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Procedia - Social and Behavioral Sciences 174 (2015) 1859 – 1866

Procedia
Social and Behavioral Sciences

INTE 2014

An application regarding the availability of mind maps in visual art education based on active learning method

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Abstract

This study is conducted in order to inquire about the availability of mind maps in Visual Arts Education lessons which are performed based on active learning methods. It's applied on 3nd grade students taking course of Special Education Methods lesson in Marmara University Ataturk Education Faculty Fine Arts Education Department. 20 students who have similar success averages are selected from 40 people classroom as 10 of them for group control and 10 of them for experimental group. Traditional method is applied to control group and active learning method is applied to experimental group.
At the end of the course, mind maps are applied as a final test on both groups. In this research, content analysis and semi-experimental methods are used. The mind maps are finalized by coding, students' opinions are taken.

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Peer-review under responsibility of the Sakarya University

Keywords: Visual Arts Education; Mind Map; Active Learning Method

* This research has been supported by Marmara University Scientific Research Project Committee under Project number EGT-D-120514-0208

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Peer-review under responsibility of the Sakarya University
doi:10.1016/j.sbspro.2015.01.848

1. Introduction

Recently, it can be seen that students in primary and secondary actively participate in the learning process of education in our country. The reason for this different is that teaching methods and techniques have been replaced in almost every course. If we look at visual art education classes today still continue to use traditional learning methods, in which the teacher is in the center, devoid of artistic culture, only do the practical work. The application studies which have been done without question as only for homework are seen as not satisfactory by today's students which grows very versatile. Firstly, knowledge is required for occurrence of creative imagination and to do original work. Student who established infrastructure with the knowledge will be willing and will reveal more original and creative work. He will be able to question and express the intellectual dimension of the resulting jobs. Therefore, visual arts education classes should be carried out with the theory and practice work by supporting each other along. Theoretical knowledge will create a art culture and he will be able to use this information in future life.

To ensure retention of knowledge in visual arts education classes it is required to support the content of the lesson with the application and it should be used student-centered active learning methods, pre-test and post-test. Considered in this way in a course, the student will take note of the information to make permanent. Note-taking is one of the mind maps in visual arts education courses use both verbal and visual skills important and can take place in a fun way.

Mind mapping was developed for the first time as a note-taking techniques by Buzan who is a mathematician, psychologist and brain researcher. Buzan express that mind map is used as an attempt to improve their mental strength. (Yumuşak, 2013)

According to Townsend (2003); right - left-brain connection made mind maps as highly effective technique. Our ability to learn increases as long as two hemispheres of the brain work in harmony. If one has difficulties in learning, this is usually caused in not connection with each of the two halves of the brain. When left and right halves of the brain communicate better, information can be learned and remembered much more with the current situation. (Karadeniz, Tangülü, Faiz, 2013)

According to Trevino, when viewed from this perspective, the mind map technique that will allow students to learn while having fun can be as modern and effective techniques; technical implementation of the use of colors and pictures can be effective in ensuring the permanence of the information. (Şeyihoğlu, Kartal, 2013)

These techniques ensure that students develop a positive attitude towards the lesson of the next, the application is easy and fun for teachers may be an alternative technique (Buzan 2009).

Traditional note taking method consists of sentences. In the method of note-taking with mind maps, it is formed by key words, symbols, images and words which are composed of arms of the main themes. It is a summary of information formed with keywords. Does not consist of sentences, it is a conversion of our mind to figures, pictures and words. It should be formed by pictures and symbols. This case is important for the development of mental abilities.

There are four important characteristic of mind mapping

1. Attention to topic is provided by a central picture.
2. The main themes of the subject spread from the branches of the picture in the center.
3 Branches contains pictures or words written on the lines associated with a key.
4. There is a structural relationship between the branches. (T. Buzan, B. Buzan, 1994)

Due to these characteristics when making mind maps there is a movement from all to the parts. When creating the main concept and parts separated from it, a previously unnoticed connection between them can also be detected.

It is possible to express that this method opens the brain to learning by ridding obstacles such as monotony, frustration and poor self-esteem and also allows the concentration and creativity. (Shafer, 2003)

Mind mapping technique is focused on using almost all of the characteristics of the human brain, ie, it is modeled our brain which left lobe works with words, right lobe works with images. (Brinkmann, 2007)

Therefore improve our mental faculties as to ensure the permanence of learning is by appealing to all the senses. With this idea, the study of the mind map is also conducted to inquire the availability in Visual Arts Education lessons. Pre-and post-test as a mind map are used to measure whether learning gains occurs in Visual Arts Education Lessons based on active learning Results are shared with teacher candidates, mind maps have been discussed on the requirements.

2. Problem

It has been seen as a problem that not paying enough interest for techniques and methods in practical which will be ensure motivation of students, not given enough space to arts culture in practice-based lessons, not measuring the gains in visual art lessons which is carried out with traditional learning methods.

3. Objective:

It is intended that mind maps can be used as a method and technique, and can also be used as a method measure gains in Visual Arts Education Lesson to teacher candidates.

4. Sampling and limitations:

This study is limited with the 3nd grade students of the Marmara University Ataturk Education Faculty, Fine Arts Department, Special Teaching Methods-1 Lesson whose school performance score is over 2.80 in 2013-2014 academic year. 10 students were selected as control group and 10 students were selected as experimental group from a group of 20 students whose success scores are similar from a class of 40.

5. Method:

Mind maps in compliance to the topic were applied to two group who have information about mind maps as a pre-test. The lesson is given to the control group with traditional learning methods, the experimental group with the active learning method. At the end of the course, both groups were applied on as a final test of mind maps. Pre-test and final test applied on two groups are evaluated by three faculty members and experts in the field.

At the end of the lesson students in the experimental group were conducted with the interview, Did you use before Mind Map technique? Do you want to use then? What are the most challenging aspects of the mind map technique? What are the most enjoyable sides of mind map technique? What are your thoughts about the contribution of mind map technique to you? (Şeyihoğlu, Kartal, 2013)

Mind map technique can be used in Visual Arts Education Lesson?

Questions were taken with the students' opinions. The interviews have been recorded without images, recordings were listened and made in writing. The resulting coded mind maps have been completed in the area by expert evaluators have evaluated the grades from 1 to 10.

Table 1. Evaluation of Pre-test

PRE-TEST	EXPERIMENTAL GROUP			CONTROL GROUP		
	EVALUATORS			EVALUATORS		
	1st	2nd	3rd	1st	2nd	3rd
1st STUDENT	5	3	4	4	5	3
2nd STUDENT	7	6	4	6	4	4
3rd STUDENT	5	5	5	5	5	4
4th STUDENT	3	2	4	3	4	2
5th STUDENT	4	4	5	5	5	3
6th STUDENT	2	3	5	3	4	5
7th STUDENT	4	4	4	2	3	2
8th STUDENT	6	6	5	6	5	7
9th STUDENT	4	5	6	4	6	5
10th STUDENT	4	5	3	3	4	3

Table 2. Evaluation of Post-test

POST-TEST	EXPERIMENTAL GROUP EVALUATORS			CONTROL GROUP EVALUATORS		
	1st	2nd	3rd	1st	2nd	3rd
1st STUDENT	8	8	9	6	4	5
2nd STUDENT	10	10	10	3	4	3
3rd STUDENT	6	7	7	6	6	6
4th STUDENT	8	9	8	7	6	5
5th STUDENT	6	8	7	5	5	7
6th STUDENT	9	9	9	6	5	6
7th STUDENT	7	6	7	6	7	7
8th STUDENT	8	8	8	8	7	8
9th STUDENT	9	8	9	5	6	6
10th STUDENT	7	8	7	8	8	8

Qualitative research is one of the knowledge production process towards understanding the information of the lifestyle of the people, their stories, their behavior, organizational structures. (Strauss, Corbin, 1990).

Unlike quantitative research based on statistical data analysis, qualitative research, what kind of meanings people ascribe to events, in other words, look for answers to the question of how events are described. (Dey, 1993) Content analysis is one of the most commonly used method among the types of qualitative data analysis Content analysis is a method which is mainly used in the written and visual data analysis. In this method, a deductive path is followed. (Özdemir, 2010)

6. Data Analysis

Table 3. Descriptive Statistics. Regarding the Average score of Assessors

	N	Min	Max	$\bar{X}$	SS
Pre-test - Experimental	10	3	5,67	4,4	0,91
Pre-test - Control	10	2,33	6	4,13	1,06
Post-test - Experimental	10	6,67	10	8	1,09
Post-test - Control	10	3,33	8	5,97	1,32

Participants in the experimental group gained as a result of the evaluation scores ranged from 3 to 5.67 ($\bar{X}$ = 4.4, SD = 0.91).

Table 4. Determination of Differences of Test Scores between Control and Experimental Groups

	t	df	*p*
Pre-test Experimental-Control	1,238	9	0,247
Post-test Experimental-Control	2,957	9	0,016

According to the results of applied paired samples t-test to prior to the implementation of the evaluation scores performed to determine whether significant differences between experimental and control groups, it was observed that there is no significant differentiation between the two groups. [t(9)=1.238, p=0.247].

So, it can be said that groups are equivalent prior to application.

According to the results of the paired samples t test performed to determine whether significant differences between evaluation of post-implementation of the experimental and control group scores are significant differences between the two groups was observed. [t(9)=2.957, p=0.016].

Table 5. Determining Differences Between Pre and Post Test Scores

	t	df	*p*
Pre-Post Test Experimental	-8,672	9	0,001
Pre-Post Test Control	-3,271	9	0,010

According to the results of the paired samples t test performed to determine whether significant differences between evaluation of experimental group pre-and post-test scores were found to be significant differences between the two groups [t(9)= -8.672, p=0.001]. Accordingly, it can be said that the students in the experimental group progressed in the implementation process.

According to the results of the paired samples t test performed to determine whether significant differences between evaluation of control group pre-and post-test scores were found to be significant differences between the two groups [t(9)= -3.271, p=0.010]. Accordingly, it can be said that the students in the control group progressed in the implementation process.

Because achieving the objectives of the lesson depends on the student's interest and love to lesson. (Delen, 1998)

According to Barth in order to achieve the objectives of the lesson, primarily it is necessary to use methods that make students active and increase interest and achievement of student. (Ozturk, Otluoğlu, 2003)

In researches that have been found that at primary education level usually traditional methods such as take notes, straight narration are applied and aren't used enough equipments. (Celebi, 2006)

The results from the students' opinions are as follows:

Table 6. Question 1

QUESTION	EVALUATION CODES	STUDENTS CODES	RATING
Did you use mind mapping technique before?	YES	9-6	20%
	NO	1-2-3-4-5-7-8-10	80%
Do you want to use this technique hereafter?	YES	1-3-4-5-6-8-9	70%
	NO	-	0%
	PARTIALLY	2-7-10	30%

As seen in Table 6, teacher candidates' views on whether they use mind mapping technique are grouped under yes, no, and sometimes codes. It was observed that 80% of teacher candidates do not use this technique before, 20% of then use. For "Do you want to use this technique hereafter?" question 70% of group stated that they want, 30% of the group stated that they can use partially. There is no answer that stated will not use. Teacher Candidate (T.C) .4: "I've used this technique before. Mind maps can be created according to each subject. Frequent use can be beneficial in terms of retention of knowledge." T.C.1: "I did not use before. After learning my lesson I would like to use. Is meant to teach the subject in general terms recover and I thought it was an effective technique." T.C.8: "I have not used before, I think it is very important use. Because the technique facilitates understanding, provides persistency and summarizes the issues, reminds the information forgotten by looking at the map simply." T.C.10: "It's not used often would be used appropriate by subject." T.C.7: "Using of mind maps in each lesson may take time, create frustration, so it should be used according to the subject." T.C.2: "Mind maps are required to be patient when applying. Often use of technique for today's kids who consume everything instantly and has quick perception may destroy excitement." This technique uses the first time, the following conclusions can be drawn from the opinions of teacher candidates who use this technique the first time; technique deem necessary and which can be

used in visual arts education classes, the use of the technique in place and at the right time students will create useful and fun environment.

Table 7. Question 2

QUESTION	EVALUATION CODES	STUDENTS CODES	RATING
What are the most difficult aspects of mind-map technique?	Creativeness and originality	1-2-5-8-9-10	60%
	Link between keywords	1-3-4-5-8-10	60%
	finding suitable pictures	1-6-7	30%

As seen in Table 7, answers of teacher candidates to question "what are the most difficult aspects of mind-map technique?" are evaluated by coding creative, originality, keywords and the relationship between them, to draw accurate pictures. It can be seen that 60% of the teacher candidates are forced in terms of creativeness and originality, and 60% were forced on to establish the link between keywords. 30% have difficulty in finding suitable pictures. Teacher candidate T.C.5: "Choosing the appropriate keywords and offering in a creative way was the most difficult side for me." T.C.1: "Putting key words in the right place made me tired mostly. In addition, to draw pictures according to the word forces me and took the time." T.C.7: "Ensuring to explain the subject by the visual materials and drawings was forced me." It was seen that the teacher candidates are especially forced in creativity and suffered in placement of keywords in the appropriate places in creating mind maps. Due to being students of art education department, they didn't have difficulty on drawing, but it might be considered there will be difficulties applying in secondary education.

Table 8. Question 3

QUESTION	EVALUATION CODES	STUDENTS CODES	RATING
What are the most fun aspects of the mind mapping technique?	Creative and witty	1-2-3-6-7-8-10	70%
	Being pictorial	1-3-4-5-7-9	60%
	Being colorful	1-3-4-6-8-9-10	70%

As seen in Table 8, answers of teacher candidates to question "what are the most fun aspects of the mind mapping technique?" are evaluated by coding creative and witty, be in the form of pictorial and colorful. The teacher candidates have found it entertaining by 70% due to being creative and humorous, by 60% due to being colorful, by 70% due to being pictorial. T.C.3: "The most entertainment of mind maps is offering basic concepts related to our topic in a creative way, with pictures, icons, colored with dyes". T.C.1: "I think it is a stage of converting every key word to an icon or object, and coloring this object." T.C.9: "The most fun part after understanding the issues by following the chain, making drawings suitable for coloring, to complete mind map. It was a study done willingly and amused." These opinions shows that they find mind map technique amusing due to color dyes used in construction, creative and witty images and get them pleasure in coloring.

Table 9. Question 4

QUESTION	EVALUATION CODES	STUDENTS CODES	RATING
What are your thoughts related to contribute of mind map technique to you?	Learning amusingly	1-2-3-5-6-8-9-10	80%
	Supporting imagination and creativity	1-4-5-6-7	50%
	Noticing permanent of information	2-3-5-6-7-8-9-10	80%
	Mapping thoughts by symbols'	1-2-4-7-8	50%
	Increasing confidence in lessons	3-9	20%

As seen in Table 9, answers of teacher candidates to question "what are your thoughts related to contribute of mind map technique to you?" are evaluated by coding 'learning amusingly', 'supporting imagination and creativity', 'noticing permanent of information', 'mapping thoughts by symbols', 'increasing confidence in lessons'. We saw that 80% of teacher candidates stated that they learned amusingly when creating mind maps, 50% of them stated that it supports creativity and imagination, 80% of them say retention of knowledge is satisfied, 50% of them stated that they learned to do maps convert their thought by symbolizing and 20% of them stated self-confidence in the course increased. T.C.8: "I like to reviving and mapping of discussed topics in my thought in my mind. Information was consolidated and became permanent." T.C.5: "It made me learn by simplifying Information, and more permanent, more fun approach to the subject by giving us and our creativity has developed different perspectives." T.C.6: "I think it would provide permanence for that caters to all kinds of intelligence". T.C.2 "It offered opportunity to suggest learning by entertaining, thinking and doing." The opinions of the teacher candidates shows us the application of mind map is a viable technique for becoming the knowledge permanent and retention in the theoretical explanation of visual art education by thinking, amusing, applying.

Table 10. Question 5

QUESTION	EVALUATION CODES	STUDENTS CODES	RATING
Can mind map technique be used in Visual Arts Education Lesson?	YES	1-2-4-5-7-8-9	70%
	NO	-	0%
	SOMETIMES	3-6-10	30%
How can be improved?	BY GROUP STUDY	2-4-8-9	40%
	BY LISTENING MUSIC	1-2-3-4-6-7	60%
	IN COMPUTER MEDI	3-5-9-10	40%
	BY USING COLLAGE TECHNIQUE	1-4-5-7-9	50%

As seen in Table 10, answers of teacher candidates to question "Can mind map technique be used in Visual Arts Education Lesson?" are evaluated by coding yes, no and sometimes, and answers of teacher candidates to question "How can be improved?'' are evaluated by coding 'by group study', 'by listening music', 'in computer media', 'by using collage technique'. In evaluation "Mind Map technique can be used in Visual Arts Education Course?" question is answered as 70% yes, 30% sometimes, and no answer is not used. T.C.4: "This technique can be used in the Visual Arts Education lessons due to being tutorials, creative and keep in mind." T.C.10: "Considering that the visual arts education lesson is one hour per week, using mind maps continuously will take time, so it can be used convenient way to the subject." T.C.6: "Mind map technique can be used only theoretical explanations of art culture in visual arts education lessons. I think that implementation phase of the lesson will take long time, lesson duration may not be sufficient, so the process can be completed as homework." All of the views of the teacher candidates are that mind maps can be used in Visual Arts Education Lesson. However, there are insufficient teaching hours, because it is considered that techniques of the implementation phase will take time, it seems suitable to be done at certain times appropriate to the content of the subject." The question "How can be improved?" is answered by 40% as group study', 60% 'by listening music', 40% 'in computer media", 40% 'by using collage technique'. T.C.9: "I have so much fun doing the application, but taking too much time is bothered me. Due to we will implement in Visual Arts Education Lesson, it can be concluded by applying a more practical way as group work by using collage technique with suitable pictures. T.C.5: "Today's children are able to use technology very well. Creating mind maps on computer related the topics discussed in lesson can be given as homework. Thus, the time would have gotten the opportunity to work in an environment where the student's favorite creation will be tastefully done." Considered in accordance with the opinion of the teacher candidates; consist of a minimum of hours, being crowded of classes will be the answer to the question of how to plan this technique as taking less time. Listening to music while working

will increase the motivation of students and have relaxing effect so it is seen music may used in the lessons. Any problems in implementing group work, collage technique. However doing in the computer environment "Did students the homework by itself?" question brought of the teachers in that it is necessary to take the necessary precautions.

7. Conclusion

As can be seen from the results, teacher candidates previously not using mind maps stated that they can use in Visual Arts Education classes for ensuring the retention of knowledge. To achieve the objective of mind maps technique in the course applied to the experimental and control group, the active learning method should be used in Visual Arts Education lessons. Teacher candidates of art education department engaged in visual arts stated that this technique will contribute to the development of students' visual intelligence. As stated by Brinkmann using of both hemispheres of the brain facilitate learning. It is seen that the teacher candidates applying mind maps technique have difficulty in finding the proper keywords, picturing and placing. In this case when this technique is applied in Visual Arts Education lessons, the student can avoid to be forced to draw a picture, so it can be suggested to use appropriate photos by cutting from magazines. It was concluded that due to Visual Arts Education course consisting of one hour per week and being crowded of classes, avoiding using this technique so often would be true, but it may deem in appropriate in cases. To alleviate this situation, it would be appropriate to use group work in the classroom in Visual Arts Education Lesson and it can be said can be given home homework.

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