Analyzing the Cognitive Structures of Pre-service Teachers Who Take Art Education Classes Related to Art Concept

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Abstract   The purpose of the study is to examine the cognitive structures of the pre-service teachers (PST) who take art education classes. The study was conducted with qualitative research methods. The sample of the study consisted of 425 PST studying at Faculty of Education, Ağrı İbrahim Çeçen University. Independent word association test was used as data collection tool.   The obtained data was analyzed with content analysis. The answers of the students related to art concept were gathered under 10 categories. These are the source of art, the classification of art, the definition of art, artist, the importance of art, social aspect of art, the elements of art, the tools of art, the value of art, the principles of art. The obtained concepts and categories were evaluated through percentage and frequency values. According to this, it was determined that the cognitive structures of PST were centered upon the category of art and classification of art. It was found that the categories of the importance of art, the value of art, the principles of art and the element of art were at lower levels. It was also determined that the PST had various misconceptions related to art concept.

Keywords   Art, Art Education, Pre-service Teachers, Word Association Test, Cognitive Structure

1. Introduction

Art is one of the oldest means of communication in which human beings express their feelings and thoughts since the first human being. Art, which continues to be relevant, is a need and necessity for the artist, audience and all the individuals in the society to look for the beauty, to live the reality in a different dimension, to understand, to express and to create a world full of beauties. In developed societies, the individuals are considered open minded, culturally well-equipped and they exist with love.

On the basis of this existence lies the education. Education is an essential element in the cultural development of the societies and in maintaining the relationship with art [1]. In today's world, which we name as the information age, art education is of higher importance in terms of training individuals who are creative, entrepreneur, problem solver and can reconstitute, transform and transfer information. Individuals, who have taken qualitative basic information about art in preschool and primary school which are considered to be the first steps of art education, can recognize that looking is not seeing and hearing is not listening with their developed visual perceptions [2].

The teacher can create an environment in which the student can express himself freely with art education. It enables them to pour out their feeling and spend time happily with different artistic activities like painting, tearing, pasting and shaping clay. It plays an important role in developing the characteristics of the child and in believing in himself. The child becomes conscious about responsibility, sharing, organization and material consumption with art education. Art education is an essential field to train creative, independent, peaceful, humanist individuals integrated with the society and in the pursuit of the future [3]. With the artistic works, the student tries to express his thoughts, feelings and imaginations by bringing together the elements of art in an endless combination, and eventually tries to find himself.

During the art education classes, the teacher must also have a serious artistic knowledge and talent and creativity in order for the creativity and artistic thinking of the child to be settled. Teachers who have a wide range of roles from passive role to active role in the learning process should leave the student free in their thoughts and studies but should take place as an active guide when they need to [4]. In this respect, art educators should have an important art culture, theoretical and practical knowledge, a broad and deep concept map, and they should continuously stay up-to-date, which will positively influence the quality of

art education processes.

If the concept learning is very important to learn a subject, concept knowledge is not only to know the concept or to know the definition and name of the concept, but also to recognize the mutual transitions and relationships between concepts. If a new information has been correctly associated with the given information, then the meaning of that concept has been established. Conceptual learning focuses on the structure and content of the knowledge learnt by the student or on the qualitative differences of the concepts. For this reason, knowing the preliminary information of the students, structuring this information correctly and making meaningful connections with new information provides learning [5]. Word association test, which is one of the supplementary assessment and evaluation techniques, is one of the important assessment instrument that not only reveals the information the students have but also reveals the relations between the concepts, their cognitive structures, whether they maintain meaningful learning by associating the new information with their current knowledge and reveals the relations between the information on their mind and the events in the real world [6].

When the related literature is reviewed, no study has been found to examine the cognitive structures of the PST about the art concept by using independent word association test technique. Therefore, the results of this study will significantly contribute to the related literature.

Purpose of the Study

The purpose of this study is to examine the cognitive structures of the PST who take art education classes and the connections between the concepts and their misconceptions in this structure with concept map.

2. Method

Design of the Study

This study in which the cognitive structures of the PST are examined is conducted as a qualitative research. Qualitative research method is an approach in which data collection methods such as interview, observation and document analysis are used, and in which processes are followed in a realistic and holistic manner in the natural environments of perceptions and events, through which all aspects of the subject are taken care of. [7]. Qualitative research enables a detailed collection of the data and enables the understanding of many different factors in the environment. Thus, the researcher can make profound explanations based on the findings obtained in the direction of his/her aim [8].

Research Group

The research group was selected with criterion sampling method. Criterion sampling involves selecting cases that meet some predetermined criterion of importance [7].

The research group consisted of the PST who took art education classes and who study in Faculty of Education, İbrahim Çeçen University of Ağrı. Participation in the study was on voluntary basis. The demographic characteristics of the PST are indicated in the table below.

Table 1. The Distribution of the PST according to Grade and Departments

Department	Grade				Total	
	1	2	3	4	f	%
Art Teaching	33	34	35	23	125	29,41
Music Education	25	25	25	23	98	23,07
Classroom Teaching			54	40	94	22,11
Preschool Teaching			55	53	108	25,41
Grand Total	58	59	169	139	425	100

Because the classroom PST and preschool PST start to take art education classes at 3rd grade, only the 3rd and 4th grade students from these departments were included in the study. When the number of the participants is analyzed, it is seen that the number of PST from the Department of Art Teaching is slightly higher but the number of the participants from all the departments is close to each other. The study was conducted with 425 PST.

Data Collection Tools

In the study, independent word association test (WAT) was used as a data collection tool to reveal the cognitive structures of PST related to art concept. WAT is one of the complementary measurement techniques to reveal the cognitive structures of the participants and the information networks between these concepts and to determine whether the relationships between the concepts in the long-term memory are sufficient or meaningful. WAT, which has been used in science for many years, has been used frequently in social areas in recent years [6]. This technique is based on the assumption of creating words associated with the stimulus concept to the stimuli without any limitation. In this study, the concept of "art" has been presented as a stimulus to the PST. After the explanations about WAT, the PST were asked to write 10 words that the key concept reminded within 30 seconds one under the other [6]. It is aimed to prevent the chain response by writing the answers one under other. Thus, the participants returned to the key concept after writing each word and they were given the opportunity to write the word reminded by the key concept. Otherwise, it may be possible to be influenced by the newly written words [5]. In Figure 1 below, the data collection tool of one of the participants is shown as an example.

Figure 1. The Answer Sheet of S.44 of the Participants

Data Analysis

The answers of the PST were analyzed in detail and a frequency table was generated showing how many times the key concept was repeated by the students from different departments. The data in the frequency table was analyzed with content analysis. The main purpose of the content analysis is to reach the concepts and relations that can explain the collected data [7] and interpret them meaningfully in a way that the reader can understand. The data obtained from the independent word association test were analyzed considering the repetition number and semantic relations of the words. Categories were formed by taking into account the semantic relations of the words. The percentages and frequencies of the words were calculated, and evaluations were made. Words that are considered nonsense, words that are not related to other words and the words that are repeated only once were not included in evaluation [5].

In addition, through the data recorded in the frequency tables, a concept map was drawn to reveal the cognitive structure of PST about the concept of art. Thus, it is aimed to clearly reveal the relationships between the concepts of cognitive structures of the PST from different departments. While drawing the concept map, break point technique which was found by by Bahar et al. [6] was used. Accordingly, considering the frequencies of words derived from the concept of art, repetitive words among certain numbers were used as a break point. Words that repeated more than 10 times were used in the concept map. Words that were repeated for 40 times and above were used as the 1st break point, were repeated 30-39 times as 2nd break point, were repeated 20-29 times as 3rd break point, and were repeated 10-19 times as 4th break point. The words found in each breakpoint range indicate the number of students in that range. For example, the word found at breakpoint 20-29 indicates that it was repeated by the same number of PST [9].

3. Reliability and Validity Study

Findings and Interpretation

A frequency table was formed by data obtained from independent word association test. In this section, the concepts and categories obtained from the frequency table, and the concept map created using the frequency table will be evaluated under different titles.

Concepts and Categories obtained through Frequency Table

As a result of analyzing the data obtained from the PST' answers about the concept of art, ten categories and a group of misconceptions were determined. The words that were repeated only once and the words that are not related to the subject are not included in the table. These categories were listed according to the words below each category and the answers of each department (Art Teaching (R), Music Education (M), Classroom Teaching (S), Preschool Teaching (O)) are listed with frequency and percentage values. As a result, 10 categories and misconceptions, 162 different words and the number of repetition of these words according to departments and percentage values are indicated in the table below. 1-Source of Art. 2-Classification of Art. 3-Definition of Art. 4-Artist. 5 The Importance of Art. 6-Social Aspect of Art. 7-The Elements of Art. 8-The Tools of Art. 9-The Value of Art. 10-The Principles of Art. 11-The Misconceptions of PST

Table 2. The Distribution of Cognitive Structure of the PST related to Art Concept according to Categories

Categories	Concepts	f(R)	f(M)	f(S)	f(O)	f(T)	%
	Feeling	30	48	19	21	118	
	Beauty	27	23	39	14	103	
	Imagination	40	17	19	14	90	
	Nature	9	28	20	17	74	
	Thought	33	14	10	4	61	
	Human	6	28	11	10	55	
	Love	11	30	3	6	50	
	Life	11	8	12	7	38	
	Happiness	8	14	5	8	35	
	Soul	11	12	7	5	35	
	Romance	3	18	7	2	30	
	Society	8	9	3	5	35	
	Earth		6	3	2	11	
1- Source of Art	Enjoyment	8	2	6	4	20	31,87
	Pleasure	6	2	5	5	18	
	Universe	3	9	2	1	15	
	Sadness		8	1	3	12	
	Passion	5	2	3	1	11	
	Excitement	3	2	2	2	9	
	Reality	4		3	2	9	
	Mind	4	2	3		9	
	Dream	3	1	2		6	
	Inspiration		1	3	2	6	
	Community	1	2		3	6	
	Curiosity	1		4		5	
	Woman		2		2	4	
	Pain		4			4	
	Missing	3				3	
Total	28 words					882	
	Drawing	16	37	29	73	155	
	Music		7	55	15	58	
	Sculpture	2	15	14	14	45	
	Theatre	1	7	2	26	36	
	Poem	1	5	7	19	35	
	Literature	1	3	7	11	22	
	Cinema	1	2	2	13	18	
	Dance		7		10	17	
	Paper Marbling		3	2	8	13	
	Caligraphy	3	1	7	1	12	
2-Classification of Art	Photography	2	6	1	3	12	**20,34**
	Architecture	1	2	2	5	10	**135**
	Landscape	1		4	4	9	
	Novel		1	2	6	9	
	Ballet		1		6	7	
	Portrait	1		3	2	6	
	Sand Art		4		2	6	
	Opera				4	4	
	Miniature			2	2	4	
	Charcoal Drawing	1		1	1	3	
	Pantomime				3	3	
	Story			1	1	2	
Total	22 Words					563	

Category	Word					Total	Index
3-Definition of Art	Aesthetics	26	13	45	22	106	
	Subjective	6	2	18	2	28	
	Difference	17	6	8	3	24	
	Freedom	7	11	1	5	23	
	Perspective	4	4	7	2	17	
	Seeing	9	2	6		17	
	Recognizing	4	2	5		11	
	Expression	4		3	3	10	
	Exploration	7		1		8	
	Transferring	3	4	2		9	
	Discovering	8	1			9	
	Criticism	4		2	2	8	
	Patience	3	1	2		6	
	Extraordinary	1		2	3	6	
	Explaining	2	3	1		6	12,28
	Reflecting	3	1	3		7	
	Knowing/Finding Yourself	4		2	1	7	
	Like	4		2		6	
	Imitation	2	1		1	4	
	Message	2	1	1		4	
	Communication		1	1		2	
	Point of View	1	1	1		3	
	Interesting	1	1		1	3	
	Adventure	1	1	1		3	
	Peace	1	2			3	
	Purifying	2	1			3	
	Crossing the limits	1			1	2	
	The Unknown	1	1			2	
Total	28 Words					340	
4-Artist	Talent	28	12	24	19	83	
	Creativity	32	13	22	15	82	
	Originality	21	3	11	16	51	
	Painter	1	2	6	8	17	
	Sculptor		2	1	10	13	
	Picasso	1			9	10	
	Intelligence	2	1	1	5	9	
	Life Style	3	2		2	7	
	Author		1		5	6	
	Leonardo Da vinci			1	4	5	
	Privileged	4	1			5	**11,52**
	Superior/Superiority	2		2		4	
	Determination	1	3			4	
	Salvatore Dali				4	4	
	Morals		1	2	1	4	
	Fame		1	2		3	
	Van Gogh				3	3	
	Vision	1		1	1	3	
	Composer		2			2	
	Mozart		1		1	2	
	Success	1			1	2	
Total	21 Words					319	
5- The Importance of Art	Culture	7	21	4	8	40	
	Innovation	20		2	3	25	
	Education	2	6	2	7	17	
	Progress	9	4		1	14	4,48
	History	6	1	3	3	13	
	Future	2	4		1	7	
	Modernness	4				4	

Category	Word					Total	Average
	Past	2	1		1	2	
	Civilization		1		1	2	
Total	9 Words					124	
6-Social Aspect of Art	Peace	8	15	5	9	37	4,11
	Fun	8	2	3	4	17	
	Need	7	2		2	11	
	Respect	1	4		5	10	
	Ease	3		2	4	9	
	Exhibition			1	3	4	
	Empathy		2	2	2	6	
	Hobby	1		3	1	5	
	Stage	1	2		1	4	
	Relaxing/Relax	1	1	1	2	5	
	Connect/Connective		1	2	1	4	
	Museum				2	2	
Total	12 Words					114	
7-The Elements of Art	Color	18	4	19	9	50	4,04
	Scratch	13	2	11	4	30	
	Shape	6	3	6		13	
	Light	2	2		2	6	
	Sound		1	2		3	
	Space	3		1		4	
	Spot	2		1		3	
	Note		2	1		3	
Total	8 Words					112	
8-The Tools of Art	Paint	3	1	7	14	25	3,79 13
	Painting	4	3	3	5	15	
	Brush	2	1	3	5	11	
	Instrument			12		1	
	Canvas	2		3	3	8	
	Pencil	1		5	1	7	
	Paper	1		3	1	5	
	Bağlama		3	1	2	6	
	Guitar		2			2	
	Piano				2	2	
	Statement			1	2	3	
	Studio	1		1	1	3	
	Violin			1	1	2	
	Language	1	1		1	3	
Total	14 Words	9	22	23		105	
9-The Value of Art	Work	7	3	8	8	26	2,92
	Special	8			1	9	
	Value/Valuable	4	1	3		8	
	Perfect	1	2	3	2	8	
	Dearie	3	1	2		6	
	Money	1	1	1	2	5	
	Unique	3		2		5	
	Everything		2	2	1	5	
	Permanent	2		1	1	4	
	Wealth	1	1	1		3	
	Mother		1	1		2	
Total	11 Words					81	
10-The Principles of Art	Harmony	13	11	13	5	42	2,52
	Order	4	4	4	1	13	
	Rhythm	4	1	3		8	
	Balance	2		2		4	
	Contrast			3		3	
Total	5 Words					70	

Categories	Concepts	f(R)	f(M)	f(S)	f(O)	f(T)	%
11-The Misconceptions	Natural/Naturality		3	12	7	22	2,05
	Knowledge/Science	6	4	4	1	15	
	Objective	3	1	5	1	10	
	Sport			6	4	10	
Total	4 Words	9	14	21		57	
Grand Total	162 Words					2767	
Categories	Concepts	f(R)	f(M)	f(S)	f(O)	f(T)	%

When Table 2 is analyzed, it is seen that the words consisting of the answers of the PST are grouped under 12 categories. One of these categories consists of misconceptions of PST. PST produced 162 different words at total related to the concept of art, and these words repeated a total of 2807 times in different frequency ranges. When the frequency values are examined independently of the categories, the first three words that repeat most are the drawing (f = 155), the music (f = 135) and the feeling (f = 118); the least repeated words are story, crossing the limits, unknown, violin, guitar, piano, museum, past, civilization, mother (f = 2).

In the Table 1, it is seen that "the source of art" from which PST produced 28 words included intense repetition of these words (f = 872). This category constitutes 31,06% of cognitive structures of the PST related to the concept of art. The words that repeated the most in this category are *feeling (f=118), beauty (f=103) ve imagination (f=90).* It is also seen that *happiness (f=35), sadness (f=12), passion (f=11), romance (f=30), love (f=50), excitement (f=9), pain /f=4)* are the words that were used frequently. Moreover, *nature (f=74), thoughts (f=61), human (f=55) ve society (f=35)* are among the essential elements that are the source of art according to the PST.

The most important category that constitutes the cognitive structures of the PST is the category of *"the classification of art."* In this category, the PST produced 22 words and the total repetition frequency of these words is f(T)=653. This category constitutes 23,26 % of cognitive structures of the PST related to the concept of art. The concept map for PST' classification of art is given below for a clearer understanding.

In Figure 2, it can be seen that PST can derive the word belonging to all branches of art related to the contemporary classification of art. These words, however, are mostly seen in the field of plastic arts in terms of number and frequency. Among the branches of art, the words that repeated the most are *drawing (f=155), music (f=135) and sculpture (f=45)*, and the least repeated words are *story (f=2), pantomime (f=3) and opera (f=4)*.

In the category *"the definition of art"*, the PST derived 28 words and the total repetition frequency of these words is 487. This category constitutes 17,4 % of cognitive structures of the PST. The most repeated words in this category are aesthetic, creativity and talent. It is noteworthy that the PST defined art with very specific words like *unknown (f=2), crossing the limits (f=2), purifying (f=3), peace (f=3), adventure (f=3), knowing/finding yourself (f=7), imitation (f=4).*

In this category "artist", the PST revealed the artist profile in their cognitive structure. This category in which 21 different words were repeated 319 times constitutes 11,52 % of the cognitive structure of the PST. The most repeated words in this category are talent (f=83), creativity (f=82) ve originality (f=51). The PST consider artists as different with their lifestyle (f=7). In addition, while describing the artist, they used the words intelligent (f=9), privileged (f=5), determination (f=4), fame (f=3), success (f=2), vision (f=3) and morals(f=4). The artists that stuck the mind of the PST the most are painter (f=17), sculptor (f=13) and author (f=6). These artists are Picasso (f=10), Leonardo Da Vinci (f=5), Van Gogh (f=3), Salvador Dali (f=4) and Mozart (f=2).

This category "the importance of the art" in which 9 different words were repeated 124 times constitutes small amount of 4,58 % of the cognitive structure of the PST. In this category it is seen that the PST consider art important elements of culture (f=40) and education (f=17). The PST thought that the art is the source of innovation (f=25), progress (f=14), future (f=7), modernness (f=4).

In the category "social aspect of life", 12 different words were repeated 114 times in this category. This constitutes 4,11 % of the cognitive structure of the PST. The most repeated word in this category is peace (f=37). So, it can be said that the PST consider the art as a means of need (f=11), fun (f=17), relaxing (f=5) or ease (f=9). They also think that art is the connective (f=4) element with its aspects of respect (f=10), empathy (f=6).

In the category "the elements of art", 8 different words were repeated 112 times with different frequency in this category. This constitutes 4,04 % of the cognitive structure of the PST. It is seen that the PST stated elements related to plastic arts. Moreover, the elements related to music were repeated in a low number. The most repeated words in this category are color (f=50), scratch (f=30) and figure (f=13). The least repeated ones are space (f=4) spot (f=3) ve note (f=3).

In the category "the tools of art", 14 different words were repeated 105 times with different frequency in this category. This constitutes 3,79 % of the cognitive 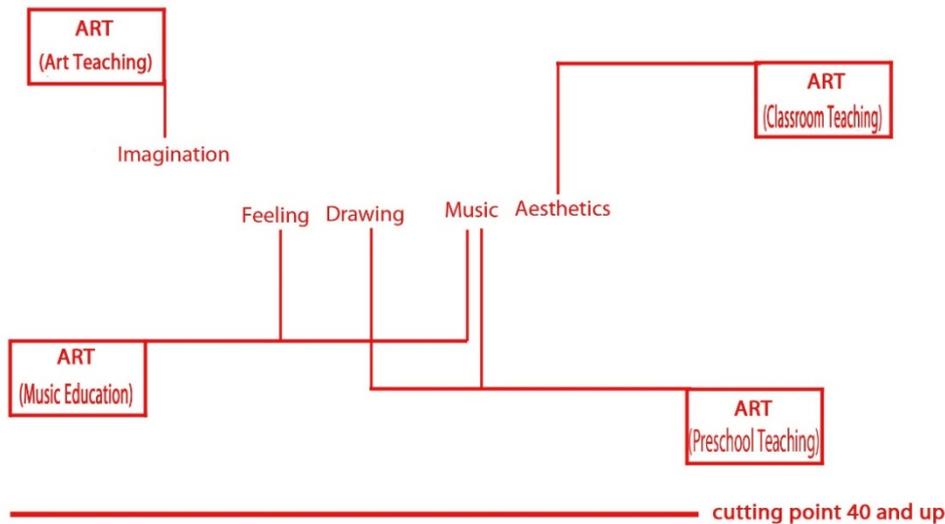structure of the PST. In this category, the PST derived words related to tools that are necessary to perform art. A great deal of the words repeated in this category (7 words, f=94) are related to the tools used in plastic arts. However, less words were derived related to the tools used in music (4 words, f=12) and literature (2 words, f=6). The most repeated words in this category are paint (f=25), painting (f=15) ve brush (f=11).
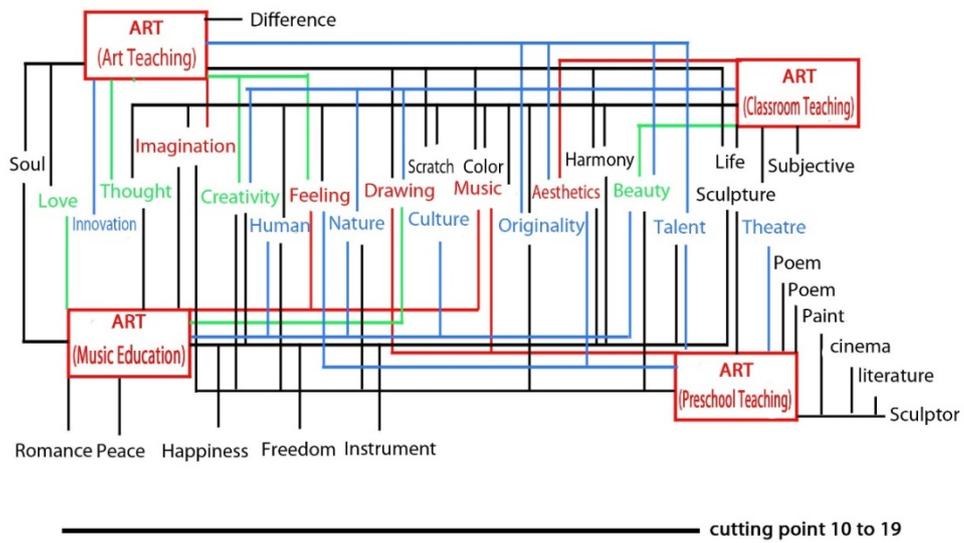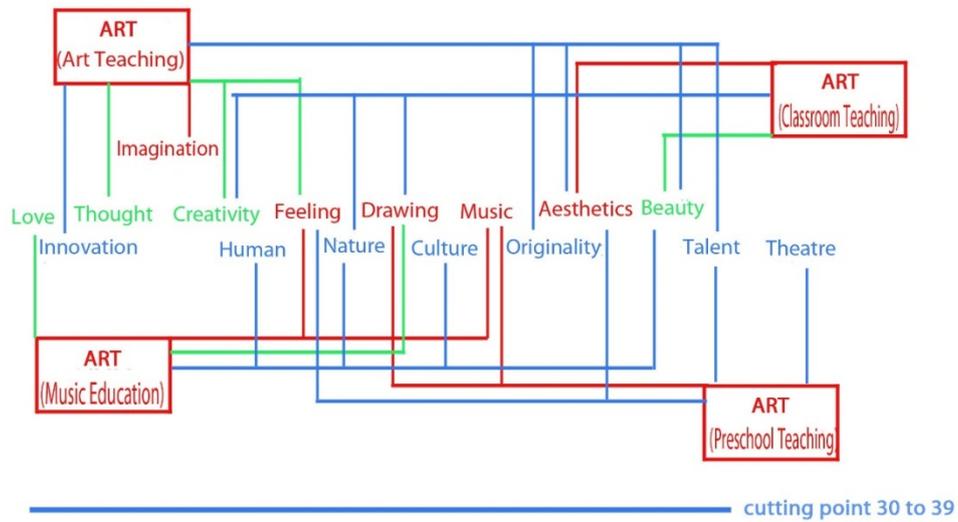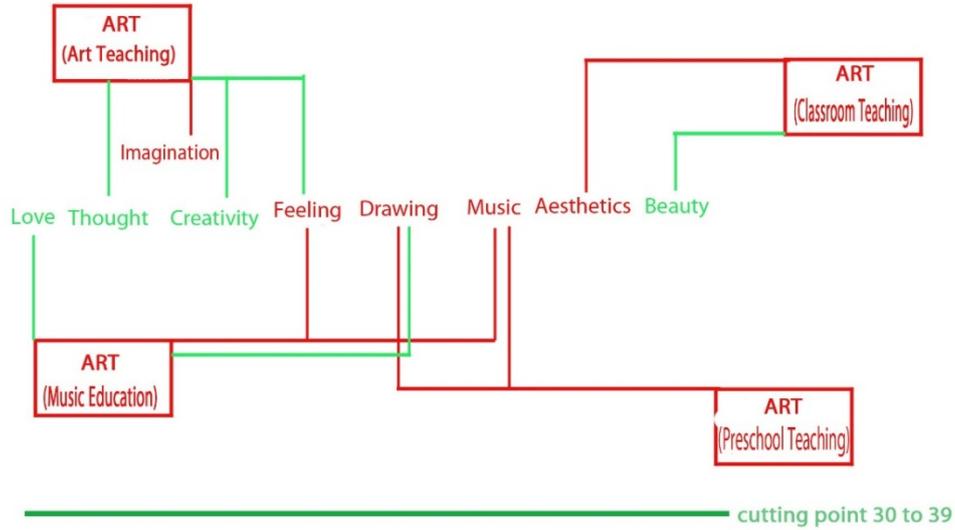
In the category "the value of art", 11 different words were repeated 81 times with different frequency in this category. This constitutes 2,92 % of the cognitive structure of the PST. In this category, the PST tried to express the value of art with very special words. The most repeated words in this category are work (f=26), special (f=9) and perfect (f=8). The least repeated ones are permanent (f=4) wealth (f=3) and mother (f=2).

In the category "the importance of art", 5 different words were repeated 70 times with different frequency in this category. This constitutes 2,52 % of the cognitive structure. This category is formed of the words related to the principles of art. In this category, the most repeated word is harmony (f=42). Order (f=13), rhythm (f=8), balance (f=4) and contrast (f=3) are the words that the PST used for the principles of art.

At the end of this study, it was determined that the PST have misconceptions about art concept even if just a drop (2,05 %). It can be seen that the PST relate the words natural (f=22), science (f=15), objective (f=10) and sport (f=10) to the concept of art.

Concept Map according to the Data obtained through the Frequency Table

cutting point 30 to 39

cutting point 30 to 39

cutting point 10 to 19

The data obtained through the concept map can be interpreted as following;

The break point of the words that repeated more than 40 are generally independent from each other, and the word music is used by both the Music Teachers and Preschool Teachers. Moreover, the words in this range are in the source of art (imagination, feeling), classification of art (drawing, music) and definition of art (aesthetics) categories. No words related to other categories were derived in this range.

When the words with a break point of 30-39 repetition are analyzed, it is seen that the preschool teachers did not derive any words in this range. The department which derived words the most is art teaching. Most of the words in this range are the words belonging to the category of the source of art (love, feeling, thought, beauty).

16 words which has a break point of 20-29 were repeated. The distribution of the number of the words to the departments is almost equal. It is seen that PST in the art teaching department derived 5 words, PST in the classroom teaching department derived 3 words, PST in the departments of preschool and music teaching derived 4 words. Considering the previous frequency points of the words *drawing, aesthetic and feeling,* they are the most repeated words in terms of all departments.

When the words with a break point of 10-19 repetition are analyzed, it is seen that the number of the repeated words is pretty high (46 words). We can see common repeated words for all the departments in this range. So, it can be said that *imagination, creativity, feeling, drawing, aesthetic and beauty* are in the intersection point of all departments. However, the words *thought, human, nature, music, originality, harmony, talent and sculpture* are the commonly repeated words for the three departments. When looking at the distribution of these words to the categories, it can be seen that majority of them belong to the category of the source of art (imagination, feeling, beauty, human, nature). In addition, when the concept map is analyzed, it was determined that the words that were repeated the most by the pre-service preschool teachers are in the category of the classification of art, and it is noteworthy that they did not derive any metaphor that can define art in depth and can reveal its importance or principles.

4. Results and Discussion

This study was designed to reveal the cognitive structures of the PST who took art classes. The concept of art which vary according to time, place and culture is so deep and complex that it cannot be explained by only a few metaphors. The knowledge and concepts learned in the process of art education do not often follow an interconnected system [1]. Therefore, it is thought that this study will make significant contributions to literature as the cognitive structures of art educators related to art are considered to be very important in terms of comprehending the relations in extenso.

At the end of this study, it was determined that the words that were derived by the PST who took art classes through the independent word association test were collected under 10 categories under and they had misconceptions about the concept of art. These categories are *The Source of Art, The Classification of Art, The Definition of Art, The Artist, The Importance of Art, The Social Aspect of Art, The Elements of Art, The Tools of Art, The Value of Art, The Principles of Art.* When the categories are analyzed, it is seen that the words, which the PST derived the most (31,87 %) and the most repeated words, are in the category of the source of art. It is seen that the PST repeated the word feeling the most. They also frequently used the words *love, happiness, romance, pleasure, sadness, passion, excitement, pain and missing* that are related to feelings. Therefore, it can be said that the PST consider the basic source of art is *feeling.* In fact, Tolstoy considers art as a tool through which others can feel what an artist feels. According to him, art expresses the feelings that glorify the soul and make the body worthless [10]. According to Freud, the artist behaves like a child playing a game and defends himself by creating a world of imagination and equipping this with a treasure of emotion [11]. Another idea of PST about the source of art was *beauty.* Throughout history, beauty has been the source of art. Although the things that are the subject of beauty changed periodically, the effort to create the forms that will always be the subject of beauty has been the basic passion of mankind [12]. On the other hand, *nature* is one of the important concepts seen as the source of art. Sometimes art has been seen as a successful imitation of nature. The work of art is accepted as successful as it can reflect the reality. And sometimes art has been an attempt to go beyond the beauty in nature. In both cases, nature has become an important concept for art.

An important result obtained through this study was the concepts that the PST derived for the classification of art. This category is the second dominant category (20, 34%). It is seen that the PST derived words for all branches of art. However, considering the frequency values of these words, it is seen that the cognitive structure in this category is composed mostly of plastic arts and its branches (painting, sculpture, marbling, calligraphy, photography, architecture, landscape, portrait, sand art, miniature and pencil drawing). Although there are some arguments that argue that the classification is insignificant since art is an intrinsic activity that cannot be determined by its own content, the idea that such a classification is necessary because it enables the identification and better understanding of artistic activities [13].

When the art definitions of the PST are examined, it is seen that they try to define art with various words. According to Erzen [14], those who want to define art

according to a single scale and philosophy and those who make a one-way art criticism will necessarily ignore ninety percent of art of the world. Because the suspicion, interest and experiences that humanity expresses with art are in infinite number and it was revealed with this study that these have been expressed in different ways in each era, culture and artist. In this category, in which the PST derived 28 words, the frequency value and the word *aesthetic* draw attention. Aesthetics examines the feeling of pleasure in people, especially the way this feeling is concentrated on the work of art [12]. Art is defined as the aesthetic relationship between human and objective reality. In other words, objective reality is reflected in the aesthetic form of the artist [11].

An important result that emerged from this study is the artist profiles, which accounted for 11.52% of the cognitive structures of PST. According to this, PST see artists as *different, famous, privileged, successful and moral individuals with their unique talents, high creativity levels and their lifestyles*. These results are similar to those of Wells [15]. In the study she conducted with 205 art educators, Wells investigated the perception of art educators related to artist. According to this, art educators who participated in the research defined the artist as the guiding, creative, original, free, different, persistent, unique and producing individuals. An important result of this study is that the value of art (2.92%), its importance (4.48%), principle (2.52%) and its elements (4.40%) are at very low rates. The principles of visual design help to carefully plan and organize art elements. In this way, the visuality of art that fascinates the viewer is revealed. The principles and elements of art, which will provide theoretical and practical experience in all fields of visual arts, constitute the basis of the learning process [16]. The fact that two such important subjects have a low cognitive domain by PST who receive art education is the opposite of expectations.   In addition, in the concept map showing the cognitive structures of the PST participating in the research clearly, the categories that the pre-service preschool teachers derived metaphors the most were in the categories of the classification of art and the tools of art. On the other hand, they were not able to develop a metaphor that will describe the art in a deeper and more effective way for the categories of values of art, principles of art and elements of art. The artistic activities for students in the pre-school period are the most effective and the most special means of expression that reflect their own worlds, their own freedom and unique to them [17]. For preschool students, it is of utmost importance that such an important field of study is structured with theoretical foundations and with unique, artistic, original and creativity elements. However, in this study, it is an important result that should be put emphasis on that the preschool PST tried to explain the art with art branches like painting, music, pantomime, and art tools like paint, brush, etc.

In addition, it is an important result that the categories of importance and value of art constitute a small part of the cognitive structures of PST. When we look at the category of importance of art, it is seen that the words culture, education and innovation draw attention. Art is the most effective part of these processes while emphasizing the interconnection between culture, education and innovation. Art education is one of the most important parts of education because it allows emotions, thoughts, cognitive abilities, creativity and even the individual to develop as a whole. Art education is very important in educating individuals who are conscious of preserving cultural heritage while contributing to the cultural intelligence of society [18, 19].

One of the important results of the study is that the PST have misconceptions with a small rate of 2.05% related to the concept of art. The most prominent word here is the *natural*. PST have the misconception that the beauties of nature are products of art. But one of the basic conditions for an object to be a work of art is that it is touched by human hands. However, the words science and objective are not expressions directly related to art and are the expressions that indicates the misconceptions of PST. Because the science with its structure and properties that can be defined as a whole of the information with objectivity is very different from art. Art is subjective, science is objective [20]

As a result of the study, it was determined that the cognitive structures of PST are not sufficient in terms of the value and importance of art, and the principles and elements that are the plastic aspect of the concept of art. According to this, it can be said that PST have to focus on art not only as a field of application but also, they should study as planned and purposeful for the theoretical part. In particular, the arts education courses of pre-school and classroom teaching programs can be increased. Moreover, this study may be carried out in different samples such as PST who have not taken art education. Apart from the education level, different educational levels can be examined by taking into consideration different variables such as age, gender, socioeconomic status and parents' education status.

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