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COMMON AND BRANCH-SPECIFIC NEEDS OF TURKISH TEACHERS ABOUT IN-SERVICE TRAINING COURSES WITHIN THE SCOPE OF FATIH PROJECT[1]

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Abstract

FATIH Project is regarded as one of the most inclusive ICT integration attempts in the history of Turkish education. This nation-wide project entails equipping each classroom with an interactive whiteboard and supplying each student with a Tablet PC. The in-service teacher training courses are by far the most crucial component of the project as teachers are the end-users of those facilities in classrooms. Despite the abundance of studies on the opinions and attitudes of teachers towards the use of ICT technologies in general, to our knowledge, there exists no research study which specifically investigates whether the views and in-service training needs of teachers differ according to their distinct subject areas. With this in mind, this qualitative study aims to explore the perceptions and needs of 35 Turkish in-service teachers from different branches about in-service training courses within the scope of FATIH project. The study adopted a case study design. The research site and participants were selected purposefully. The data were mainly collected through questionnaires, and the accuracy of these data was validated through semi-structured interviews conducted with 30% of the participants. The collected data were analysed through the content analysis method. The study findings revealed a good deal of research evidence on the divergent training needs of teachers from various subject areas. Thus, it suggested that in-service training courses should be planned and organised as branch-specific.

Keywords: FATIH project, information and communication technologies (ICT), in-service teacher training, integration of ICT into education, interactive whiteboard (IWB)

1. Introduction

With the growing interest in information and technologies (ICT) all over the world, the governments of many countries have devoted a huge amount of their budgets to integration of ICT into their education systems (e.g., Cheng, 2009; Chow, 2013; Makki & Makki, 2012; Türel, 2011). In recent years, the Ministry of National Education in Turkey has also initiated a comprehensive project to implement computer technologies into education. This nation-wide attempt is called as *"FATIH Project (Movement of Enhancing Opportunities and Improving Technology)"* (MEB, 2012). FATIH project mainly entails equipping each classroom with an interactive whiteboard (IWB) and supplying each student with a tablet PC in public schools. The project is suggested to be one of the most radical technology integration projects in the history of Turkish education.

FATIH project comprises five fundamental constituents (Alkan, Bilici, Akdur, Temizhan, & Cicek, 2011): (a) the installation of technological infrastructure of ICT to schools (e.g., IWBs, Internet access, and tablet PCs), (b) the preparation of e-content in line with the curricula, (c) the effective use of ICT in teaching, (d) equipping teachers with an effective in-service training about IWB use, and (e) making stakeholders secure and conscious users of ICT (p. 1). So as to achieve these goals, the applications of the FATIH project have been carried on since 2012.

In-service teacher training courses are considered to be by far the most important component of FATIH project since teachers are the end-users of ICT in their classrooms. Teachers naturally benefit from a variety of technological devices for teaching practices. However, an IWB is, probably, the most inclusive one since it provides teachers with a number of computerised and technological facilities simultaneously. Apart from auditory and visual facilities, it offers opportunity to gain access to improved Internet services and online connection with some other electronic devices such as printers and tablet PCs. With this in mind, the effective use of IWBs by teachers is regarded to be at the core of the attempts to implement ICT technologies into education systems.

Although in-service training courses within the project are organised by the local educational institutions, the content of these courses is set by the Ministry of National Education. In general, all the teachers from various subject areas and school types get the same training prior to the integration of IWBs into their schools. That is to say, the teachers from different branches take these in-service training courses in the same session, which is unlikely to meet the specific educational needs of teachers from various subject areas.

In the relevant literature, there exist many research studies on the opinions and attitudes of teachers towards the use of ICT in general (e.g., Dursun, Kuzu, Kurt, Güllüpınar & Gültekin, 2013; Gök & Yıldırım, 2015; Güngör & Yıldırım, 2015; Kurt, Abdullah, Dursun, Güllüpınar & Gültekin, 2013; Mathews-Aydinli & Elaziz, 2010; Öz, 2014; Türel & Johnson, 2012). Some of these studies reveal the insufficiency of in-service teacher training programs within the context of FATIH project. As an example, Öz (2014) emphasizes that the process of ICT integration is quite fast and inclusive of all school types since the project is being conducted by the Ministry of Education, rather than the individual initiatives of institutions. This also requires policy makers to plan and manage in-service training courses too quickly, thereby leading some problems in terms of administration time and content of these courses.

One of the most outstanding findings of the related literature is that teachers are not pleased with the in-service training provided by the ministry in their provinces. Some studies make further implications that in-service training programs may be planned by taking the needs of teachers from different branches into consideration (e.g., Akcaoglu, Gumus, Bellibas, & Boyer, 2014; Altın & Kalelioğlu, 2015; Tosuntaş, Karadağ, & Orhan, 2015; Yıldız, Sarıtepeci, & Seferoğlu, 2013). However, to our knowledge, there exists no research study which mainly investigates whether the perceptions and the needs of the in-service teachers differ according their distinct subject areas, which is the main motivation behind the current study. If positive research evidence is explored about divergent needs and expectations of teachers according to various branches, this qualitative study will provide an insight to policy makers about the planning and management of in-service teacher training courses within the scope of FATIH project.

2. Literature Review

The relevant literature reveals a good deal of research evidence about the facilitative role of IWB use in educational settings (e.g., Mathews-Aydinli & Elaziz, 2010; Öz, 2014).

According to Bacon (2011), the efficient use of IWBs contributes to both teaching and learning in many aspects: (a) it enhances students' engagement and increases their motivation; (b) it makes flexible use of teaching materials possible for teachers; and (c) it promotes enthusiasm for learning and teaching. Moreover, with the help of IWBs, teachers can easily adapt their classroom activities and instructional materials in a way to address the divergent needs and learning styles of the students. This also paves the way for more effective interaction between teachers and students on a regular basis. Consequently, the integration of ICT into classroom helps teachers design their lessons more creatively and makes them more proficient users of technology, thereby making a great contribution to their professional development.

Teachers play an indispensable role in the successful integration of IWBs into education since they are the practitioners of these facilities in classroom settings. Now that teachers take the greatest responsibility in this ICT integration, their perceptions and needs should also be taken into consideration. Teachers should be trained well in effective use of IWBs, and they should be provided with sufficient pedagogical and technical support on this issue (Adıgüzel, Gürbulak, & Sarıçayır, 2011). In the light of the perspectives from all stakeholders including teachers, the strengths and weaknesses of FATIH project should be identified, and some precautions should be taken about the deficiencies within the system.

There are many studies which attempts to explore opinions and attitudes of in-service teachers towards the use of IWBs in classrooms. The relevant literature from various contexts reveals that teachers have positive attitudes towards the use of IWBs in their classrooms (e.g., Saraç, 2015; Teo, 2008; Zhao, 2003). In their study, Slay, Siebörger and Hodgkinson-Williams (2008) state that in-service teachers effectively use IWBs in various subject areas and with different purposes. On the other hand, some studies suggest that teachers have insufficient knowledge about the use of IWBs in their teaching practices (BECTA, 2003; Glover & Miller, 2001; Levy, 2002; Smith, Higgings, Wall, & Miller, 2005). According to Çiftçi and Taşkaya (2013), teachers have technical, motivational and educational challenges within the process of ICT integration, and they are not satisfied with the content of the in-service training courses they receive. The insufficiency of in-service training planned by the Directorate of Education in the cities is considered as one of the most critical problems the teachers face (Kurt et al., 2013). Thus, providing teachers with an effective in-service training can be the best solution to deal with such problems. In this respect, Güngör and Yıldırım (2015) suggest that teachers should attend in-service training programs regularly as an ongoing process.

3. The Current Study

3.1. The Justification for the Study

The justification for the current study is twofold. First, an effective in-service teacher training is regarded to be the most crucial component of FATIH project. Teachers cannot be equipped with successful in-service training courses without exploration of their perceptions, needs, problems, expectations, and qualifications within the context of FATIH project. As for the second justification, there is still a lack of research evidence on the common and divergent needs of teachers from various subject areas about the in-service training courses on recent ICT integration attempts in Turkey. In the relevant literature, there exist many studies on factors affecting teachers' use ICT in general and their opinions about the in-service training courses within the scope of FATIH project (e.g., Dursun et al., 2013; Gök & Yıldırım, 2015; Güngör & Yıldırım, 2015; Kurt et al., 2013; Mathews-Aydinli & Elaziz, 2010; Öz, 2014; Türel & Johnson, 2012). However, to our knowledge, there is no research

study which specifically attempts to explore whether the perceptions and the in-service training needs of teachers differ according to their branches, which is the main motivation behind the present study.

3.2. The Purpose of the Study

This qualitative study primarily aims to explore the perceptions and needs of Turkish in-service teachers from various branches about in-service training courses within the scope of FATIH project. With this in mind, the current study attempts to answer the following research questions:

1. What are the perceptions of Turkish in-service teachers from different subject areas about the in-service training courses within the context of FATIH project?

2. What are the needs of Turkish in-service teachers from different subject areas in relation to in-service training within the context of FATIH project?

4. Method

4.1. Research Design

The current study employed a qualitative research methodology to explore the perceptions and needs of Turkish in-service teachers from various branches about the in-service training courses within the scope of FATIH project. A qualitative approach was thought to be beneficial for obtaining detailed information about the central phenomenon, which was difficult to be explored through more conventional research methods (Strauss & Corbin, 1998). More specifically, this study adopted a case study design so as to "view the case from inside out" and see the central phenomenon from the perspectives of Turkish in-service teachers (Gillham, 2000, p. 11). The qualitative data were collected from the participants mainly through open-ended questionnaires. The accuracy and credibility of these findings were validated through semi-structured interviews, which were conducted with 30% of the participants. Thus, the administration of semi-structured interviews was also used as a strategy of methods triangulation in order to check the consistency of findings revealed by the open-ended questionnaires.

4.2. Participants

The participants of the study were 35 Turkish in-service teachers from various subject areas. They were all working in two distinct state high schools, one of which was situated in the city of Bursa while the other was located in the city of Kocaeli, Turkey. In the selection of the participants and the research sites, the study adopted purposeful sampling method, which was considered as the most suitable approach to choose the exploitable people and sites (Cresswell, 2012). There were two main reasons why these particular schools were selected as the context of the study. First of all, they were two of the first pilot schools where the FATIH project was being implemented for many years. Second, the researchers had been working as EFL teachers in these schools for over 5 years when the present study was conducted. Of the teachers working in these schools, only those taking in-service training courses within the context of FATIH project were allowed to be the participants of the current study. All the participants were actively using interactive whiteboards (IWBs) for at least two years in their schools.

Maximal variation sampling was also employed to reflect the multiple perspectives of the central phenomenon. According to Creswell (2012), maximal variation sampling strategy is a type of purposeful sampling, which is used to select individuals having some different traits or characteristics. Similarly, the participants of the current study were determined so as to

reflect the perceptions and the needs of the teachers from a variety of subject areas. The open-ended questionnaires were distributed to all of the teachers working in both schools. 35 of those teachers completed the questionnaires voluntarily. According to their fields of teaching, the participating teachers were categorized into five main subject areas before the analyses: 1) Turkish language and literature, 2) mathematics, 3) foreign languages (English, German), 4) science (physics, chemistry, biology), and (5) social sciences (history, geography). Then, the semi-structured interviews were conducted with 10 of the participating teachers, two from each of the given five subject areas.

The required permissions are obtained to gain access to the participants and the research sites. All the teachers participated in the current study on a voluntary basis. Verbal informed consent was obtained from the participants, and they were all informed about the purpose of the study prior to the administration of the questionnaires and semi-structured interviews.

4.3. Data Collection

The qualitative data were collected through two types of instruments: (1) questionnaire, and (2) semi-structured interviews. Initially, the questionnaire was provided to 35 participating teachers by hand so that they could reflect their perceptions and needs in relation to FATIH project. The original language of this paper-based questionnaire was Turkish, the mother tongue of the participants. No time limit was defined for the participants to complete the questionnaire, and they filled in the questionnaire at different sessions. Following the questionnaire, face-to-face semi-structured interviews were conducted with 10 of the participating teachers so as to validate the accuracy and credibility of the data collected through the questionnaires. These semi-structured interviews were administered in Turkish, and protocols were used to record the interview data. The interviews were also audio-recorded and transcribed verbatim. The transcriptions were checked independently by two researchers of the study to enhance the reliability and validity of data collection. Lastly, all the data were collected during the second semester of 2015/2016 academic year. The whole data collection procedures were administered in an ethical manner.

The questionnaire and interview items were developed by the researchers in the light of a detailed review of the relevant literature. The initial drafts were distributed for feedback to 11 EFL teachers, all of whom were PhD students at a university. Then, the final versions of the questionnaire and interview items were determined through the revisions made in view of their opinions and suggestions. Thus, face and content validity of the instruments was obtained on the basis of expert opinion.

The questionnaire included 13 items, most of which were open-ended (see Appendix A and B). Four items were about the demographics of the participants. Another four items tried to examine their current use of interactive whiteboards. Three items dealt with their experiences and perceptions about the in-service training courses within the scope of FATIH project. One item investigated the participants' expectations from such in-service training courses, which would likely be held in the future. The last item aimed to explore whether or not the teachers from various subject areas have specific needs in terms of in-service training.

On the other hand, the interviews were carried out not only to collect more information about the views and the needs of the participants but also to clarify the details which were still left unclear by the questionnaire findings. The semi-structured interview mainly included 4 open-ended central questions which were in line with items in the questionnaire. They investigated (a) what purposes the participating teachers use interactive whiteboards, (b) their evaluation of in-service training courses within the scope of FATIH project, (c) their

expectations from such in-service training courses, which would likely be held in the future, and (d) whether or not they have training needs which are specific to their subject areas.

4.4. Data Analysis

The qualitative data were analysed through the content analysis method. Thematic approach was mainly used in data analysis. First, the data were organised. Next, the general sense of data was explored after the review of the qualitative data several times. Then, the codes were developed through in vivo and descriptive coding techniques (see Miles, Huberman, & Saldana, 2014 for details). Finally, themes were identified through the description and interpretation of these codes.

All of the phases in data analyses were conducted by two researchers independently so as to establish inter-rater reliability. At the end of each phase, the results were compared and the agreement was made on the controversial issues.

5. Results and Discussion

The findings of this study have revealed that Turkish in-service teachers from various subject areas are largely optimistic about the integration of information and communication technologies (ICT) into Turkish education system within the scope of FATIH project. The teachers seem to exhibit positive attitudes towards the use of interactive white-boards (IWBs) in their classrooms, which is also in line with the research evidence in the related literature (e.g., Mathews-Aydinli & Elaziz, 2010; Öz, 2014; Saraç, 2015; Slay et al., 2008; Teo, 2008; Türel, 2012; Zhao, 2003).

According to the study results, all of 35 participating teachers explain that they actively benefit from IWBs in their teaching practices for at least two years. Obviously, the frequency of IWB use varies from one teacher to another. However, the rate of IWB use across 35 participants has been found to be 65% since they utilise this technological device in 561 of their total 869 class hours. This frequency of IWB use can be regarded to be quite high in view of the variation in their subject areas. The data from the questionnaires and the interviews also emphasizes that majority of Turkish in-service teachers are pleased with the use of IWB. They believe that IWB makes their lessons visually more attractive for their students, thereby increasing their motivation and yielding long-lasting learning. The relevant literature also verifies that teachers generally benefits from IWBs so as to visualise the content of their courses (e.g., Bacon, 2011; Türel & Johnson, 2012).

Despite adopting positive attitudes towards the use of IWBs, most of Turkish in-service teachers are not pleased with the in-service training courses provided by the Ministry of Education within the scope of FATIH project. According to the data from the questionnaires, 86% of the participating teachers express their dissatisfaction with in-service training since it has not provided them with sufficient professional development on how to integrate IWBs into their individual teaching practices. Many studies also substantiate that teachers, to a great extent, receive inadequate in-service training about the use of IWBs in their teaching practices (e.g., Çiftçi & Taşkaya, 2013; Kurt et al., 2013; Smith et al., 2005).

The perceptions and the needs of teachers from different subject areas about the in-service training will be discussed thoroughly hereafter in the light of the research questions:

5.1. RQ1: What are the perceptions of Turkish in-service teachers from different subject areas about the in-service training courses within the context of FATIH project?

The qualitative data from the questionnaires and interviews have revealed six themes about the participating teachers' perceptions of in-service training courses. These are as

follows: (1) course objectives, (2) planning, (3) content, (4) training methods, (5) trainers, and (6) ongoing support (see Table 1).

Table 1. *Themes and codes about teachers' perceptions of in-service training courses*

Themes	Codes
1) course objectives	✓ unrealistic objectives ✓ inconsistency with educational policies ✓ conflict with nationwide high-staking exams ✓ not adaptable to curricula of subject areas
2) planning	✓ disregarding the needs and interests of teachers ✓ inefficiency of administration time and course hours ✓ mandatory nature of training ✓ excessive number of trainees ✓ limited time span
3) content	✓ limited with basic IWB skills at technical level ✓ insufficient to integrate IWB into teaching practices ✓ not comprehensive enough, superficial ✓ lack of training in creating course materials ✓ no training on how to connect IWBs with tablet PCs ✓ lack of training in ICT-related programs
4) training methods	✓ ineffective, theory-based training ✓ lack of opportunity to practice ✓ not addressing to adult learners ✓ need for sample applications and exemplary models ✓ not leading to permanent learning ✓ need for more attractive learning atmosphere
5) trainers	✓ lack of qualified trainers
6) ongoing support	✓ lack of constant support ✓ lack of up-to-date training ✓ lack of encouragement to use ICT technologies

5.1.1. Course objectives

The objectives of in-service training programs should be clearly identified. They should also be in line with both overall national education policies and curriculum principles of individual subject areas. The in-service training courses within the context of FATIH project are designed to equip teachers with the knowledge of effective IWB use so that they can provide their students with twenty-first century skills. However, there exists a mismatch between course objectives and Turkish education policies, which are mainly based on nationwide high-stakes testing for assessing of students' achievement and placing them to higher education. Akcaoglu et al. (2015) also put forward high-staking exams as a barrier to ICT integration in Turkey. In view of countrywide high-staking exams, the majority of the participating teachers make use of IWBs to show their lecture presentations and do tests. A science teacher provides a good example for this situation during the interview:

> My 12th year students do not want to watch videos related to my course by leaving the tests aside since they prepare high-staking university entrance exams.

Surprisingly, none of the participants mention offering their students opportunity to use IWBs in their class hours. Thus, the study findings have demonstrated that most of Turkish in-service teachers benefit from IWBs to support their existing teaching practices rather than providing their students with interactive learning atmosphere. With this in mind, it can be concluded that digitalisation of schools do not guarantee teachers' effective integration of IWBs into their classrooms without setting realistic in-service training goals.

5.1.2. Planning

In-service training within the scope of FATIH project is planned and organised by local educational authorities. It is an indispensable fact that teachers should also be involved in the process of planning and designing such professional development programs. However, the questionnaire data emphasises that in-service training courses are arranged without taking the needs and interests of teachers into consideration, which is also stated by some studies in the relevant literature (Akcaoglu et al., 2015; Altın & Kalelioğlu, 2015; Tosuntaş, Karadağ, & Orhan, 2015; Yıldız, Sarıtepeci, & Seferoğlu, 2013).

As well as proposing several problems about these in-service training courses, the participating teachers make suggestions to overcome some of these difficulties. First of all, they are dissatisfied with the administration time and hours of in-service training. An English teacher states that:

> In-service training courses generally occur in the late evening hours of education year when we are tired of working all day, which results in inefficiency of these courses.

As a solution, some teachers suggest that these courses should be held in more efficient time and hours, especially when they attend seminars just before fall semesters and immediately after spring semesters.

Second, the mandatory nature of in-service training is considered as an obstacle for the efficiency of these courses. In this regard, some teachers point out that in-service training courses should be given to volunteers who freely offer this professional development. According to a social sciences teacher:

> The effective learning atmosphere is spoiled by the teachers who participate in these courses only for getting a certificate of attendance.

The excessive number of trainees is another issue, which is criticized by in-service teachers. They thought that in-service teacher training courses are generally too crowded to fulfil the needs of each trainee. Such overpopulated in-service training courses are also regarded to be insufficient to provide teachers with opportunity to put theoretical knowledge into practice during the course hours. In this regard, some teachers recommend that in-service training programs should be planned and arranged with a limited number of trainees.

Finally, the duration of in-service training courses is regarded to be excessively short. In view of the data from the questionnaires and the interviews, many teachers exhibit their dissatisfaction with the limited time span of these courses. They are not long enough to offer each trainee opportunity to learn and practice the necessary skills about the use of IWBs, let alone addressing the special needs of teachers from different subject areas about integrating this technology into their individual teaching practices.

5.1.3. Content

The success of in-service training courses mainly depends upon teachers' effective use of IWBs in their classrooms. In accordance with the study findings, these courses help the

majority of teachers with basic IWB skills at technical level, e.g., how to turn on IWB. However, almost all of the participating teachers agree that in-service training programs are insufficient to satisfy their needs about how to integrate IWBs into their individual teaching practices. 5 of the participating teachers maintain that they are unable to prepare their teaching materials by themselves by means of these ICT technologies.

The teachers regard the content of in-service training as being superficial and insufficient since it does not provide them with comprehensive knowledge and necessary skills on how to adapt these technologies for teaching their subject areas. A teacher of English language states that:

> Although we were instructed on how to use IWB basically, these courses did not provide us with insights to integrate this technology into our teaching practices effectively.

Teachers also make further suggestions about the content of in-service training courses. Some participants indicate that they should be instructed on how to connect IWBs with Tablet PCs. Some others explain their needs to learn about some ICT-related software programs and "EBA (Project's Content Database)". In this regard, this study also reveals research evidence about teachers' insufficient knowledge on how to adapt IWBs in their teaching practices, as highlighted by BECTA (2003), Levy (2002) and Smith et al. (2005). Thus, it can be concluded that the perceptions and needs of the teachers should also be taken into account while designing the content of in-service training courses.

5.1.4. Training methods

A successful in-service teacher training can only be achieved through the efficient and practical teaching methods. Training methods should be effective enough to bring about the expected changes. Since the participants of these training courses are adult teachers, the pedagogical design of these courses should include adult-oriented teaching methods, which combine theoretical knowledge with practical applications, such as skill demonstration and learning by doing (Leu & Ginsburg, 2011). On the contrary, the current study has revealed that a great number of in-service teachers regard training methods as ineffective. According to a maths teacher;

> These courses are largely theory-based and they do not supply trainees with opportunity to put what they have learned into practice.

Therefore, the trainees are in need of more practice-based in-service training courses, which will be more likely to result in more permanent learning. Many participating teachers express their needs to be shown sample applications and exemplary models on how to integrate IWBS into their teaching practices. Some teachers reveal their expectations to get more attractive and less boring in-service training courses, which will lead to more enjoyable learning atmosphere. The relevant literature also underlines that in-service training programs should go beyond the traditional teaching methods by adopting more practice-based and pedagogical way of instruction (Drexler, Baralt, & Dawson, 2008; Pamuk, 2012; Pamuk, Çakır, Ergun, Yılmaz, & Ayaş, 2013; Uslu & Bumen, 2012).

5.1.5. Trainers

The lack of qualified trainers seems to be another problematic issue related to the in-service teacher training programs. Some teachers point out that the course trainers are not proficient enough to have sufficient level of knowledge about these new technologies. In this regard, they suggest that such professional development courses should be given by the qualified trainers who are experts in ICT technologies.

5.1.6. Ongoing support

Beyond specifically-arranged in-service training courses, some of the participating teachers clarify that they need a constant support for their professional development in ICT integration. Apart from learning the basic IWB skills at technical level, they ask for further opportunities to consult their specific problems and pedagogical needs, especially on how to adapt these technologies into their individual subject areas. In addition, some teachers propose that the content of in-service training should be updated continuously in view of their perceptions and pedagogical needs. They would like to be informed consistently about the new advancements in the field of ICT. In this respect, a teacher of Turkish literature declares that:

> Some precautions should be taken so as to encourage in-service teachers to use IWBs more effectively in their classrooms.

In another study, Güngör and Yıldırım (2015) also suggest that teachers should attend in service training activities regularly as an ongoing process.

5.2. RQ2: What are the needs of Turkish in-service teachers from different subject areas in related to in-service training within the context of FATIH project?

The findings of the current study have revealed two themes in relation to the needs of teachers about in-service training courses. These are (a) common needs, and (b) branch-specific needs (see Table 2).

Table 2. *Themes and codes about training needs of teachers from different subject areas*

Themes	Codes
1) common needs	✓ more efficient in-service training courses on ICT technologies ✓ training on how to adapt IWBs into their teaching practices ✓ distinct in-service training courses on different subject areas
2) branch-specific needs	***Maths*** ✓ drawing geometrical shapes ✓ creating 3D graphics ✓ using mathematical symbols ***Turkish Literature*** ✓ adding sounds to literary texts, such as poems ✓ creating videos and short films ***Science*** ✓ carrying out simulation experiments ***Foreign Languages*** ✓ recording students' sounds ✓ creating animated graphs and videos ✓ using ICT tools in crowded classrooms ***Social Sciences*** ✓ creating and using interactive maps ✓ drawing geographical features

5.2.1. Common needs

The findings highlight that a great number of in-service teachers are not pleased with in-service training courses within the scope of FATIH project. Despite offering the basic technical knowledge of IWBs, these in-service training programs are claimed to be insufficient to provide teachers with necessary skills on how to adapt these technologies into their individual teaching practices. Obviously, all of the teachers from every subject area and school type get the same in-service training prior to the integration of IWBs into their schools, which is unlikely to meet the educational needs of all teachers from various subject areas. As a crucial recommendation to overcome this problem, 80% of the participating teachers suggest that in-service training courses should be planned and organised separately for teachers from different subject areas.

It is noted that successful professional development programs cannot be designed without taking the special needs of teachers from various branches into account. The organisation of distinct in-service training on different subject areas is regarded to provide teachers with more understanding of integrating ICT specifically to teach their subject matter. A geography teacher asserts that:

> I can prepare my teaching materials through these technologies if I get an in-service training which is special to my subject area.

Such branch-specific courses may also create an effective network across colleagues for collaborative learning. In this way, more proficient users of IWBs can assist their incompetent colleagues by sharing their sample applications and exemplary models, which result in ongoing technical and pedagogical support among colleagues.

5.2.2. Branch-specific needs

Although there exist a number of common points in the needs and perceptions of teachers towards FATIH projects, the current study has released some research evidence about the different needs of teachers from various subject areas about the in-service training courses (see Table 2). On the one hand, the questionnaire data indicate that the teachers from different branches make use of IWBs for similar purposes such as lecture presentations, playing a video, Internet access, demonstration of visual materials and doing tests. On the other hand, 80% of the participating teachers think that in-service training courses should be branch-specific. They put forward some training needs which are special to their individual subject area. For instance, maths teachers need in-service training on how to create 3D graphics and geometrical shapes by means of IWBs. Science teachers want to be instructed on carrying out simulation experiments via ICT for supporting their teaching practices. In-service training needs of teachers from social sciences include creating and using interactive maps effectively on IWBs. As for some teachers of Turkish literature, they express their needs as adding sounds to written texts and poems. Finally, some foreign language teachers would like to be trained on some issues such as recording their students' speech and creating animated videos for their individual teaching purposes. In view of these findings, it can be concluded that Turkish in-service teachers from various subject areas have different training needs on integrating ICT technologies into their classrooms. Thus, designing separate in-service training courses on different subject areas can offer an efficient means to fulfil these divergent ICT needs of in-service teachers.

6. Conclusion

With its scope and budget, the FATIH project is argued to be one of the most inclusive ICT integration attempts in the history of Turkish education. Providing teachers with the necessary ICT skills through efficient in-service training programs is probably the most crucial part of this comprehensive project as teachers are the end users of these technological facilities in classrooms. In this regard, this qualitative study specifically aims at exploring the perceptions and needs of teachers from various subject areas in terms of in-service training courses within the project. As for the research findings, a great number of Turkish teachers are not gratified with these in-service training programs even though they mostly have good attitudes towards the use of ICT technologies in their classrooms. Therefore, in-service training courses should be planned and organised as branch-specific since the current study has revealed a good deal of research evidence on the divergent training needs of teachers from various subject areas. In short, the project's focus of attention on technological infrastructure should be directed to various professional development needs of teachers from different branches and in different educational contexts (Akcaoglu et al., 2015; Ertmer, 2005; Gur, Ozoğlu, & Baser, 2010).

It should be kept in mind that equipping each classroom with ICT tools and providing teachers with superficial in-service training about the use of IWB do not give assurance on effective implementation of ICT technologies into education. So as to attain this end result, national education policies and curriculum principles of individual subject areas should also comply with all the components of this ICT integration project. In Turkish education system, one of the most conspicuous obstacles to effective use of technology is claimed to be nationwide high-stakes testing for assessing students' achievement and placing them to higher education (Akcaoglu et al., 2015). A successful ICT integration also requires radical changes in many educational aspects such as curriculum, teaching methods, testing instruments and assessment strategies. Therefore, it seems unlikely to accomplish a real and effective nationwide ICT integration without changing educational policies and arranging the curricula of subject areas in accordance with the ICT based applications. Obviously, such kinds of initiatives are far beyond the in-service teachers who have to apply the pre-determined educational policies and curriculum principles. While implementing ICT technologies into schools, policymakers and teachers have to cope with the nationwide system which is often resistant to change and innovation. Consequently, there exists an inconsistency between the highly centralised education system, particularly high-stakes testing, in Turkey and the objectives of offering students twenty-first century skills, which largely prevents teachers from making ICT adaptations according to the dynamics in the classroom.

7. Implications

The present study has revealed a number of implications and suggestions for policymakers and course designers:

✓ The perceptions and the needs of teachers about the in-service training courses should be taken into consideration while planning and organising such kinds of professional development programs.

✓ In-service training courses should be planned and organised as separately for each branch since this study reveals some research evidence on the divergent training needs of teachers from various subject areas.

✓ Beyond basic IWB skills at technical level, teachers should specifically be trained on how to adapt these technologies in teaching their individual subject areas.

✓ The teachers should also be instructed about how to make connection between IWBs and Tablet PCs.

✓ The objectives of in-service training programs should comply with both overall national education policies and curriculum principles of individual subject areas.

✓ These courses should be held in more convenient time period and more efficient hours of the day, especially when the teachers attend seminars just before fall semesters and immediately after spring semesters.

✓ They should be planned and arranged in longer time periods and with a limited number of trainees so that each trainee has opportunity to put his or her theoretical knowledge into practice.

✓ Teachers would like to have more practice-based and pedagogical in-service training courses which are enriched with sample applications and exemplary models on how to integrate IWBS effectively into their teaching practices.

✓ These courses should be given by the qualified trainers who are experts in ICT technologies.

✓ Teachers should be supplied with a constant support so as to assist and improve their professional development in ICT integration, and the content of in-service training should be updated continuously.

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Appendices

Appendix A: Questionnaire Items

Dear Colleagues,

We conduct a study to explore your perceptions and needs about in-service training courses you have taken within the scope of FATIH project. We will be glad if you contribute to our research by filling in the following questionnaire. Thank you for your attention.

Mustafa SARIOĞLU
Mehmet SARAÇ

1. Your Age? ☐ 21-35 ☐ 36-50 ☐ 51-65 ☐ 66 or more

2. Your Branch? ☐ Maths ☐ Physics ☐ Chemistry ☐ Biology
☐ Literature ☐ History ☐ Geography ☐ Foreign Language
☐ Other (Please specify) _____

3. How long have you been teaching? ☐ 0-10 ☐ 11-20 ☐ 21-30 ☐ 31 or more

4. How many hours do you teach in a week? _____

5. Do you use IWBs in your lessons? ☐ Yes ☐ No

If your answer is "no", please explain the reason here and then pass to the 9th question.

_____

_____

6. How long have you been using IWBs? ☐ 1 year ☐ 2 years ☐ 3 years ☐ 4 or more

7. How often do you use IWBs in your lessons on a weekly basis? _____

8. For what purposes do you use IWBs in your lessons?

_____

_____

_____

_____

_____

9. Have you taken part in any in-service training within the scope of FATIH Project? ☐ Yes ☐ No

If your answer is "no", please explain the reasons here, and then pass to the 12th question.

_____

_____

10. Which in-service training seminars have you attended within the scope of FATIH Project?

☐ The Use of Technology in Education

☐ Interactive White Board Use

☐ ICT & Conscious and Safe Use of Internet

☐ Other (Please specify: _____)

11. How do you evaluate the in-service training courses that you have taken within the scope of FATIH Project?

_____

_____

_____

_____

_____

12. What are your expectations from the future in-service training courses within the scope of FATIH Project?

_____

_____

_____

_____

_____

_____

13. Do you have any branch-specific needs in relation to in-service training within the scope of FATIH Project? ☐ Yes ☐ No

If your answer is "yes", please explain.

_____

_____

_____

_____

_____

_____

Appendix B: Questionnaire Items in Turkish

Değerli Meslektaşlarımız,

Fatih projesi kapsamında katılmış olduğunuz hizmet-içi eğitim seminerlerine yönelik görüşlerinizi ve ihtiyaçlarınızı saptamak üzere bir çalışma yapmaktayız. Çalışmamıza, aşağıdaki anketi doldurarak yardımcı olabilirseniz çok seviniriz. Katkılarınız için teşekkür ederiz.

Mustafa SARIOĞLU
Mehmet SARAÇ

1. Yaşınız? ☐ 21-35 ☐ 36-50 ☐ 51-65 ☐ 66 ve üzeri

2. Branşınız? ☐ Matematik ☐ Fizik ☐ Kimya ☐ Biyoloji
☐ Edebiyat ☐ Tarih ☐ Coğrafya ☐ Yabancı Dil
☐ Diğer (Lütfen Yazınız.) _____

3. Kaç yıldır öğretmenlik yapıyorsunuz? ☐ 0-10 ☐ 11-20 ☐ 21-30 ☐ 31 ve üzeri

4. Haftada kaç saat derse giriyorsunuz? Lütfen yazınız. _____

5. Derslerinizde etkileşimli tahta kullanıyor musunuz? ☐ Evet ☐ Hayır

"Hayır" seçeneğini işaretlediyseniz, lütfen aşağıya sebebini yazınız. Daha sonra 9. soruya geçiniz.

_____
_____

6. Etkileşimli tahtayı ne kadar süredir kullanıyorsunuz? ☐ 1 yıl ☐ 2 yıl ☐ 3 yıl ☐ 4 +

7. Haftalık ders saatinizin ne kadarında etkileşimli tahta kullanıyorsunuz? Lütfen yazınız. _____

8. Etkileşimli tahtayı derslerinizde hangi amaçlarla kullanıyorsunuz? Lütfen yazınız.

_____
_____
_____
_____
_____

9. Fatih Projesi kapsamında herhangi bir hizmet-içi eğitim seminerine katıldınız mı? ☐ Evet ☐ Hayır

"Hayır" seçeneğini işaretlediyseniz, lütfen aşağıya sebebini yazınız. Daha sonra 12. soruya geçiniz.

_____

_____

10. Fatih Projesi kapsamında hangi hizmet-içi eğitim seminerine katıldınız?

☐ Fatih Projesi Eğitimde Teknoloji Kullanımı

☐ Fatih Projesi Etkileşimli Tahta Kullanımı

☐ Fatih Projesi Bilişim Teknolojileri ve İnternetin Bilinçli ve Güvenli Kullanımı

☐ Diğer (Lütfen belirtiniz: _____)

11. Fatih projesi kapsamında katılmış olduğunuz hizmet-içi eğitim seminerlerini nasıl değerlendiriyorsunuz? Lütfen ayrıntılı bir şekilde açıklayınız.

_____

_____

_____

_____

_____

12. Fatih projesi kapsamında gelecekte yapılması planlanan hizmet-içi eğitim seminerlerinden beklentileriniz nelerdir? Lütfen ayrıntılı bir şekilde açıklayınız.

_____

_____

_____

_____

_____

_____

13. Fatih Projesi kapsamında branşınıza yönelik eğitim ihtiyaçlarınız var mı? ☐ Evet ☐ Hayır

"Evet" seçeneğini işaretlediyseniz, lütfen açıklayınız.

_____

_____

_____

_____

_____

_____