Özgün Makale

Evaluation of In-Service Training on Information and Communication Technologies According to Stakeholder Opinions*[1]

Bilgi ve İletişim Teknolojileri ile İlgili Hizmet İçi Eğitimlerin Paydaş Görüşlerine Göre Değerlendirilmesi

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Abstract

This study aims to evaluate the in-service training on information and communication technologies according to the opinions of teachers, administrators, information technologies (IT) guidance teachers and instructors. The participants consist of 18 teachers, 5 administrators, 6 IT guidance teachers and 3 instructors working in secondary education institutions affiliated to the Ministry of National Education in Kırklareli province and determined by purposeful sampling. This study is a case study prepared using a single-case embedded design. The data were collected through semi-structured interviews and analyzed using the descriptive analysis method. The main results of research related to the in-service training are that the contents should be planned considering teachers' needs, in-service training should hold during intermediate holidays or seminar periods in places with sufficient technology equipment and technical infrastructure, the participants should be similar with the level of technology, the practice-weighted teaching methods should be used and the instructors should be experts.

Keywords: In-Service Training, information and communication technologies, professional development, teacher development

Öz

Bu araştırmada bilgi ve iletişim teknolojileri ile ilgili hizmet içi eğitimlerin öğretmen, yönetici, bilişim teknolojileri (BT) rehber öğretmeni ve eğitici görüşlerine göre değerlendirilmesi amaçlanmıştır. Katılımcılar, Kırklareli ilinde Milli Eğitim Bakanlığına bağlı ortaöğretim

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kurumlarında görev yapan ve amaçlı örnekleme ile belirlenen 18 öğretmen, 5 yönetici, 6 BT rehber öğretmeni ve 3 eğiticiden oluşmaktadır. Bu çalışma iç içe geçmiş tek durum deseni kullanılarak hazırlanmış bir durum çalışmasıdır. Veriler yarı yapılandırılmış görüşmeler aracılığı ile toplanmış ve betimsel analiz yöntemi kullanılarak analiz edilmiştir. Araştırmanın başlıca bulguları hizmet içi eğitimlerin içeriklerin öğretmenlerin ihtiyaçları dikkate alınarak planlanması, hizmet içi eğitimlerin yeterli teknolojik donanıma ve teknik altyapıya sahip yerlerde ara tatillerde veya seminer dönemlerinde yapılması, katılımcıların teknolojik bilgi düzeyinin benzer seviyede olması, uygulama ağırlıklı öğretim yöntemleri kullanılması ve eğiticilerin uzman olması yönündedir.

Anahtar Kelimeler: Hizmet İçi Eğitim, bilgi ve iletişim teknolojileri, mesleki gelişim, öğretmen gelişimi

Introduction

We can observe significant changes in communication, transportation, health system, entertainment, agriculture, industry, and education due to the rapid technological developments in 21st century, which is called information age or digital age (Erişen and Çeliköz, 2007). These rapid changes in technology have also affected education in societies and the use of technology in education has become increasingly widespread (Gökmen, Akgün, and Kartal, 2014). The importance and intensive use of information and technology in many areas necessitate the change of the education system and education policies.

Many projects held by the Ministry of National Education since 1984 with the establishment of computer laboratories in schools in order to ensure more effective use of technology in the education system. The Ministry of National Education started to get the technology into classes with the implementation of the 3.4 billion liras worth FATIH project to schools until 2015, especially towards the end of 2010, with the support of the Ministry of Transport, and the use of technology in schools increased significantly in parallel with the investments made (Topuz and Göktaş, 2015). "Most countries invest significantly in information technologies in schools to provide high-quality learning and teaching services, educate individuals according to the requirements of modern society, and for their social and economic success" (Milli Eğitim Bakanlığı, MEB, 2007, p. 1). Interactive boards, projectors, televisions, tablets, computers, printers, external memories, infrastructure systems, software, technical supports, and the fiber Internet network currently in use in schools have been created with large budgets. A significant amount of allowances still allocated to ensure the continuation of some of these services. Topuz and Göktaş (2015) organize studies for teachers and students together with studies to establish and improve IT infrastructure in educational institutions by the Ministry of National Education. Millions of dollars of investment in the education system for the integration of technology into education is financed by the budget of the Ministry of National Education, as well as some projects are financed by World Bank funds, European Investment Bank funds, Turkish Cooperation and Coordination Agency (TIKA), Japan International Cooperation Agency (JICA) funds, and European Union funds (EU). The most important element of the process of ensuring the effective use of technologies in education in schools together with the projects and investments made for the integration of technology into education is the need for teachers who will practice, disseminate, and guide this (Sert, Kurtoğlu, Akıncı and Seferoğlu, 2012). No matter how much technology develops in educational environments, computers can never replace teachers, teachers integrate technology into education by using it appropriately and effectively (Carlson and Gadio, 2002). Today's teachers have to improve themselves in parallel with developments in order to meet the needs and expectations of the students of the new age, to learn to communicate in their language and style and to apply technology in learning environments (Prensky, 2001). Technological changes and the increasing

amount of information have influenced the content of in-service training of teachers, which is the cornerstone of education, and in-service training with information and communication technologies has become prominent. The changes have required successful technology integration into the learning and teaching process and it has become necessary for teachers to receive systematic training on educational technologies at certain intervals (Çakır, 2016).

It is stated that teachers need in-service training including the applications of these technologies in order to use information and communication technologies effectively in schools (Doering, Veletsianos, Scharber and Miller, 2009). Various in-service training sessions were provided to teachers on information and communication technologies together with the FATIH project especially after 2010 by the Ministry of National Education. These training sessions aim to increase the knowledge and skills of teachers about technology-assisted education and informed use of technology, to be able to use technology effectively, to make courses integrated with technology, to create lesson plans with appropriate methods, to guide students about technology as an example, and to increase the use of technology in education to the intended level (MEB, 2017). It is considered necessary to identify and evaluate the problems and deficiencies related to these in-service training sessions and to organize more qualified in-service training sessions. In-service training is of great importance in technology integration and teacher opinions should be taken at this point while the use of technology in educational environments is increasing day by day (Yıldırım, Kurşun and Göktaş, 2014).

All stakeholders, especially teachers, have a more active role in the use of technology in education and it is very important that they exhibit positive attitudes and behaviors. Training on information and communication technologies should motivate teachers to improve their ability to use technology and ensure that they use these technologies not only as technology literates but also with more information (Kim, Yang, and Hwank, 2010). It is known that some or all of these tools are used by teachers despite the existence of sufficient teaching technologies in schools and in-service training received by teachers (Adıgüzel, 2010). Gökmen, Akgün, and Kartal (2014), stated in their study in which the opinions of teachers about in-service training were taken that the training given to the teachers were insufficient, the contents that could be used in the classrooms were insufficient, and these contents could not be produced by the teachers themselves, they experienced Internet connection and technical problems. The opinions of the practitioners of technological changes in schools and classrooms about the training they received together with the experiences of teachers are very important in order to evaluate the in-service training on information and communication technologies. On the other hand, it is necessary to investigate the opinions of stakeholders such as administrators who have a great role in ensuring technology integration in their schools and for teachers to improve themselves, IT teachers who have the opportunity to observe technology applications in their schools and who guide teachers, instructors who provide in-service training on information and communication technologies and who have the opportunity to observe teachers face-to-face and from a different perspective during education, in order to successfully achieve the goals of in-service training practices, to identify needs and problems, and to improve practices.

"Evaluation of in-service training on information and communication technologies according to stakeholder opinions" was the subject and answers to the following questions were sought in this study.

In-service training on information and communication technologies of teachers, administrators, IT teachers, and instructors;

1. What are their opinions on the planning?
2. What are their opinions on the practice?
3. What are their opinions on the main factors affecting education?
4. What are their opinions on the evaluation?

Method

Model of Research

A qualitative research approach was adopted that allows the evaluation of stakeholder opinions on in-service training on information and communication technologies in this study. It was prepared to determine the opinions, suggestions, and expectations of teachers, administrators, IT teachers, and instructors. This research is a case study using a single-case embedded design.

Study Group

The study group of the study consists of 18 teachers working in official secondary education institutions affiliated to the Ministry of National Education in Kırklareli province in 2018-2019 academic year, 5 administrators with technology equipment and infrastructure in their schools, 6 IT teachers assigned in various schools, and 3 instructors who provided in-service training on information and communication technologies. Criterion sampling, one of the purposive sampling techniques, was used to determine the study group.

Data Collection Tools

A semi-structured interview method was used to collect the research data. Semi-structured interview forms consisting of open-ended questions were prepared by the researcher, presented to the expert opinion, and took their final form before the data collection process. The conceptual framework of the interview form consists of 3 themes: needs analysis, the content of training, planning with teachers' requests for participation and other opinions about planning; practice with opinions about the method of training, instructors, participants, the time of training, the place of training, and the key factors affecting training; the reasons why teachers do not use information and communication technologies after training sessions, evaluation in training, evaluation after training and evaluation about what needs to be done after training. Interviews were conducted face-to-face with each participant. The interviews were conducted at the schools where the participants worked, on the day and time determined by them. A voice recorder was used after prior permission from the participants in the recording of the data was obtained, and written notes were taken about the interview when necessary.

Data Analysis

The interview records were written in the computer environment and then analyzed by descriptive analysis method before the analysis of the data. A thematic framework was created with the themes of planning, practice, and evaluation of in-service training with opinions about the factors affecting in-service training and planning of in-service training previously determined, data were processed according to this framework, tables were created, interpreted, and direct quotations were included where necessary as shown in Figure 1.

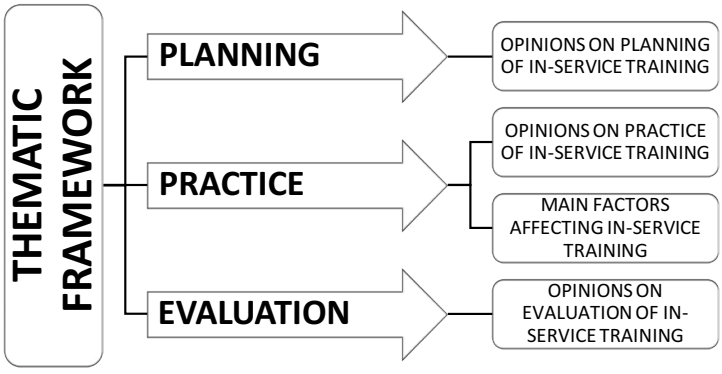

Figure 1. Thematic Framework for Research Results

Results and Interpretation

Results Regarding Planning of In-Service Training

The sub-themes of needs analysis related to the planning of in-service training, the contents of the training, teachers' participation requests, and other opinions related to planning were created. Stakeholders' opinions on these issues are presented in Table 1.

Sub-Themes	Stakeholder Opinions	TEACHER (T)	PRINCIPAL (P)	IT TEACHER (ITT)	TRAINER (I)
		f			
Opinions Regarding Needs Analysis During Planning Process	Needs analysis is performed	5	1	2	2
	Needs analysis is not performed	3		2	
	Needs analysis is not performed very often	2			
Opinions Regarding the Content of Training	Content problems may occur	3	1	2	2
	Contents are adequate	3		2	
	The needs of stakeholders should be determined by obtaining their opinions	9	4	3	3
	Contents should be based on the subject	7		1	1
	Training sessions should be Increased and there should be new and current topics	4	1	1	3
Opinions on Teachers' Requests to Participate in Training in the Planning Process	There is compulsory participation	9	3	2	1
	There is both compulsory and voluntary participation	2	1	4	1
	There is voluntary participation	2			
Other Opinions Regarding Planning	Training Planning should be regional	4	1		
	Teachers should be motivated by incentives to education	1		1	1

Table 1. Opinions Regarding Planning of In-Service Training

Opinions Regarding Needs Analysis During Planning Process

We found out that there are also opinions that needs analysis is not performed, although the opinions of the participants about the need analysis are similar when we examine the stakeholder

opinions. It is seen that a significant part of the participants does not have enough information about the needs analyses carried out through their own modules in the system and do not show sufficient participation in these analyses.

Let me put it this way, request analysis reaches us through their own modules in the system. (T9)

Of course, needs analysis and questions are made from time to time for this. (ITT6)

We did not receive a needs analysis for these, we did not receive the request opinion forms. (T4)

Opinions Regarding the Content of Training

Stakeholder opinions about the content of the training are related to the determination of the content of the training by taking stakeholder opinions to meet the needs of the teachers and that the training should be based on the subject but the practice is not in this direction.

Sometimes it can be an irrelevant topic in terms of content, it is boring for the instructor to focus too much on it. (P2)

The content of the training is also given to you in some way, there is no preliminary research on whether there is a need for this content or not. (I1)

Needs analysis has to be done, surveys have to be conducted. A plan must be made in that direction. (T10)

Opinions on Teachers' Requests to Participate in Training in the Planning Process

Stakeholders' opinions that teachers mostly participate in in-service training as participants due to the fact that the training is compulsory and that they can be teachers who participate with their own applications, but the number of them is low are similar.

We did not actually voluntarily participate in these training sessions. (T5)

They obligate everyone and attend periodically to check. Most teachers reluctantly participate. (ITT4)

There are also compulsory courses sent by the Ministry. But we don't consider voluntariness about them anymore. (I3)

Other Opinions Regarding Planning

Other opinions on planning relate to the fact that regional or school-based information and communication technologies opportunities differ, as the needs of students or teachers vary regionally or as a type of school. On the other hand, there are also results that financial incentives such as additional payment to teachers due to their participation in the training, additional service score, additional level or degree, or certificates or moral incentives such as discourse will increase their motivation and participation in the training.

They should speak like a group or what the deficiencies of this school are, what the deficiencies of the city are, Ankara and this place are not the same, Siirt and Trabzon are not the same. The same thing is sent everywhere; the possibilities, the hardware, it is not even clear whether we have a connection or not. (P3)

I am sure that if an incentive or a reward is provided, the training will be more and more beneficial. (ITT5)

Results Regarding Practice of In-Service Training

The sub-themes of the method, instructor, participants, the time of training, the place of training, and the key factors affecting in-service training have been created. Stakeholders' opinions on these issues are presented in Table 2.

Sub-Themes	Stakeholder Opinions	TEACHER	PRINCIPAL	IT TEACHER	TRAINER
				f	
Opinions Regarding Method Used in Training	Training sessions are practical and sufficient	9	1	5	3
	Practices are not sufficient in training sessions	6	2	1	
	Distance education is not sufficient	2	1	1	
	Training sessions should be practice-weighted	16	5	6	3
	There should be face-to-face training sessions, not distance education	3	2	1	
Opinions Regarding Instructors in Training	Instructors are qualified	13	3	5	1
	Instructors are not qualified	4		1	
	Instructors cannot communicate with the participants well	4			
	Instructors must be qualified	10	4	6	2
	Instructors should be able to transfer well according to the level of the participants	4			
	Instructors must be understanding	2			1
	Instructors may be in the same subject	2			
Opinions Regarding Participants in Training	Participants are not on the same level	7		1	2
	Good if participants are willing, bad if reluctant	6	2	5	1
	Training sessions are crowded	2			
	Participants should be separated according to certain level groups	9		1	2
	Participants should participate willingly and voluntarily	3	1	2	
	The subject of instructors should be considered	2			
	Training sessions should not be crowded	2			

Table 2. Opinions Regarding Implementation of In-Service Training

Opinions Regarding the Time of Training	Training after working hours is a problem	14	2	4	3
	Training during working hours is a problem	2	2	2	
	Training should be held during the seminar period	8	1	2	2
	Training should be held on semester break or summer break	7	2		
	Training should be held during working hours as the teacher is considered to be on duty leave	6	2	3	1
	Training should be held at the weekend	5	1	1	1
	Teachers should be asked about the appropriate times for the training	1	1	2	
Opinions Regarding the Place of Training	The places where the training held may not be suitable, may be troublesome	7	4	1	2
	The places where the training is held are sufficient	3	1	4	1
	Hardware and technical infrastructure must be sufficient in the places where the training is held	7	2	2	1
	There should be a separate place for training	1			1
Opinions Regarding Key Factors Affecting In-Service Training	Instructor	12	4	2	1
	Participants	6	2	3	3
	Place	6	4	3	
	Content	6		2	1
	Time	3			1
	Method	1		2	

Table 2. Opinions Regarding Implementation of In-Service Training

Opinions Regarding Method Used in Training

It is seen that all stakeholders agree that a practice-oriented method should be used in information and communication technologies training and that the practice is also in this direction. In addition, another result related to the method is that in some sessions of the training, the practices are inadequate, in the form of presentations or distance training, and there are no efficient results.

Technically, the instructor did it first by telling and showing. The instructor had us do the same thing, and the method was good. (T3)

I believe that more emphasis should be placed on the practice. (ITT2)

My technique; if something is to be done about information and communication technologies, there is already preliminary information, that is, what your knowledge is, what your point of view is, etc, then the practice. So practice, practice, practice, practice. (I1)

We learned these by presentation method. No practice. (ITT5)

It should be practical education, not distance education. (P2)

Opinions Regarding Instructors in Training

Stakeholder opinions on the fact that the instructors assigned in in-service training on information and communication technologies are expert, informed, and sufficient in their field are similar. There is also an opinion that they do not teach according to the level of the participants and cannot convey the information although some instructors are good. On the other hand, there are results that training sessions will be more effective if teachers learn the practices by instructors from their own subject.

We were trained by a good instructor, someone who does this job very well. Our instructor was very successful both in content and technology. (T3)

Instructors are competent, very good, and experts, they teach very well. (ITT4)

Of course, our instructors are informed in the field, they are experts. (I2)

Who is the person who will best improve the subject, my professional development, is an expert in my field. (T15)

Opinions Regarding Participants in Training

It is seen that the biggest problem in these training sessions is that the technology knowledge of participants and instructors who participate in the training is not close to one another when the opinions expressed by the stakeholders about the participants are evaluated. In addition, it can be concluded that the reluctant and compulsory participation of participants in the training reduces the effectiveness of the training. There are also results that the fact that the training sessions are crowded negatively affects the ability of participants to the training to learn by using common tools and to practice and experience and that it negatively affects the ability of the instructor to control the training and to deal with the participants. On the other hand, teachers have opinions about organizing training sessions where they can communicate with the same subject teachers through the contents related to their own subject.

When giving training I say that those who can use computers should be given a different training, those who know less about computers should continue from there, and those who do not know anything about computers should start from scratch. It will be more efficient if everyone starts at their level. (ITT3)

The important thing is to come willingly, to take those who are willing, or to make people believe in the benefit or necessity of this, I think so. (ITT2)

I always want to communicate with people related to my subject in the training I participate in. (T15)

The number of participants was not low, there were more than enough participants in a lot of classes. It was not efficient for me Because the instructor could not help. (T10)

Opinions Regarding the Time of Training

It is seen that the training is held after working hours and this situation negatively affects the training and the participants when stakeholder opinions on the time of training on information and communication technologies are evaluated. At this point, there are stakeholder opinions stating that especially female teachers are more affected in terms of continuing family and home care in the evenings. On the other hand, there are also opinions that conducting the training sessions during working hours negatively affects the schools and students as it will disrupt the education in the school. Stakeholders expressed opinions on the adjustment of training times, especially during seminar periods, semester or summer breaks, weekends, or as teachers are deemed to be on duty leave.

I thought it was after school. The timing is not right, now we are at school until the evening. We'll take another class in the evening after working hours. We have a home, we have children. I can say that it is difficult in terms of timing. Besides, it's exhausting, and we have our own family and children. (T4)

Seminars, classes, and courses at the same time are not possible. Because we already get tired. (T15)

You do it while the education continues, the education of the students in the school is disrupted. (P2)

The best period for training is actually the seminar periods for the teacher to educate himself/herself, and the training conducted during the seminar period will be much more productive. (I3)

Opinions Regarding the Place of Training

It has been stated that they have problems with technological infrastructure, that this situation causes waste of time, and that they cannot reach the objectives of the training when stakeholder opinions on the places where in-service training on information and communication technologies is held are evaluated. However, IT teachers have stated that the places where they are trained are suitable. This may be due to the fact that IT teachers receive the training related to their fields at different times and places, with different participants and contents.

We couldn't do it ourselves because there was no Internet connection here. There was a problem with the infrastructure. (T14)

25 teachers are asked to participate even when there is no place to sit or there is no screen, two people have to look at the same screen, and therefore not everyone can practice in some of the training sessions we participate in. (P3)

Opinions Regarding Key Factors Affecting In-Service Training

The first of these factors is the instructor, the participants in the training, the place where the training is held, and the content when the opinions about the key factors affecting the in-service training received by teachers on information and communication technologies are evaluated. On the other hand, the instructors who gave the training stated that the key factor affecting the training was the participants.

Instructor affects the most. It depends on the person, the rest doesn't matter. (T3)

The instructor, what is more, important than that is what we will be trained on. (T2)

Content. If the content is efficient, if the teacher needs it, it is the right training. (I3)

Results Regarding Evaluation of In-Service Training

First of all, teachers' opinions about the reasons for not using information and communication technologies after the training are presented in Table 3.

Teacher Opinions	f
Technical, hardware, and infrastructure problems	10
Lack of resources and content	8
Personal reasons	5
Lack of required equipment in students	4
Training not related to my subject and insufficiency	4
Lack of supervision	1
Restricted Internet access on smartboards	1
Biological damage of smartboard	1

Table 3. Teachers' Reasons for Not Using Information and Communication Technologies After In-Service Training

Opinions Regarding the Reasons of Teachers for Not Using Information and Communication Technologies After Training

The main reasons for teachers not using these technologies in their schools after in-service training on information and communication technologies are the technical, hardware, and infrastructure problems and the inadequacy of the content that teachers can use regarding their lessons. There are also reasons such as teachers' feeling inadequate, lack of equipment in students, lack of training related to teachers' needs, lack of supervision in schools, restricted Internet access on smartboards, and harm to human health caused by smartboards.

Yes, there is technology. Does technology do anything to itself if you don't give something to it? It does not, there's still the human element. Human and knowledge. Technology development and training programs, training materials, and training support should be developed in the same way. (T6)

There is also a problem with the board, you cannot start any application. Now they gave us this, but I can't access YouTube, I can't access anywhere else. (T12)

The sub-themes of evaluation, evaluation after training, and what needs to be done after training have been created in the training related to the evaluation of in-service training. Stakeholders' opinions on these issues are presented in Table 4.

Sub-Themes	Stakeholder Opinions	TEACHER	PRINCIPAL	IT TEACHER	TRAINER
		f			
Opinions Regarding Evaluation of In-Service Training	A training evaluation survey was conducted	11	1	1	1
	It was conducted in written and practice form	8		3	3
	It was conducted as a written exam	4	3	2	
	An evaluation was not made	2			
	It was made as a practical exam	1		1	
	Distance learning evaluation was not very good	1	1		
	An evaluation must be made	11	4	6	2
	Evaluation should not be made	2	1	1	
Opinions Regarding Evaluation in Schools After In-Service Training	Evaluation is not made after in-service training	9	4	5	3
	IT teachers make the evaluation in schools	2		1	
	School principals are not good at information and communication technologies	4			
	An evaluation must be made	10			
	Evaluation should not be made	4	3	5	1
	Evaluation can be made in the form of incentives or guidance		1	1	1
	Expert evaluation is required	1			1

Table 4. Opinions Regarding Evaluation of In-Service Training

	Teachers should practice what they learn	11	2	4	
	Teachers should keep themselves up to date and improve themselves	10	1	1	
Opinions Regarding What Teachers, Principals and Intrıctors Should Do After In-Service Training	Principals should encourage	8		3	3
	Principals should be knowledgeable, example, and guide on information and communication technologies	6	1		3
	Principals should provide technical support	4	2	1	
	Principals should conduct supervision	3	1	1	2
	Principals should do planning in their schools	3	1	1	
	Instructors can follow and receive feedback	7	1	3	
	Instructors must guide by communicating	3	1	1	

Table 4. Opinions Regarding Evaluation of In-Service Training

Opinions Regarding Evaluation of In-Service Training

First of all, it is seen that the evaluation of the training was carried out in the form of a questionnaire at the end of the training or later through their own modules in the system when the results related to the evaluation of training are examined. Similar opinions were expressed by all stakeholders regarding the fact that disruptions or good practices experienced in in-service training were important for identifying and implementing better practices. In addition, there are results that it is important to evaluate teachers at the end of the training and that an applied or written evaluation is done.

They do evaluations and conduct tests. You are successful or not, but you usually succeed according to the test results. (ITT3)

I have not seen that the participants are evaluated in the training I have participated in so far. (T18)

Evaluation at the end of training is important in terms of motivation. Students are motivated when they take the exam, they are not very motivated without the exam, it's just like that. There may be evaluation, there may be questionnaires, there may be products. (I2)

Opinions Regarding Evaluation in Schools After In-Service Training

It is seen that no evaluation is made in schools after in-service training on information and communication technologies when stakeholder opinions are evaluated. Teachers participating in the training are of the opinion that they should be evaluated in schools. There are results that this evaluation should be carried out by experts in the form of follow-up or guidance.

If you've started doing something, if you're going to give something to the teachers, you must also consider the consequences. Otherwise, it will not serve the purpose, it will be done for doing it. (T5)

It is not made, let me be clear, we do not do the follow-up, we cannot do it, actually. (I2)

Opinions Regarding What Teachers, Principals, and Instructors Should Do After In-Service Training

There are results that teachers should continuously improve themselves because of their ability to practice their new knowledge and skills in their schools and the continuous development of technology after the training. On the other hand, it turns out that principals should encourage teachers by providing appropriate environments and it is important for them to be examples and guides on technology. There are opinions that participants should be open to communication in terms of providing the necessary guidance to teachers and ensuring the continuity of the training after the training sessions.

The teacher should practice what he/she learns at school. (P5)

Teachers need to keep themselves up to date. Teachers need to be adequately informed in this regard, they need to improve themselves in this regard. (P2)

I mean, it's not encouraged because the principals don't know what's what, either. They can't encourage something they don't know. (T5)

A good principal researches and learns these things. The principal is the leader, the guider, the encourager. (I3)

Principals can help provide the teacher with the equipment he/she needs. (P1)

When we have something on our minds, we have to find it. That instructor should be accessible. (T17)

Discussion, Conclusion and Recommendations

In-service training on information and communication technologies was examined according to the opinions and expectations of the participants in the dimensions of planning, implementation, and evaluation in this study.

It is seen in the dimension of planning in-service training on information and communication technologies that teachers do not participate sufficiently in needs analysis and that this situation causes the contents of the training not to be determined in accordance with the needs. Gökmen, Akgün, and Kartal (2014) stated that identifying the needs during the planning of in-service training is important in terms of the efficiency of the training.

It is seen that practical training is effective in successfully transferring the necessary technology knowledge and skills to teachers in the dimension of implementation of in-service training on information and communication technologies. It turns out that the practices are insufficient, presentation-weighted, or distance training sessions are not efficient. Yadigaroğlu (2014) and Kaleci (2018) mentioned that practices should also be made and sample practices to be used by teachers in schools should be included in addition to providing theoretical content in the in-service training with technology content. The place of in-service training should be determined by considering the possibilities of the institutions and the type, characteristics, and principles of the program. If training aimed at behavioral change related to the cognitive field is to be provided to the personnel, it is necessary to determine the locations at the classroom level; if training aimed at gaining skills and behavioral change related to the psychomotor field is to be provided, at laboratory or workshop level; if both activities are to be performed together, at both classroom and laboratory and workshop levels (Taymaz, 1997). It is concluded that the instructors who provide training in the practice dimension are informed and the training is effective. However, it is seen that some problems such as the inability of the instructors to reach the level of the participants and not being from the same subject negatively affect the effectiveness of the training. Özan and Dikici (2001) emphasized that the instructors should be informed about adult

education because the groups are adults in addition to providing training in their own subject. The fact that the technological knowledge levels of the participants in in-service training are not close, they are unwilling, they are not of the same subject, and training sessions are crowded negatively affects the training. The fact that participants are heterogeneous groups reduces the effectiveness of education and it is of great importance to group participants according to their subject, age, computer literacy level (MEB, 2017). Kaleci (2018) stated that teachers could not get enough support, could not complete their deficiencies, and the workload of the instructor would increase in this case. On the other hand, it negatively affects in-service training after weekdays when teachers are tired or need to spend time on a subject that requires attention and perception such as information and communication technologies. Çakır (2016) has similar results about the fact that teachers want in-service training on information and communication technologies to be carried out during working hours in a time when teachers do not have lessons or when they have completed their duty. It is stated in the research that schools that continue education and training are generally used as places where in-service training is held, that these schools are not suitable, and that technological equipment is insufficient. These problems related to the place cause waste of time and it is seen that education negatively affects achieving the targeted gains. Yıldırım (2013) has reported that there are similar results that the technological infrastructure should be appropriate and the problems experienced in this regard should be eliminated in order to be able to implement and achieve success in training on technology. The key factors affecting the training in the dimension of implementing in-service training on information and communication technologies according to the study are instructors, participants, the place, content, time, and teaching method used, respectively. Kaleci (2018) has stated that there are results that the fact that the training content of the instructors, participants, and the method of training are practical are important factors in the training sessions.

It is observed in the evaluation dimension of the research that the reasons why teachers do not use these technologies in their schools are hardware and technical infrastructure problems and lack of content that they can use in their lessons. Teachers cannot reflect what they have learned in their schools and the training cannot reach the determined goals even if they have good training. Similar results are found in the studies conducted by Kaleci (2018), Çakır (2016), and Yadigaroğlu (2014) that the reason why teachers cannot effectively use information and communication technologies in classroom environments after receiving training and gaining the necessary skills is that they lack sufficient infrastructure and have difficulty in finding information and communication technologies content that they can use in their lessons. It is seen at the end of training sessions that teachers are evaluated with practical or written exams to determine whether the learning objectives are achieved. Yıldırım (2013) states that teachers should be evaluated after the training sessions and this will increase the seriousness and responsibility of the participants to the education as well as measuring the success of the training. On the other hand, training is evaluated in the form of a questionnaire or after their own modules in the system at the end of the in-service training. These evaluations are important in order not to repeat the deficiencies or mistakes made in the training, to correct them, to improve the training, and to organize more effective training. Evaluations will determine whether the needs of the training are met and will shed light on future training sessions and will allow training planning to be made by taking these opinions into consideration (Gökbulut, 2006). It is revealed in the research that no evaluation, follow-up, and guidance studies are carried out in schools after in-service training. This situation causes the training not to be reflected in schools, the continuity of training not to be ensured, and the training not to be implemented effectively in schools. It is stated in the study

conducted by YEGİTEK that there is no monitoring and evaluation after the training, but this evaluation is important in terms of seeing the effectiveness of the training and whether technology is used in educational environments (MEB, 2017).

It is seen that needs analysis is not performed sufficiently in the dimension of planning in-service training on information and communication technologies and the contents of the training are not determined in accordance with needs or deficiencies when evaluated in general. It should be ensured that teachers' participation in the needs analysis should be increased and their educational contents should be planned by performing regional and branch-based needs analysis accordingly.

It is stated that the training on information and communication technologies is generally applied in the practice dimension of the in-service training. Training on this subject should be implemented with a practical and face-to-face training approach. It is concluded that the instructors who provide the training are sufficiently informed and these affect the training positively. However, the instructors should be able to address according to the levels of the participants and master adult education. The main problems in the practice dimension are the fact that the technological knowledge levels of the participants are not similar, that they unwillingly participate in the training, and that the training is crowded. The technological readiness of the participants should be at a similar level, the training should not be crowded and should be divided into subject-specific training groups. The unsuitability of training places and lack of equipment reduce the effectiveness of training. In-service training on information and communication technologies should be held in places where the equipment and technical infrastructure are sufficient. There should be a separate in-service training place and a separate unit made with special equipment in each province where in-service training on this subject can also be carried out. On the other hand, it is possible to state that the training given after the weekday working hours are not effective and that the teachers also have problems. In-service training on this subject should be carried out during the seminar period when teachers' work intensity is low and their learning motivation is high or during the mid-term periods. The main factors affecting training in the research are instructors, participants, the place, and the content of the training. These factors should be considered for effective training.

It shows that both training and teachers are evaluated at the end of the training in the dimension of evaluation of the training and this ensures that the training is effective. Teachers should be able to practice what they have learned in their schools after the training they have received, continue to improve themselves, and follow the technology. For this, equipment and infrastructure deficiencies in schools should be eliminated by school principals and the content and resources that teachers can use from all subjects should be given to teachers. School principals should provide necessary technical support, encourage teachers, and provide examples and guidance on information and communication technologies after the training they have received. Instructors who provide training should follow this up in schools after the training they have given, continue to guide teachers in this regard, and the communication channels of the instructors should be open to teachers in this direction.

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