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Assessment of Creative Thinking Studies In Terms of Content Analysis

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Abstract

The aim of this study is to assess the studies that have been completed in the last ten years in creative thinking approach in accordance with different criteria. In the scope of this general aim, 143 scientific studies scanned from different data banks have been assessed in accordance with the criteria such as year of publication, number of writers, methodology, model, data gathering method, country, sample group, number of samples and sources. The findings have been discussed in accordance with the assessment results.

Keywords: Creative, creative thinking, content analysis

Introduction

One of the general aims of the present day education systems is to educate the students as creative individuals and make them acquire talents to produce creative ideas in order to be able to solve problems which may arise during their life cycle. Similarly, Chan (2012) and Eyadat & Eyadat (2012) have indicated that creativity is important in connection to problem solving and creating new ideas. The notion of "creativity" has been studied and considered at length until today and hundreds of expressions and descriptions can be found in the literature. Öztürk (2004) and Rahimi (2013) has expressed that besides descriptions of imagination and foresight, creativity can be described as the ability to innovate a fact and being able to create a difference at a continuing process. Erdener (2003) has mentioned that in addition to being able to solve the problems, creativity is a concept of showing a creative performance, diagnosing the problem and producing a solution.

Roberts (2003) and Rahimi & Hematiyan (2012), while expressing that creativity is a feature which exists in every individual have indicated that talent of producing new ideas during an activity by using imagination and talent of creating new things is an element of creativity. Mayesky (2006) and Ghorbani, Kazemi, Shafaghi &

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Massah (2012) have indicated that creativity is a thought, behavior pattern or a special talent of the individual which can be realized by other people. Özen (2012) expressed that creativity should be approached as a process where in the process, the development of creativity emanates as a result of inter-connected reactions. Creativity, as a process, is formed of the phases given below. (Özen 2012).s

1. *Preparation Phase:* In this phase, the existing problem is explained and described. Needed data is gathered and existing materials are checked. Again in this phase, the individual or individuals assess the existing problem starting from different points for the solution of the problem.
2. *Incubation Phase:* This phase is expressed as the phase where the product becomes mature beyond the consciousness.
3. *Discovery Phase:* This is the phase where the thoughts in preparation phase are materialized.
4. *Elimination:* At this phase, the ideas are implemented which came out at preparation and new thoughts.

The notion of creative thinking has also a great importance in regard to the learning ambiances. According to Aksoy (2005), the following steps should be taken in order to improve the creative thinking talent of the learners.

- The education ambiances should be arranged in a way to contribute to the development of creative thinking talents of the learners and activities should be made available to help the learners recognize the problem, to think and suggest solutions.
- A democratic ambiance should be formed where the learners can express their feelings, opinions and ideas easily. Each factor limiting their freedom in this sense will negatively affect their development of creative thinking talents.
- It is very important to reward every creative behavior of the learners. In this way, the motivation of the learners will be increased.
- The content and subjects of the lectures should be designed in a way to increase the interests and curiosity of the learners. They should also be arranged in a way that the learners can see connections with the real life.
- The education ambiances must be equipped with technological tools and devices which can be used for general purposes such as television, computer, projection.
- Educators must answer the questions of the learners with respect and encourage them to think different and set up different connections.
- The learners must be tolerated against the mistakes they may do and instead of putting the learners into competition with others, priority should be working in cooperation.
- The creative thinking phases in learning ambiances and at the end of this process, the products coming out shall be assessed correctly.

OBJECTIVE

The general objective of this study is to assess the studies conducted in the field of "Creative Thinking" approach between 2003 and 2013 in accordance with different criteria. In order to reach to the indicated objective, 143 scientific study which have been published in "Thinking Skills and Creativity", "Computers & Education", "Indian Streams Research Journal", "Nurse Education Today", "Procedia", "Personality and Individual Differences", "Computers in Human Behavior", "e-Journal of New World Sciences Academy", "International Journal of Environmental & Science Education" magazines reachable from the databases of "EBSCO", "ScienceDirect", "ISI Web Science" have been analyzed in accordance with different criteria. In addition, it has been aimed in a way that this study can serve as a guide for the researchers in the field of "Creative Thinking". In order to achieve these objectives, answers to the following questions have been sought:

1. How is the distribution of creative thinking approach studies according to years scanned in EBSCO, ScienceDirect, ISI Web Science databases?
2. How is the distribution of creative thinking approach studies according to the number of writers taken in the scope the study?
3. How is the distribution of creative thinking approach according to the applied subjects taken in scope of the study?
4. How is the distribution of creative thinking approach according to the countries the studies have been done in the scope of this study?
5. What methodologies have been used for the creative thinking approach studies in the scope of this study?

6. Which research models have been used in creative thinking studies in the scope of this study?
7. Which data gathering tools have been used during the creative thinking studies in the scope of this study?
8. What kinds of the sources are used in the creative thinking studies in the scope of this study?

METHODOLOGY

This study is a documentary type of study for the assessment of the content analysis of the scientific studies in the field of creative thinking approach. Characteristics of 143 scientific studies, reached through "EBSCO", "ScienceDirect", "ISI Web Science" databases, have been analyzed in accordance with different criteria. It has been carefully checked that all scientific studies which were scanned during this study at the indicated databases, are done in the last ten years between 2003 & 2013 and the working topics and key words are limited with "Creative Thinking" words. The content analysis criteria of the conducted research which was in accordance with the objective and sub-objectives are given below:

- Publication Year
- Country of Research Conducted
- Number of Researchers
- Subjects of the Research
- Sampling Group
- Methodology of Research (Qualitative - Quantitative)
- Research Model
- Data Gathering Tools
- Types of Sources used in the Research

During the analysis of the data gathered in this study has been analyzed with the SPSS 16 program. Firstly, the variables for the content analysis according to criteria which was set out have been defined in the SPSS16 program and a database has been formed. Then, the data entered into this database has been analyzed and interpreted by the use of "frequency (f) & percentage (%)" technique.

FINDINGS AND COMMENTS

In this section, the findings are given after the analysis of the 143 scientific studies which was scanned through "EBSCO", "ScienceDirect" and "ISI Web Science" in accordance with different criteria.

Year of Publication

The creative thinking studies which have been taken into the scope of this study according to years have been given in Chart 1.
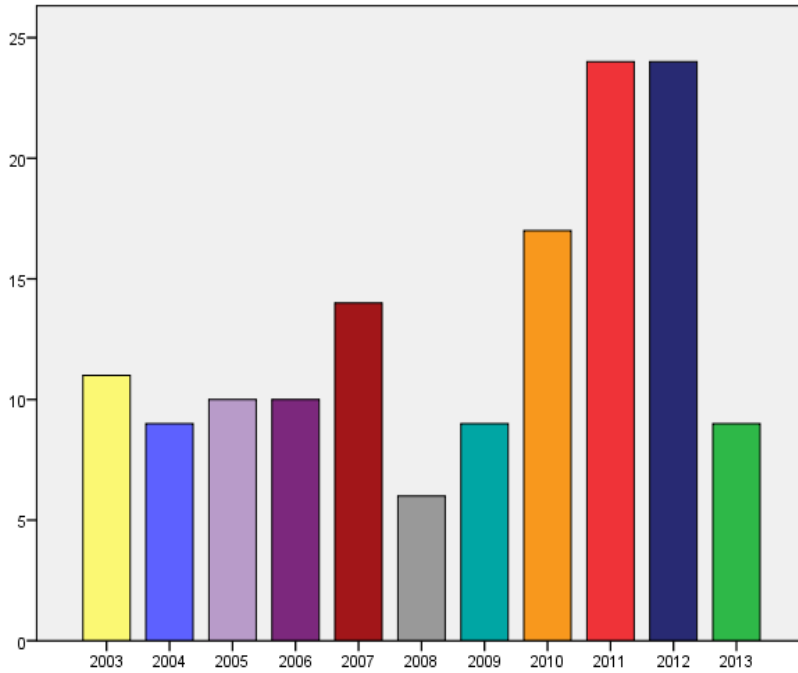
Chart 1: Creative Thinking Studies According to Years

According to the data given in Chart 1, 2011 and 2012 are the years that creative thinking studies are seen most intensively. The lowest year for creative thinking studies is 2008. According to the data in Chart 1, creative thinking studies have been done between 2003 and 2013 in the databases of "EBSCO", "ScienceDirect" and "ISI Web Science".

The Country of Conducted Study

The distribution of studies according to the countries the studies have been done is given in Table 1 in the framework of this study.

Table 1: Distribution of Studies According to the Countries Conducted

Country	Number of Studies
England	44
USA	39
Taiwan	22
Turkey	19
Greece	9
Spain	8
China	7
India	1

Hong Kong	1
Israel	1
Germany	1
Rumania	1

When the data is checked out in Table 1, it can be seen that the studies regarding the creative thinking approach are intensively done in England, USA, Taiwan and Turkey. According to the same data, the creative thinking studies have been conducted less in India, Hong Kong, Israel, Germany and Romania.

Number of Researchers

The number of researchers regarding the creative thinking approach studies has been given in Table 2.

Table 2: Data Regarding Number of Researchers

No of Researchers	No of Studies
2	73
1	41
3	15
4	9
5	4
7	1

According to the data given in Table 2, it can be seen that the researches in the field of creative thinking are done maximum with 2 writers or individually. According to the same data, fewer researches are conducted by 4, 5, 6 and 7 writers.

Research Topics

The topics and fields of creative thinking studies which have been checked in this study are given in Table 3 below.

Table 3: Studies According to Topics

Topics of Study	No
Science Education	20
History Education	13
Pre-school Education	12
Education Programs	9
Arts Education	9
Psychology	8
Business	7
Information Technologies	7
Administration and Economy	6
Chemistry Education	6
Social Studies Education	6
Turkish Education	6
Pre-service Education	5

Material Development	4
Teaching Designing	4
English Education	4
Nursing	3
Music Education	3
Mathematics Education	2
Geography Education	2
Creative Drama	2
Social Information Education	2
Knowledge of Life Education	1
Graphics Design	1
Adult Education	1

When the data given in Table 3 is checked out, it can be seen that most of the creative thinking studies have been conducted in the fields of "Science Education", "History Education" and "Pre-school Education".

Sampling Group

The data regarding who constitutes the sampling group in the scope of this study during the studies of creative thinking is given in Table 4.

Table 4: Data Regarding the Sampling Group

Sample/Study Group	No
University Students	60
Primary School Students	30
Teachers	17
Secondary School Students	15
Adults	14
Teachers and Guardians	4
Pre-school Students	2
Doctorate Students	1

According to the data given in Table 4, it can be seen that the university students are mostly preferred as the sample/working groups for the scientific studies regarding the creative thinking approach. Besides, the number of researches that the primary school students are chosen as the sample/work group is high. According to the same data given above, the number of studies that the doctorate students and pre-school students are preferred less.

Research Method

Research methods data regarding the studies conducted in the field of creative thinking approach has been given in Table 5.

Table 5: Methods Used in the Researches

Research Method	No
Quantitative	93
Qualitative	38
Quantitative - Qualitative	12

According to the data given in Table 5, it can be seen that quantitative methods are mostly used in the creative thinking studies. Besides this data, the number of studies that both quantitative and qualitative methods used in the studies is quite few.

Research Model

The research models used in the creative thinking studies in the scope of this study have been given in Table 6.

Table 6: Data Regarding Research Models

Study Model	No
Scanning	74
Empirical	59
Scanning - Empirical	5
Content Analysis	5

According to the data given in Table 6 in the scope of this study, it can be seen that scanning model is used most in creative thinking approach studies. Besides, the number of empirical studies is really high in the same field. According to the same data, the number of content analysis model in creative thinking approach studies is quite low.

Data Gathering Tools

Data gathering tools used in the studies conducted in the field of creative thinking approach has been given in Table 7.

Table 7: Data Regarding Data Gathering Tools

Data Gathering Tool	No
Scale-Questionnaire	51
Questionnaire	34
Scale	28
Interview	16
Literature	14

According to the data given in Table 7, in the scope of this study it can be seen that in the creative thinking studies, scale and questionnaire is used most as data gathering tool. Besides this information, it has been determined that the number of data gathering methods in these studies which are based on literature is the lowest.

Number of Sources

The number of sources used in the studies conducted in the field of creative thinking approach has been given in Table 8.

Table 8: Data regarding the number of sources used

Number of Sources	No
21 - 25	30
10 - 15	26

26 - 30	24
36 - 40	18
16 - 20	17
31 - 35	14
41 - 45	9
61 - 65	2
71 - 75	2
46 - 50	1
51 - 55	1
56 - 60	0
66 - 70	0

According to the data given in Table 8, it can be seen that in the scope of this study in the creative thinking studies, highest number of sources used is between 10 and 40 sources. Furthermore, the average number of sources used for the researches is 11.

CONCLUSION AND SUGGESTIONS

It has been found out that there were studies published on magazines on creative thinking between 2003 and 2013 as a result of content analysis on creative thinking approach. It can be seen that highest number of studies in this field has been done in 2011 and 2012. It is expected to have more scientific studies in the following years in the field of creative thinking which would contribute to the development of this field.

It has been found out as a result of content analysis on creative thinking approach that studies in creative thinking have been conducted more in the countries: England, USA, Taiwan and Turkey. According to the same data, it is concluded that in the countries of India, Israel, Hong Kong, Germany and Romania, the creative thinking studies have been conducted lowest. It is recommended to have creative thinking studies in the Turkish Republic of Northern Cyprus in respect that these studies would contribute to the educators, students and education ambiances.

As a result of the content analysis of creative thinking approach, mostly studies of two writers are coming forward among the scientific studies. Furthermore, it has been determined that the conducted researches are generally a product of group work. In connection to this conclusion, it is believed that it would be more beneficial if the studies conducted in the field of creative thinking are conducted in cooperative group work.

As a result of the content analysis of creative thinking approach, it has been determined that the scientific studies can be seen most intensively in the fields of science education, pre-school education and history education. Creative thinking approach is adopted in all fields since it would contribute to the development of individuals.

As a conclusion of the content analysis of creative thinking approach, it has been found out that the university students are mostly preferred for the sampling in the scientific studies. According to the same data, there are quite a good number of studies that the sample group is chosen as the primary school students. The creative thinking approach carries a great importance for the individuals in pre-school, primary school, secondary school or for the individuals studying in higher education. In this respect, it is suggested that the creative thinking approach must be installed in the education of different year classes.

As a result of the content analysis of creative thinking approach, it has been found out that mostly quantitative methods are used in the conducted studies. According to the same data, the number of studies that both quantitative and qualitative methods are used is very low.

As a result of the content analysis of creative thinking approach, it has been determined that scanning model is used highest in the studies. According to the same data, there are quite good number of studies conducted in the framework of empirical design. It is desired to have more studies in creative thinking approach with the use of different methods and models.

It has been found out as a result of the content analysis of creative thinking approach that questionnaire and scale is used the most as data gathering tool in the studies conducted.

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