük Yönteminin etkililiği.* Yayınlanmamış Doktora Tezi. Hacettepe Üniversitesi, Sosyal Bilimler Enstitüsü, Eğitim Anabilim Dalı.

Yadigaroğlu, Y., Demircioğlu, D. , Demircioğlu, D . (2017). *Fen Bilgisi Öğretmen Adaylarının Kimya Bilgilerini Günlük Hayatla İlişkilendirebilme Düzeyleri.* Ege Eğitim Dergisi, 18 (2), 795-812 .

Yetkin, F. Ş. (2006). *Bilgisayarın İnsan Beyin Potansiyelinin Geliştirilmesinde Kullanılması ve Uygulaması.* Yüksek Lisans Tezi, Gazi Üniversitesi Fen Bilimleri Enstitüsü Elektronik Bilgisayar Eğitimi, Ankara.

Yıldırım, A. ve Şimşek, H. (2018). *Sosyal bilimlerde nitel araştırma yöntemleri* (11. Baskı). Ankara: Seçkin Yayıncılık.

Yıldız, A. (2004). *Güçlü Hafıza.* İstanbul: Alfa Yayınları.

Yıldız, K. (2013). *Fen ve Teknoloji Öğretiminde Bellek Destekleyici Stratejilerinin Öğrencilerin Başarısına ve Kavram Öğrenmelerine Etkisi.* Yüksek Lisans Tezi, Marmara Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul.

