

## Opinions of the Primary School Teacher Candidates Toward Mind Mapping

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**ABSTRACT** The pre-service primary school teachers' views on mind mapping technique were tried to be determined. An interviewing method within the framework of qualitative research was used, which was based on phenomenological research design in this paper. Research was carried out amongst a working group consisting of 4<sup>th</sup> grade prospective teachers who studied in the academic year of 2013-2014 at Ondokuz Mayıs University Faculty of Education Department of Primary School Teaching. Participants consist of 11 female and 9 male teachers, including a total of 20 prospective teachers. According to the results, it was determined that the pre-service teachers did not have any knowledge about mind mapping technique. However, they wanted to use this technique in their professional life. They also said that they enjoyed making mind maps and found these maps useful. It was observed that there were some difficult parts of mind mapping such as painting, finding keywords and branching.

### INTRODUCTION

“Globalization” which has become popular with technological developments in last decades, necessitated a change and a transformation from education to health in whole parts all over the world. It does not matter where one is in the world, the generated information spreads across the world in short time. Therefore, this mutual effect brings along the changing of lifestyles to education conditions in whole parts (Korkmaz et al. 2013: 156). In these periods of change, every society tries to require their people to age. Beside this, the society tries to transfer their culture necessarily to the next generation. With this point of view, the factors of “education” and the “teacher” who provides this education stand out.

Teachers are architects of society who prepare it for the changing world and shaping the future. Therefore, the teachers' education is an important part of the education system. It is substantial to educate “well-equipped pre-service teachers” for the society, who have skills in this developing and changing world (Moulding et al. 2014). When one thinks that teachers are opera-

tors of the exercises or programs in the classroom, it will be better understood to educate qualified pre-service teachers (Gomleksiz 2007: 72; Beldag and Yaylaci 2014: 91). In this point of view, it could be said that educating primary school teacher is the most important thing for the education system.

With the new curriculum, which was prepared in 2005, the changing world and it's influence spread to Turkey and when put in practice, teachers took on a new role as “guides”. It was aimed to educate pre-service teachers as “guides” according to the new curricula. Education faculties are the first places where the guides of next generations are trained and they practice different methods and techniques. This guidance's first practice will take shape with the knowledge, which is acquired from education faculties. It is important to educate pre-service teachers who have modern qualities and ascertain that they are well equipped for their professional life. Especially, since they might face some difficulties in their professional life if they have deficiencies in their methods and techniques. At this point, it is aimed that pre-service teachers underutilize the new methods and techniques in classrooms.

Mind maps are techniques, which provide for both hemispheres of the brain effectively (Fig. 1). It has been stated that when both hemispheres work in cooperation, it affects the general abilities and study capacities positively because the

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brain works differently from standard mathematics and also, effective results may occur when both hemispheres of the brain work together (Richardson 2011).

From this point of the view, it might be said that this circumstance provides a basis of meaningful learning. Mind maps are coherent with the brain's natural structure and because of this, it is easy to use these maps in different stages including making plans (daily, weekly or monthly), taking notes, defining strategies about projects, summarizing books, issues and papers, giving presentations, brainstorming, lecturing and studying (Buzan 2009; Gur and Butuner 2008). Despite the use of this technique across almost all fields, it is confused with concept maps (Kartal 2011: 43).

When the literature was examined, generally it was seen that the mind mapping technique is used at in a lot of different fields, like lessons and teaching subjects (Chan 2004; Aslan 2006; Abi-El-Mona and Adb-El-Khalick 2008; Camli 2009; Kartal 2011; Jbeili 2013; Saelan and Purwarianti 2013; Somers et al. 2014; Luke et al. 2014), and it is used as a tool to determine the misconceptions (Turan and Kartal 2012; Kartal and Turan, 2015). Seyihoglu (2013) searched the prospective geography teachers' opinions about using mind maps. But in the literature there is no study pertaining to the prospective primary school teachers' opinions. Such a study could

perhaps compensate the deficiency in the literature. As a result of this, the problem stated in the research is as follows.

*What are the prospective primary school teachers' opinions about the mind mapping technique?*

The researchers list the sub-problems that the teachers were questions about and are connected with the main problem of the study as follows.

1. Have you ever used the mind mapping technique before? Do you use this technique during your professional life then? Why?
2. What are the characteristics of the mind maps you liked? Why?
3. What are the characteristics of the mind maps you disliked? Why?
4. How does using this technique in the classrooms affect the training process? Why?
5. In which classrooms can this technique be used effectively at the primary school level?

## METHODOLOGY

### The Method of Study

The research is a qualitative study with a phenomenology design. Phenomenology defines the common meanings of a few people's experiences that lived a particular phenomenon (Creswell 2013: 77). In the studies that the phenome-

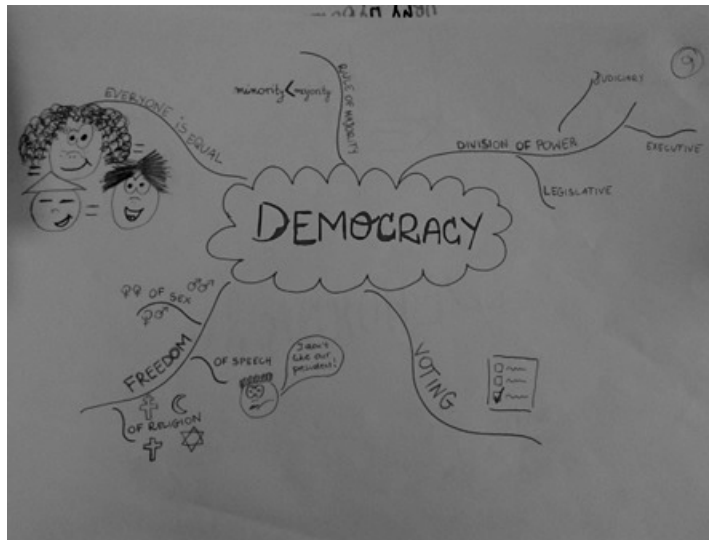


Fig. 1. An example of mind map

nology was used in, the participants are the individuals who lived this phenomenon on his/her own or can show this on the outside (Yildirim and Simsek 2008: 72). In this research the primary school teachers' opinions about the mind mapping technique were detected and interpreted.

### **The Participants**

Twenty prospective teachers (11 female and 9 male) studying in the 4<sup>th</sup> class of Ondokuz Mayıs University Education Faculty Primary School Department in the 2013-2014 academic year joined this study as participants. To select the participants, a convenience sampling method was used. This sampling method gives rapidity and practicality to the study (Yildirim and Simsek 2008: 113).

### **The Data Collection Tools**

Eight semi-structured interview questions were used as the data collection tool. These questions were prepared to take the opinions of the prospective primary school teachers about the mind mapping technique and were presented to four authorities' opinions (1 lecturer from education faculty, 1 lecturer and 2 doctoral students from primary school teachers department). The questions were then arranged to align with the authorities' opinions and this was the final format used in the study.

### **Collecting the Data and Analysis**

The data of the study was collected in the 2013-2014 academic year. During the enforcement stage of the study, firstly, prospective teachers were informed about using the mind mapping technique. The following steps during the informing process were followed: information about the mind mapping technique for 2 hours, 1 for theoretical and 1 for practical information, was told to prospective teachers. The examples about mind mapping from different subjects were showed to prospective teachers (Fig.1). Later, this technique was used by prospective teachers in a subject of their choice from the primary school lessons. After the enforcements, the prospective teachers were interviewed. During the interviews, by using a recorder, the problems that could be lived when the data was being recorded were tried to solve. The total period of the recording was about 2.5 hours. With the aim of

having more reliable interviews, every easier way was tried to provide prospective teachers enough time. After a transcription of the voice records, to provide the accuracy of the writings, the data was listened to once more.

The data of the study was analyzed using content analysis from the qualitative analysis techniques. In the qualitative researches, the basic procedure in content analysis involves putting together the data that looks similar in accordance with codes and themes, and organizing and interpreting comprehensibly this data by readers (Yildirim and Simsek 2008). For this purpose, in the study, the prospective teachers' opinions were presented for the aim of comprehending the codes and themes better.

For the reliability of the study, after transcription of the interviews, the data was coded by three independent and the outcomes were compared. It was ensured that the codes were consistent. As such the codes were made as a collective point of view, far away from the misunderstanding. The consensus of the researchers' opinions was ensured to form the themes by determining the principals of the relations between the codes. Especially the dissimilarity between the codes that are in any theme was paid attention to. The advices of the authorities that are in the faculty were taken regarding all the codes and themes on which the researchers were of the same opinion. It can be thought that staffing the researchers at the same university that the research was enforced in, can contribute positively to the interviews in a dependable atmosphere. It can be said that this condition raises the reliability of the research.

## **RESULTS**

The data from the interviews was acquired by enforcing the research arranged in codes and themes on the computer. The results relating to the sub-problems are presented below.

### **Findings Related to the First Sub-problem**

The prospective teachers' answers to the question, "Have you ever used the mind mapping technique before? Do you use it in your professional life? Why?" are presented in Table 1.

As it is seen in Table 1, 15 prospective teachers did not use the mind mapping technique before. The number of teachers who used this technique is five. The opinions of prospective teachers about the subject are as follows.

**Table 1: The analysis of the prospective teachers to the question of “Have you ever used the mind mapping technique before? Do you use it in your professional life? Why?”**

	Themes	Codes	Repeating pre-service teachers	f	%
<i>Have you ever used this technique before?</i>	<i>I haven't used it</i>	I have never used	1,2,4,7,8,9,10,11,12,17,20	11	55
		I know it as a concept	5,13,14	3	15
		I heard it Public Personnel Selection Exam	10	1	5
	<i>I have used it</i>	In science and technology lesson	3,15	2	10
		In environment and ecosystem lesson	16	1	5
		In method and technique lesson	19	1	5
<i>Do you use it in your professional life? Why?</i>	<i>I use it</i>	I have enforced it	18	1	5
		The freedom of expression	9,10,12	3	15
		Completing	5,18,19	3	15
		Interesting	6,8,9	3	15
		Thought provoking	6,8,13	3	15
		Easily remembered	7,8,11	3	15
		Reflecting person	2,3,17	3	15
		Funny	1,9	2	10
		For the construction of the lesson	14,16	2	10
		For the classroom	16	1	5
		Concretizing	15	1	5
		Giving meaningful	11	1	5
		Useful	20	1	5
		Making easier	4	1	5
Establishing relationship	7	1	5		

P4: “I did not use it on my own before. We were on a training course last year. We didn't see the teachers who used it because of we were only observer.”

P9: “I didn't use this technique but I used things like that. For example, I have coded something. I have made it on hard subject and items.”

All of the prospective teachers stated that they want to use mind-mapping technique during their professional life. But they explained their sensitiveness about this subject by mentioning different ideas. The examples of the prospective teachers about this topic are,

S12: “It can be used. You have to be professional. We have to provide their comfort to reflect their thoughts better and it requires more time. It is not a quickly feasible technique.”

#### Findings Related to the Second Sub-problem

In Table 2, the themes, which were indicated as the most attractive side of mind maps by prospective teachers are grouped under two headings as “Entertaining” and “Useful”. The examples of the opinions of the pre-service teachers to the issue are,

P3: “Be colored...Multi colored. Colorful. You can see many things when you looked at and very different things can be come up. Someone else did the thing, which you never thought. Because of this it is entertaining and I love this side.”

The example of pre-service teachers' opinions to the theme “Useful” is,

P18: “It is entertaining to write everything which came to my mind”.

#### Findings Related to the Third Sub-problem

Table 3 states the answers of the pre-service teachers to the question, “What is the disfavor sides of the mind map? Why?”

As seen in Table 3, unfavorable sides of mind maps are grouped under the “difficulty” theme. The examples of the opinions of the pre-service teachers to the issue include,

P16: “Yes, there are disfavor sides. For example it is hard to think at first side, how you can branch all of these thoughts. How I can pour all thoughts to paper. It is hard to draw. May be concepts will be hard for pupils, if the concept is abstract.”

**Table 2: The analysis of the prospective teachers to the question of “What is the most attractive side of mind mapping technique? Why?”**

Themes	Codes	Repeating pre-service teachers	f	%
Entertaining	Colors	3,6,8,13,20	5	25
	Painting	5,8,11,12,13	5	25
	Drawing	2,11	2	10
	Coloring	1	1	5
Useful	Freedom of expression	9,10,12,14,17,18	6	30
	Thought-provoking	6,16	2	10
	Overarching	7	1	5
	Grouping	4	1	5
	Practical	15	1	5
	Relaxing	19	1	5

P15: “I have no ability to paint. Actually I have ideas but I cannot to paint of them. It is the hardest part of mind maps for me.”

**Findings Related to the Fourth Sub-Problem**

Table 4 states the answers of the pre-service teachers to the question Table 3 states the answers of “How does it affect the education status to use this technique in the classroom? Why?”

As seen in Table 4, it is determined that two topics namely, “positive” and “negative” affect the use of the mind mapping technique as an educational status in the classroom. The examples of the opinions of the pre-service teachers to the issue: P1:

“I think it affects positively. Because we always say that all exercises should be student-centered. It is nice to connect with student one-to-one. This technique can be used as a group exercise. It can be showed on board. Children can see their works at there.”

**Table 3: The analysis of the pre-service teachers to the question of “What is the disfavor side of the mind map? Why?”**

Themes	Codes	Repeating pre-service teachers	f	%
Difficulty	Painting/Drawing	9,11,15,16,17,19,20	7	35
	Concentrating to Concept	2,4,7,8,18	5	25
	Only One Key Word	3,6,11	3	15
	Branching	4,16	2	10
	Concept	10,13	2	10
	Lack of knowledge (About technique)	1	1	5
Not Difficult	-	5,12,14	3	15

**Table 4: The analysis of the pre-service teachers to the question of “How does it affect the education status to use this technique in the classroom? Why?”**

Themes	Codes	Repeating pre-service teachers	f	%	
Positive	Information/Seeing deficiencies	1,2,3,6,12,14	6	30	
	Assessment	6,7,10,18,20	5	25	
	Entertaining	5,10,11,19	4	20	
	Preliminary Information	3,18,20	3	15	
	Teaching to teach/Easy Learning	9,15	2	10	
	Repetition	14	1	5	
	Increasing self-esteem	16	1	5	
	Making connection	13	1	5	
	Immediate feedback	12	1	5	
	Remarkable	8	1	5	
	Permanent	11	1	5	
	Negative	Against constructivism	17	1	5
		No innovation	5	1	5



Two people thought that this technique could affect the educational status in the classroom negatively. They said that they were against constructivism and this technique did not represent any innovation.

### Findings Related to the Fifth Sub-problem

Table 5 states the answers of the pre-service teachers to the question, "Can this technique practicable in which elementary grade (or grades)? Why?"

As seen in Table 5, the views of pre-service teachers are grouped by "4<sup>th</sup> Grade", "3<sup>rd</sup> Grade", "2<sup>nd</sup> Grade", "1<sup>st</sup> Grade", "All Grades" and "None Grades". The examples of the opinions of the pre-service teachers to the issue are,

P12: "I think it can be used at 1<sup>st</sup> Grade but more practical in 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> Grades. Even it can be more useful at 4. Grade because these mind maps can widen horizons."

P13: "I think it is suitable for 3<sup>rd</sup> and 4<sup>th</sup> Grades because there must be some knowledge inside your mind. At 1<sup>st</sup> and 2<sup>nd</sup> Grades do not ready for these."

P17: "I cannot use it any of elementary grades and it cannot be used."

## DISCUSSION

The purpose of this study is to reveal the opinions of pre-service teachers on using the

mind mapping technique. According to the findings, it was determined that a great majority (80%) of pre-service teachers have not used the mind mapping technique before. The rest of them were familiar with this technique just in theory or only as a concept. These findings are parallel with Seyihoglu and Kartal (2010) and Kartal's (2011) works, which related to the lack of knowledge about mind mapping techniques. Pre-service teachers also said that they wanted to use this technique in their professional life. The reason of this view might be that it is an interesting and entertaining technique and also it allows freedom of expression. Indeed, mind mapping is referred to in literature as an entertaining technique, which is an individual's own information written down on paper with color and paint (Benet and Rolheiser 2001; Buzan and Buzan 1993; Buzan 2008, 2009; Simonova 2015). Also, it might have been said that pre-service teachers are willing to teach and perform the new techniques.

Pre-service teachers indicated that they had fun when they were working with mind maps and also this technique benefited them. Especially using colors and paintings might have been benefited in learning courses livelily. Indeed, the same results are seen in studies in literature, which have been conducted earlier (Seyihoglu 2013; Tarkashvand 2015). Also, these results are parallel with Gelb's (2002: 112) view that, "Col-

**Table 5: The analysis of the pre-service teachers to the question of "Can this technique practicable in which elementary grade (or grades)? Why?"**

Themes	Codes	Repeating pre-service teachers	f	%
4 <sup>th</sup> Grade	Science Studies/Concepts	4,16,20	3	15
	Effective expression	3,5,12	3	15
	Imagination	12,15,19	3	15
	Knowledge	13,18	2	10
	Turn abstract to concrete	6	1	5
	-	11	1	5
3 <sup>rd</sup> Grade	Visual/Imagination	9,12,15,19	4	20
	Rich concepts	10,16	2	10
	Effective expression	3,5	2	10
	Knowledge	13	1	5
	-	11	1	5
2 <sup>nd</sup> Grade	Visual/Imagination	9,12	2	10
	Rich concepts	10	1	5
	Self-expression	8	1	5
	Concretization	1	1	5
	-	11	1	5
1 <sup>st</sup> Grade	Concretization	1,4,12	3	15
	Self-expression	8	1	5
	Colorful expression	6	1	5
	-	11	1	5
All Grades	-	2,3,6,9,14,16	6	30
	Towards visual intelligent	7	1	5
None Grades	Breaking integrity of course	17	1	5

ors, images and keywords, which are three basic components of mind maps are better adopted by the brain rather than sentences.”

It was determined that mind maps challenged pre-service teachers with finding keywords, paint and branching. Also, some pre-service teachers said that they did not have enough knowledge about the technique, due to which it was hard to make mind maps at first. A great majority of pre-service teachers (90%) thought that the mind mapping technique had a positive effect on classroom exercises and its educational background. Especially they taught that it could be more useful to overcome the deficiencies and misconceptions of students and as an entertaining technique, it could make learning easy. Also, it was stated that this technique was interesting and could ensure permanent learning by connecting ideas. They said that this technique could be used as an assessment step. These findings are parallel with the other studies, which state that mind maps contribute in connecting and making sense of knowledge (Mueller et al. 2002; Kortelainen and Vanhala 2004; Cryer 2006). Pre-service teachers defended that the mind mapping technique could be more useful for 3<sup>th</sup> and 4<sup>th</sup> Grades. It was thought that the pre-service teachers' views resulted from the fact that 3<sup>th</sup> and 4<sup>th</sup> Grades students had more life and knowledge experiences. However, it was known that the mind mapping technique could be used with every age group easily using a teachers' guide (Buzan and Buzan 1993; Guo 2014).

### CONCLUSION

It can be asserted that the mind mapping technique has not been taught properly in faculties of education or there might have been a lack of instructions. In this study, the study group consists of four participants. The grade students' pre-service teachers as they are preparing for KPSS (an assignment exam for teachers in Turkey). Therefore, they might have been focused on theoretical knowledge rather than practice and for this reason they have deficiencies in practice with the mind mapping technique. When considered from this point of view it might have been said that pre-service teachers prefer learning tools, which provide colors and paintings. Besides this, they said that this technique is entitled to procure free expression, to help interpretation and practical. Consequently, it could be

said that the mind mapping technique highlights individual differences. According to the findings, it could be said that pre-service teachers support to use mind maps as an alternative assessment and evaluation method.

### RECOMMENDATIONS

According to the results, it is suggested that giving instructions to pre-service teachers in the courses of “teaching practice” to use different techniques every week. Also, it might be beneficial to get weekly reports from pre-service teachers besides a CD (10-15 minutes of course shoot) with this report to give feedback for. It could be suggested that pre-service teachers make some basic drawing exercises in art courses and improve themselves. Also the use computer-aided versions of the mind mapping technique can be suggested. It is suggested that pre-service teachers conduct exercises with this technique with different age-groups.

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