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Curriculum Development Study for Teacher Education Supporting Critical Thinking*

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ABSTRACT

Purpose: The existence of teachers who think critically and reflect this in their profession is an attribute that should not be abandoned in the process of generating a free, critical thinking, and democratic society. Teachers are the most important role models students have in shaping their behavior in all environments. Therefore, it is necessary for teachers to possess the skills of the new era, and the continuity and support of their professional development is fundamental. One of the foremost objectives of the education programs in Turkey is providing students with critical thinking ability. However, a teacher education program intended to support critical thinking in teachers, the executors of the program, is not available. The purpose of this study is to develop an educational program intended for primary education teachers that supports critical thinking and makes reflective evaluations. **Research Methods:** This research used the "Taba-Tyler Model," a curriculum development model. This research method was selected because a new education program is designed in this study. Findings: In the "Draft Supporting Critical Thinking Curriculum" that was formed as a result of the research, 12 objectives are presented under five themes (open-mindedness, questioning of the accuracy and reliability of information, reason-evidence seeking, openness, asking high-level questions). The application of the draft requires 15 hours. As a result of the reflective evaluation, the objectives and content of the draft program were found to be relevant regarding the learning experiences and the purposes of assessment and evaluation were consistent within themselves. **Implications for Research and Practice:** It is proposed that "Supporting Critical Thinking Curriculum" be developed for teachers working at different levels of education, because critical thinking education is a process that involves all levels of education.

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Introduction

Thinking is the foremost trait of humankind that distinguishes people from other living creatures. However, this human trait is not sufficient in assuring that individuals will have good reasoning skills. In the ideal way of thinking, our minds use thought processes, such as information acquiring, understanding, comprehending, analyzing, correlating, interpreting, evaluating, making judgments, and making decisions when reaching a conclusion about what is "good or bad, right or wrong". Critical thinking is a form of high-order thinking that involves all of these thinking processes.

The emergence of critical thinking as a concept dates back to Socrates in ancient Greece in the 6th century BC. Socrates defined critical thinking as "evaluating something in terms of its good or bad aspects," and defined critical thinking as the *art of judgment*. Today, "Socratic inquiry method" remains to be the most widely known and used method in teaching critical thinking.

In the face of the intense flow of information in the 21st century and our exposure to it in every area, we must rely on using all the processes of critical thinking. This includes a willingness to acquire information, inquiring into the accuracy and reliability of the information, reading the data and indicators correctly based on evidence, and posing the correct questions. This is imperative in decision making. (Paul, Elder & Bartell 1997, p.1).

This inquiry process, on which critical thinking is based, has led to the intense interest of experts from different disciplines, especially psychology, philosophy and education, as well as an interest in creating it as a field of study. However, this interest has led to a serious confusion in defining the term itself. As a result, various definitions have been used by field experts.

In order to be able to make a comprehensive definition of critical thinking, the "deep/reflective thinking" definition of Dewey is important (Gundogdu, 2009). Dewey defines critical thinking as the highest level of awareness to which a person is conscious, not only through human senses but also through the mind. It distinguishes in-depth thinking from "random thinking, fictitious thinking and imitative thinking" (Dewey, 1910, p. 4). The distinguishing features of Dewey's definition can be summarized as "a careful evaluation as an active thinking process, a thinking that is aware of its evidences and consequences, the process of thinking itself, the open thinking towards change and self-betterment" (Fisher, 2001; Lipman, 2003; as cited by Gundogdu, 2009), that is to say "controlled thinking." Other examples of definitions that different researchers suggest for critical thinking are as follows:

- Reaching results based on observation and information (Paul 1991, p. 125)
- Logical reflective thinking that is focused on helping in making judgments or making decisions (Paul & Elder, 2008)
- Problem solving (Ritchhart & Perkins, 2005)

- Effective interpretation and evaluation of observation, communication, information, and discussions (Scriven, 2007)
- Adopting critical thinking attitudes and tendencies (Glaser, 1983)
- Analyzing the situation with a careful, objective, and lasting approach (Beyer, 1987)
- Providing a consistent internal motivation (Facione & Facione, 1998)
- Having the tendency and skill to act with a reflective skepticism (McPeck, 1981)
- Following a versatile process that involves many mental activities (Lipman 2003; Ritchhart and Perkin, 2005; Fisher, 2001 and Doganay, 2001)
- Developing a skill that is not inherent, that is acquired afterwards and develops in proportion to the level of life (Cikrikci, 1996)

In his definition intended for this concept, Halpern (2003) outlines the limits of critical thinking as follows: (as cited by Gundogdu, 2009, p. 58):

A thought, by functioning as a mental hygiene that prevents manipulation on human thought, that helps everyone in noticing the propaganda, not being cheated, analyzing the implicit and unvoiced assumptions underlying the claims and arguments asserted, immediately noticing a deception, evaluating the reliability of a source of information, approaching a problem or a decision as best as possible.

Examining the generally accepted definition used by Ennis (1985), critical thinking is reflective and rational thinking that is focused on deciding what to believe or what to do.

Given the fact that experts, after long discussions in the field, have agreed that the definition of critical thinking is composed of skills, attitudes and tendencies, lends itself to the emerging view that critical thinking can be taught. According to De Bono (2007), thinking is a skill that can be learned and developed from education because it is the basic competence of humankind. However, this process, which is expressed as abstract and superficial, requires intense work and determination and takes place in a very complex process (Sensekerci & Bilgin, 2008, p. 27). In addition, experimental studies in the literature reveal that critical thinking education at all levels of the learning process has a positive impact on students. So who will lead this process?

In theoretical literature, many researchers indicate that the foremost factor in teaching critical thinking is the teacher (Ennis, 1985, 1993, Newmann, 1991, Paul 1991, Rovegno 1992, Marzano 1988, Fisher 2001, Halpern 2004; Doganay and Sari, 2012; Nosich, 2012), and the teacher even plays a more important role than the teaching of thinking skills. Research findings (Kaloc, 2005; Aybek, 2006; Cekic, 2007; Ozcan, 2007) also support this view. Since it has been emphasized that the most important role is

that of the teacher, the question, "What kind of teacher?" has presented a problem, and researchers have concentrated intensely to determine the answer. The teacher is not only a person who transfers the information, but also sets an example with his/her attitudes and behaviors. Field experts remark that only teachers who can think broadly can educate individuals in this ability and become role models (Walsh and Paul, 1998). Critical thinking should be taught by well-trained, knowledgeable, and experienced teachers in this field (Marzano, 1988; Demirci, 2002, Has, 2012). Researchers clarify the role of the teacher in instructing critical thinking within the context of a "guide" concept in the most effective way. However, the question of how teachers will guide students in learning to think in the classroom has existed in the literature for many years and it is as a question/problem that challenges teachers today (Doganay, 2012). It has been said that teachers who adopt critical thinking consider the high-order cognitive skills, such as analysis, synthesis and evaluation, necessary for their students (Sahinel, 2007). They contribute to the cognitive development of their students as a result of designing the teaching process accordingly, and they positively affect the attitude toward critical thinking (Seferoglu & Akbiyik, 2006).

According to Paul (1989), the foremost point that is overlooked is that the primary task of teachers who apply critical thinking teaching must "realize that they should teach students how to learn." Teachers should search for meanings, ask for reasons and evidence, facilitates cooperation, prevent controversies that could lead to disorder, encourage others to listen, guide students toward efficient comparisons and oppositions, emphasize contradictions and inconsistencies, and know to ask questions that enlighten the inferences and consequences (as cited by Koc, 2007). The findings obtained in the study of Erdamar and Alban (2017 p. 793), in which teachers' opinions were obtained as to what the traits of critical thinking teachers should be, are as follows:

Teacher must:

- Respect student opinions
- Be a model to the students in critical thinking
- Create a democratic and secure learning environment
- Monitor innovations in the field
- Listen to students
- Be open to criticism
- Be unbiased
- Address individual differences of students by using different methods techniques

While the role of the teacher is crucial in teaching critical thinking, Ashton (1988) states that the biggest obstacle in the objective of raising critical thinking individuals

in educational programs is that the teachers are not equipped with critical thinking knowledge and skills. He supports this view in his research on enhancing teacher qualifications and emphasizes the importance of focusing on prospective teachers and teacher education programs to emphasize critical perspectives to teachers (Paul, 1991; Tinning, 2002; Aybek, 2006, Boonjeam, Tesaputa & Sri-ampai, 2017).

According to other researchers, it is imperative to support and develop the professional knowledge and skills of teachers, in addition to their standard education, in order for them to be able to possess critical thinking skills, attitudes, tendencies, and behaviors, which enable them to transfer this knowledge into their lives (Critical Thinking Skills and Teacher Education, 1988; Peterson, Kromrey, Borg, and Lewis, 1990; Senemoglu, 1996; Kokdemir, 2003; Turnuklu & Yesildere, 2005; Battal, 2008; MoNE, 2008; Yesilpinar, 2011).

In their study, Peterson, Kromrey, Borg, and Lewis (1990) also demonstrated that teachers educated in high-order thinking skills, such as problem-solving and critical thinking skills, performed better in teaching other relevant skills.

As long as teachers do not support critical thinking through their behaviors in the classroom, it is difficult, as a whole, to educate critical thinking individuals and thus bring about a transformation in teaching programs (Alkın-Sahin & Gozutok, 2013). Therefore, building a teacher education system that supports the critical thinking process of students in the classroom environment of teacher education institutions and that brings the practice into the forefront is also of great importance in teacher education. According to Wilks (2005), in order for education systems to teach students who question well, participate more, are more open to debate, determine the predictions and priorities, seek alternatives, and infer from various perspectives, it is primarily necessary to educate the teachers in such a way that they can create these qualifications in their students. Moreover, in the findings of the study of Cave (1993) titled "Teachers' Behavior and Disposition on Students Critical Thinking," teachers with high-order critical thinking skills often provide their students with a rich learning environment by changing their learning activities through various teaching methods, thus ensuring that their students think critically.

The previous discussions demonstrate that the presence of teachers who think critically and reflect this in their behaviors is the starting point in educating critical thinking individuals.

When critical thinking in Turkish education systems is considered, and given that the measurement of such skills is an important indicator in international exams, a series of program changes become necessary. This should start with the primary education level and be included among the basic skills in educating individuals with 21st century qualifications required by the new age (MONE, 2005, 2017b). The role of the teacher is to bring to life relevant changes and innovations in education programs. However, definitions of "facilitator, guide, intermediary" designated to teachers who will bring change to education programs, remains a theory (Gurkaynak, Ustel and Gulgoz, 2008). In practice, critical thinking as a whole in Turkish literature (Kurum, 1999; Sensekerci and Bilgin, 2008; Tanriverdi, Doganay and Sari, 2012; Alkin-Sahin,

2012; Ulusoy & Turan, 2012; as cited by Unlu, 2017) is aimed at determining the critical thinking levels of teachers and prospective teachers. These critical thinking levels are inadequate, there are very few teachers with these qualifications, and the vast majority of those who do have the skills are insufficient. International exam results show that the objective of higher-order achievements is not realized (OECD, 2013, TEDMEM, 2014; MoNE, 2015; OECD, 2016: as cited by Unlu, 2017). The necessity to support the professional development of teachers, who are the executors of the program to improve this situation, has been emphasized in the reports of different institutions (OECD, 2003; ERG, 2005, 2008; METU, 2017: as cited by Unlu, 2017).

According to Perry (2014), addressing teacher education strategies in critical thinking and supporting professional development of teachers should be emphasized to develop and implement a comprehensive program for teachers. The importance of critical thinking education and the education of teachers has been emphasized in policy decisions (MoNE 2006, 2017a; THS, 1999, 2004, 2006) in Turkey, and is understood from evaluations, the innovation movement did not achieve its goals. It has deficiencies, and teacher competence is still being discussed among the most significant obstacles in the implementation of the program. In improving this situation, the lack of a teacher education program, at all levels, supports the need for further research.

Teachers are the foremost role models in the critical thinking development of their students. Thus, designing an education program that will support critical thinking of teachers is a significant step both in supporting their development as critical thinkers and in the creation of a critical thinking society. Therefore, the purpose of this study is to prepare a draft education program intended for primary education teachers that supports critical thinking and to makes a reflective evaluation. In parallel with this purpose, the study aims to find the answer to the question, "Are the objectives, content, learning activities, and evaluation dimensions of the Supporting Critical Thinking Curriculum Draft (SCTCD) consistent with each other?"

Method

Research Design

The design of this research was shaped in accordance with one of the curriculum models, the "Taba-Tyler Model." The design of the program and its required elements are determined by and defined by Demirel. (2012). The stages of the model are listed below (White, 1988, p. 26): a) Identifying the needs, b) Specifying the overall objective and formulation of objectives, c) Selecting and arranging the content, d) selecting and organizing the learning experiences, e) Conducting an evaluation, and if the result is insufficient, then, returning to the stages after specifying the overall objectives.

The steps taken to design the program for SCTCD are as follows.

a) Identifying the Needs**:** In a study conducted by Unlu, (2017) in order to demonstrate the educational needs of teachers' behaviors that support critical

thinking, it was revealed that the teachers in the research group are inadequate in demonstrating behaviors that support critical thinking in classroom environments and that they have educational needs in relation to this. The needs for teacher education in the research group are in the areas of open-mindedness, questioning of the accuracy and reliability of information, seeking causes and evidence, and high-level questioning.

b) Specifying the Overall Objectives and Formulation of Objectives**:** The overall objective of the SCTCD is to bring knowledge and awareness about the development of behaviors supporting critical thinking of primary education teachers. The program objectives are written using open-mindedness, inquiring about the accuracy and reliability of information, reason-evidence seeking and asking high-order questions. These themes constitute the dimensions of teacher behavior that support critical thinking.

c) Selecting and Arranging the Content: Varis (1996) emphasizes that the following criteria should be taken into consideration in the selection of content in education programs: 1. Community benefit, 2. Individual benefits, 3. Learning and teaching criteria, and 4. The place that content occupies in information. Firstly, field screening is conducted according to the results of a needs analysis. The subject area criteria about community benefits, individual benefits, learning and teaching criteria, and teacher behavior that supports critical thinking are emphasized in the selection of content. The content concerns topics from life that are accurate from a scientific point of view, suitable for the needs of the participants, and will create awareness of teacher behavior that supports critical thinking. In arranging the content of SCTCD, adult education principles were taken into consideration and an inquiry-based program approach is used. Attention was paid to the fact that the content is about topics containing each dimension of the teacher behaviors supporting critical thinking.

d) Selection and Organization of Learning Experiences: The learning and teaching process is designed in accordance with the content. In teaching learning process, it is preferred to use methods that enable participants to participate effectively in the educational process, such as creative drama, narration, questions and answers, group work, opinion development, case studies, large group discussions, conversation rings, creative writing, t-chart, and Socratic questioning.

e) Conducting an Evaluation: This is aimed at determining whether participants have acquired the pre-selected objectives in the program. For this purpose, the evaluation of objectives was conducted at the beginning, during and at the end of the application of program. Critical objectives representing the themes in formative evaluation were selected. Participants were expected to adapt these objectives to the situations they might encounter in life and to their professions. They were expected to evaluate those objectives about the given situation within the framework of determined criteria and teachers' opinions about education. The most suitable assessment and evaluation methods for objectives, content, and learning-teaching process were identified and tools were developed.

Research Sample

A purposive sampling method was used in this research. Experts in the study group voluntarily participated in this study. There were six experts in the research group consisting of two experts in curriculum development, two in assessment and evaluation, one in Turkish teaching and one in philosophy.

Research Instruments and Procedures

A reflective evaluation form was used as a data collection tool in the research, which was prepared by the researcher. It aimed to make a reflective evaluation of the program through revealing whether SCTCD's aspects were compatible with each other. For the evaluation of each item, "comment" and "suggestion" sections were included. The ratings for this section were set to "Yes", "Partly" and "No".

The reflective evaluation form was emailed to eight experts along with the documents that they would analyze (needs analysis, curriculum draft). Six experts returned their comments about REF via email along with the documents that they analyzed.

Data Analysis

"Frequency" was used as a descriptive analysis tool in the evaluation of field experts' opinions.

Results

In this part of the study, findings and interpretations of expert opinions on objectives, content, learning experiences, and assessment and evaluation dimensions are considered. A reflective evaluation form is used as a data collection tool in the expert evaluations about program elements. Expert opinions on dimensions are shown in Table 1 on objectives, in Table 2 on content, in Table 3 on learning experiences and in Table 4 on dimensions of assessment and evaluation. The explanations and adjustments to objectives, content, learning experiences and assessment and evaluation dimensions of the program are shown under the tables. The following acronyms are used in the tables: PR (participation rate); CD (curriculum development experts); MA (measurement and evaluation experts); P (philosophy field expert); and TL (Turkish language field expert).

Table 1
Expert Opinion on the Dimension of Objectives of SCTCD

Objectives	*PR*	*CD*	*MA*	*P*	*TL*	*Total (f)*
They are suitable for the needs of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are suitable for the level of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are expressed clearly and understandably	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are suitable for the subject field.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They support high-level thinking	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-

Expert opinions on the dimension of objectives of SCTCD are listed in Table 1, where it is shown that six experts opined that the objectives were suitable to the needs of the participants, the level of participants and the characteristics of the subject area. The table also shows that the objectives were expressed clearly and that they supported high-order thinking.

In addition to the above evaluations, a curriculum development expert and an assessment and evaluation expert stated that that the program was written in such a way that most of the objectives contained single verbs and a single judgment. Further, they followed a systematic format from simple to complex, which complied with the principles of outcome writing, such as using a clear and understandable expression. In addition to these opinions, they had criticisms and recommendations for the expressions in the first theme, outcome number two and theme four, outcome number two.

The adjustments for objectives as a result of these criticisms and recommendations are as follows:

- Theme 1, Outcome 2: "Accepts that views may change with a change in evidence or reasons."
  Theme 1, Outcome 2: "Accepts that the change in views with the change in evidence or reasons is a natural process."
- Theme 4, Outcome 2: "Understands the importance of evaluating a subject from different perspectives."

  Theme 4, Outcome 2: "Evaluates a subject from different perspectives."

Table 2
Expert Opinion on Content Dimension of SCTCD

Content	*LP*	*CD*	*MA*	*P*	*TL*	*Total (f)*
It is consistent with objectives.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
It is suitable for the needs of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
It is scientifically correct.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
The given information is valid.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
The specified time is sufficient.	Yes	1	2	1	1	5
	Partly	1	-	-	-	1
	No	-	-	-	-	-

Expert opinions on the content of SCTCD are listed in Table 2. Six experts stated that the content of the program is consistent with the objectives, the content is suitable to the needs of the participants, it is scientifically correct, and that the information contained in the content is valid. Five experts agreed that the allocated time was also sufficient for content and one curriculum developer opined that the allocated time was partly sufficient. In addition to this, they indicated that the guidelines given in the program led the instructor and were detailed, eliminating the impact on the educator during education and provided guidelines for the methods and techniques used in the activities. They further concurred that the selected texts in the program for the activities were well-chosen. As a result of the recommendations, the allocated time of the activities in the program were reviewed and increased.

Table 3

Expert Opinion on Learning Experiences Dimension of SCTCD

Learning Experiences	LP	CD	MA	P	TL	Total (f)
The selected principles and methods of teaching are suited to objectives.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
Learning activities are consistent with the objectives.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are line with the features of information in the content.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
Teaching techniques and methods used were suitable.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-

Table 3 Continue

They are suitable for the level of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are suitable for the characteristics of the participants (primary education teacher).	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
They are suitable for the active participation of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
The suggested materials are suitable.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
The specified time is sufficient for learning activities.	Yes	1	2	1	1	5
	Partly	1	-	-	-	1
	No	-	-	-	-	-
Activities were expressed clearly and understandably.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-

The experts agreed that Table 3 showed that the teaching principles and methods selected in the learning experiences were suitable to the objectives, consistent with the activities, and suitable to the characteristics of the content information. They further indicated that the teaching principles and methods used met the level of the participants, their characteristics, and active participation, and that the materials recommended for their learning experiences were suitable and expressed in a clear and understandable way. One curriculum development expert mentioned that the allocated time for activities was partly sufficient. However, some experts (i.e., curriculum development, evaluation and assessment) opined that the application of the methods in the process of teaching-learning that enable the participants to participate efficiently in the educational process, such as creative drama, narration, questions-answers, group study, developing opinions, case studies, big group discussions, circles of discussion, creative writing, t-table, six thinking hats, and Socratic inquiry would enrich the application of program.

Table 4
Expert Opinion on Assessment and Evaluation Dimension of SCTCD

Measurement and evaluation;	*LP*	*CD*	*MA*	*F*	*TL*	*Total (f)*
Assessment activities are suited to attainment.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
There is an evaluation activity for each sub-dimension.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
Assessment activities are appropriate for the level of participants.	Yes	2	2	1	1	6
	Partly	-	-	-	-	-
	No	-	-	-	-	-
The methods and techniques used are true.	Yes	2	1	1	1	5
	Partly	-	1	-	-	1
	No	-	-	-	-	-

When viewing Table 4, it is seen that all experts participating in the evaluation opined that the evaluation activities of the program are suitable to the objectives, that evaluation activities for each dimension are part of the program, and that the evaluations are suitable to the level of the participants. While five experts indicated that techniques used for the evaluation of themes were suitable, one assessment and evaluation expert felt that the methods and techniques used were partly accurate.

In addition to these views, the opinions and criticisms of one curriculum development and one assessment and evaluation expert are provided below:

- Different assessment and evaluation techniques, such as banner preparation, slogan writing, and creative drama can be used in the evaluations at the end of the themes.
- In the evaluations at the end of the themes, not only preparing questions, but also developing an answer key may be useful to teachers in thinking about the question they are preparing.
- Criteria of "open-mindedness" and "inquiring into the accuracy and reliability of information" themes in the scoring key may be rearranged.
- It was mentioned that the use of participant diaries throughout the process would be a suitable method for collecting opinions of the participants about the program and would be effective in providing information to the researcher about the functioning of the program.

The adjustments made for assessment and evaluation dimension as a result of these criticisms and recommendations are as follows:

- The assessment and evaluation techniques of banner preparation and slogan writing were added to the assessment and evaluation activities in the first and fourth themes. Creative drama method was eliminated from the assessment and evaluation dimension because it is used in every warming-up activity in the program.
- The expression "*reasons are given*" was added to the sentence of "Examples are provided for the concepts of fact, data and opinions," in the criteria about inquiring the accuracy and reliability of information theme on the scoring key, which is worth two points.

Discussion, Conclusion and Recommendations

This study is intended for the development and reflective evaluation of an education program for the behaviors of primary education teachers in supporting critical thinking. It is found that the outcome, content, learning-teaching states and assessment and evaluation dimensions of SCTCD were consistent with each other and suitable for their purposes. When literature in teacher education in Turkey is examined, an education curriculum developed for the behaviors of teachers, which support critical thinking, is not available. In addition, the topic of teacher behaviors that support critical thinking are neither included in the education programs of the education institutions that educate teachers, nor in programs about in-service education held by MoNE. On the other hand, the lack of such study brings along a serious contradiction, despite the fact that there are studies in the current literature intended for supporting the development of critical thinking of students at different levels. As previously stated, teachers are the foremost role models responsible for the development process of critical thinking of students (Ennis, 1983, 1993; Newmann, 1991; Paul 1991; Rovegno, 1992; Marzano, 1988; Fisher, 2001; Halpern, 2004; Doganay & Sari, 2012; Nosich, 2012). In this sense, only teachers with critical thinking skills and those who reflect such skills in their behaviors can be expected to educate critical thinking individuals (Marzano, 1988). For this reason, educating teachers to have critical thinking skills and continuity in supporting their professional development will also contribute to their performing their duties as critical thinkers (Washington, 1987; Gonzales-Rubio, 1988; as cited by Boonjeam, Tesaputa and Sri-ampai, 2017). Developing an education program for the behavior of teachers, which supports critical thinking, may be considered as one of the steps taken in the education of critical thinking of students and in the process of forming a free and democratic environment, which will be created by the existence of critical thinking individuals in society.

By looking at the results of the program based on the results of the research, the outcome dimension of SCTCD is suitable to the needs of the participants, their levels and the characteristics of the subject area. Objectives are expressed in a clear and understandable manner, and high-order thinking skills that support critical thinking are mentioned. There are 12 objectives in the program. The content dimension of SCTCD is consistent with objectives, suitable to the needs of the participants, and scientifically accurate. The content is structured under five themes (dimensions of open-mindedness, inquiring about the accuracy of information, inquiring about the reliability of information, reason-evidence seeking, and asking high-order questions) in SCTCD.

In the teaching-learning experiences dimension of SCTCD, the activities are consistent with the objectives. The teaching principles and methods selected are suitable to the objectives and characteristics of the content information, the characteristics of the participants (teacher), their levels and the active participation of the participants. In addition to this, according to the experts, using interactive teaching principles in the designing of activities will contribute to the increase in interaction throughout education. According to Gozutok (2007), using interactive teaching methods and techniques, such as creative drama, narration, questions-answers, group study, developing opinions, case studies, big group discussions, circles of discussion, six thinking hats, and Socratic inquiry, may contribute to the development of critical thinking skills and improve success. When

looking in the studies conducted in Turkey, it is seen that activities designed using interactive teaching and methods intended for the critical thinking education of prospective teachers in different branches, have a positive impact on their learning process (Cave, 1993; Gultekin, 2016; Aybek, 2006; Narin 2009; as cited by Unlu, 2017). The time required for the application of draft program is 15 classroom hours. Attention should be paid to the use of time given for activities during the implementation of the activities.

The assessment activities in the assessment and evaluation dimension of SCTCD are suitable to the objectives and levels of participants. The methods and techniques used are accurate. According to expert opinions, the use of participant diaries during the evaluation phase of process improved the evaluation dimension of the program, because it includes the participant opinions about the evaluation. The reflective diaries written by participants are found to be functional in understanding what they have experienced in the research process, because such diaries help them in offering alternative solutions to the practical problems they encountered or may encounter. Reflective diaries enable monitoring and recording of the development of participant's learning in teacher education. They also contribute to developing the thinking skills of the individual, especially the critical thinking, the participant's active participation in the learning process by evaluating the data obtained, and thereby the quality of learning (Dixon, 2009; Abbas and Gilmer, 1997; Burbach, 2004; Ekiz, 2006; Langer, 2002; as cited by Unlu, 2017). When examining the literature, it is seen that reflective diaries are widely used in teacher education and are an effective method in evaluating the efficiency of teacher education (Ekiz, 2006; Isikoglu, 2007; Anilan & Anagun, 2007; Lee, 2008; Tok, 2008; Koc and Yildiz; 2012). This situation in literature supports the expert opinions obtained at the completion of the research. Because active participation of participants is important for the effectiveness of education, attention must be paid to ensure that active participation supports critical thinking. It is proposed that SCTCD be developed for teachers working at different levels of education, because critical thinking education is a process that involves all levels of education.

In summary, as a result of the study, it is apparent that the outcome, content, teaching-learning experiences, and assessment and evaluation dimensions of SCTCD are consistent with each other and applicable.

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Eleştirel Düşünmeyi Destekleyen Öğretmen Eğitimi Program Geliştirme Çalışması

Atıf:

Unlu, S. (2018). Curriculum development study for teacher education supporting critical thinking. *Eurasian Journal of Educational Research*, 76, *165-186,* DOI: 10.14689/ejer.2018.76.9

Özet

Problem Durumu: Düşünme insanoğluna ait ve onu diğer varlıklardan ayıran en önemli özelliktir. Ancak insanoğlunun bu özelliği iyi düşünen bireyler olmaları için yeterli değildir. İdeal olan düşünme biçiminde beynimiz iyi ya da kötü, doğru ya da yanlış olan hakkında bir sonuca ulaşırken birtakım düşünme süreçlerini kullanmaktadır. Eleştirel düşünme de karmaşık düşünme süreçlerini kapsayan bir üst düzey düşünme biçimidir. 21.yy'da her alanda maruz kaldığımız yoğun bilgi akışı karsısında bu yöntemin dayandığı doğru olan bilgiye ulaşmada isteklilik, bilginin doğruluğunun ve güvenirliğinin sorgulanması, verileri ve göstergeleri doğru okuma, kanıtlara dayandırma, doğru soruları sorma gibi eleştirel düşünmenin tüm göstergelerini kullanarak aklın rehberliğinde karar vermek için zorunlu hale gelmiştir. Eleştirel düşünmenin dayandığı bu sorgulama sureci basta Psikoloji, Felsefe ve Eğitim olmak üzere farklı disiplin alanı uzmanlarının yoğun ilgisini çekerek bir çalışma alanı haline gelmesine neden olmuştur. Alanda yapılan uzun tartışmalar sonucunda uzmanların eleştirel düşünme tanımının becerilerden, tutumlardan ve eğilimlerden oluştuğu konusunda hemfikir olmaları eleştirel düşünmenin öğretilebilir olduğu görüşünü de ortaya çıkarmıştır. Alanda yapılan deneysel çalışmalar da, her düzeydeki öğrenme surecinde eleştirel düşünme eğitimlerinin öğrenciler üzerinde olumlu etkisi olduğu sonuçlarını ortaya koyarak bu görüşü desteklemiştir. Peki bu süreci kim ya da kimler yönlendirecektir? Öğretmen öğretim sürecindeki en önemli aktörlerden biri olduğundan öğrenciler için birincil konumdaki rol modedir. En önemli rolün öğretmene ait olması ile araştırmacıların üzerinde düşündükleri meydan okuyucu bir diğer soru da "Nasıl bir öğretmen?" sorusu olmuştur. Öğretmen sadece bilgiyi aktaran değil; tavır ve davranışlarıyla öğrencilere örnek olandır. Eleştirel düşünme alan uzmanları ancak iyi düşünebilen öğretmenlerin örnek rol modeller olarak iyi düşünebilen bireyler yetiştirebileceğini, bunun da alanda iyi yetişmiş, bilgili ve deneyimli öğretmenler tarafından sağlanabileceğine dikkat çekmektedirler. Türkiye' de alınan politika

kararlarında; eleştirel düşünme, eleştirel düşünme eğitim-öğretimi ve eleştirel düşünen öğretmen yetiştirmenin önemine yer verilmiştir. Ancak uygulamada yeterli ve etkili girişimlerin olmadığı, alınan ulusal ve uluslararası sonuçlarda hâlâ öğretmen yeterliği konusunun tartışıldığı görülmektedir. Bu sebeple, öğretmenlerin eleştirel düşünmelerini destekleyecek bir eğitim programının tasarlanması öğretmenlerin hem birer eleştirel düşünür olarak gelişimlerinin desteklenmesinde hem de eleştirel düşünen bir toplum yaratılması sürecinde atılan önemli adımlardan biri olacaktır.

Araştırmanın Amacı: Uluslararası eğitim araştırmalarında eleştirel düşünen bireylerin varlığı modern eğitim sistemlerine sahip ülkelerin en önemli eğitim çıktıları arasında gösterilirken, okul öncesinden yükseköğretim kademesine kadar tüm branşlardaki öğretmenlerin nitelikleri sürekli sorgulanmaktadır. Özellikle temel becerilerin öğrencilere kazandırılmasında ilköğretim kademesi ön plana çıkmaktadır. Eleştirel düşünebilen bireylerin yetiştirilmesinde gerekli olan eleştirel düşünen ve sınıf ortamında davranışları ile eleştirel düşünmeyi destekleyen öğretmenlerin varlığıdır. Türkiye'de uygulamadaki öğretim programlarının önemli çıktılarından birisi eleştirel düşünebilen öğrencilerdir. Ancak, program uygulayıcısı olan öğretmenlerin çoğunluğu bu yeterliliğe sahip olmadıkları gibi eleştirel düşünmelerini desteklemek amacıyla bir öğretmen eğitim programı da mevcut değildir. Bu alandaki ihtiyacı gidermek amacıyla yapılan bu arastırmanın amacı, ilköğretim öğretmenlerinin eleştirel düşünmeyi destekleyen davranışlarına yönelik bir eğitim programı hazırlamak ve yansıtıcı değerlendirmesini yapmaktır.

Araştırmanın Yöntemi: Araştırma, bir program geliştirme modeli olan "Taba-Tyler Modeli" doğrultusunda şekillendirilmiştir. Bu modelin hedefleri, verimlilik ve uygulanabilirlik açısından en iyi duruma getirilmiş eğitsel tasarım ve programlar ortaya koymaktır. Bu araştırmada da alandaki ihtiyaca yönelik yeni bir eğitim programı tasarlandığından Taba-Tyler Model'inin kullanılması tercih edilmiştir. Araştırmada, amaçlı örnekleme yöntemi kullanılmıştır.

Araştırmanın Bulguları, Sonuçları ve Öneriler: Araştırma sonucunda ortaya konan "Eleştirel Düşünmeyi Destekleyen Öğretmen Eğitim Program Taslağı [EDDÖEPT]'da beş tema altında (açıklık, bilginin doğruluğunun güvenirliğinin sorgulanması, açık fikirlilik, neden-kanıt arama ve üst düzey soru sorma) 12 kazanım yer almaktadır. Taslağın uygulanması 15 ders saatini gerektirmektedir. Yansıtıcı değerlendirme sonucunda taslak programın kazanımları, içeriği, öğrenme yasantıları ve ölçme değerlendirme boyutları kendi içlerinde tutarlı ve programın genel amacına uygun bulunmuştur. Eleştirel düşünme eğitiminin tüm eğitim kademelerini kapsayan bir süreç olmasından dolayı EDDÖEP'nin farklı eğitim kademelerindeki öğretmenler için de geliştirilmesi önerilmektedir.

Anahtar Kelimeler: Eleştirel düşünme öğretimi, öğretmen davranışları, öğretmen eğitimi, yansıtıcı değerlendirme.

Appendix A

Table 5

Supporting Critical Thinking Curriculum

General Aim: The overall objective of the Supporting Critical Thinking Curriculum is to gain knowledge and awareness about the development of primary school teachers' behaviors supporting critical thinking.						
Subject Field	**Objectives**	**Content**	**Learning Experiences**	**Evaluation**	**Materials**	**Time**
Open Mindedness	Meeting whole group; Warm up	Throw a ball	Creative drama	-	Ball	15 min.
	1. Question the ideas accepted by the majority of society.	Interrogating Ideas (Employee in the Street Children)	Opinion Development	Worksheets (formative assessment) Summative assessment	Laptop, projector, slides, writing board, board pen, speech object, paper.	75 min.
	2. Realize that it is a natural process when the evidence or reasons change; change the views.	Our Views Can Change (Syrian Immigrants, Compactness)	Conversation Circle Case Study Analysis	Summative assessment		
Asking High-Level Questions	Getting to know group members; Warm up	Secret Skills	Creative drama	-	Paper, pencil	10 min.
	1. Explain the proper question properties of the reason.	The Importance of Asking Questions	Whole Group DiscussionConversation Circle	Summative assessment	Laptop, projector, slides, writing board, board pen, speech object, paper, short film.	100 min.
	2. Ask questions that encourage high-level thinking in the teaching process.	Understanding Basic and Strong Concepts	Case Study Analysis Video tracing Small Group Study	Worksheets (formative assessment) Summative assessment		
Openness	Understanding disabled people; Warm up	Understanding Barriers	Creative Drama	-	-	10 min.
	1. Using different methods to explain unfamiliar concepts and definitions.	Teaching Unintelligible Concepts Understanding Basic and Strong Concepts	Role Play, Conversation Circle, Case Study Analysis, Individual Study, Socratic Inquiry, Creative Writing, Group Work	Worksheets (formative assessment) Summative assessment	Laptop, projector, slides, writing board, board pen, speech object, paper, colorful pen, short film, texts.	90 min.

Table 5 Continue

Subject Field	Objectives	Content	Learning Experiences	Evaluation	Materials	Time
Questioning of the Accuracy and Reliability of Information	Draw attention to the subject; Warm up	Why "Googling" Is Not Enough.	Text Reading	Summative assessment	Laptop, projector, slides, writing board, board pen, speech object, paper, colorful pen, short film, hats (white, black, yellow, blue, red), texts.	100 min.
	1. Know the scope of concepts that deliver reliable information	What are the Data, Facts and Findings? Sources of Information	Presentation, Questions-Answers Text Reading Conversation Circle			
	2. Organizing activities to inquire about the authenticity of information	Trustworthy Sources of Information	Conversation Circle Group Work			
	3. Applying activities to evaluate a topic at different points of view.	Evaluating Different Perspectives	Six Hat Thinking Reading Text			
	4. Give examples of events, events and findings	What are the differences between knowledge, cases, findings?	Group Work T- chart	Worksheets (formative assessment) Summative assessment		
Causes - Evidence Seeking	Questioning situations where participants do not like the environment they live in; Warm up	Complaint Box	Creative drama	-	Box, paper, pencil	10 min.
	1. Conduct activities to decide whether the reasons for the events/circumstances in the written and/or oral material are persuasive.	Presenting the Right Justification	Question-Answer Case Study Analysis	Summative assessment	Laptop, projector, slides, writing board, board pen, speech object, paper, letters, short film.	95 min.
	2. Conduct studies that explain the causes and evidence of ideas.	Why Do I Think So?	Conversation Circle			
	3. Organize incidents to question the cause-and-effect relationships of a controversial issue, such as discrimination, war, bloodshed, honor killings.	Cause - Result Relation	Creative writing	Summative assessment Worksheets (formative assessment)		