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Beyond Traditional Note-Taking: High School Students' Attitudes Toward Mind Maps

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Abstract

This qualitative research aimed to explore high school students' opinions on the effectiveness of using the mind map method as a note-taking, thinking, and learning tool. The study involved 80 students from 9th, 11th, and 12th grades who were introduced to the mind map method and asked to apply it in their lessons. The results showed that the majority of the students believed that the use of the mind map method supports permanent learning, extends attention and focus time, helps to focus faster and learn easily, is entertaining, enjoyable, and motivational, saves time, and improves creativity. However, a few students pointed out that the use of shapes and painting require effort and time. These findings are consistent with previous studies and suggest that the mind map method can be an effective learning tool for high school students. The study recommends adding the mind map method to the guidance framework program and curriculum textbooks, as well as training teachers, especially guidance teachers, to enhance the students' permanent learning, attention and focus time, faster focusing and easy learning, fun, enjoyable, and increased motivation, saving time, making it easier to remember by choosing keywords, and improving creativity. Overall, this study highlights the potential benefits of using the mind map method in education and offers suggestions for its implementation to support students' learning.

Keywords: Mind map, teaching method, permanent learning, motivation, creativity

Introduction

Effective learning tools and methods have been widely researched in education, and many studies have shown that the use of such tools can improve students' academic performance and retention of information (Oz, 2014; Şener and Mede, 2022). The mind map method is one such tool that has gained attention in recent years due to its potential benefits.

The mind map method is a visual thinking tool that was developed by Tony Buzan in the 1970s (Buzan, 2002). It is a method of note-taking and idea organization that involves the use of diagrams to visually represent ideas, concepts, and relationships between them. Mind maps are created by starting with a central idea or topic and then branching out to subtopics and related ideas. Mind maps are used as a way of taking and producing notes, organizing thoughts with keywords and associated symbols and images, and clustering and summarizing information onto a sheet of paper.

Nast (2006), who stated that it is a tool for remembering easily, stated the benefits of mind maps; easy and meaningful learning, creativity, thinking, planning, organizing, motivation, having fun, recalling and remembering, taking notes, making notes, making decisions, associating and connecting, making effective presentations by easily transferring information, showing relationships, time management, business performance and more. The method has been shown to support permanent learning by helping students to organize and connect information in a meaningful way (Dabbagh & Kitsantas, 2012). Additionally, the method has been found to improve attention and focusing time, as well as enhance creativity (Najafi, McMenamin, Simon, Pessoa, 2016; Wang & Yang, 2018).

Studies have also shown that the mind map method can be an effective tool in various educational settings. For instance, in a study conducted by Gholami, Ashraf, and Ahmadzadeh (2016), the use of mind maps was found to improve students' performance in a biology course. Similarly, in a study by Aram (2019), the use of mind maps was found to enhance students' critical thinking skills in a math course.

Despite the potential benefits of the mind map method, little is known about high school students' opinions on its use. Some studies have investigated the use of mind maps in higher education settings (Dabbagh & Kitsantas, 2012; Najafi, Sadighi, and Solhi, 2015), but few have explored the use of mind

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maps among high school students. Therefore, the present study seeks to address this gap in the literature by investigating high school students' views on the use of the mind map method.

Overall, the literature suggests that the mind map method has the potential to be an effective learning tool in high school settings. However, more research is needed to understand the specific opinions and experiences of high school students regarding the use of the mind mapping method. In the light of the above-mentioned information, the aim of this study is to examine the opinions of high school students on the use of the mind map method as a note-taking/note-producing, thinking tool, and effective learning tool. For this purpose, answers were sought to the following research questions:

1. *What are the students' views on the effects of the mind mapping method on permanent learning?*
2. *What are the students' views on the effect of mind mapping method on attention and focus time?*
3. *What are the students' views on the effect of using the mind map method on creativity?*

Significance of the study

The significance of this research lies in demonstrating how mind maps can facilitate the formation of neural connections necessary for permanent learning. The use of this technique has proven to be effective in all levels of education, including higher education. It is crucial for students to receive instructor support and motivation when engaging in mind mapping activities as perspectives on the technique and the discussed topic may vary among students. Continuous feedback during the creation of mind maps aids students in monitoring their progress and developing metacognitive skills (Huba & Freed, 2000). Mind maps are a visual tool that helps organize thoughts, recall information, and facilitate multiple mental and language skills. Previous studies have explored the effects of mind mapping on attitudes towards courses, success, and permanent learning, but a holistic examination of the technique is yet to be conducted. This study aims to explore the impact of mind maps on students' creativity, note-taking/production, active listening, attention, study efficiency, time management, and attitude towards the lesson, success, and permanent learning. This study builds upon prior research by examining the overall impact of mind maps on various aspects of learning and includes studies conducted by Kelepçe (2021), Temiz (2020), Cengiz (2020), Eşmekaya (2019), Uysal (2018), Maltepe and Gültekin (2017), Pınarbaşı and Erdoğmuş (2017), and Kartal and Duran (2015).

Methods

Research Design

In this study, a qualitative research method was employed to investigate the effectiveness of mind mapping as a learning tool, specifically among male and female students in the 9b, 9c, 11d, 12a, and 12b classes of Polatpaşa High School, Cyprus. Qualitative research is typically conducted in natural settings where phenomena, events or behaviors occur, and data is obtained directly from the source to provide a detailed description and deep understanding of the context and facts. This approach aims to explore how and why phenomena and behaviors occur, and convincing generalizations are made based on the information obtained by synthesis (Büyüköztürk, 2019). A phenomenological study was conducted to gather the students' opinions about the use of mind maps as a learning tool, focusing on the data that can express the opinions of the group experiencing that phenomenon about their experiences. Moreover, the study can also be classified as action research since the researcher took an active role in teaching the mind map method to the students, collecting their opinions, and concentrating on obtaining information that will change the conditions and perspective of the particular situation under investigation (Büyüköztürk, 2019).

Study Group

This research was conducted with 80 students studying in 9th, 11^{th} and 12^{th} grades at Polatpaşa High School. There were 35 male and 45 female students in total.

Data collection tools

The data were collected by the researcher through semi-structured interview questions prepared in accordance with the purpose of the research. Semi-structured visualization technique was used as data collection tool. With this technique, both fixed answers are obtained and in-depth analysis can be made (Büyüköztürk, 2019). The following semi-structured interview questions were used:

1. What are your views on the effects of the mind map method on permanent learning?
2. What are your views on the effect of the mind map method on attention and focus time?
3. What are the effects of using the mind map method on your creativity?

Data analysis and interpretation

Semi-structured interview questions were examined and interpretation was made with content analysis. While conducting the content analysis, first all opinions were examined, then keywords were determined, a summary was drawn up and coding was applied.

Validity

In qualitative research, the concept of validity pertains to the extent to which the researcher can accurately observe and comprehend the subject or phenomenon under investigation

(Patton, 2002). In order to enhance the validity of the study, qualitative research methods such as peer assessment, seeking input from colleagues, and external audit are commonly utilized (Creswell, 2013). For the current research, efforts were made to ensure data validity by informing and seeking evaluation from both the advisor and experts in the relevant field. Furthermore, the research was designed to align with the literature and sub-objectives of the study.

Procedure

Prior to conducting the research, the researcher obtained ethical approval from the relevant committee. The mind mapping method was then introduced to students during a weekly guidance hour, spread over an 8-week period, covering both theoretical knowledge and practical applications. The students were given opportunities to work individually and in groups to apply the method in a classroom setting. Finally, the students' perceptions of the mind map method in facilitating learning were captured through semi-structured interviews. Data from the interviews were analyzed using content analysis and coding methods, and the findings were summarized in tabular form.

In the first lesson, the history of the mind map and the characteristics of the right and left brain were discussed, and short-term memory work was done. In the second lesson, memory, memory, creativity and the rules of mind map were mentioned, and the binding technique was applied. The students explained the application to each other and the importance of explaining the information in our own words was mentioned. In the third lesson, 12 memory techniques were explained. In the fourth lesson, how to choose a keyword from the story and how to place it on the mind map was practiced. In the fifth lesson, group work and information about 12 memory techniques were placed on the mind map by selecting key words and the presentation was made by the group. A video was shown about how to learn while listening to the sixth lesson, how to take effective notes while listening to the lesson, and how to place the notes on the mind map, and a mind map was drawn from the notes taken. The mind map of the seventh lecture notes was made. The mind map was extracted from the longer lecture notes of the eighth lesson. Finally, the semi-structured interview questions were shared with the students and asked to answer them.

The objectives of each session:

Session 1: To teach all students the necessary theoretical knowledge about mind maps and their importance.

Session 2: To provide students who are interested in learning with the necessary theoretical knowledge to make knowledge permanent in their long-term memory.

Session 3: To provide students with the necessary theoretical knowledge about how to use their memory in the most effective way.

Session 4: To teach students how to reduce unnecessary information and place only necessary information on a mind map in a practical way.

Session 5: To experience theoretical knowledge in practice through group work.

Session 6: To teach students how to take active notes while listening to any subject.

Session 7: To be able to apply the knowledge they have learned about the mind map method in their lecture notes.

Session 8: To be able to apply the knowledge they have learned about the mind map method in longer and more complex lecture notes.

Findings

The findings of the research are presented below, respectively. The first research question was to examine the student's views on the effects of mind mapping method on permanent learning. Table 1 represents the keywords of answers of students for this question.

When the answers of the students participating in the research to the first question about the effects of the mind mapping method on permanent learning were examined, the statement "supports permanent learning" came to the fore the most. In addition, in the opinions of some students about the effect of mind map on permanent learning, it was seen that most of them emphasized that it saves time, provides success, permanence in memory, fast learning, facilitating learning, being fun, and keeping it in mind. They also stated that shapes and colors are permanent in their minds and that it is an effective method because it helps to work well.

The second research question was to examine the student's views on the effects of mind mapping method on attention and focus time. Table 2 represents the keywords of answers of students for this question.

When the opinions of the students participating in the research about the effect of the mind mapping method on the attention and focus time are examined, it is seen that most of the students use the expression "it prolongs the attention and focusing time". In addition, the second most used phrase "helps focus faster." is the expression. In addition, it was stated that shapes and colors provide rapid focus, increase memory and thought time, provide imagination and permanence, are reminders, and it is pleasant to use paint. In addition, it is useful for making a summary, it has a positive effect, it teaches a lot in a short time, it helps to work efficiently with full focus without distraction, it takes a long time to understand any subject, but with this method it helps to solve the question in a few minutes, it helps to remember, to real-life events.

There were students who stated that it was remembered for a longer time when an analogy was made, that it attracted attention because it was fun, and that it helped comprehension in a shorter time.

The focus of the third research question was to investigate the stdents views on the effects of mind mapping method on their creativity. Table 3 represents students views on this question.

When the answers given by the students participating in the research to the question about the effect of using the mind map method on creativity are examined, it is seen that the majority of them use the expression "It has improved our creativity". In addition, the other most used expressions are that it has a great benefit, supports visual intelligence, and has a great benefit. It has also been stated that it helps to keep more things in mind, helps to raise grades, provides focus, increases imagination and creativity with colors and shapes, improves senses and feelings, and helps to remember the word by stimulating the imagination. In addition, they expressed the opinion that it makes life easier, that recognizing key words and shapes better affects drawing, thus enabling better learning, helping to learn more quickly and prolonging the retention time. . All the answers given are in the direction that the use of the mind map method is beneficial.

Discussion

The use of mind mapping as a learning strategy has been widely debated and explored in recent years. The findings of a research paper on the effects of mind mapping on permanent learning reveal that students' opinions on this approach are largely positive. The majority of students participating in the research emphasized that mind mapping supports permanent learning and that it has a range of benefits, including saving time, facilitating learning, and making the learning process fun.

One of the most interesting findings of the research is that students feel that mind mapping helps them to work more effectively. This is an important consideration for educators who are looking for ways to enhance student engagement and motivation. By providing students with a tool that enables them to organize and visualize information, they are able to work more efficiently and with greater focus.

Another benefit highlighted by students is that mind mapping saves time. This is particularly important in today's fast-paced learning environments, where students are often expected to learn and retain large amounts of information in short periods of time. By using mind maps, students are able to condense information and identify key points more quickly, which allows them to spend more time on other important tasks.

Students also emphasized the role that mind mapping plays in facilitating permanent learning. By using shapes and colors, they find that information is more easily retained in their memory. This is an important finding as it highlights the potential for mind mapping to enhance long-term retention of information, which is critical for academic success.

Table 1: 'What are your views on the effects of the mind map method on permanent learning?' answers to the interview question

Keywords	*Frequency*
Supported permanent learning	57
Affected positively	15
Allows us to learn faster	14
Increases the imagination	13
Helps us to be succesful	9
It is time effective	8
Helps to learn easier	5
Permanence in memory	4
Helps us not to forget	3
Learning more information in less time	2
Very helpful	2
Makes it easier and more fun	2
Makes us more organized	1
It is effective	1
Helpful in achieving success	1
Helps us study easier	1
Summarizing with colors, it becomes permanent in our minds	1
To be able to summarize in our own words	1

Table 2: Responses to their views on the effect of the mind map method on attention and focus time

Keywords	*Frequency*
Prolongs my attention and focus	48
helps you focus faster	13
I learn faster because it draws attention	6
I focus more because it attracts attention	5
I think it supports my attention span as there are shapes and colors	5
It draws attention because it is fun	2
Memorable	2
Summing up helps us	2
Faster focus due to shapes	2
allows us to grasp in a shorter time	2
puts in order	1
It stays in our minds longer when compared to real-life events.	1
It helps to remember	1
It allows us to solve the question in a few minutes	1
It helps to work efficiently with full focus without distraction	1
Has a positive effect	1
It becomes memorable with painting and imagination.	1
Shapes and colors improve memory and thinking time	1

Table 3K Responses to their views on the effect of mind map method on their creativity

Keywords	*Frequency*
It enhanced our creativity	41
It was of great benefit	8
I think it supports my visual intelligence	7
It has a nice positive effect	6
It has been an amazing benefit	5
Fun in our minds	4
Developed our senses and feelings	3
Provided permanent learning	3
There's more on our minds	2
It brought focus	2
Our imagination and creativity increased with colors and shapes	2
Opens our minds	2
Keywords affect drawing and recognizing shapes better	1
Allows us to learn better	1
We learn lessons quickly	1
Our memory improves and our retention time increases	1
We remember the word by stimulating our imagination	1
Allows us to use our imagination	1
Allows us to learn easily and more effectively	1
Has a positive effect	1
It allows me to use logic better	1

In conclusion, the findings of this research paper suggest that mind mapping is a valuable learning strategy that has a range of benefits for students. It supports permanent learning, saves time, facilitates learning, and makes the learning process fun. Educators should consider incorporating mind mapping into their teaching strategies, as it has the potential to enhance student engagement, motivation, and academic achievement.

Within the framework of the researches in the literature; As a result of Özdemir, Alaybeyoğlu, and Balbal's (2018) research, it was concluded that the mind map technique provides the most easy learning and repeating when looking at what students have achieved. Students stated that as the advantages of the technique, it helps to understand the subject very well, that it is easier to repeat the lesson over the mind map, and that it is fun and enjoyable. According to the qualitative findings obtained as a result of the study conducted by Bayık (2016), it was seen that the students mostly emphasized the permanence of information, entertainment, self-expression and interaction categories. As a result of the research carried out by Çelik(2016), the favored aspects of the mind map are; as visual expression with symbols and pictures, cooperation, to summarize information on paper with keywords, to color with associations; their contribution to the learner; cognitive effects, affective effects, active participation in the lesson and increased motivation in the lesson. The results of Yunus and Chien's (2016) research showed that most of the students had positive perceptions about the use of mind mapping strategy to improve their writing skills.

The use of mind mapping as a learning strategy has been shown to have a positive impact on students' attention and focus time. The opinions of the students participating in the research reveal that mind mapping not only prolongs attention and focus time, but also helps students to focus faster. The use of shapes and colors is cited as one of the main reasons for this, as they provide a visual stimulus that promotes rapid focus and increases memory and thought time.

In addition to its impact on attention and focus time, students also report that mind mapping has a range of other benefits. For example, it helps to promote imagination and permanence, and serves as a useful reminder of important information. Additionally, many students find the use of paint in mind mapping to be pleasant and enjoyable, which further enhances their engagement with the learning process.

Another important benefit highlighted by students is that mind mapping enables them to work efficiently with full focus, without distraction. This is particularly important in today's fast-paced learning environments, where students are often faced with a range of distractions that can make it difficult to maintain focus. By using mind mapping, students are able to streamline their learning process and achieve greater levels of efficiency.

Students also report that mind mapping helps them to learn more in a shorter period of time. This is due to the fact that mind maps enable students to summarize information in a clear and concise manner, which makes it easier to understand and remember. Additionally, many students report that mind mapping helps them to solve questions more quickly, and that it has a positive effect on their ability to remember information.

Overall, the findings of this research suggest that mind mapping is a valuable learning strategy that has a range of benefits for students. It promotes attention and focus time, increases memory and thought time, and helps students to work efficiently and learn more in a shorter period of time. Educators should consider incorporating mind mapping into their teaching strategies, as it has the potential to enhance student engagement, motivation, and academic achievement.

The results of the research also indicate that the use of the mind mapping method has a positive impact on creativity. The majority of the students participating in the research reported that using mind maps has improved their creativity. This finding is in line with previous studies that have shown that mind mapping can help to promote creativity by encouraging students to make new connections and think outside of the box.

In addition to its impact on creativity, students also reported that mind mapping has a range of other benefits. For example, it helps to support visual intelligence, which can be particularly important for students who struggle with traditional text-based learning. By using colors and shapes, mind maps provide a visual stimulus that can help to improve understanding and retention of information.

Furthermore, students reported that mind mapping helps them to keep more things in mind, which can be useful for complex or multi-step tasks. This, in turn, can lead to improved grades and greater academic success. Mind mapping has also been shown to increase imagination and creativity, which can have a positive impact on other areas of life beyond academics.

Students also reported that mind mapping helps them to remember words and concepts by stimulating their imagination. This is because the use of colors and shapes in mind maps can create associations that make information more memorable. In addition, mind mapping has been shown to make learning easier by helping students to recognize key words and shapes, which can then be used to create visual aids or drawings that enable better understanding.

Overall, the findings of this research suggest that the use of mind mapping as a learning strategy can have a range of benefits for students, including improved creativity, visual intelligence, and retention of information. Educators should consider incorporating mind mapping into their teaching strategies to help students achieve greater levels of engagement, motivation, and academic success.

As a result of mind map applications, Şeyihoğlu (2013) stated that the technique accelerates and facilitates learning, thus increases success, ensures that the learned information is permanent, makes the lesson enjoyable and enjoyable, contains a certain order and order, facilitates the organization of information, Summarizing the topics with key words, it has been revealed that it emphasizes the aspects of making the whole page easier to see, simplifying the intense topics in the course, enriching the course with the use of creativity, and visualizing the course with connotations. As a result of Yetkiner (2011) research, It was determined that the experimental group students developed more positive attitudes towards the lesson, they enjoyed creating mind maps, and they wanted to use mind maps in different lessons. In the study conducted by Özdemir, Alaybeyoğlu, and Balbal (2018), when students were asked about the problems they encountered while applying the mind mapping technique, most of the students did not encounter a problem, some students found it difficult to draw and place shapes, and a few students had to rework the subject. stated. When the answers given by the students to the disadvantages of the technique were examined, some students stated that it took a lot of time and it was difficult to find keywords and draw shapes.

Conclusion and Recommendations

In this study, the opinions of high school students about the use of the Mind Map method are included. When the opinions are examined, it is seen that the mind map method has a positive effect, it supports and provides the most permanent learning, it stays in the mind more, it saves time, it prolongs my attention and focus time, it is very enjoyable and motivation-enhancing, because we choose keywords that are easy to remember, fast learning. It has been seen that emphasis has been placed on the aspects that enable us to be successful, increase our imagination, prolong our active listening time, and reduce our anxiety level.

Academic success, permanence, attitudes and effects of mind maps have been proven by research. When we look at the studies in general, it was seen that the students' views on the use of mind maps were positive. The dissemination of mind maps and similar applications in the learning and teaching process is considered important in terms of ensuring meaningful and permanent learning. In addition, mind maps can be used to probe prior learning, detect incorrect and incomplete learning, and facilitate remembering information and concepts and the relationship between them. Mind mapping can provide teachers with feedback on students' mental structures and the development of their mental structures. In addition, teachers need to know how to teach the mind map technique and how to associate mind maps in their lessons. It is necessary to determine what kind of information can be depicted with mind maps and can be added to the curriculum of the books, at the end of each required section. For this, cooperation can be established with the necessary authorities to provide awareness and practical training to teachers. In order to increase the usage area and practice time of the mind map, the technique is first taught to the teachers and then taught to the students, preparing the ground for its application in all lessons, and conducting the research will give us results in a wider scope.

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