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District Technology Coordinator and Information Technologies Teachers' Vıews and Roles on Technology Integratıon: A Case Study

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Abstract: The purpose of this research is to determine the duties and responsibilities of teachers working as district technology coordinator (DTC) and information technology guidance teacher (ITGT), according to the opinions of DTC and ITG teachers, to determine the studies on technology integration in education and to reveal how communication inside and outside the integration process between district technology coordinator and information technology guide teacher. In this research, case study, one of the qualitative research patterns, was used. The study group of the research consists of two district technology coordinators working in the National Education Directorates in different districts of Istanbul and two information technology guidance teachers working in different districts. The data was collected with a full and semi-structured interview form and content analysis was performed with the data obtained. At the end of the research, the duties and responsibilities of the district technology coordinator and information technology counselors were gathered under two themes: integration and non-integration. These themes are (1) studies on technology integration in education, and (2) communication between the district technology coordinator and information technology consultant teacher both inside and outside the classroom during the integration process. At the end of the study, the non-integration duties and responsibilities of ITG and district technology coordinators and the interaction between ITGT and district technology coordinators were defined. At the end of the study, the following suggestions were presented; Expectations other than their duties and responsibilities should be minimized in order for teachers of DTC and ITG to be more efficient in the process. A checklist can be prepared for the work of DTC and ITG teachers in the integration process. The number of official meetings can be increased so that DTC and ITG teachers can successfully carry out the integration process.

Keywords: Education, Technology, Technology Integration

Introduction

The rapid development of technology has required the combination of education and technology in the field of education, and expectations in education have begun to change with the introduction of technology in the world of education. With the presence of new technologies, every school has begun to reshape its own mission and to train students who learn and question knowledge on their own instead of memorization-based education that has been ongoing since the past started to form school missions. The use of technology in education is gradually increasing. The first thing that comes to mind with technology is computers. With the integration of computers into learning teaching processes, the effectiveness of teaching is tried to be increased (Bozkuş and Karacabey, 2019). With the introduction of technology into schools, what is expected from schools is to raise individuals who research, question, critically think, and use technology to access information whenever they need it (Seferoğlu, 2015). With the integration of technology into educational environments, the definition of integration has emerged and various definitions have been made regarding technology integration in education. According to Wang and Woo (2007; Gürfidan and Koç, 2016, technology integration is the use of technology to support learning and teaching processes in education, while technology integration is the use of technology to increase the academic success of the student, according to Hew and Brush (2007; Gürfidan and Koç, 2016). In this context, it is possible to categorize the integration of technology under three categories. These; Teachers'

use of technology for teaching purposes is the use of technology in the classroom and the use of technology as a cognitive tool (Inan and Lowther, 2010; Gürfidan and Koç, 2016). With the increasing technology in schools, the quality of education and how technology can be integrated into learning and teaching processes has become an important issue

Nowadays, the number of studies to successfully integrate technology into education has increased. Considering that technology plays an important role in helping students acquire 21st Century skills in our country, the Ministry of National Education wanted to integrate technology into learning-teaching processes with the FATİH (Increasing Opportunities and Technology Improvement Movement) project. The main purpose of the FATİH project is to successfully integrate technology into education, to increase the quality of education and to achieve continuous success (Kale and Yılayaz, 2013; Eren and Yurtseven Avcı, 2016). The problems faced by technology integration in education can directly affect the development of technology integration models (Kabakçı and Yurdakul, 2011; Eren and Yurtseven Avcı, 2016).

In order to ensure technology integration in learning-teaching processes, technology-savvy teachers are required. Because, looking at the studies, it can be observed that teachers have a great role in the success of technology integration (Ryan and Bagley, 2015; Howard, Ma, and Yang, 2016). The firstly in our country in 1985, 225 teachers were trained in the use of computers in education, and in the following years the Ministry of Education started to train information technology teachers in cooperation with universities (Varol, 2002). Since the day information technology (IT) teachers were first trained, teachers have been assigned different roles. With the emergence of the FATİH project, "counseling" was included among the roles given to ICT teachers (Aslan and Duruhan, 2018). Used in other countries like America "technology coach" role is done by ICT teachers in Turkey (Gökbulut and Çoklar, 2017). Another definition that came into our lives with the FATİH project is the district technology coordinator. District technology coordinators are responsible for the integration environments realized in the schools in their region during the integration process and assist the IT counselors in the problems in the process.

In this context, the purpose of the study is to determine the duties and responsibilities of the district technology coordinator and the information technology consultant working in primary or secondary schools. In addition, to determine the studies for technology integration in education and to learn the interaction between the people here. For this purpose, answers to the following questions were sought.

> What are the duties and responsibilities of the district technology coordinator (DTC) and information technologies guidance teacher (ITGT)?
>
> What are the studies on technology integration in education according to the opinions of DTC and ITGT?
>
> How is the communication between DTC and ITGT in and outside the technology integration process?

Method

Research Design

The purpose of this study is to describe in depth the characteristics, fields of work, duties and responsibilities of the experts working as District Technology Coordinator and Information Technologies Guide Teacher (ITGT) working in a district. The research design that will best answer the research problem determined within the scope of the study is a case study. Because the case study is based on the investigation of real life or the current situation. The purpose of such studies is to understand the determined situation in order to understand a certain problem very well (Creswell, 2015). The internal case study aims to collect in-depth information about a subject from a person or a group (Creswell, 2015). In this study, the internal case study will be chosen as a type for the experiences of the district coordinator and information technology counselors selected as a certain group.

Working Group

When it comes to case studies, it can be defined as examining the situation experienced in real life. Important points of case studies are the in-depth analysis or description of the situation identified. The case should be limited in terms of place and time. (Creswell, 2015). If we set out here, the case study to be selected in this study

is limited by time and space. While the 2019-2020 Fall term was chosen as the time, it was limited to two different districts in the context of the public schools in Istanbul. While determining the sample for the study, the accessible method was chosen. Because in this method, the researcher chooses a situation that is close and easy to access. This method accelerates the research (Kılıç, 2013). Demographic data of the participants are presented in Table 1.

Table 1. Demographic data regarding DTC and ITGT working in Istanbul

Code	Task	Term of Office (Year)	Provincial	Educational Status	Branch	Teaching Experience	Gender
DTC	District Technology Coordinator	2	İstanbul	Undergraduate	CEIT	Yes	Male
ITGT	Information Technologies	5	İstanbul	Undergraduate	CEIT	Yes	Male
DTC	District Technology Coordinator	4	İstanbul	Master	CEIT	Yes	Male
ITGT	Information Technologies	1	İstanbul	Undergraduate	CEIT	Yes	Male

All four of the participants are graduates of computer education and instructional technologies (CEIT). The seniority period of the participants in their current positions is 5, 4, 2 and 1 years. In total, the working periods are 10 years for the DTC and 13 and 4 years for the ITGT.

Data Collection Tool

In this study, research data were obtained using structured and semi-structured interview forms, which are among the data collection resources. Interview is one of the most frequently used data collection tools in qualitative research. According to Patton (1987) the researcher who uses the interview method tries to understand and comprehend the events through the eyes of the interviewee. The purpose of the interview, which is used as a data collection tool in the research, is not to find out what characteristics the person has, but to categorize the events from the perspective of the interviewee. The interview examines the research subject in depth (McCracker, 1988: 17; Türnüklü, 2000). In this study, before the questions used in the interview were prepared, studies were conducted on the field and the questions were prepared as a result of the research. The questions asked in the interview were categorized as duties and responsibilities, technology integration process, and communication between the district technology coordinator and the information technology counselor.

Data Collection Process and Analysis

The data collection process progresses chronologically, which is also among the features of the case study. Data collection is the activities carried out to collect information that can respond to the identified research problem (Creswell, 2015). Within the scope of the researcher study, steps such as determining the place / person, ensuring access, having all participants signed an interview protocol, data collection, data recording and data storage were followed in the data collection process. After the interviews with the sample, data analysis was made. The situation that should not be ignored is that analysis and process are always intertwined in qualitative studies. Because qualitative research is a constantly changing process, the data collection process and data analysis must progress in a co-ordinated way (Merriam, 2013).

In the data analysis part, the data were presented in tables by preparing the data, that is, transcribing them in transcripts, extracting codes from them and creating themes by the codes (Creswell, 2013). This process should proceed in coordination with the data collection process. In this process, in the first step of data analysis, the transcribed data should be read several times and noted next to the article, these notes should be revised or underlined each time they are read. It is very important to file and organize data at this stage. All data are filed and organized on the computer.

Data analysis spiral stages were used while analyzing data (Creswell, 2013). The data are interpreted as a whole by reading the transcripts several times before breaking them down. After this process, the processes of

defining, classifying and interpreting the data were made. The stages of creating codes or categories, which are the center of qualitative data analysis, collecting text and visual data into small information categories, searching for evidence for code coming from different databases used in the study, and giving a label to the code were carried out. Unnecessary data that did not respond to research problems were removed. In the data analysis, participant names were kept confidential while sharing their opinions. Finally, it is presented as data as the last step of the helix.

Results

In this section, findings are presented and interpreted under themes. Enriched with sample opinion quotations selected where necessary.

Research Findings Regarding the First Sub-Question

The first sub-research question of the study is "What are the duties and responsibilities of the district technology coordinator (İTK) and information technologies guidance teacher (ITGT)? is the question. As a result of the interviews, the following themes and codes have emerged.

Table 2. Duties and responsibilities of DTC and ITGT

	Themes	Codes
Duties and Responsibilities of DTC and ITGT	Duties and Responsibilities Including	Interactive boards
		EBA
		FATİH Project
		Giving Seminars and Courses for Teachers
	Non-Integration Duties and Responsibilities	Technical Maintenance, Repair
		Administrative Affairs

Looking at Table 1, it is seen that the duties and responsibilities of the district technology coordinator and the information technologies counselor are grouped under two different themes, namely, duties and responsibilities including integration and duties and responsibilities excluding integration. The non-integration duties of teachers, which are among their duties and responsibilities, also confirm the work done in the field. According to Eren and Uluuysal (2012), the duties of ITG teachers such as technical maintenance, repair and administrative works are at the top of the expectations of school administrators from them. The opinion of the district technology coordinator and information technologies counselor regarding this situation is as follows:

> When they try to design content, they are posters in Web 2.0 tools, I don't know, a lot of educational presentations are interactive presentations they will make with Web 2.0 tools. (DTC, K1)

> We provide interactive board usage course and materials development courses (DTC, K2)

> In our time left over from technology integration, we deal with technical malfunctions in teachers' computers at school. Since we are IT teachers, I think we create a general technical service perception among the teachers at school. We try to keep up with all these tasks by using time effectively, but sometimes there are situations where we fail. (ITGT, K3)

> We teach coding to students with the robotics coding course. (ITGT, K4)

The opinions of DTC and ITGT regarding their duties and responsibilities included in the integration are as follows:

> .. The most troublesome and most hesitant aspect of the FATİH project is that teachers are resistant to technology. Many did not want to use it or did not use it or deemed it necessary. What is happening to them changes every day, especially in EBA. When the EBA first came out, it was very limited. Those who tried to enter a few times and saw that there was nothing in their field are still approaching with prejudice that there is nothing in EBA even now. Open it up and show it to them. After that, what is there about current educational technologies? I'm trying to show teachers

> something about artificial intelligence, augmented reality, internet of things, at least at the promotional level. Look, you can use them in education. (DTC, K1)
> We have duties such as infrastructure and teacher training. We provide technical support for interactive boards in the process. Training of teachers in order to expand the use of the training portal. (DTC, K2)
>
> To ensure the effective and correct use of FATİH project and EBA system by teachers in the school. To guide and support teachers on how to use them, and to find solutions if a problem occurs with the interactive boards. We constantly check that interactive boards are usable so that the integration does not occur while the teacher is teaching the lesson. However, at the beginning of the semester, with the guidance of the district technology coordinators, teachers were asked "How to use? How to develop material for EBA? " We support in the form of. (ITGT, K3)
>
> Updating the web page, fixing the malfunctions of the computers in the school, contacting the technical service and contributing to the Fatih project, which is about information technologies. It is among our recent tasks to keep the interactive boards ready for use and to tell teachers how to use them early in the semester. (ITGT, K4)

These results obtained within the scope of the study confirm that teachers are expected to control integration tools as well as educational works such as "technology guidance" within the scope of FATİH project.

Research Findings Regarding the Second Sub-Question of the Study

The second sub-research question of the research is "What are the studies on technology integration in education according to the opinions of DTC and ITGT?" is the question. As a result of the interviews, the following themes and codes have emerged.

Table 3. Studies on technology integration in education according to the opinions of DTC and ITGT

	Themes	Codes
Studies on Technology Integration in Education According to the Opinions of DTC and ITGT	School	Changes and Studies in Schools
		Studies on Applications Used in Integration

When Table 2 is looked at, it is seen that, according to the opinions of the district technology coordinator and information technology guidance teacher, the studies on technology integration in education are gathered under a single theme called "in-school". Participants in the studies for integration stated that schools improved in terms of equipment, and the introduction of smart boards, multifunctional printers and tablets to the educational environments increased the effectiveness of the lesson. As Şaşan (2002; p: 44) stated, the use of technological tools such as interactive whiteboards in learning and teaching environments not only facilitates learning but also activates students' participation in the course. The use of interactive boards in learning and teaching processes enables the student to understand the subject more easily during the teacher's lecture and saves time for the teacher and the student since there is no need to take notes (Ekici, 2008). It is possible to say that the changes made in the schools vary from region to region. The opinion of the district technology coordinator and information technologies counselor regarding this situation is as follows:

> .. Now, in all of our schools with interactive boards, there are also primary and secondary schools in the same building. In the morning, it is noon and it uses a period of primary school and a period of middle school. We have neighborhoods like Alemdağ where there is less population, primary school and secondary school are in the same building at the same time. If there is a secondary school in a building, we tried to install an interactive board (DTC, P1)
>
> First of all, they say that before integration, all schools first improve in terms of equipment. The school I work in is a village school. There is also an interactive whiteboard here, but not in every classroom. However, as I mentioned at the beginning of the speech, I think this situation may be regional. Because the school I worked in Eskişehir had at every grade level. (ITGT)

Among the studies on technology integration, the effectiveness of the applications used in integration is also included. Participants think that they are happy to be able to prepare content due to the fact that the applications on the interactive boards and tablets are free for their students, but that the effects of the programs on the interactive boards and tablets will increase by concretizing the content. The opinions of DTC and ITGT regarding this situation are as follows:

> ... let me put it this way, I think it is much more effective in concretizing in experimenting and I see this in friends who use it. Now you can have a child do a lot of experiments as simulations and they have software. Something comes into play here; contents related to it. Teachers who have access to content related to this or teachers who have somehow received content development training and have developed themselves use it very well. (DTC, K1)

> We encourage and encourage teachers to integrate technology into the process. (DTC, K2)

> The environments in which course contents are prepared are very useful for the effectiveness of the course. For example, the teacher will explain the solar eclipse. If he explains this verbally, the student has difficulty in putting it on his head, but when he shows the student the supporting videos in EBA, the whole subject becomes clear in the student's mind. (ITGT, K3)

> We use Z books for our lesson. In addition, we follow the process by attending the lessons of other teachers and give ideas about what and how integration will be achieved (ITGT, P4)

These results obtained within the scope of the study show that the studies for integration start with the infrastructure of the schools where the integration plan will be applied. After the schools with technological infrastructure support, studies were carried out on applications to be used in integration.

Research Findings Regarding the Third Sub-Question of the Study

The third sub-research question of the research is "How is the communication between DTC and ITGT in and outside of the technology integration process?" is the question. As a result of the interviews, the following themes and codes have emerged.

Table 3.Communication between DTC and ITGT

	Themes	Codes
Communication between DTC and ITGT	In-Process	Solidarity
		Planning and Working Together
		Technical support
	Out of-Process	File Sharing
		Announcement

Looking at Table 3, it is seen that the communication between the district technology coordinator and the information technologies counselor is gathered under two different themes as in-process and out-of-process. It is seen that the communication between the district technology coordinator and the information technologies counselor includes planning and working together, cooperation, technical support, and file sharing and announcement outside the process. Teamwork is important for the success of technology integration. The process of planning and working together can increase the speed of success. Because more than one person does the job of a single person and problems are solved quickly. The opinion of the district technology coordinator and information technologies counselor regarding this situation is as follows:

> They transmit instantly. They often have hardware problems. (DTC, K1)

> We are constantly working with ITG teachers. We create monthly work plans together. (DTC, K2)

> .. First they attend their classes. There is of course something like this in the teachers' room at the end of the lessons after the breaks. It changes from the ITG teacher to the ITG teacher. When the devoted person, who tries to train the teachers, finds himself vacant during the recess, "Sir, come and tell you this." There are also those who say. (DTC, K2)

Opinions of DTC and ITGT's communication outside the process are as follows:

> ... I see each of them at least 5 times in a period, although not simultaneously. I'm trying to see it by going to their school. I always communicate every month. This is not only what we are communicating with but also about other technological structures of the school. We have a group, we have a group through an instant messaging program that also works on the map line we call telegram. We make file sharing and necessary announcements from there. (DTC, K1)

> I have never had a meeting with the district technology coordinator outside of the process, but he states that our motivation is low and he is with us even when we have difficulties. Even knowing this feels good. (ITGT, K3)

These results obtained within the scope of the study underline the need for continuous communication between DTC and ITG teacher.

Discussion and Conclusion

The support given in the integration process, in which investments such as FATİH project are made by the Ministry of National Education, and the use of technology in educational environments is planned multi-faceted such as students, teachers, administrators and parents (Roblyer & Doering, 2013). In this respect, individuals who will create this culture and ensure integration are technology coaches. In Turkey, these tasks are carried out by ITGT and district technology coordinators.

At the end of the study, the opinions of the district technology coordinator and information technology counselors about their duties and responsibilities, the contribution of technology integration to education and the communication between them were consulted. Thus, his thoughts on his professional roles and the contribution of technology integration to education were revealed. At the same time, the communication between DTC and ITG teachers was explained accordingly. The task responsibilities of the district technology coordinator and information technology guidance teachers are listed as including and excluding integration. It is also concluded that technical support and repair, which are among their duties and responsibilities, are within the expectations of administrators from teachers according to the studies in the field. It is seen that the duties and responsibilities included in the integration are listed as providing teachers with technology integration, EBA, interactive boards and FATİH project. It is seen that duties and responsibilities other than integration are listed as giving seminars and courses to teachers, technical maintenance and repair, and administrative works. According to the opinions of the district technology coordinator and information technology counselors, studies on technology integration in education are listed as a single theme within the school. The communication between the district technology coordinator and information technology counselors is listed as in-process and out-of-process regarding how the communication is in and out of the technology integration process. It is seen that the communication taking place in the process is listed as cooperation, planning together and working, technical support. It is seen that communication outside the process is in the form of announcement and file sharing.

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APPENDIX 1

Information Technology Guide Teacher Interview Questions

1. Gender: F () / M ()
2. Demographic features;
- a. Your seniority year in this post: 0-3 () / 4-7 () / 8-11 () / 12+ ()
- b. Education status (graduation): Undergraduate – Master Degree – Doctoral Degree
  - i. Undergraduate Section:
  - ii. Master Degree Section:
  - iii. Doctoral Degree:
- c. Do you have teaching experience? Yes () / No ()
  - i. If so, how many years? 0-3 () / 4-7 () / 8-11 () / 12+ ()

3. Could you tell us about your duties and responsibilities as an information technology counselor?
- a. Did you choose this task voluntarily?
- b. How many hours do you teach per week?
- c. Do you think it contributes to you professionally?

4. What are the other teachers' expectations from you regarding integration?
- a. How do you support teachers in this process?
- b. Do you encounter situations that challenge you in the process?

5. Do you think that the technological tools used in the integration process contribute to the learning and teaching processes?
- a. Do you think the contents of the EBA system are used beneficially in the course?
- b. Do you think the contents in the EBA system are sufficient?

6. How often do you meet with the district technology coordinator?
- a. When you encounter a problem, do you tell the district technology coordinator?
- b. How is the district technology coordinator responding to the problem?

APPENDIX 2

District Technology Coordinator Interview Questions

1. Gender: F () M ()
2. Demographic features:
- a. Your seniority year in this post: 0-3 () 4-7 () 8-11 () 12 + ()
- b. Education status (graduation):
  - i. Undergraduate Section:
  - ii. Master Degree Section:
  - iii. Doctoral Section:
- c. Do you have teaching experience? Yes () No ()
  - i. If so, how many years? 0-3 () 4-7 () 8-11 () 12 + ()
  - ii. If so, do you think it contributes to your current work? If yes, in what ways?
  - iii. Do you like having a district coordinator's teaching experience?

3. What is the number of responsible main in the district?
4. Could you tell us about your duties and responsibilities as the District Technology Coordinator?
5. What skills do you think a District Technology Coordinator should have in order to be successful?
6. What kind of work do you do for technology integration in school education? Can you talk about these?
7. What are the expectations from you, with whom you worked in the process?
8. What is the relationship and interaction between you and ITG teachers?