

A Thematic Content Analysis of the Qualitative Studies on FATİH Project in Turkey

Türkiye’de FATİH Projesi Kapsamında Yapılan Nitel Çalışmalara Ait Bir Tematik İçerik Analizi

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ABSTRACT: The aim of this study is to examine studies conducted within the Movement to Increase Opportunities and Technology (FATİH) project in order to reveal the current position of the project and to determine further research gaps. A method based on thematic content analysis was used for the study. Academic studies that have been analyzed in research were obtained from databases such as the Higher Education Council (HEC) National Thesis Center, TUBITAK ULAKBİM Social and Humanities Database, ERIC, and Google Academic. A total of 137 studies were analyzed within the scope of the study. Following the examination of the papers, the study included 54 academic-study-specific criteria which were grouped under five main themes. These themes are (1) general ideas about the FATİH project; (2) views, ideas, and suggestions for the implementation of the FATİH project; (3) studies on the equipment of the FATİH project; (4) studies on the training related to the FATİH project; and (5) studies evaluating and analyzing the FATİH project. Within the scope of the FATİH project, it was seen that several studies were done under the three. As a result of this thematic content analysis, it is stated that there is a need for new studies on teacher education, hardware infrastructure, and e-content related to the FATİH project. Furthermore, it is suggested that teacher training should be provided periodically, especially for special to each course and software aspect be used in learning and teaching activities of the project should be strengthened by further diversification.

Keywords: FATİH project, thematic content analysis, educational technology.

ÖZ: Bu çalışmanın amacı, FATİH projesi konusunda yapılan çalışmalarını inceleyerek durum değerlendirmesi yapmak, projenin günümüzde geldiği noktayı ortaya koymak ve geleceğe yönelik yapılması gereken çalışmalarını belirlemektir. Çalışmada tematik içerik analizi yöntemi kullanılmıştır. Araştırmada incelenen akademik çalışmalara Yüksek Öğretim Kurulu [YÖK] Ulusal Tez Merkezi, TÜBİTAK ULAKBİM Sosyal ve Beşeri Bilimler Veri Tabanı, ERIC ve Google Akademik gibi veri tabanlarından ulaşılmıştır. Çalışma ile ilgili olarak toplam 137 çalışmaya ulaşılmıştır. Çalışmaya belirli kriterler doğrultusunda 54 akademik çalışma dahil edilmiş olup, dâhil edilen çalışmaların incelenmesi sonucunda beş ana tema oluşturulmuştur. Bu temalar; (1) FATİH projesine ilişkin genel düşünceler, (2) FATİH projesinin uygulanmasına ait görüş, düşünce ve öneriler, (3) FATİH projesi ekipmanları ile ilgili yapılan çalışmalar, (4) FATİH projesi ile ilgili olarak yapılan eğitimlere ilişkin çalışmalar, (5) FATİH projesini değerlendirme ve analiz çalışmaları olarak ifade edilmiştir. FATİH projesi kapsamında en fazla çalışmanın 3. tema altında yapıldığı görülmüştür. Bu çalışma sonucunda FATİH projesi ile ilgili olarak özellikle öğretmen eğitimi, donanım altyapısı ve e-içerik konularında etkili çalışmaların yapılmasına ihtiyaç olduğu ifade edilmiştir. Çalışma sonucunda özellikle öğretmen eğitimlerinin belli branşlara özel, belirli aralıklarla tekrar eden bir şekilde yapılması ve projenin yazılım boyutunun daha fazla çeşitlendirilerek güçlendirilmesi önerilmiştir.

Anahtar kelimeler: FATİH projesi, tematik içerik analizi, eğitim teknolojisi.

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Introduction

In today's world, where information is easy to reach and is constantly increasing very rapidly, it is accepted everywhere that technological development is also progressing at an unprecedented pace in parallel with information (Solak, 2012). Depending on the technological development, the effects of technology seem to be felt seriously in educational sciences (Cücü, 2014). Developments and changes in technology have made it necessary for educational environments to keep up with the era and to use this technology in educational environments (Arıcan, 2014). Introducing new technologies into our lives causes many innovations to be reflected in the field of education (Yıldırım, Kurşun, & Göktaş, 2015). The rapid change of information, the fact that there are currently many ways to access information, and the active use of information technology (IT) by students have made the development of new ideas in learning and teaching systems as well as the presentation of the opportunities of e-learning systems to the students inevitable (Tüzün, Akıncı, Yıldırım, & Sarıkaya, 2013).

From this point of view, it has been emphasized that it is necessary to prepare and implement educational programs and teaching methods and tools by benefiting from science and technology in order to increase the quality of education in the Sixth Five-Year Development Plan (1990–1994), which entered into force in 1990, and the Seventh Five-Year Development Plan prepared in 1996 (as cited by Seferoğlu, 2010). For this purpose, one of the projects signed between the Ministry of National Education (MoNE) and the World Bank in 1990 was the “National Education Development Project.” Within the scope of this project, various subprojects were carried out. These subprojects included the “53 computer pilot schools (CPS)” project and the “182 computer laboratory schools” project. The general objective of these projects is to extend computer-aided education and computer education using technology in the classroom (as cited by Sezer, 2011). After that, a course related to IT started to be taught in elementary schools for the first time with the Basic Education Project, which was put into practice by the MoNE in 1998 for the same reasons, and computer laboratories, computers, overhead projectors, TVs, and videos were supplied to schools within the scope of this project (as cited by Sezer, 2011). For similar reasons, the aim was to provide a fast, uninterrupted Internet connection to all schools with a protocol signed between the Ministry of Transportation and MoNE in 2003. In addition, in the Information Society Strategy (2006–2010) prepared by the State Planning Organization (SPO), there is a target related to the use of IT in our educational system, which is stated as follows: “Information and communication technologies will be one of the basic tools of the education process and students and teachers will be able to use these technologies effectively” (SPO, 2006). In the Information Society Strategy, it is also requested that the following objectives be fulfilled concerning the mission of the MoNE to enable the transition to an information society (MoNE, 2010a):

- ✓ Appropriate structures should be formed and e-content should be developed for individuals to develop themselves through lifelong learning approaches and e-learning.
- ✓ Every student who received secondary education should have the competence to use basic information and communication technology.

- ✓ One out of every three students should be able to benefit from e-education services through effective use of the Internet.
- ✓ Everybody should be given an opportunity to learn and use information and communication technology.
- ✓ Every other person should be an Internet user.
- ✓ The Internet should be turned into a reliable medium for all classes of the society.

The MoNE has put forward the vision of IT in relation to the use of IT in education and stated this vision as “Integrating education system with advanced technologies, supporting the education system with innovations, developing the education system continuously through measurement and evaluation and providing student-centered and project-based education by using information technologies” (MoNE, 2009). The ministry also implemented various projects as a requirement of the above-mentioned vision; projects such as Think Quest (MoNE, 2007), Intel Teacher Program (MoNE, 2004), Web Based Content Development (MoNE, 2007a), DynEd (URL, 2019), and Cisco Network Academy (MoNE, 2006a) are examples of these projects. The Movement to Increase Opportunities and Technology (FATİH) project in education was designed by the SPO to meet the objectives set out in the Information Society Strategy and achieve the above-mentioned strategic objectives (MoNE, 2010a). The aim of this project, which was announced through a protocol between the MoNE and the Ministry of Transportation in 2010, is to provide notebook computers, LCD panel interactive boards, and Internet network infrastructures to 620,000 classrooms at schools in the preschool, primary, and secondary levels, with the aim of providing an equal opportunity in education and training, improving the technology in our schools, and enabling the effective use of IT tools in classes in a way that will engage more senses in learning/teaching processes (MoNE, 2010d). The FATİH project consists of five main components:

- (1) Providing hardware and software infrastructures
- (2) Providing and managing educational e-content
- (3) Using efficient IT in curricula
- (4) In-service training of teachers
- (5) Ensuring conscious, secure, manageable, and measurable use of IT (MoNE, 2010c).

With the FATİH project, the aim is to enable teachers to demonstrate their lessons more effectively through the hardware and software infrastructures that will be provided to the classes in the learning/teaching process of IT tools in order to provide an equal opportunity in education and training and to improve the technology in schools (Alkan, Bilici, Akdur, Temizhan, & Çiçek, 2011). Within the scope of providing and managing e-content, electronic content will be provided to be used as teaching material in teaching programs and as auxiliary course material. It is planned that this e-content will consist of learning material supported by multimedia components, such as audio, video, animation, presentations, photos/pictures, and interactive e-books (MoNE, 2010c).

For teaching programs to be supported by active IT use through effective use of IT in teaching programs, it is planned to renew teacher guidebooks in a way that will

make them include the effective use of educational infrastructures and educational e-content provided to the classrooms of our schools (MoNE, 2010c). Effective use of IT in teaching programs is planned to be performed through face-to-face and distance learning and in-service training activities in order to develop the skills of using hardware infrastructures provided to the classes, educational e-content, and teacher guidebooks that were adapted to IT effectively for teachers working within the body of the MoNE (MoNE, 2010c). In order to provide conscious and safe IT uses with network infrastructures and broadband Internet usage, it is aimed to establish the necessary hardware and software infrastructures and set the required regulations for providing conscious and safe use of the Internet along with IT tools in the teaching/learning process (Tuncel, 2012).

Created in 2010, the FATİH project is a comprehensive, high-budgeted project that aims to make radical changes in the field of education and to restructure the educational system by integrating information and communication technology with education (Ekici & Yılmaz, 2013). Taking the current technology and educational developments into consideration, the FATİH project is considered to be of great importance for our country (Atalay, Saban, & Çoklar, 2016). From this point of view, many studies have been performed in our country on this project and its components. In a study conducted by Ayvaci and Başak (2016), it was stated that a total of 142 studies were carried out on the FATİH project, including 73 articles, 41 papers, 17 theses, and 1 book section, among four types of publications between 2010 and 2015. On the other hand, the number of studies carried out in this area increased with the establishment of the project's infrastructure in all cities and school types. In some of these studies, teachers examined the perspectives of using smart boards and tablet PCs within the FATİH project (Sözen & Coskun, 2017). In some other studies, there were trials to put forward general thoughts related to the FATİH project (Aktaş, Gökoğlu, Turgut, & Karal, 2014; Altın & Kalelioğlu, 2015; Baz, 2015; Çiftçi, Taşkaya, & Alemdar, 2013; Genç & Genç, 2013; Şahin, Aktürk, & Çelik, 2013). In addition, in some studies, views, thoughts, and suggestions related to the pilot implementation of the FATİH project have been emphasized (Altın, 2014; Ayvaci, Bakırcı, & Başak, 2014; Dursun, Kuzu, Kurt, Güllüpinar, & Gültekin, 2013; Keleş, Öksüz, & Bahçekapılı, 2013; Özkan & Deniz, 2014). In other studies, researches on the equipment of the FATİH project (interactive boards, tablet computers, and Z-books) have been conducted (Akçay, Arslan, & Guven, 2015; Dağlı, 2014; Guven, 2014; Kamacı & Durukan, 2012; Kaysı & Aydın, 2014; Olgun, 2012; Pamuk, Çakır, Ergun, Yılmaz, & Ayas, 2013; Seyitoğlu, 2014; Tercan, 2012; Uzun, 2013). On the other hand, there are also studies regarding in-service training conducted related to the FATİH project in the literature (Bayrak, 2012; Gök & Yıldırım, 2016; Kefeli, 2013). Apart from these studies carried out in different fields, there are researches in the literature including a situation analysis related to the FATİH project (Akıncı et al., 2012); an evaluation made on the FATİH project (Ekici & Yılmaz, 2013); a descriptive analysis study conducted by Dinçer, Şenkal, and Sezgin (2013); a content analysis study on the FATİH project (İslamoğlu, Ursavaş, & Reisoğlu, 2015); and studies conducted by Biçer and Koç (2014) in which empirical studies on the FATİH project are analyzed. In an evaluation study conducted by Ekici and Yılmaz (2013), the FATİH project was evaluated within the framework of the Project Management Cycle criteria, and it was concluded that the FATİH project was not

designed according to the project development logic; therefore, it cannot be integrated within the educational system. In a study conducted by Dinçer et al. (2013), studies carried out on the teachers, students, parents, and instructors related to this project were reviewed separately, and it was stated that a great majority of these studies were about perception and attitude. On the other hand, it was revealed that the actions expected from the teachers within the scope of the project cannot be fulfilled by them in a short time, parents should be involved in the project more effectively, and project documents need to be handled more extensively. In a content analysis study conducted by İslamoğlu et al. (2015), studies on the FATİH project between 2011 and 2014 were examined with respect to the types of publications, research methods, research subjects, citation status, study fields of the researchers, and data collection tools. As a result of that study, it was discovered that quantitative methods were the most used; subjects such as evaluating partner attitudes and body-of-literature reviews were chosen as the topics of research; research related to this project was mostly carried out by researchers who are working in the field of computer and instructional technology education; researchers mostly made use of attitude scales, interviews, and questionnaires as data collection tools; and only six of the 63 articles that were reviewed were published in Social Sciences Citation Index– (SSCI) indexed journals. In an analysis study conducted by Biçer and Koç (2014), researches were grouped into two main themes, studies conducted with teachers and studies conducted with students, and it was stated that these studies were generally carried out to measure attitudes and perceptions toward the use of hardware tools.

Although there are studies in different fields and topics related to the FATİH project in the literature as mentioned above, no thematic content analysis study was encountered on this topic. It is considered that a systematic and detailed thematic content analysis work on the FATİH project will contribute to this field; this is because, in these studies, it has not yet been revealed to what extent these components have been achieved, although approximately nine years have passed since the announcement of the project. On the other hand, researches examining all dimensions of the project are needed to sustain the FATİH project wholesomely (İslamoğlu et al., 2015). In this study, the aim was to perform a thematic content analysis that summarizes all of the academic studies carried out in Turkey within the scope of this project. At this point, it is of utmost importance to conduct meta-studies that are reliable and comprehensive and can interpret this pile of information and lead to new studies (Akgöz, Ercan, & Kan, 2004). For the reason stated above, in this study, the aim was to analyze the academic studies (articles, theses, and proceedings) performed in Turkey within the context of the FATİH project in terms of certain criteria and to synthesize the current situation. In line with this aim, we attempted to answer the following questions:

- (1) On which subjects were the studies carried out within the FATİH project?
- (2) What are the aims of the researches conducted under the subjects determined in the studies carried out within the scope of the FATİH project?
- (3) What are the results obtained from the studies conducted within the scope of the FATİH project?

Method

In this study, the document analysis method, which is used in the qualitative research approach, was used. Document analysis involves the analysis of written material containing information regarding the facts or events that are intended to be investigated (Yıldırım & Simşek, 2006). The thematic content analysis (meta-synthesis) method, which is one of the content analysis methods, was preferred in this study. This meta-synthesis method was chosen because, in this study, there were trials to determine the similarities and differences in the subject area that can be reached with certain criteria and trials to investigate in depth similar or different aspects of the situation in the available studies (Dağhan & Akkoyunlu, 2015). Meta-synthesis includes synthesizing and interpreting researches that have been conducted on the same topic with a critical perspective through forming a theme or main template (matrix/template) (Çalık & Sözbilir, 2014). Meta-synthesis involves presenting the findings and interpretations of previously performed qualitative research in the context of a theme (Dinçer, 2018). In other words, meta-synthesis studies include reviewing the qualitative researches performed in a certain area again with a qualitative understanding and revealing their similarities and differences comparatively (Çalık & Sözbilir, 2014).

Scope and Process of the Study

Collection of data. We herein examined the academic studies carried out since 2010, when the FATİH project was announced to the public, until the end of 2016 (until the end of December), in line with the aims of the studies.

All academic studies conducted between those years were reviewed using the keywords “FATİH Project”, “FATİH Project in Education”, and “MoNE FATİH Project” in the databases of the Higher Education Council (HEC) National Thesis Center, TUBİTAK ULAKBİM Social and Humanities Database, ERIC, Google Academic, and Scopus. As a result of these reviews, a total of 137 academic studies were reached, including 49 theses, 63 articles, and 25 declarations. All academic studies were separated in accordance with the inclusion and exclusion criteria described below, and all relevant studies were used in this study.

The criteria that were considered while including or excluding academic studies from the research:

- ✓ Studies should be included in the reviewed databases. We paid attention to make sure that the studies that were reviewed within the scope of this research are included in at least one of the above-mentioned databases (only one of the same studies in different databases has been taken) and were performed in Turkey.
- ✓ Studies should be published in the specified dates. We paid attention to make sure that the studies that were reviewed should be published between 2010 (the year when the FATİH project was announced) and 2016.
- ✓ Studies should be intended for the FATİH project. This thematic content analysis includes researches on the FATİH project. The expression of “FATİH” project was directly looked for within the available studies. Studies that included this expression were directly included in the content analysis. However, if the “FATİH” project expression was not part of the title of the study, the content of the study was examined and the study was included in the content analysis

provided that it contained the subcomponents of the “FATİH” project. Therefore, all researches belonging to any of the basic components of the FATİH project were included in this study.

- ✓ Studies should be appropriate to the research subject. All studies conducted in different areas related to the FATİH project and its subcomponents were included in the research.
- ✓ Studies should have appropriate research methods for meta-synthesis. Although there are different opinions regarding what kind of data will be used in thematic content analysis studies, it is stated that when the structure constituting the nature of the thematic content analysis is examined, it would be more appropriate to use qualitative data (Dinçer, 2018). As mentioned in the introduction of this research, as this study is a thematic content analysis, academic studies that are explicitly referred to as qualitative and mixed research in the methodology section were included in this meta-synthesis. All academic studies that include a quantitative research method, are not related to the FATİH project and its subcomponents, and have not been published in the specified date range were excluded from this review.

As a result of the evaluation made following the above-mentioned inclusion and exclusion criteria, 54 academic studies were included in this study. 32 of these studies were articles, 11 were theses, and 11 were proceeding papers. This study was not included in the quantitative method or the studies not related to the FATİH project or its subcomponents.

Coding processes of the studies included in the meta-synthesis. Studies that were collected within the scope of this research were subjected to detailed reviewing depending on each research problem; as a result, codes and categories were created for each theme. The concept of reliability in scientific research means whether the findings of the research reflect the truth; if so, to what extent it reflects the truth; and whether the same or similar results can be obtained when the research is carried out at different times or through different persons (Ekiz, 2013). For the reliability study of the coding process and generated themes, 10 studies were randomly selected from the themes that were determined by an academician who is an expert in thematic content analysis and compared, and it was seen that the researcher and the lecturer were in a great agreement.

In qualitative research, the concept of validity is the process of evaluating the findings that are well explained by the researcher and the participant accurately (Creswell, 2007). Three types of validity, stated by Sandelowski and Barroso (2007), for validity in thematic content analysis were taken into consideration for the validity of this meta-synthesis study (as cited by Aküzüm and Özmen, 2013).

- (1) *Descriptive validity*: This is a type of validity that does not define the correctness of data based on facts. This is a meaningful and accurate description of each report that is used in the study.
- (2) *Interpretative validity*: This provides a full and accurate representation of the researchers’ understanding related to their perspective. In this study, the researchers completely relied on the data for stating the data obtained from the studies.

(3) *Theoretical validity*: This applies to the reliability of the researchers in interpreting the findings. This means depending on the method used to interpret the data for combining the information. For interpreting the data obtained in this study, the implementations projected by the methods that were selected in the study were performed.

Data Analysis

First, the researcher read the full texts of the publications that were included in this thematic content analysis study. Then, codes, categories, and themes were generated, taking into consideration the aims of the research and the research questions. All studies included in the thematic content analysis were analyzed in this way. Three weeks after this analysis, 10 randomized studies were selected among the analyzed studies and coded again according to the research questions and purpose of research, and they were then placed in the appropriate categories depending on these codes. Previous coding and subsequent coding were compared, and it was seen that the studies were collected under the same themes. From this point on, codes, categories, and themes were finalized. After this analysis was completed by the researcher, two academic members, who are experts in qualitative research, were asked to select 10 studies among the studies that were included within the scope of the project, to encode them, and to then place them under appropriate themes. The analysis of the 10 studies conducted by the academic member and the analysis of the researcher for the same studies were compared, and nine of them were found to be the same. After analyzing the data in this way, all studies reviewed in this research were collected under five main themes, one of which is given below.

Table 1

Themes, Categories, and Codes Generated in the Study.

Theme	Category (subject)	Code (purpose)
1. General opinions about the FATİH project	1.1. Opinions of high-school students and teachers about the project	1.1.1. Reviewing the opinions of high-school students and teachers about the project
		1.1.2. Reviewing the opinions of high-school teachers, students, and parents about the project
	1.2. Opinions of primary-school teachers about the project	1.2.1. Reviewing the opinions of classroom teachers about the project
		1.2.2. Reviewing the opinions of teachers in different branches about the project
		1.2.3. Reviewing the opinions of science and technology teachers about the project
		1.2.4. Determining the opinions of social sciences and classroom teachers about the project
	1.3. Opinions of school managers about the project	1.3.1. Determining the opinions of private-school managers about the project

1.4. Opinions of formatter and IT teachers about the project	1.4.1. Determining the opinions of IT teachers about the project
	1.4.2. Reviewing the opinions of training formatter teachers about the project

All studies included within the scope of this research were analyzed as mentioned above and collected under five main themes as a result of these analyses. Data belonging to these themes are presented in the Findings section, and both matrices and frequency and percentage distributions were used. When analyzing the data, the steps followed by the researcher can be expressed as follows:

- (1) Reviewing the studies within the scope of the research from the relevant databases
- (2) Separating the publications within the scope of the study
- (3) Determining the publications, publication information, title, author, research theme, purpose, method, pattern, and data collection tool
- (4) Reviewing the purposes and research questions of the publications, determining the initial codes, and extending the codes by revising the publications again
- (5) Determining the categories and themes by examining the codes
- (6) Performing reliability analyses of codes, categories, and themes
- (7) Finalizing the codes, categories, and themes by reviewing them again

Findings

All academic publications examined within the scope of this study were grouped under five main themes: (1) general ideas about the FATIH project; (2) views, ideas, and suggestions for the pilot implementation of the FATIH project; (3) studies on the equipment of the FATIH project; (4) studies on the training related to the FATIH project; and (5) other studies related to the FATIH project. The number and frequency of publications belonging to these themes are provided in Table 2.

Table 2

Percentage and Frequency Distribution of the Themes that were Generated as a Result of the Analysis

Research theme	Number (<i>n</i>)	Frequency
(1) General ideas about the FATIH project	12	21%
(2) Views, ideas, and suggestions for the pilot implementation of the FATIH project	10	18%
(3) Studies on the equipment of the FATIH project	18	32%
(4) Studies on the training related to the FATIH project	8	14%
(5) Studies on the evaluation and analysis of the FATIH project	6	15%
Total	54	100%

Studies Conducted Related to the General Ideas about the FATİH Project

General ideas about the FATİH project are reviewed under this theme. There are a total of 12 studies within the scope of this theme, in which the opinions of students, teachers, and parents about the project are presented. In some of these studies, only the opinions of classroom teachers about the FATİH project were examined (Çiftçi, Taşkaya, & Alemdar, 2013; Gürol, Donmuş, & Arslan, 2012), whereas in some of these studies, the opinions of classroom teachers and social studies teachers about the project were focused on (Karatekin, Elvan, & Öztürk, 2015). In another study, awareness, anticipation, and expectations of the teachers were investigated (Aktaş et al., 2014), whereas in some of these studies, the opinions of teachers and managers who are working at secondary-education institutions and students who are receiving education at these schools were investigated about the FATİH project (Altın & Kalelioğlu, 2015; Cücü, 2014). On the other hand, the perspectives of training formatter teachers (Baz, 2015; Türel & Tantaş, 2016) and IT teachers (Tantaş & Bahçeci, 2016) about the FATİH project were also reviewed. In studies that were conducted in relation to the FATİH project with classroom teachers, the teachers stated that this project is necessary and important. It was also pointed out by the teachers that there may be some difficulties with respect to the competency of teachers in IT and communication technology in the course of the implementation of the project. On the other hand, most of the classroom teachers stated that the project will positively contribute to academic achievement as the lessons will be taught with richer content. However, it was also stated that about half of the classroom teachers think positively about the question of whether the project can reach its goals. In a study conducted by Aktaş et al. (2014), it was revealed that the awareness of teachers about the project is very high but that they still have some difficulties related to the project. In a study conducted by Altın and Kalelioğlu (2015) with teachers who work at secondary-education institutions and students who receive education at these schools, it was stated that the FATİH project has some deficiencies in general terms and does not contribute to education according to the students and teachers. In another study conducted by Cücü (2014), secondary-school students stated that the FATİH project had a number of shortcomings in general, which is why they could not benefit from the project effectively, whereas teachers stated that technology was integrated into education and that this integration could have both positive and negative impacts on the students. Teachers also expressed that the FATİH project will provide more benefits for students who are receiving education in eastern and southeastern parts of Turkey. On the other hand, it can be said that this project is a promising study for the future, even if there are some shortcomings according to the teachers. Formatter teachers who took part in the FATİH project stated that this project contributed to their professional and personal development and that it helped them develop their social relations. They also stated that the project was sometimes exhausting because of the course programs and provided a low economic return (Baz, 2015). Türel and Tantaş (2016) stated in their research that IT teachers found the project useful in general, that there is a need to popularize the use of interactive boards, and that the related in-service training should be increased. Furthermore, it was stated by the teachers that the project should be explained in detail and that an Education Information Network (EIN) platform should be developed.

Studies Conducted Related to the Views, Ideas, and Suggestions for the Pilot Implementation of the FATİH Project

A total of 10 studies were included, and views, ideas, and suggestions for the pilot implementation of the FATİH project were collected under this theme. Some of these studies examined the opinions of primary- and secondary-school teachers (Banaoğlu, Madenoğlu, Uysal, & Dede, 2014; Keleş & Turan, 2015; Keleş, Dündar, Öksüz, & Bahçekapılı, 2013; Kurt et al., 2013; Özkan & Deniz, 2014). In another study, the perspectives of teachers and students were examined (Pamuk et al., 2013). In some of these studies, only the opinions of school managers were reviewed (Dursun et al., 2013), whereas other studies only focused on parents' opinions (Güllüpinar et al., 2013). In addition, there were some studies in which the views of students, teachers, administrators, and parents were examined together (Altın, 2014; Ayvacı et al., 2014).

The results of studies conducted in relation to the pilot implementation of the FATİH project showed that teachers use interactive boards continuously (Banaoğlu et al., 2014), but they do not use tablet computers or multipurpose printers adequately. Moreover, researches revealed that the attention of ninth-grade students at secondary schools toward their lessons was decreased compared to primary-school students (Kurt et al., 2013). It was also stated that the teachers' technological competence is not at the desired level, which is related to the low level of in-service training. On the other hand, it was also found that teachers have technical problems related to tablet computers and interactive boards (Keleş, Öksüz, & Bahçekapılı, 2013; Kurt et al., 2013). Teachers stated that the content problem should be solved especially for the FATİH project to function properly.

In another study conducted under this theme related to opinions, thoughts, and suggestions about the pilot implementation of the FATİH project, the opinions of students and teachers about the project were investigated, and it was stated that teachers and students use interactive boards normally but rarely use tablet computers. On the other hand, it was also indicated that the interest and attitude of teachers and students toward the use of technology increased with the project (Pamuk et al., 2013). Besides, studies also showed that students do not bring the tablet computers that were distributed within the scope of the project (Ayvacı et al., 2014).

In a study conducted with school administrators within the scope of the pilot implementation, it was discovered that school administrators generally showed positive attitude toward the project. In addition, they indicated that tablet computers could have both positive and negative effects on the reading habits of the students and that elderly teachers at schools could have negative attitude toward the technologies that should be used for the FATİH project; however, this situation can be improved over time (Dursun et al., 2013). On the other hand, it was also stated by the school administrators that teachers do not have sufficient knowledge regarding the FATİH project and that they do not use the technologies related to the project adequately (Ayvacı et al., 2014).

In a study conducted with parents in relation to the pilot implementation of the project, it was found that parents had both positive and negative opinions regarding the project. These positive opinions were related to increasing the academic achievement of the students in their lessons, providing Internet infrastructures to schools, and the fact that the students do not have to carry their books anymore. On the other hand, the negative opinions were related to restricting the socialization of the students, the need to

use supplementary books besides the course books, the decrease in the reading habits of the students, and the excessive use of the Internet (Güllüpinar et al., 2013).

Studies Conducted Related to the Equipment of the FATİH Project

A total of 18 studies were conducted in relation to the equipment of the FATİH project under this theme. Most of these studies included the ones related to tablet computers and interactive boards, and these studies were followed by researches on e-books and Z-books.

Among the studies that were collected under this theme related to the use of tablet computers in education, there were studies in which the opinions of branch teachers were reviewed (İşçi & Demir, 2015), the opinions of research assistants were reviewed (Kamacı & Durukan, 2012), and the content of the tablet computers was evaluated (Kaysı & Aydın, 2014). On the other hand, there are studies related to determining the perception of students toward interactive boards (Emrem, 2014; Gençoğlu, 2013; Olgun, 2012; Seyitoğlu, 2015; Uzun, 2013) and the opinions of teachers regarding the usability problems of interactive boards (Bayrak, Karaman, & Kurşun, 2014). Apart from these studies, another research field included under this theme was determining the opinions of teacher candidates regarding e-books and interactive e-books (Özer & Kılıç Türel, 2015). There was also another study in which the usability of Z-books was evaluated (Dağlı, 2014).

In a study conducted in relation to the use of tablet computers in education, branch teachers stated that tablet computers save time, make classes enjoyable, and contribute to the academic achievement of the students. However, they also stated that tablet computers are not used to teach lessons because of some technical problems. On the other hand, the fact that the students' tablet computers cannot be controlled is considered another problem by branch teachers (İşçi & Demir, 2015).

In another study conducted on the use of tablet computers in education, research assistants stated that tablet computers will contribute to the academic achievement of the students and prevent the students from carrying heavy bags. In addition, it was also stated in the same study that tablet computers should have rich content and that teachers should be provided with in-service training on this topic (Kamacı & Durukan, 2012). In a study conducted by Kaysı and Aydın (2014), in which e-books were investigated as tablet computers, it was shown that there were no interactive components in these books that were examined within the scope of the study; that books were rich with visual items, videos, and audio files; and that although e-books are accessible, access to big-sized ones is very difficult.

In studies in which the perceptions of students related to interactive boards were reviewed, it was revealed that interactive boards provide diversity in terms of sources and that these boards are useful in saving time and controlling the classroom. Interactive boards also make the lessons more fun, contribute to the comprehensibility of the lessons, enhance interactions within the classroom, and facilitate the work of the students and teachers (Seyitoğlu, 2014; Ünal, 2015). It was also found that interactive boards are interesting thanks to their multimedia component and interesting aspects and that they increase students' interest in their lessons (Olgun, 2012), positively influence the students' attitude toward their lessons (Tercan, 2012), and have a positive impact on the visual opinions of the students (Emrem, 2014). In a study conducted by Bayrak et al.

(2014), who focused on the views of teachers in relation to the usability problems of interactive boards, it was stated that interactive boards have many problems arising from their hardware, software, and physical environments.

In a study conducted by Özer and Kılıç Türel (2015) with IT teacher candidates, it was found that they had high expectations toward interactive e-books and that the fact that students can respond to the content of these interactive e-books (through touching, selecting, marking, and changing) makes these devices more attractive.

In a study conducted by Dağlı (2014), a usability assessment of Z-books (rich books), prepared for a sixth-grade social studies lesson, was conducted through eye tracking and retrospective thinking-out-loud techniques. As a result of this study, it was stated that there is an object on the top right of the screen of the social studies Z-books that can distract the participants and that this object should be removed. Learning objects should be bigger and should be presented with a play button with which the participants are familiar; symbol of the concept game needs to be replaced with another symbol that represents the game better; and an acknowledge button should be put in a place in a way to which the participants are accustomed in the book. It was also revealed that not only the selected subject in the Z-books but also all the subjects in that unit are opened on the pages of the menu and changes in the subjects of the Z-books are not made at the level desired by the participants. On the other hand, it was also stated that the font size, color, and symbols used in the visual and bridge links of the social studies Z-books are presented in way that is parallel to what the participants expect and that the attention of the participants is directed to the pop-up window.

Studies on the Training Related to the FATİH Project

A total of eight studies were conducted on training within the scope of the FATİH project under this theme. Under this theme, there were studies in which the opinions of teachers regarding interactive board and technology integration courses were analyzed (Bayrak, 2012); a study for which an in-service training course was prepared, implemented, and evaluated in relation to interactive board use (Kefeli, 2013); a study in which the opinions and expectations of teachers toward in-service training courses provided within the scope of the FATİH project were determined (Gök & Yıldırım, 2016; Vural & Ceylan, 2014); a study in which the in-service training needs of teachers within the scope of this project were researched (Yıldız, Sarıtepeci, & Sefereoğlu, 2014); a study in which the opinions of the provincial coordinators of the FATİH project, the provincial trainer formatters, and FATİH project trainers related to the training provided to the in-service trainers within the scope of the FATİH project were determined (Arslan & Şahin, 2014); and a study in which the opinions of trainers who took charge of the project related to the training provided within the scope of the project were examined (Kılıç Türel, & Tantaş, 2016). In addition, there were studies in which the needs of teachers were determined within the scope of the FATİH project, an in-service training program was prepared by these needs, and this program was implemented and evaluated (Ayvacı & Başak, 2016).

In a study conducted by Vural and Ceylan (2014), the opinions of teachers related to the technology integration course prepared for the FATİH project were examined. At the end of the course, it was determined that the teachers are willing to use technology and are open to innovations in general; that they decide whether to use

interactive boards or not depending on their branches and the subject being taught; and that they do not know or use the content of the EFN that consists of interactive content. The teachers who participated in the study stated that such courses should be held at seminar periods rather than educational periods that a level group should be formed and training should be provided according to these groups, and that such courses should be continuous. In a study conducted by Gök and Yıldırım (2016) with 15 high-school teachers who took an in-service training course related to the FATİH project, the results showed that the teachers preferred special, practice-weighted in-service training for different branches that are longer and repeated at different time intervals.

In a study conducted by Bayrak (2012), it was observed that teachers mostly use interactive boards to motivate students and visualize the subject being taught in the lesson, with the aim of making multimedia presentations. Teachers who participated in the study also stated that they did not experience any difficulty while using interactive boards, that lessons for which interactive boards are used should be increased during university education, and that such training should be provided by the MoNE continuously. In addition, it was revealed that, at the end of the courses, the self-sufficiency level of the teachers in using interactive boards in their lessons was at the desired level.

In a study conducted by Kefeli (2013), it was found that, at the end of the in-service training courses prepared for the teachers, all the teachers found themselves competent in terms of using interactive boards and that courses should be designed in a way so as to provide an opportunity to the teachers to be able to practice. Teachers who participated in the study stated that such courses provided interactions between them because these courses included teachers from different branches and because arranging course content by different branches is hard.

Yildiz, Sarıtepeci, and Sefereoğlu (2014) found in their study that teachers need in-service training in the fields of “Use of Technology in Education” and “Use of Internet for Educational Purposes” the most within the scope of the FATİH project. On the other hand, it was also stated that teachers have difficulties finding e-content as well as difficulties with classroom management.

In a study conducted by Arslan and Şahin (2014), it was determined that more than half of the participants found training related to the FATİH project sufficient in terms of number, training hours, and content and that they stated that there was not any incomplete aspect in the training. They also expressed that this training had aspects that contributed to their personal and professional development, such as social interactions, learning new information, recognizing the project, and trips. In addition, the participants mentioned reluctance of the trainees, exhaustion, hardware problems, and problems arising from course hours as examples of the difficulties encountered during the FATİH project training. At the end of the FATİH project training, participants who took charge of the project training stated that their trainees told them that the training they received was necessary and useful.

Kılıç Türel, and Tantaş (2016) stated in their study that the training provided within the scope of the FATİH project should be practice based and that it will be more useful for the trainees if they participate in the training after taking basic computer courses. They also suggested that the resources of physical spaces where training is

provided should be improved and that the number of distance education centers used for training should be increased and the possibilities of should be increased. Another point that the instructors of the FATİH project pointed out was that the number of participants in the courses should be 15 or 16 as the number of computers in the classrooms where the courses are given is 16.

In a research carried out by Ayvacı and Başak (2016), it was stated that teachers did not receive university education within the scope of the FATİH project and that the in-service training provided is not enough. In-service training was prepared for only science teachers within the scope of the study, and teachers who participated in this training benefited from the training and improved themselves by filling the deficiency of knowledge.

Studies on the Evaluation and Analysis of the FATİH Project

Studies that were conducted within different fields were collected under other studies related to the FATİH project theme. The studies that were grouped under this theme will be mentioned separately, and the obtained findings will be presented.

Akgün, Yılmaz, and Seferoğlu (2011) conducted a comparative study of Vision 2023 Strategy Document and the FATİH project. As a result of that study, it was stated that a set of developed criteria, such as the determination and continuity of political will; raising the awareness of every institution, unit, and employee of the state in line with Vision 2023 and the objectives supporting this vision; and increasing the level of awareness in every part of the society about the activities and objectives of knowledge-based economy and establishing this economy, are also valid for the FATİH project.

An evaluation study was carried out by Ekici and Yılmaz (2013) on the FATİH project, and the results obtained from this study briefly indicated that the FATİH project is inadequate in the project analysis state, which constitutes the second phase of the Project Management Cycle, the objectives determined for the FATİH project are not clear, the way of reaching these determined objectives (in other words, the strategy) is not clear, the solutions provided for the problems encountered during the implementation of the project are not clear, no communication is established with the partners of the project and the partners are perceived only as practitioners in the project, and there is no structure to ensure that each stage of the project can be followed by the project partners. It has also been noted that the project is not adequately owned by its partners and that there are serious concerns related to the development of e-content in particular. In addition, the study revealed how the project's budget is distributed among its components and how it is managed. Another point that the researchers argued is that the evaluations made for the pilot implementation are not sufficient and that it is not appropriate to generalize the project throughout the country on the basis of these evaluation results. Finally, it is noted that there are no measurable indicators for the project results; only the quantity of the provided equipment can be determined; there are no measurable indicators for the productiveness, efficiency, and impact assessment of the project; and there are serious problems and concerns regarding the political, technical, and financial sustainability of the project.

Dinçer et al. (2013) analyzed the studies that were conducted within the scope of the project and shared the results of this analysis. According to the results obtained in this study, it was discovered that teachers had positive thoughts regarding the FATİH

project, but they did not find themselves competent enough concerning the use of technology in the project. On the other hand, as a result of studies conducted with students, it was observed that although the computer literacy level of the students increased, it is still not at the desired level, and it was also observed that the students have positive attitude toward the use of interactive boards in their lessons. In addition, as a result of the studies conducted with academic members and instructors, it was stated that many of them think that there are limitations related to the project equivalent to the benefits, they acquire the knowledge and keep abreast of all the latest developments related to the project through press organs; however, they still do not have sufficient information regarding the project because the project unit and universities do not cooperate sufficiently. Finally, it was stated in this study that there is no study on students' parents, which is a drawback.

In a study conducted by İslamoğlu et al. (2015), academic studies that were carried out between 2011 and 2014 on the FATİH project have been examined. As a result of that study, it was discovered that quantitative methods were used mostly in academic studies; subjects like evaluating partner attitude toward the project and body-of-literature reviews were mostly chosen as the topics of research; researches related to this project were mostly carried out by researchers who are working in the field of computer and instructional technology education; researchers mostly made use of attitude scales, interviews, and questionnaires as data collection tools; and only six out of the 63 articles that were reviewed were published in SSCI-indexed journals.

In a study conducted by Akıncı et al. (2012) to investigate what needs to be done in order to make the FATİH project successful, it was stated that the human factor should be primarily taken into consideration and that the weakest link of this project is that the technology investment made for the project has precluded the investments that should be made for teachers.

In a study conducted by Karabacak (2015), the FATİH project was evaluated according to the context, input, process, and product (CIPP) model. As a result of that study, it was discovered that problems such as software components, use of information and communication technology in curricula, educational e-content, in-service training, and conscious information and communication technology use are encountered in the "context" dimension of the project; problems such as the determination of instructional strategies, methods, and techniques that will be used in the e-content are encountered in the "input" dimension. In addition, it has been stated that planning for the nationwide generalization of the project has not been done.

In a study conducted by Tekin Bozkurt (2015), the readiness situation of school administrators and teachers for change was examined within the scope of the FATİH project. As a result of that study, it was stated that the readiness level of the participants for change is "good" for the FATİH project. It was also seen that the preliminary knowledge and exchange of views among colleagues are facilitating factors in this process. Besides, it was also revealed that the teachers have difficulties adapting to new material, and it was determined that the teachers lack some required skills, such as using technology and knowledge for technological field knowledge skills. It was also found that school administrators are in general supportive of the employees in this process but that, in particular, young employees expect more support from them.

Results, Discussion, and Suggestions

In this study, published qualitative studies that were carried out within the scope of the FATİH project in Turkey were reviewed through a thematic content analysis. The aim of the FATİH project is to enable effective use of IT tools in classes in a way that will engage more senses in learning/teaching processes in line with the targets of providing an equal opportunity in education and training and improving technology in our schools (MoNE, 2010d). Using technology more and more intensively in learning and teaching processes requires focusing on different perspectives for researchers conducting their studies in this field (Dağhan & Akkoyunlu, 2015). As a natural consequence of this situation, all studies reviewed in this meta-synthesis study were collected under five different themes. In this section, results and discussion will be outlined depending on the studies carried out under each theme.

In the studies grouped under the general opinions related to the FATİH project theme, classroom teachers stated that the project is necessary and important, that subjects will be taught lessons with richer content, and that they will have some difficulties related to the project in their opinion. The reason why particularly classroom teachers find this project important and necessary may be that classroom teachers need more visuality in their classrooms. This can be explained by the fact that elementary-school students are in the process of concrete transaction and classroom teachers want to create a learning environment that can draw their attention (Çiftçi, Taşkaya, & Alemdar, 2013). On the other hand, the fact that classroom teachers stated that they can experience some difficulties related to the project suggests that there are some shortcomings in the project. This is an indication that classroom teachers are also in need of in-service training at the point of project implementation (Aktaş, Gökoğlu, Turgut, & Karal, 2014; Pamuk et al., 2013).

Unlike classroom teachers, the expectations of teachers working in secondary education from the project can be said to be lower. The reason for this can be the fact that no e-content appropriate to different branches has yet been developed within the scope of the FATİH project (Türel, 2012). Students receiving education at secondary schools stated that they could not benefit from the project sufficiently. This may be related to the limitations of the tablets that were distributed within the scope of the project (Pamuk et al., 2013), although they are good in terms of hardware.

When the views of teachers and students about this project were examined, it could be concluded that not all teachers had the same opinion about the FATİH project and that they had different views. This situation varied according to the occupational seniority of the teacher, gender of the teacher, type of branch, and place and type of school in which the teachers are working. Therefore, stating different opinions about the same project applied in the whole country is a consequence of this situation.

All studies conducted in relation to the pilot implementation of the FATİH project indicated that teachers and students use interactive boards but do not use tablet computers; school administrators and parents expressed positive opinions regarding the project; the interest and attitude of teachers and students toward the use of technology increased; and teachers experienced some technical problems related to the tablet computers and interactive boards. On the other hand, it was also pointed out in the studies that the e-content needs to be enriched to benefit from the project. In short, it can be said that teachers are pleased with the richness and diversity that the project has

brought into the teaching/learning process, but they also expressed some dissatisfaction with the inadequacy of the e-content as well as some technical problems (Kurt et al., 2013).

It was revealed that teachers and students have positive attitude and thoughts toward interactive boards, which are among the equipment of the FATİH project. In a similar vein, teachers pointed out that tablet computers help save time, make lessons more enjoyable, and increase the academic achievement rate related to the use of tablet computers. However, they also stated that tablet computers are not used effectively because they cannot be controlled by the teachers and because of some technical problems and the insufficient amount of e-content. In studies conducted in relation to interactive boards, it was revealed that teachers and students expressed positive opinions regarding these devices. However, despite these positive considerations, it was also stated that teachers cannot fully utilize the potential of these devices (Kurt et al., 2013). In a study conducted with teachers, it was stated that there are usability problems arising from the hardware, software, and physical environments related to the use of interactive boards (Bayrak et al., 2014). On the one hand, it was expressed that interactive boards are not used sufficiently by teachers; on the other hand, it was stated that there are some problems related to using interactive boards. At this point, it can be said that teachers are in need of in-service training related to e-content and that solutions should be provided to the problems encountered while using interactive boards in order for the teachers to benefit from these devices more.

Regarding the training related to the FATİH project, it was found that teachers need in-service training related to the subjects of the “Use of Technology in Education” and “Use of Internet for Educational Purposes” the most, that they have positive attitude toward this training, and that they want the training to be practice based and to be repeated at certain intervals. In addition, the fact that teachers are in need of in-service training related to finding and preparing e-content is another conclusion drawn from the studies. Teachers, on the other hand, also stated that there should be course programs specific to each branch. In a research conducted by Izci and Eroglu (2016), it was revealed that the courses in which the teachers participated within the scope of the in-service training contributed to the context of technology integration in education, but still some problems were encountered concerning time, infrastructure, and practice. It can be said that the most important element for the success of the FATİH project is the “teacher” (Ekici & Yılmaz, 2013; Karataş, 2014; Kocaoglu, 2013). At this point, it is recommended that the in-service training be prepared by a specialized team as specific to different branches, practice based, and continuous (Pamuk et al., 2013).

In one of the other studies conducted within the scope of the FATİH project (Ekici & Yılmaz, 2013), it was stated that there are some problems in the analysis, implementation, and result parts of the project. In another study (Karabacak, 2015), it was stated that there are some problems related to the CIPP headings of the project. On the other hand, in another study (Dinçer et al., 2013), it was indicated that there is no sufficient cooperation with universities within the scope of the project and that teachers have several deficiencies although they show positive attitude toward the project. From all of these studies, it can be concluded that teachers are positive about the FATİH project but that there are several deficiencies, not all dimensions of the project are dealt with in detail, and more investments are needed for the human element in the project.

This is because the success of this project depends not only on the placement of the technological facilities that the project brings to the classrooms, but also on the capability of teachers and students to use these technologies appropriately (Hörküç, 2014). Even if all the necessary substructures and technical equipment are provided in this project, the maximum efficiency of the project cannot be obtained without improving the proficiency and competency of the teachers who are implementing it. However, according to the results of the reviews of the studies that have been conducted with the scope of the FATİH project, it is understood that the opinions of school administrators and teachers related to the implementation of the project are not focused sufficiently in spite of the large investments made in the FATİH project (Sezgin, 2014).

The following suggestions can be listed in consideration of the findings acquired from the studies that were reviewed:

- (1) It can be suggested that teacher training should be provided as specific to certain branches continuously at certain intervals.
- (2) It can be suggested that the software dimension of the project should be strengthened especially by increasing the diversification and brought in compliance with the use of teachers.
- (3) Studies focusing on the implementations undertaken by the teachers in the field, namely, the fieldwork of the teachers, should be included in the researches that will be carried out within the scope of the FATİH project in order to be able to see the actual implementation of the project.
- (4) It can be claimed that there is a need for studies that will reveal the realization of each of the main components of the FATİH project.
- (5) Studies on the ideas of students and their families can be carried out.

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