EVALUATION OF STUDIES ON THE CRITICAL THINKING APPROACH THROUGH CONTENT ANALYSIS

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Abstract

The general aim of this study is to evaluate scientific studies on critical thinking conducted during the period between 2010-2014 through content analysis. In this research study, which was conducted using adocumentary screening model, data was collected using adocument examination method. 374 scientific studies that were accessed from the EBSCO and ScienceDirect databases were examined, analyzed and interpreted based on different criteria. The scientific studies were examined based on the year of publication, country, method, research model, sample group, size of the sample group, data collection tools, language, number of authors, research field and number of references.

Keywords: Criticial Thinking, Criticial Thinking Approach, Content Analysis.

1. INTRODUCTION

1.1. Critical Thinking

In the contemporary education system, teaching individuals to have critical thinking skills, i.e.to question information they have acquired, to know how to obtain information and to follow world developments,are some of the most important requirements that students need. Acquisition of these basic competencies by individuals is possible by implementinga critical thinking approach to the process of education and instruction. These days, even the concept of "critique" can be perceived as a very negative judgement of an individual, a work, an interpretation or an idea. However, critical thinking by definitionis different from these concepts and is perceived and evaluated by educators and psychologists in different ways.

Fisher (2007), Karahoca, Karahoca and Yengin (2010) defined critical thinking as the ability to interpret and evaluate observations effectively, to communicate and to discuss. Accordingly, for an individual to have a critical thinking ability,they primarily have to be open to innovation and change. Similar to this definition, Jitgarun and Tongsakul (2009) indicated that individuals who are critical thinkerscan accept or reject an explanation, event or situation through evaluation. While Facione (2007) stated that critical thinking is a thinking process that has both cognitive and philosophical bases; according to Delaney (2007), critical thinking is a process that is composed of recognition skills of collective perspectives by thinking in a reflective, rational, interrogative way in order to better understand the world. Critical thinking is still considered to be a heterogeneous concept and many ideas are being proposed related to the process (Nieto and Saiz, 2008; Saiz and Rivas, 2008). Critical thinking is a process that includes searching for information through reasoning skills, problem solving and decision making and it allows people to obtain more effective results (Saiz and Rivas, 2011).

Cüceloğlu (2011) and Hürsen and Kaplan (2012) described critical thinking as an active and organized mental process that allows usto understand ourselves and events occurring in our environment by being aware of ownthinking processes, considering other individuals'thinking processes andapplying our learned information. The historical development process of the critical thinking approach should also be examined in order to understand and interpret it more clearly. There are many explanations in the literature about critical thinkingin different resources.

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1.2. Historical Development Process of Critical Thinking Approach

When the historical development process of the critical thinking approach is considered, it is indicated that history of critical thinking is based on Plato and emerged in Western universities for the first time (Meyers, 1988).Furthermore, various scientists have had made significant contributions to our understanding of critical thinking including:John Dewey, Ernest Dimnet, Karl Duncker, Henry Hazlitt, Joseph Jastrow, Victor Noll, Joseph Rossman, Edward Thorndike, Jean Piaget, Graham Wallas and Joseph Wertheimer (Ruggiero, 1988). According to Robey (2002), the history of critical thinking dates back to ancient Greek times. The basis forthe study of critical thinking is known to date back to Socrates who discoveredthe questioning method hundreds of years ago. Socrates revealed the importance of asking questions for inquiry and thinking. In a sense, Socrates' questioning method constitutes the basis of the approach of critical thinking instruction today(The Critical Thinking Community, 2010). Critical thinking as a tool for intellectual development was first proposed by Perry and later by Belenky et alwhereby it waspresented as a model in the 1980's (Özden, 2005).

The introduction of the critical thinking approach to education occurred in the 19th century. In this century, the "reflective thinking" approach proposed by John Dewey was one of the prominent approaches and was included in educational programmes where itbegan to be adopted.

1.3. Characteristics of Individuals Who Have Critical Thinking Abilities

Common characteristics of individuals who have critical thinking abilities are widely discussed in academic literature. According to Branch (2000) and Ghaemi, Samimi and Hashemizadeh (2014), an individual who has a critical thinking ability is curious, open-minded, systematic, and analytical and has intellectual maturity, confidence and a willingness to search for the truth. Similarly, Kaya (1997) and Rathakrishan and Umar (2012) stated that an individual has to realize the existing problems, think in a flexible manner without prejudice, be willing to inquire and thinking, and be curious to be able to have critical thinking abilities. Demir (2011) indicated that critical thinking is not a random way of thinking; individuals who have critical thinking abilities need to profoundly examine the reasons forproblems, try to understand, oppose when required andperceive events objectively without any obsession.

According to Kökdemir (2000), the critical thinking processrequiresmany skills. These skills include theability to establishthe differences between proven truths and claims, evaluate the reliability of available sources of information,distinguish irrelevant information from evidence, be aware of prejudice, cognitive mistakes and inconsistent judgements, ask questions and use language effectively.

It can beseen that there are some content analysis studies in the literature about the critical thinking approach with different properties. Niu, Horenstein and Garvan (2013) carried outa content analysis study in order to identify the effect of instructional intervention on critical thinking skills. Similarly, Kong, Qin, Zhou, Mou and Gao (2014) performeda content analysis study examining the effect of students' critical thinking skills on their development. Mahapoonyanont (2010) carried outa content analysis study about critical thinking abilities and their related factors. It is observed that content analysis studies based on the critical thinking approach generally include the aspectsof critical thinking skills, factors affecting the development of critical thinking skills and the effects of different approaches and learning activities on critical thinking skills.

Nevertheless, critical thinking approach can be interpreted as an approach that never loses its' actuality and should be included in education based on the requirements of the current age. For this reason, it is thought that content analysis research should be carried outperiodically in order to determine the general orientation in scientific studies based on the critical thinking approach. In light of this information, the aim of this study was to evaluate scientific studies based on the critical

thinking approach in the contextof content analysis. The following sub-goals were determined in order to achievethis fundamental aim:

2. What is the distribution of the studies in terms of their publication year?
3. What is the distribution of the studies in terms of their countries?
4. What is the distribution of the studies in terms of their method?
5. What is the distribution of the studies in terms of their research model?
6. What is the distribution of the studies in terms of their data collection methods?
7. What is the distribution of the studies in terms of their sample group?
8. What is the distribution of the studies in terms of their number of authors?
9. What is the distribution of the studies in terms of their research area?
10. What is the distribution of the studies in terms of their number of references?

2. METHOD

This study, which aimed to evaluate scientific studies on the critical thinking approach through content analysis, was conducted based on the documentary screening model. To achievethe aforementioned aim, data was collectedfrom 374 scientific studies accessed from the EBSCO and ScienceDirect databases using the document examination method. The reason for selecting EBSCO and ScienceDirect as databases was that these databases are well-respected, reliable and provide the opportunity for quick and easy access to scientific studies. The keywords used to retrieve the scientific studies from these databases were "critical thinking" and "critical thinking approach". Thedata obtained from these studies was analyzed and interpreted using the16th version of the Statistical Package for Social Sciences (SPSS). The scientific studies used in this research were restricted to papers published between 2010-2014.

3. RESULTS

The results obtained from the research are presented and interpreted in detail based on the following different criteria.

3.1. Year of Publication

The distribution of scientific studies on the critical thinking approach in terms of year of publication is provided in Figure 1.
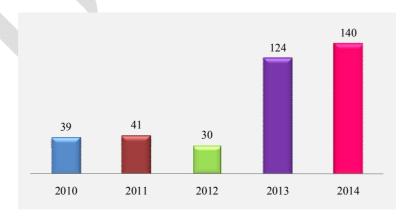

Figure 1. Publication Years of Scientific Studies on the Critical Thinking Approach

According to the data provided in Figure 1, it can be seen that the majorityof studies on the critical thinking approach were conducted in 2013 and 2014. In addition, it can beobserved that there was an increase in the amount of studies on the critical thinking approach over the last five years.

3.2. Country

The distribution of scientific studies on the critical thinking approach in terms of the countries in which the studies were conducted is provided in Table 1.

Table 1. Distribution of the Scientific Studies on the Critical Thinking Approach in terms of Countries

Country	N
USA	111
China	62
United Kingdom	44
Iran	31
Turkey	27
Australia	27
Thailand	22
South Africa	15
Israel	11
Colombia	8
Kuwait	6
Ireland	6
Korea	4

According to the data provided in Table 2, most of the studies on the critical thinking approach were conducted in the United States. In addition to this finding, China, the UK, Persia, Turkey and Australia were countries in which studies on the critical thinking approach were also extensively conducted.

3.3. Number of Authors

The distribution of scientific studies on the critical thinking approach in terms of the number of authors is provided in Table 2.

Tablo 2. Distribution of the Scientific Studies on Critical Thinking Approach in terms of the Number of Authors

Number of Authors	N
2	180
3	81
1	46
4	39
5	18
6	6
7	4

According to the data provided in Table 2, the number of studies with two authors was predominent. Nevertheless, the number of studies with three authors was relatively high when when compared with

the overall number. This obtained result revealed that studies on the critical thinking approach were generally conducted through cooperation.

3.4. Research Area

The distribution of scientific studies on the critical thinking approach in terms of research area is provided in Table 3.

Table 3. Distribution of Scientific Studies on the Critical Thinking Approach in terms of Research Area

Research Area	Number
Educational Sciences	202
Nursing	41
Physics	31
History	20
Guidance and Psychological Counselling	15
Social Sciences	9
Mathematics	8
Economy	7
Management	7
Geography	6
Arts	6
Biology	5
Chemistry	5
Engineering	5
Medicine	4
Environmental Sciences	3

According to the data provided in Table 3, it can be seen that most studies on the critical thinking approach were carried out in the area of educational sciences. Additionally, the number of studies in the area of nursing is relatively highwhen compared with the overallnumber.

3.5. Method

The distribution of scientific studies on the critical thinking approach in terms of method is provided in Table 4 in detail.

Table 4. Distribution of Scientific Studies on the Critical Thinking Approach in terms of Method

Method	N
Quantitative	281
Qualitative	75
Quantitative& Qualitative	18

According to the data provided in Table 3, it can be seenthat the most used method in studies related to thecritical thinking approach is the quantitative method. Based on the same data, the number of studies thatuse mixed methods was quite minimal when compared with the general number.

3.6. Research Model

Data related to theresearch model used in studies on the critical thinking approach is provided in Table 5.

Table 5. Research Models Used in Critical Thinking Studies

Research Model	Number
Screening Model	221
Experimental	71
Semi-Experimental	50
Screening Model and Experimental	32

According the data provided in Table 5, it can be seen that the majority ofstudies on the critical thinking approach used the screening model. In addition to this finding, the number of studies thatused the experimental model was relatively high.

3.7. Data Collection Tools

The distribution of studies on the critical thinking approach in terms of data collection tools is provided in Table 6.

Tablo 6. Data Collection Tools Used in Studies on Critical Thinking

Data Collection Tool	Number
Scale	101
Survey	83
Achievement Test	61
Interview	37
Observation	33
Document Examination	26
Interview & Observation	17
Attitude, Perception and Ability Tests	16

According to the data provided in Table 6, it is observed that scales and surveys were the most used data collection tools in studies on the critical thinking approach. In addition to this finding, the achievement test wasfound to bea data collection tool thatwasfrequently used in both experimental and semi-experimental studies. Based on the same results, it can be seen that the number of attitude, perception and ability tests used in research wasthe lowest out of the data collection tools.

3.8. Sample Group

In Table 7, the preferred sample groups used forresearch about the critical thinking approach is provided.

Table 7. Sample Groups Preferred in Studies on the Critical Thinking Approach

Sample Group	Number
University Students	190
Teachers	50
Teachers and Students	50
Academicians	30

Nurses	21
Elementary School Students	18
Other	15

According to the data provided in Table 7, the sample groups in studies on the critical thinking approach mostly consisted of university students. Based on the same findings, the number of studies with sample groups consisting of teachers and students was also relatively high.

3.9. Number of References

Data related to thenumber of references used in studies on the critical thinking approach is demonstrated in Table 8.

Table 8. Data Related tothe Number of References in Studies on Critical Thinking

Number of References	N
41-50	101
21-30	84
31-40	68
11-20	48
01-10	35
51-60	21
61-70	12

According to the data provided in Table 8, it can be seen that the most used number of references in studies on the critical thinking approachwas between 41 and 50.

4. CONCLUSION, DISCUSSION AND RECOMMENDATIONS

Variousresults were obtained from this study thatevaluated the scientific studies on the critical thinking approach based on different criteria. It can be seen that there was an increase in the number of studies conducted over the period between 2010-2014. This result revealed that the critical thinking approach is an intriguing approach which is frequently studied by both researchers and educators. In the future, orientation about this issue should be identified based on studies about critical thinking approach usingcontent analysis.

According to the results of the study, it was determined that research about the critical thinking approach was mostly conducted in the United States. Based on the same results, it was also revealed that China, the UK, Persia, Turkey and Australia were countries in which the studies on the critical thinking approach were extensively conducted. Future studies should compare the practice areas and properties of the critical thinking approach based on individual countries and the differences identified should be clearly revealed.

Another result from the present study was that the number of studies with two orthree authors waspredominent. This obtained finding revealed that researchers prefer a cooperative process when conducting a common research project about the critical thinking approach. It is suggested that future studies should also incorporate cooperative research.

Furthermore, it can be seen that most studies on the critical thinking approach were made in the area of educational sciences. As an approach that should be included in all areas considering both characteristics and requirements of the age, thecritical thinking approach should also be discussed and investigated by researchers from different expertise areas.

In scientific studies about the critical thinking approach, it has been shown that the most used method in these studies was the quantitative method. Additionally, the number of qualitative and mixed research methods used was quite minimal. Based on the same results, it was found that most studies on the critical thinking approach used a screening model. In addition to this finding, the number of studies which used experimental and semi-experimental modelswas relatively high when compared with the overal number of studies. Future studies should conduct qualitative studies in order to obtain more variedresults. Additionally,factors affecting the individual's tendency to think critically and factors supporting the development of critical thinking abilities should be investigated in more detail and revealed in future research.

In scientific research about the critical thinking approach, it was found that surveys were the most used data collection tools. Based on the same findings, achievement tests generally used in experimental and semi-experimental studieswere also frequently used. Therefore, it wouldbe beneficial for further research studies to utilize different data collection tools in order to producemore variedresults.

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