New Pedagogical Literacy Requirement Resulting from Technological Literacy in Education

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Abstract: The aim of this study was to determine the recent pedagogical literacy requirements in the technologically supported lessons. In this study, case study which is one of the quantitative research methods was used. The participants of the study included 12 voluntary classroom teachers who were in service in three different private primary schools in the spring term of 2011-2012 school years. Participant stated that the teaching methods and techniques were not regularly carried out in the technologically supported lessons. According to the teachers, the biggest problem in the technologically supported lessons is the insufficiency of face-to-face communication with the student. Participants emphasized that the students could learn well with different learning activities and different examples because of having different individual characteristics, different learning rate and learning capacity.

Key words: Technology • Pedagogy • Teacher • Literacy • Instructional technologies • Technological literacy • Pedagogical literacy

INTRODUCTION

Knowledge is a vital source for the world economies in the 21st century. Knowledge is also an important factor for technological and scientific change [1]. Various studies were conducted to design models to develop more efficient and productive education approaches via using learning technologies. These studies were conducted to provide continuity for technological and scientific change in all stages of education especially in higher education [2]. So, instructional technologies became indispensable for teachers and students in the teaching-learning process. Learning environments flourished by means of instructional technologies [3]. PowerPoint presentations with projection support and smart boards became regular fixtures of classes. In addition, teachers started to make use of such social networking sites as Facebook and such web applications as Wiki and Blog with the objective of education [4].

In the process of integration of technology to education, serious educational problems aroused in terms of teacher, student and the learning environment. Most of these problems resulted from not being supported of instructional technologies with appropriate pedagogical approaches [5]. On the other hand, inclinations of students to technology, their demand for use of instructional technologies in the lessons and their expectations are regarded as the factors that trigger the use of technology in the classes [6-7]. Teachers can significantly integrate the developments in their own fields, contemporary approaches and teaching methods via using information technologies. By this way, teachers can achieve productive implementations [8]. In this context, teachers should have both technological literacy skills and pedagogical literacy skills.

The concept of literacy can be summarized as the ability of reading and writing in a certain language [9]. However and Houff [10] stated that the changes in life expanded the dimensions of literacy. Nowadays, technology is quite dominant and ways of knowledge education and learning have changed. It is more preferred that teachers can acquire the necessity knowledge when required, use the knowledge appropriately and to the purpose instead of a teacher who is equipped with...
excessive knowledge [11]. In a report that was prepared by ALA, it was stated that teachers should be literate in every domain. It was also pointed in the report that measurements of technological and pedagogical literacy should be taken into consideration [12]. The responsibility of providing interactive and participative environments to the students in the process of teaching affects the roles of the teachers within the process. The role of the teacher is converted from the one who learns together with the students and lead them [13]. Teachers should create the human learner model, be a favorable information user and teach the information use to the students [14]. It is emphasized that profession of a teacher should be nourished with a developing field information, pedagogical knowledge and general knowledge [15]. Similarly, Kurbanoğlu and Akkoymulu [13] pointed that a teacher should constantly improve himself and have the potential of finding, using and choosing the most appropriate ones out of the various teaching approaches and methods, new technologies and changing source types. Adıgüzel [11] stated that innovation oriented arrangements was conducted in the curriculums of primary and secondary educations. However, there are not any arrangements conducted in the curriculums of teacher education. Adıgüzel [11] (2005) emphasized the importance of including of technological and other related literacy fields in the curriculums of teacher education and earning these qualities to the teachers.

The integration of technological-pedagogical information enabled the new approach which is composed of technological, pedagogical and field information and described as TPACK (Technological Pedagogical Content Knowledge) to be used in the teaching-learning process. This approach is a combination of technological, pedagogical and field information. This combination anticipates integrating teaching technologies and learning activities and setting to work together [16]. It is not possible that the technology can be efficient in the teaching-learning process without evaluating its appropriateness to the field and when it is abstracted from pedagogical understanding [17]. The combination of technological, pedagogical and field information anticipates using the approaches based on the thoughts of Schulman [17] and flourished technological support to gain achievement in the teaching-learning process. This combination states that alternative and appropriate pedagogical approaches should also be used [3]. Instructional technologies include all the factors that are effective within the teaching process. These factors are pencils, papers in the classes, smart and interactive boards, digital technologies, internet access and course software. On the other hand, pedagogy includes such factors as management and assessment works, lesson plans, teaching environments, the characteristics of students, teaching methods and quality of teacher. Field information includes all the skills and knowledge that should be gained to the students [18]. The roles of this triple combination in the teaching-learning process are the selection of instructional methods and technologies appropriate to the course content and providing the integration of subject area, technology and pedagogy [8]. The teacher should carry out the following activities while using the instructional technologies in the teaching-learning process [19].

- Technologically supported description of the knowledge and skills that will be gained to the students and the attribution of instructional technologies to the gain of these knowledge and skills to students.
- Choosing the appropriate technologies to the determined knowledge and skills and supporting these instructional technologies with the suitable pedagogical approaches.
- Providing a combination of the determined knowledge and skills, instructional technologies and the pedagogical approaches that will be used in the teaching process.

Nowadays, courses without the support of instructional technologies have not been thought. However, it is also clear that technology is not enough by itself for a qualified education. Requirement of getting the most out of the opportunities provided by the instructional technologies and supporting this technology with appropriate pedagogical approaches emerges. In the teaching-learning process, the requirement of a significant combination of subject field, instructional technologies and pedagogical approaches enabled the teachers to gain skills in the technological and pedagogical literacy and to improve themselves. Teacher’s teaching the technologically supported lesson and embracing suitable pedagogical approaches oblige them to have the technological and pedagogical literacy skills. This situation also requires the teachers to have the knowledge and skills to make an efficient combination of instructional technologies, pedagogical approaches and field information. In other words, having basic knowledge and skills in these fields are required for the teachers. This study was figured to determine the recently
emerging pedagogical literacy approaches and technological approaches that the teachers had in the lessons with technological support.

The Aim of the Research: The aim of this study was to determine the technological literacy levels of the classroom teachers related to their efficiency in using the instructional technologies in the teaching-learning process. This study also aimed to determine the recent pedagogical literacy requirements in the technologically supported lessons. With this general aim, the answers of the following questions were searched:

- What are the instructional technologies that the teachers mostly used in the teaching-learning process?
- What are the technological literacy levels of the teachers related to the used instructional technologies?
- What are the pedagogical levels of the teachers related to the regularly using the teaching methods and techniques, establishing a healthful communication with students and taking into consideration the individual differences of the students?

MATERIALS AND METHODS

The Model of the Study: In this study, case study which is one of the quantitative research methods was used. Case study focused on the questions of the researcher “why?” and “how?” Case study was used to examine the “target case” profoundly and in detail [20]. In this study, “interpenetrated one case” which is one of the case study patterns was used. Interpenetrated one case mostly includes more than one sub-grade and units within one case [21]. The thoughts on the requirement of the classroom teachers’ efficiency in using instructional technologies in the teaching-learning process, the technological literacy levels and recently emerging pedagogical literacy approaches were discussed in this study.

Working Group: The participants of the study included 12 voluntary classroom teachers who were in service in three different private primary schools in the spring term of 2011-2012 school years. Private primary schools were selected for this study, because; all of the lessons are taught technologically supported in these schools. These teachers were determined via maximum variety sampling method. Maximum variety sampling method formed relatively small sample. The aim of this method was to reflect the variety of the individuals who were a side of the discussed problem in the sample [21]. As a result of the informal interactions of the researcher and pre-interviews, it was stated that these characteristics were important for the explanation of the case [22]. First of all, the managers of the selected schools were interviewed. The aims and the subject of the study were explained to the managers. Then, the teachers who voluntarily attended to the study and taught all the lessons technologically were interviewed. Information on the aims and the subject of the study and the interview method was given in the interview. Participant of the study included 58.4 % female (n=7) and 41.6 % male (n=5). The working group of the study is shown in Table 1.

Data Collecting Tool: In this study, the data was collected via semi-structured interview form. Different classifications were carried out in the literature related to the interview technique which is one of the qualitative research methods. Fielding (1996) classified the interviews as “standardized”, “semi-standardized” and “not standardized”. Minichiello [23] classified the interview method as; structured, semi-structured and not structured. The opinions of the teachers were received in the preparation process of the interview form. The related literature was searched. In the light of the obtained data, the interview form was prepared. Classroom teachers and four faculty members of educational sciences examined this form and the form was finalized in terms of their opinions. Interview form included five open-ended questions. During the interview, explanatory questions were also asked to the participants to make explicit and flesh out the answers of the previously prepared questions when required. The interviews lasted nearly
Table 2: Mostly used instructional technologies by the participants

<table>
<thead>
<tr>
<th>Instructional Technologies</th>
<th>School</th>
<th>School B</th>
<th>School C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Projection supported PowerPoint presentation</td>
<td>2</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2. Using smart board</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>3. Using tablet computer</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. Making use of social networking sites as Facebook etc. with lesson purpose</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Making use of web applications as Blog, Wiki etc. with lesson purpose</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. Making use of abstract class applications (Second Life, Forterra etc.) in the lessons</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7. Students’ making use of e-mail applications with communication and homework purpose</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

3 Always, 2 Sometimes, 1 Never

25-30 minutes. The whole of the interviews were recorded. An inductive analysis which is one type of the content analyses was used to analyze the obtained data within the study.

Validity and Reliability: In the study, the procedures below were followed to provide reliability and validity:

While preparing the interview form conceptual frame was designed to increase the internal validity (persuasiveness) of the study related to the subject at the end of the literature examination and opinions of teachers. The opinions of teachers after the interviews were put in writing via this conceptual frame. Then, this text was resent to the related teachers and they were asked to control the text. The themes which were included in the conducted content analyses were determined as broad as involving the related concepts. The permission was taken from the school management before the interview. Only the voluntary teachers were interviewed. All the findings were given directly without interpretation to increase the internal validity (persuasiveness) of the study.

The process of the study and the conducted works in this process were tried to be explained to increase the external reliability (transmissibility) of the study. In this context, the model of the study, working group, data collecting tool, data collecting process, analyses and interpretation of the data were described in detail. The researcher described the conducted works in detail within the study to increase the external reliability (confirmanibility) of the study. In addition, the researcher should keep the raw data and coding so that other people can investigate.

Data Analysis and Interpretation: Content analysis method was used in the data analysis that was collected via interview method. The data was described via content analysis. The facts that could be hidden in the data were revealed [21].

The descriptive analysis of the data was conducted according to the following operations:

- All the interviews were prepared without any semantic change. The lists of the interviews were made according to their sequence in the form.
- A thematic frame was formed based on the collected data. The codes were given to the determined themes.
- In terms of the thematic frame, the data were read. Percent and frequency values of the themes were calculated. These themes were grouped under main topics. Sub-themes were formed under these main themes. The percent and frequency value was calculated for each teacher.

Findings and Interpretations: In this chapter, the technological literacy levels of the classroom teacher were determined primarily. These technological literacy levels were related to the instructional technologies that the teachers mostly used. Then, the opinions of the teachers about the recent pedagogical literacy approaches that appeared in the technologically supported lessons were respectively presented together with the main and sub themes.

The Instructional Technologies That Teacher Mostly Used in the Teaching-learning Process: The instructional technologies that the classroom teachers mostly used in the learning activities are shown in Table 2.

As is seen in Table 2, classroom teachers in the three private primary schools that attended to the study use smart boards actively. Similarly, it is seen that the tablet computers were sometimes used in the private schools to be comply with the system that would be designed via Fatih Project. The commonly used instructional technologies were “Smart Board” and “Projection Supported Power Point Presentation” in all of the schools that were selected as samples. Instructional technologies
Table 3: Main themes on the technological literacy and pedagogical literacy

<table>
<thead>
<tr>
<th>Main Themes</th>
<th>School A</th>
<th>School B</th>
<th>School C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Having the ability of sufficiently using the instructional technologies</td>
<td>6</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. Ability of using suitable teaching methods and techniques</td>
<td>6</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>3. Ability of establishing interactive communication with the students in the class</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>4. Ability of taking the individual differences of the students into consideration in learning activities</td>
<td>4</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>23</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 4: Opinions on the technological literacy levels of the teachers

<table>
<thead>
<tr>
<th>Main Theme</th>
<th>Sub-Themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having the ability of efficiently using the instructional technologies</td>
<td>1. Deficiency in education and practice on using the instructional technologies</td>
<td>9</td>
<td>37.50</td>
</tr>
<tr>
<td></td>
<td>2. Physical infrastructure and equipment shortage</td>
<td>7</td>
<td>29.17</td>
</tr>
<tr>
<td></td>
<td>3. Shortage of technical service for the possible problems to intervene immediately</td>
<td>8</td>
<td>33.33</td>
</tr>
</tbody>
</table>

Table 5: Opinions on the ability of using appropriate teaching methods and techniques

<table>
<thead>
<tr>
<th>Main Theme</th>
<th>Sub-Themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition of using the appropriate teaching methods and techniques</td>
<td>1. The manner of using instructional technologies is always the same while carrying the learning activities.</td>
<td>12</td>
<td>27.91</td>
</tr>
<tr>
<td></td>
<td>2. Instructional technologies add visual quality and diversity to the learning activities; but, the life-based learning and experience area is restricted.</td>
<td>11</td>
<td>25.58</td>
</tr>
<tr>
<td></td>
<td>3. Pedagogically different teaching methods and techniques except for the learning approaches that are offered by the instructional technologies are not used.</td>
<td>13</td>
<td>30.23</td>
</tr>
<tr>
<td></td>
<td>4. Instructional technologies do not sufficiently contribute to the affective learning, showing empathy, interpreting, fictionalizing etc. skills of the students.</td>
<td>7</td>
<td>16.28</td>
</tr>
</tbody>
</table>

“Abstract Classes”, “Social Networking Sites” and “Such Web applications as Blog, wiki and e-mail” were the less of use. Participants stated that they made use of such social networking sites and web applications as Facebook, Blog and Wiki etc. for some lessons, researching, delivering homework, controlling student activities.

Main Themes on the Technological Literacy and Pedagogical Literacy: The opinions of the participants about the technological literacy and recently appeared pedagogical literacy are shown in Table 3 as main themes.

In Table 3, numerical values of main themes are shown. These main themes included the opinions of the participants on the technological literacy levels of the teachers and different pedagogical approaches of the teachers in the learning activities. One of the themes out of the determined four themes was related to technological literacy while other three themes were related to pedagogical literacy. In this context, 17 opinions out of 64 were related to technological literacy, while other 47 opinions were related to the pedagogical literacy. Participants stated that the attention of the students should be focused on the subject of the course instead of the technology that is used in the presentation of the course. Participant also stated the requirement of a healthy communication between the teacher and students together with taking the individual differences of the students into consideration. They also stated that teachers should be pedagogically literate on the individual differences of the students.

Opinions on the Technological Literacy Levels of the Teachers: Participants stated that they sometimes face problems about the teachers’ making use of instructional technologies in the teaching-learning process and these problems caused communication gaps in the teaching-learning process. However, it was emphasized that if the education that teacher received related to the use of instructional technologies and the technological literacy skills of the teachers increased, this problem could be solved.

This study which was on the technological literacy levels of the teachers and their skills in using the technology in the learning activities included 12 participants. These 12 participants stated 24 different opinions. According to 9 opinions, the education which was received to learn using the instructional technologies and the applications were insufficient. According to 7 opinions, there had been problems about using technology resulted from the physical infrastructure and equipments. According to 8 opinions, shortage of...
technical service that would interfere in possible problems negatively affected the lessons. In the following paragraphs, opinions of three distinct participants on this issue are explained:

“We acquired various skills in use of the instructional technologies via various in-service instruction activities. We received education especially in the use of tablet computers and smart boards. We sometimes use tablet computers in the lessons to be in comply with Fatih Project and to be prepared. However, we consistently use the smart boards in the lessons. Smart boards are highly detailed instructional technologies that offer several alternatives in the teaching-learning process. We only acquired the skills for elementary operations of this technology. We can face problems when we want to make detailed use of this technology or we can make a mistake. Then the lesson is interrupted and the attentions of the students are distracted” (KAO-3).

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“Some problems about the use of instructional technologies can occur because of the poorness of physical infrastructure of the school building and shortage of technological equipments. This situation negatively affects the productivity in the lesson” (KCO-2).

“Sometimes, some problems about carrying the learning activities in the teaching-learning process and using of the instructional technologies can occur. This situation negatively affects the productivity in the lesson” (KBO-4).

Opinions on the Regular Use of Teaching Methods and Techniques: As a result of the interviews, it was determined that alternative teaching methods and techniques were not used in the technologically supported lessons. It was concluded that teachers had to be content with only the instructional approaches that the instructional technologies offered. It was concluded that this situation made the lessons monotonous and caused the decrease of productivity. Participants stated that they tried to carry out various pedagogical approaches to deal with this situation.

In the technologically supported lessons, 12 participants offered 43 distinct opinions on the condition of regular using of teaching methods and technologies. According to 12 opinions, the manner of use of instructional technologies while carrying out learning activities is always the same. According to another 11 opinions, instructional technologies add visual quality and diversity to the learning activities; but, its life-based learning and experience is restricted. According to another 8 opinions, examples from the real life and activities that enable the individuals to express themselves are limited. According to 13 opinions, any other teaching methods and techniques except for the learning approaches that the instructional technologies offer are not used. In the following paragraphs, opinions of three distinct participants on this issue are explained:

“The manner of using the instructional technologies is always the same while carrying out learning activities. All of the learning activities are carried out with smart boards and visuality equipments. Any different activity, application or activity for the students is out of question. So, the students get bored and their attentions get lost. We, the teachers, focus on our presentation more than the students” (KAO-1).

“Instructional technologies are student-focused at the beginning of the lesson; but, then they get monotonous. The technology that is used in the lessons is simple and boring according to the students. So, we try to arrange the learning activities with the aim of making the learning of the students effective” (KBO-2).

“Instructional technologies cause the skills of the students to be blunted; because, the technology does everything for them. I see that students have difficulty in expressing themselves verbally. They can quickly solve the problems that are written on board; but, they cannot explain how they solve” (KCO-4).

Opinions on Establishing Effective Communication with Students: At the end of the interviews with the participants, it was concluded that a healthy communication could not be established in the technologically supported lessons. It was also concluded that sufficient leading, cues, feedback and editing were not provided in the learning activities. The teacher who turned his back to the students while using the smart board emphasized that he could not establish face-to-face communication and eye contact with the students. The tendency of the students in bad behaviors in the lessons without a healthy communication was especially emphasized.

As is seen in Table 6, 8 participants gave 20 distinct opinions related to establish a healthy communication with students in the technologically supported lessons. According to 9 opinions, it is hard to establish face-to-face and eyes-to-eyes communication with the students. According to 5 opinions, cue, feedback and editing
Table 6: Opinions on establishing effective communication with students in the class

<table>
<thead>
<tr>
<th>Main Theme</th>
<th>Sub-Themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability of establishing effective</td>
<td>1. It is hard to establish face-to-face, eyes-to-eyes communication with</td>
<td>9</td>
<td>45</td>
</tr>
<tr>
<td>communication with the students</td>
<td>students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in the class</td>
<td>2. Cue, feedback and editing activities are not enough.</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>3. It gets hard to determined learning levels of the students; because, the</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>students have difficulty in expressing themselves.</td>
<td></td>
<td></td>
</tr>
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</table>

Table 7: Opinions on taking the individual differences of the students into consideration

<table>
<thead>
<tr>
<th>Main Theme</th>
<th>Sub-themes</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Taking the Individual Differences</td>
<td>1. Learning activities that are conducted together with instructional</td>
<td>5</td>
<td>27.78</td>
</tr>
<tr>
<td>of the Students into Consideration</td>
<td>technologies are same for all students.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>within the learning activities</td>
<td>2. The individual differences of the students as curiosity, interest,</td>
<td>5</td>
<td>27.78</td>
</tr>
<tr>
<td></td>
<td>skill and preference are not taken into consideration in the technologically supported lessons.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. There are students with distinct quickness and capacity of learning in</td>
<td>4</td>
<td>22.22</td>
</tr>
<tr>
<td></td>
<td>the lessons and learning is not acquired in the same level.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Students with technological curiosity and skill to use and students</td>
<td>4</td>
<td>22.22</td>
</tr>
<tr>
<td></td>
<td>without this skill are in the same class and they try to acquire learning</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>via the same activities.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

activities are not enough. According to 6 opinions, it gets hard to determined learning levels of the students; because, the students have difficulty in expressing themselves. In the following paragraphs, opinions of three distinct participants on this issue are explained:

“We use the smart boards very often in the learning-teaching process. While making presentation with the smart boards and other equipments, our face and attention is always directed to the projection area. This is why we barely establish face-to-face communication with students. So, students can show different behaviors (KCO-2).

“An effective communication with the students is essential to be a qualified teacher. Eye-contact takes the student in the magnetic field of the teacher. In another words, the teacher can teach anything with an effective communication and eye-contact in the teaching-learning process. Teacher's strongly focusing on the instructional technologies in the teaching-learning process prevents the effective communication with the student (KBO-3).

“In the teaching-learning process, the teacher and the student cannot understand each other because of the instructional technologies” (KAO-3).

Opinions on Taking the Individual Differences of the Students into Consideration: Participants stated that the individual differences of the students were not sufficiently taken into consideration and the lessons were taught according to the average student level. Participants also emphasized that this situation caused the compliance problems between the students who had different individual characteristics. It was observed that some of the students learned a lot from the lesson while some of them learned little from the same lesson.

As is seen in Table 7, 12 participants gave 18 opinions on the taking the individual differences of the students into consideration in the technologically supported lessons. According to 5 opinions, learning activities that are conducted together with instructional technologies are same for all students. According to other 5 opinions, the individual differences of the students as curiosity, interest, skill and preference are not taken into consideration in the technologically supported lessons. According to 4 opinions, there are students with distinct quickness and capacity of learning in the lessons and learning is not acquired in the same level. According to the last opinion, students with technological curiosity and skill to use and students without this skill are in the same class and they try to acquire learning via the same activities. In the following paragraphs, opinions of three distinct participants on this issue are explained:

“In the learning activities that are conducted with instructional technologies, the individual differences of the students are not taken into consideration. So, some of the students cannot understand the lesson and have difficulty in learning. I try to find examples from daily-living to support these students. So, I try to satisfy their shortages” (KBO-2).

“Students are different from each other in terms of individuality. In other words, students are different from each other in terms of interests, need, curiosity, motivation and skills. It means that students learn through different learning activities and examples.
Education-purpose course software should be prepared according to the theory of multiple intelligences and individual differences of the students” (KCO-1).

“...are students who know, show interest in and use the instructional technologies that are used in the learning activities while there are students who are strangers to these technologies. This situation affects active attendance of the students. The interest and attendance to the lesson of the students who have skill in using the instructional technologies are higher than the other students” (KAO-1).

CONCLUSION AND DISCUSSION

In today’s education world, the learning activities are supported with technology in nearly all the government and private educational institutions. However, the scopes, functions and dimensions of these technologies differ from institution to institution. Teaching the lessons with the technological support revealed the requirement of using the recent pedagogical literacy skills and technological literacy in the learning activities. Following conclusions were arrived based on the obtained data in the study.

All of the participants stated that they mostly used smart boards and PowerPoint presentations. All of the classes included smart boards and the smart boards were used through the teaching-learning process. Participants also stated that they made use of such social networking sites and web applications as Facebook, Blog, Wiki etc. to research, give homework and control the student works in some lessons. According to this conclusion, it can be said that the technological literacy levels of the teachers were high. Chou [4] emphasized that web applications as Blog and Wiki were effective in socializing of teachers and students, sharing the feelings and opinions and creating abstract working groups, common targets and values.

All the participants received education about using the instructional technologies primarily PowerPoint presentation and smart boards. It was also stated that the teachers were skillful at this domain. In other words, technological literacy levels of them were high. However, participants emphasized that they sometimes faced problem because of the smart boards’ being complex and functional and shortages of physical infrastructure, technological equipment and technique service. Çelik et al. [31] concluded that the teachers perceived themselves as unqualified however, their levels of competence were high in terms of using education software in the study that they conducted on the computer literacy levels of the teachers. Yıldırım [7] stated that the attitudes of the teachers to use the technology were negative and they had lack of knowledge and skills in using the instructional technologies.

Participant stated that the teaching methods and techniques were not regularly carried out in the technologically supported lessons. They also stated that all the learning activities were carried out with smart board and other visual equipments. So, it was emphasized that the teacher generally focused much on technology than the students. Participants stated that the instructional technologies which were interesting for the students at first became boring then and caused distraction of the student attention. Yaşar and Gültekin [24] emphasized the requirement of knowing how and where to use the instructional technologies and knowing the educational characteristics of them in their study.

According to the teachers, the biggest problem in the technologically supported lessons is the insufficiency of face-to-face communication with the student. It was determined that the communication with the student to whom the teacher turned his back while making exercises on the smart board was lost. It was emphasized that instructional technologies should be made functional so that the teacher could communicate with the students in the teaching process. So this problem will be solved. Yaşar [25] explained the functions of the instructional technologies as making easier the interaction between the learner and the learned. Yaşar [25] stated that the function of the instructional technologies was not teaching instead of the teacher. Adğızel and Berk [26] determined in their study that the teachers had positive attitudes and requirement of knowledge about using the instructional technologies.

Participants emphasized that the students could learn well with different learning activities and different examples because of having different individual characteristics, different learning rate and learning capacity. They also stated that the all the presentations, course software and similar applications should be prepared according to the individual characteristics of the students. Participant emphasized that the students’ knowing the instructional technologies and having the skill in using the instructional technologies positively affected their active attendance to the lesson. Tuncel et al. [27] (2011) stated that the instructional technologies contributed to the learning environment especially at the point of materializing abstract learning. Varş and Karadeniz [28] stated that, teachers’ use of information technology for purposes could be enhanced
by preceding the necessary skill of dynamic information technology literacy factor by integrating creative pedagogical use of information technology content in teacher education courses an in-service training programs. Tural [29] stated that the teacher candidates used instructional technologies such as blackboard, computer, projector, picture, photo, question cards, concept maps, simple drawings, video and animation didn’t have problems during using them. Kutluca [30] determined in their study that obtained from the study indicates that CAIM saved the instruction from being monotonous, drew students’ interests and helped them better engage in the lesson and made the lesson more fluent.

According to the conclusions of the study, it is seen that the use of instructional technologies is indispensable while carrying out learning activities in today’s education understanding. Effective use of technology is an important priority in the educational institutions that pioneer to the scientific and technological development. So, especially teachers are required to have high technological literacy levels. However, the truth is only instructional technologies are not sufficient for the individuals to learn in the desired level in the teaching-learning process. According to the significant conclusion from this study, the instructional technologies that are used in the teaching-learning process should be supported with appropriate pedagogical approaches and teachers should have high levels of pedagogical literacy are quite important in terms of the reaching the targets of the education.

Suggestions: Following suggestions were offered based on the conclusions of the study.

In today’s world (technological era), all of the sharers of the educational institutions (manager, teacher, student and support service performers) should know the instructional technologies and have the skill of use. In other words, opportunities should be offered to provide the sharers with desired levels of technological literacy.

Instructional technology and knowledge and skills of the teachers should be updated continually. Teachers should have high levels of pedagogical literacy skills in addition the technological literacy skills. This is important in terms of leading the individual and teaching what the technology cannot teach. So, new pedagogical approaches that will provide productive technologically supported lessons should be gained to the teachers.

All the technologically prepared teaching materials and arranged teaching activities should be prepared according to the individual differences of the students. The activities related to the teaching-learning process should be carried out together with a healthy combination of technological, pedagogical information and field information.

REFERENCES


