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Examination of Text and Video-Formatted Learning Diaries to Prospective Science Teachers

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Abstract: This study aims to comparatively examine the text and video formatted learning diaries created within the scope of a school experience course which is a part of teacher education programs for prospective science teachers (PSTs). The case study design was used in this study. The participants created their learning diaries both in text and video formats for the school experience. Results showed that both text formatted diaries and video formatted diaries not only made it possible for the PSTs to see, review, and correct their deficiencies with respect to the profession of teaching, but also made contributions to the development of their abilities to express themselves, to communicate and to think in a critical way in terms of personal and social development. In addition, some of the participants also stated that creating diaries in text format was more challenging, time consuming, and boring than creating them in video format.

Introduction

In the teaching-learning process, there are many concepts and phenomena which should be understood, interpreted, and correlated correctly by the learner. Within this structure, factors such as revealing personal opinions, resolving the conceptual misunderstandings, and making conclusions about the future state by evaluating the experiences in the existing state have a critical role in success of the learners. In other words, it is known that individuals shape their future actions by reflecting on their experiences (Dewey, 1933; Medina et al., 2010; Schön, 1983) and refer to their past experiences by correlating their experiences with each other when necessary (Lee, 2005; Sánchez-Martí, Puig, Ruiz-Bueno & Regós, 2018; Smith, 2005).

A learning diary is one of the tools that can be used in teacher education with the aim of equipping prospective teachers with reflective thinking skills (Debreli, 2011; Komur ve Cepik, 2015; Tok, 2008; Wormeli, 2004). In general, students write regularly about their experiences or lives in a notebook or paper with a pen(cil). Moreover, as well as this pen-paper form, the diaries can also be created as text through word processing software or electronic environments. Learning diaries are recognized as the documents in which learners compile all the learning activities they have been involved in (Uslu, 2009). While encouraging the learners to describe their learning experiences (Hindman, Stronge & Tucker, 2004; Zhao, 2011), it also enables them to share those experiences with their lecturers (Arter, Chappuis, Chappuis & Stiggins, 2007). A learning diary is used as the assessment and evaluation tool that enables teachers to give feedback to students as well (Aschbacher & Alonzo, 2006; Riebenbauer, Dreisiebner & Stock, 2017).

Reporting in a learning diary has an impact on a student's taking responsibility, following and evaluating his/her own learning process, and reflecting what he/she has learned

(Akkoyunlu et al., 2016; Brett, Forrester & Fujita, 2009; Vinjamuri et al., 2017). Thanks to learning diaries, learners confront their own learning and are given the opportunity to detect and correct their own errors (Ayyildiz & Altun, 2013; Walker, 2003). Thus, evaluating their own learning fairly and transparently through this format (Boud & Soler, 2016; Struyven, Dochy & Janssens, 2005) helps them understand their own learning processes, take an active role in learning and enhance their personal developments (Mortari, 2012; Threlfall, 2014). Training teachers having the same relevant skills is a prerequisite for equipping students with those skills mentioned above (Akkoyunlu et al., 2016).

When the critical role of reflective thinking in teacher training is taken into consideration (Kilinc, 2010; Koksal & Demirel, 2008; Toman & Odabasi-Cimer, 2014), it may be said that the learning diaries also have an important place in teacher training (Gedik, Akhan & Kilicoglu, 2014; Sahin, 2009). When the technical usages of diaries are investigated, they may be created in different formats including text (written), audio, video, photograph and diaries depending on the needs in the process and within the bounds of possibility (Meth, 2009). In literature, in higher education, it is observed that mainly the (classical) learning diaries in text format are being used in teacher trainee programs and the studies are being made in this context (Akkoyunlu et al., 2016; Chitpin, 2006; Ekiz, 2006; Goker, 2016; Isikoglu, 2007; Koc & Yildiz, 2012; Sevim, 2013; Spaulding & Wilson, 2002). If the reality that we are living in a world rich in terms of technology is considered, supporting and diversifying the educational activities with technological tools has become inevitable in a sense. Hence, in this study conducted with prospective teachers, video and written (text-based) forms of diaries were utilised.

Text-Formatted Diary

Text-formatted diaries are documents where students chronologically write down their learning experiences as texts on a paper or page in a word processing software. Students can also share their experiences via blogs on web pages. While writing their diaries, students find an opportunity to think about the learning process, develop a hypothesis, and connect between concepts they know and do not know (English & Kitsantas, 2013, Lee, 2008). Text-formatted diaries are divided into two forms as open and structured diaries (Klug, Schultes & Spiel, 2017). Whereas open formed diaries give students an opportunity to freely put all experiences on paper, structured written diaries -consisting of standardized questions- are used to support self-regulation learning in the context of specific subjects or criteria (Schmitz & Perels, 2011). A text-formatted diary which inherently has a subjective structure is an educational tool for reflection and evaluation in learning process. It helps to improve the students' skills to express and monitor themselves and to assess, summarise and analyze what they have learned in a lesson or subject.

Video-Formatted Diary

Video formatted diaries are used in studies about the identities, emotions and experiences of the participants (Iivari, Kinnula, Kuure & Molin-Juustila, 2014). They can be identified educationally diaries in which participants create their learning experiences by taking videos through a camera. In the process of creating the videos, the participant retains control because they can plan what to say beforehand and delete or edit the video if dissatisfied with the resulting material (Lundström, 2013).

Due to their audio and visual characteristics, learning videos as diaries has enhanced educational potential in comparison to other types of media. Fidan and Debbag (2018) stated that videos diaries have been used for professional development in teacher education recently. Even though students have been educated to produce constructed and logical texts within traditional understanding of education, through video diaries, it becomes possible for them to produce linear and overlapping series of opinions. Amongst the advantages of video diaries are the capacity to record almost immediately and directly, and having opportunities to play again and for reflection. This important reflective role in creating video diaries of experiences creates opportunities for learning itself while experiences are being recorded into videos (Roberts, 2011). Besides their educational advantages, video diaries are also used as a learning outcome, together with written and visual materials, in blog-based learning settings (Richardson, 2006). However, using the video diaries in those settings may cause students to see each others' sharings and therefore not to be able express their ideas comfortably. Moreover, it may lead to worries about violation of personal rights and failure in providing privacy and secrecy (Akkoyunlu et al., 2016; Buchwald et al., 2009; Noyes, 2004).

Video diary is similar to vlogs with the features mentioned above. Specifically, vlog is a blog type of the video series that the users can shoot the video and upload to the internet after their edits. In addition, they can comment on each other's videos and like or dislike (Gao, Yonghong, Tiejun & Oiang, 2010; Frobenius, 2011). Vlog enables the PST to recognise and review some weaknesses; improve self-evaluation, reflective and critical thinking skills in the teacher education. The video diary can be used for professional development in teacher education. Fidan and Debbag (2018) indicated that the educational vlogs improved the pre-service teachers' reflective thinking, technical and professional skills. Importantly, the vlogs also contributed professionally to their self-assessment. Integration of blog-based learning environment and video have affected positively the professional outcomes in internship experience (Jensen, Mattheis & Johnson, 2012). Importantly, the studies conducted on video learning diaries, or similarly, vlogs are limited in higher education (Fox & Cayari; 2016; Liu, 2016).

When the relevant literature about video diaries is reviewed, it is seen that, in the context of qualitative research methodology, video recordings have been addressed as a data collection technique by some researchers (Buchwald, Schantz-Lauresen & Delmar, 2009; Lundström, 2013; Noyes, 2004), and, in the context of their use as a diary, that they have been preferred to be used in studies mostly about such areas as education, sociology, health and child development in order to reveal the participants' emotions and experiences (Bolton, 2010; Penny, 2012; Larkin & Jorgensen, 2016; Quadri, Bullen & Jefferies, 2007) besides the studies about human-computer interaction (Carter & Mankoff, 2005; Czerwinski, Horwitz & Wilhite, 2009). In their study about using the reflective diaries in teacher training, Akkoyunlu et al. (2016) asked the prospective teachers to share their experiences and opinions about teaching practice in text format in the diaries.

In the study conducted by Eker (2012) about teaching self-arrangement strategies in a social sciences course, written learning diaries proved effective in helping students acquire self-regulation strategies, enhancing student outcomes, and in improving positive attitudes in students. Written diaries were used by Arslan (2017) to improve the awareness of the teaching practices of prospective teachers. The other similar studies also showed that the focus is mostly on the use of text-formatted learning diaries and video diaries are not included. In the light of these explanations, it is seen that mainly learning diaries in text format are used and learning diaries in video format are utilised as a data collection tool in terms of research methods rather than a learning outcome.

In the relevant literature, few studies focused on the video diaries from a general viewpoint in blog-based learning environments, particularly in teacher education (Fidan &

Debbag, 2018). More importantly, most of the researchers examined the text-based learning diaries rather than video or other multimedia contents. It is understood that there is a need for studies that comparatively investigate learning diaries in different formats together. Hence, the rationale of this study is to close this gap in the literature on video learning diaries in the teacher education. Moreover, the creation of video diaries is well suited to the new generation of technologically savvy PSTs. When the related literature is reviewed, it is evident that learning diaries make significant contributions, especially to such abilities of prospective teachers as reflective thinking, professional awareness, critical thinking and self-regulation. Acquisition of those skills is essential and important for teacher training (Akkoyunlu et al., 2016). In this context, it is thought that reflective thinking practices in school experience course among the professional teaching knowledge courses are quite effective in professional development of PSTs. Therefore, in this study, it is viewed as important that PSTs keep their diaries using both text and video formats and that their opinions are recorded and examined comparatively.

In the light of these explanations, the current study aims to comparatively examine the text and video formatted learning diaries created within the scope of school experience course which is a part of teacher education programs in terms of PSTs' opinions. Specifically, the following questions were sought in the study: (i) What are the benefits and limitations of learning diaries in the educational context according to prospective teachers' opinions? (ii) What are the differences between video and text-based learning diaries in an educational context according to their opinions? (iii) What are the prospective teachers' preferences to video or text-based learning diaries?

Method

This study applied case study method, a qualitative research method. In case studies, an event or a situation is examined deeply and multifacetedly within its own real life framework (Yildirim & Simsek, 2011). Using text and video formatted learning diaries regarded as a "situation" for the purposes of this study.

The research sample consists of 20 PSTs studying in 4th grade (senior) in Science Teaching Department of a university located in the north of Turkey. Eight of the PSTs (40%) were male, 12 of the PSTs were female (60%). The average age of the PSTs was 23.2 ($SD=2.40$). The average of PSTs' marks was between 2.10 and 3.90 (in four-point grading system)

A criteria-sampling method was utilised in selection of the sample, with PSTs meeting the following criteria:

- attending "school experience" course regularly,
- going to a school under the control of the Ministry of National Education for internship,
- having a mobile device (tablet PC, mobile phone) for video shoot.

The Implementation Process

The study was conducted during the school experience course. For this course, the PSTs attend a state school that has a partnership with the university to observe in the classroom (teacher, student behaviors, instructional process) and school (rules, physical structure). The basic standards of the lesson were as follows: (i) PST will explain the activities of students and teacher in the school throughout the day. (ii) PST will learn the

school rules and practice them. (iii). PST will conduct the lesson. (iv) PST will learn individual practices and use them in the lesson. (v) PST will observe the classroom and school as an intern and evaluate them. Considering the main standards, the specific criteria were determined and the PSTs created the diaries in accordance with these criteria (see Appendix-A). The criteria were created by researchers in line with the school experience curriculum and the opinions of academics (n=5) from the department of educational sciences who conducted school experience lectures were sought for appropriateness of criteria. The learning diaries generally contain observations about PSTs' relationships with students, teachers, and administrators, the general structure of school, their educational, professional implications, or self-assessments during the internship process. The PSTs created both the video and written learning diaries as in the following format:

*“Dear my diary,
Today, the science teacher talked about energies transformations in physics.
From potential energy to kinetic energy or from kinetic to potential energy.
These subjects are for 7th graders in science. While they are interesting, the teacher -she was old- did not use new instructional technologies. Her classroom management was weak. She was a veteran educator. She had exam anxiety for students. She dwelled on the formulas and calculations. Hence I observed that the students were bored from the lesson. I am taking a lesson more from the observations. I said to myself that I used student-centered methods like that problem or project based learning. Animations, experiments. Maybe I would have applied outside the classroom. Briefly, the teacher has a good field knowledge but, I think that there are some methodical errors in the classroom. There are good students –hardworking- in the class. As if the teacher was just telling for them. I observed that other students –not hardworking- were bored. In the following week, I will teach instead of her. Hence, I will consider all students and use the methods or materials activating them. I have already started preparations...”*

Figure 1 shows the examples of the video and text formatted learning diaries from implementation process.



Figure 1. The examples of video and text formatted learning diaries from implementation

The implementation process lasted 14 weeks in this study. In the first 7 weeks, PSTs created their learning diaries about their internship experiences in text format by writing on paper with hand or by writing (MS Word, OpenOffice) on the computer or another mobile device via the word processor. In the second stage (7 weeks), they created their learning diaries in video format themselves or by someone else using a video-recording device. Before this second and last stage, the PSTs in the sample were trained technically about how to

create/adjust video diaries. Figure 2 shows the overview of the stages in this study.

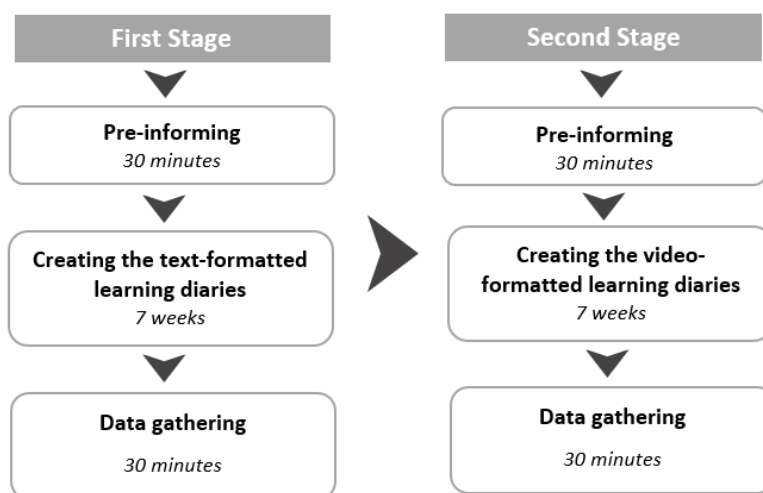


Figure 2. Overview of the stages temporally in the study

The implementation process was managed by the instructor who was responsible for “school experience” course. The instructor organised a seminar once a week to evaluate the learning diaries and gave feedback to PSTs. During the seminar, the instructor showed the students the learning diaries using a projector. In the first 7 weeks, the PSTs read text-based diaries from projection and discussed them. The instructor also about provided feedback on the PST’s observations and experiences in the school. On the other hand, in the last 7 weeks, the PSTs watched as video whoever created the video learning diary. Similarly, the students discussed the video diaries under the guidance of the instructor. Three video learning diaries (20 video diaries in total) were evaluated each week (7-weeks in total) in the classroom, only two diaries were evaluated in the last week. Figure 3 shows generally the implementation process of this study.

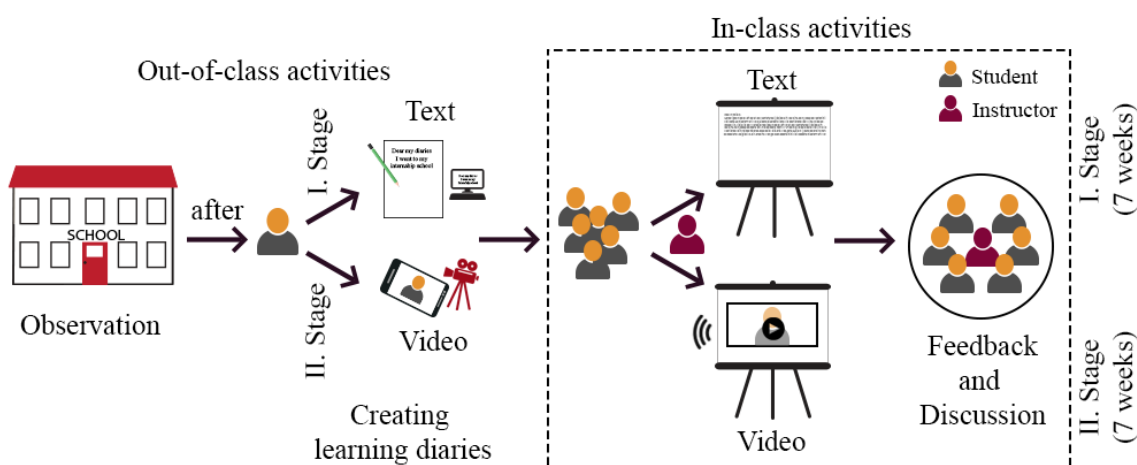


Figure 3. Implementation process

The researchers held information meetings with the course instructor about the process prior to the implementation of the research. PSTs were asked to freely reflect and share their own training experiences at school while creating their learning diaries. PSTs submitted their diaries in digital environment regularly and in return, the instructor evaluated them and gave feedback accordingly.

Permission was obtained from the ethics committee of the university for this study. Before the implementation process, the researchers informed the PSTs about the research. Only volunteers participated. Moreover, the written consent of participants was obtained and confidentiality and anonymity were protected.

Data Collection

In the present study, PSTs' perceptions of text-formatted and video-formatted learning diaries were gathered by means of two separate questionnaires consisting of open-ended questions. In writing the form questions and establishing the internal validity, opinions of a linguist and four specialists were sought and their feedback was implemented.

In the first stage, a form about text-formatted learning diaries was conducted with PSTs at the end of the first 7-week period of the implementation process. Besides the demographic information about the PSTs, those three open-ended questions were included:

1. *How did creating your own learning diaries assist you? Give details.*
2. *How did you feel while creating your learning diaries about your school experiences? Give details.*
3. *What were the difficulties that you experienced while creating your learning diaries about your experiences? Give details.*

In the second stage, the form about the learning diaries that the participants created by video-recording was conducted to PSTs at the end of the remaining 7-week period of the implementation process. The questions were constructed by adapting the questions in the first questionnaire to the video-formatted learning diaries. In addition to these questions, the question below was also included: *Which one would you prefer to create: learning diaries by writing (on paper or in digital environment) or by recording your own videos? Give details.*

Data Analysis

In this study, the data which were collected by means of the questionnaires with open-ended questions was analyzed through content and descriptive analysis method. In content analysis method, similar data are gathered around specific themes or concepts. In descriptive analysis, the data are also analyzed according to the predetermined basic questions or themes (Yildirim & Simsek, 2011). In the first stage, the collected data were divided into meaningful parts and codes were developed. Next, the interrelated codes constituting a meaningful whole were grouped according to their similar aspects and thus, themes and sub-themes were created. Under the title of results, the codes were shown together according to their prevalences (f).

With respect to establishing the validity and reliability of the research, a long-term interaction with PSTs was sustained so as to ensure that the participants were reflecting their real thoughts since the implementation period lasted for fourteen weeks. For data triangulation, the records obtained from the diaries were utilised. Besides, criteria-based sampling was preferred for selection of the sample. Codes such as PST1 were used to maintain confidentiality.

For consistency, the data obtained were also recoded at different times and settings by two academics independently of the researchers implementing this study, and these two codings were compared. The compliance percentage between the coders was calculated as 95% according to the intercoder reliability formula proposed by Miles and Huberman (1994) and this score was found to be reliable.

Results

The results of this study demonstrate that text-formatted and video-formatted learning diaries have both benefits and limitations. The PSTs, in general, expressed positive opinions about learning diaries and, specifically, they stated that video-formatted learning diaries are more advantageous than text-formatted learning diaries. The findings about benefits and limitations of learning diaries in both formats are presented in a detailed and comparative manner in the part below.

Findings About the Benefits of Learning Diaries

The codes created according to similar and common benefits of text and video-formatted learning diaries and their frequency distributions are shown in Table 1.

Codes	Text (f)	Video (f)
Seeing/ reviewing the deficiencies	14	16
Expressing opinions comfortably	12	13
Making self-evaluation	7	10
Critical thinking	5	8
Planning	4	8
The skill of analyzing	1	3
Visualization	1	3
Holding a positive attitude towards the teaching profession	2	2
Detailed thinking	1	2
Memory development	1	1
Responsibility	1	1

Table 1. The frequency distribution of the common codes created according to the benefits of text-and video-formatted learning diaries

When Table 1 is analyzed, it is seen that both formats of learning diaries provide the PSTs with opportunities to see/review their deficiencies, to express their opinions comfortably, and to make self-evaluation. Some of the participant opinions expressed below:

“We found an opportunity to see our deficiencies and mistakes by evaluating what we did at our internship schools at the end of the day. By reviewing what we did every week we found a chance not to repeat the same mistakes in the future.” (PST-3)

“While creating or rewatching my diaries, I saw my deficiencies in different methods and techniques used in the school experience course. I found the chance to watch and record in my log the techniques the teachers in my internship school used in certain cases. And I also stated in my diaries that I can apply these techniques in similar cases while teaching.” (PT-12)

“It helped me see what I was doing. Feeling as if I was watching myself from outside as a second eye like a contest jury, I found the opportunity to evaluate and tell about what I did with its pros and cons.” (PST-9)

“Creating video diaries through camera is like taking a selfie and we are already accustomed to such a thing. I see it as a kind of expressing oneself by talking and video-recording.” (PST-5)

Additionally, creating learning diaries was found to improve such skills as critical thinking, planning, analyzing, visualisation and holding a positive aptitude towards the teaching profession. Profession, as can be seen from the following quotes:

“Starting from the first week, creating my learning diaries helped me to carry

out more planned and neater work during lessons in the following weeks. As I was going to note my experiences and activities down in my log every week, I paid attention not to get out of this plan.”(PST-16)

“For me, the most significant contribution of creating my learning diaries is that it gave me a chance to think in a critical way. In general, we use critical thinking for others, yet, here, we made analyses and criticisms about ourselves.” (PST-5)

“The things that we do in the our school experience course is directly related to our job. Besides the other advantages of learning diaries that we keep, I think, they also allow us to look at our profession more positively.” (PST-11)

Most of the PSTs stressed the educational importance of classroom discussion and feedback activities. One of them stated as follows (PST-10): *“Discussion activities allow us to see the positive and negative sides of others... We learned what should do or not”*. In addition to these findings, when text-formated and video-formatted learning diaries are considered separately, the codes about the benefits of each format are shown in Table 2 along with their frequencies.

Text (f)	Video (f)
Writing correctly/appropriately (9)	Speaking appropriately/diction (12)
Easiness to correct the mistakes (4)	Practicality (10)
Grammar rules (3)	Enhancing the self-confidence (9)
	Contribution to technical skills (7)
	A positive attitude towards technology (5)
	Being entertaining (5)
	Time management (4)
	Communication and cooperation (3)
	Rhetoric (3)
	Availability for future use (1)

Table 2. The frequency distribution of the codes with respect to the benefits of text/video formatted learning diaries

When the codes in Table 2 are examined, video-formatted learning diaries are found to have more advantages than text-formatted learning diaries. It is understood from the views of the PSTs that video diaries affect positively mostly the skill of speaking well/diction. Besides, among the other advantages of video diaries are their practicality, the enhancement of self confidence, the contribution to technical skills, and an increase in the use of technology. The main advantage of the learning diaries in text format is that they improve one’s skill of writing correctly and appropriately. In addition, the PSTs stated that text-formatted learning diaries provided them with a simple way to correct their mistakes and made positive contributions to the application of grammar rules.

“To write my diaries, I preferred using paper and pen which we do not much use compared to computers. I tried to write my diaries as if I was writing a composition, with caution, in terms of both smoothness and form.” (PST-2)

“I think they contribute especially to grammar. Because diaries are permanent works. I want to see a log written appropriately in every sense when I read again in the future. I also think that, as teachers, we must be more careful about this.” (PST-8)

Findings About the Limitations of Learning Diaries

According to the PSTs, text and video-formatted learning diaries had similar limitations. These included the opinions of “being time-taking”, “difficulties in planning”,

and “forgetting the experiences”. Participants’ opinions included:

“In order to be precise, I plan what I'm going to say before video-recording. Without a good plan, I may encounter some problems. I have difficulty in planning well.” (PST-2)

“The most significant problem for me was that I couldn't remember my experiences so well that I could tell them completely. To handle this, I must keep a learning log and this requires me to study more regularly and plan.” (PST-13)

When text-formatted and video-formatted learning diaries are analyzed separately, the codes with respect to the limitations of each format are shown in Table 3 along with their frequencies.

Text (f)	Video (f)
	<u>Technical</u>
Paper waste (7)	Difficulty in recorrecting the mistakes (15)
Boring (3)	Problems about the device (7)
Being individual (1)	Incapability of adjusting the video duration (6)
	Poor quality of the video (4)
	The problem in sound (2)

Table 3. The frequency distribution of the codes with respect to the limitations of text/video-formatted learning diaries

When Table 3 is examined, it is evident that video-formatted learning diaries had certain limitations too. The limitations of video diaries were analyzed in two sub-categories as technical and psychological-physical. The most frequent technical constraint experienced with video diaries by the participants was identified as difficulty in editing. Aside from this, they also expressed that they experienced problems with the device, incapability of adjusting the video duration, and the poor quality of the recorded video. With respect to the psychological-physical category, the participants stated mostly that they got excited and nervous while videoing and that this had a negative impact on the quality of the video. Besides being stressed, some of the participants also stated that they had difficulty in speaking during video-recording. A typical PST opinion follows:

“I really get nervous while videoing myself, because I have camera phobia. When I see the camera, I can't talk and I get stressed. Therefore, I tell to myself that it is better not to talk.” (PST-14)

However, some of PSTs pointed out that paper was wasted much more in text-formatted practices. Moreover, they expressed that a disadvantage of text-formatted diaries was that they were boring and written individually without interacting with peers. The opinion of one of PSTs was:

“I believe that diaries should be written in digital environments instead of a paper and pencil environment. Writing on a paper sounds as if it was both boring and paper waste... As I wrote my diaries on my own, I couldn't get criticism and contributions directly from my friends about the techniques that I used in the class.” (PST-19)

Findings About the Reasons for Preferring Learning Diaries in Text and Video Formats

At the end of the implementation process, the participants were asked to answer the question of "Do you prefer creating your diaries about your school experience by writing (on paper or in digital environment) or by recording a video of yourself? Explain your reasons." In this study, the majority of the participants preferred video-formatted learning diaries, even though they acknowledged their disadvantages as well. Those who preferred this format were

comfortable with videos so using them was easier and more entertaining, as these PSTs explained:

“Relating in front of the camera about what happened during the day helped me express myself more comfortably. If I had written with hand, I might not have expressed myself completely and would not have written many of the things.” (PST-13)

“In my opinion, all of us are used to mobile devices. I may say that talking in front of my own camera relaxed me and as I knew how to use a camera, it was quite easy for me to use it.” (PST-10)

Discussion and Conclusions

In this study, text- and video-formatted learning diaries created by PSTs in the context of school experience course in science teaching programs were investigated in a comparative manner. As a result, it was concluded that the PSTs who expressed positive opinions on both text and video-formatted learning diaries mainly found opportunities to review their knowledge deficiencies in the area and the profession, to express their opinions comfortably through diaries and to do self-evaluation. The findings of this study are supported by those of previous studies (Akkoyunlu et al., 2016; Chitpin, 2006; Göker, 2016; Koc & Yildiz, 2012). Ekiz's (2006) study demonstrated that learning diaries helped to contemplate deeply about the problems that are faced in the classroom setting. This critical finding indicates that learning diaries develop the PSTs' reflective thinking skills. Reflective thinking is important for the continuity of career development in teacher education (Koc & Yildiz, 2012). Therefore, learners actively make use of their high level mental skills such as critical thinking and analyzing while keeping a diary.

Not as apparent in other studies was the significant educational contribution of diaries in text and video formats. What is more, the results of this research showed that video-formatted learning diaries had more advantages than the text-formatted learning diaries. Most of the PSTs reported that video diaries had positive impacts on their diction. In addition, they also reported that creating their learning diaries by video-recording was easy and practical, increased their self-confidence and contributed positively to their attitudes towards their technical skills and the technology. These findings make it possible to make inferences about their personal, vocational and technical developments.

Additionally, the overwhelming majority of the PSTs reported that they wanted to create their learning diaries by recording videos. They stated that the reason for this was that video diaries were practical and entertaining and they could express their thoughts more comfortably by means of these diaries. In terms of text-formatted learning diaries, the PSTs stressed that they made contributions to their writing skills such as writing appropriately and following the grammar rules. Some of the research results in the relevant literature are consistent with the findings of this present research (Akkoyunlu et al., 2016; Hourigan & Murray, 2010). Based on all these findings, it was observed that the PSTs had a positive tendency towards both formats of learning diaries, but the video-formatted learning diaries had more advantages than the text-formatted learning diaries. The results showed that the video learning diary can be used as a potential self-evaluation tool for professional development in teacher education. Discussion and feedback activities in the classroom showed that the PSTs developed their professional and personal learning by learning from each other.

On the other hand, the results of the current study indicated that the PSTs had some negative views of the learning diaries. In relation to this finding, the PSTs reported that they

had difficulties in planning and forgot the details of their experiences and that creating learning diaries was time-consuming. When the video diaries were considered independently, it was concluded that the PSTs mainly had technical difficulties in arranging the videos, adjusting the video duration and problems with the device. In psychological-physical terms, it was concluded that they felt nervous, excited and stressed while recording the videos and they experienced difficulties in speaking. However, the fact that some of the PSTs reported that these psychological and physical problems were overcome in time, indicates that negative conditions might be turned into positive ones. However, some of the PSTs felt that text-formatted learning diaries were more individualised besides being more boring and causing paper waste. With respect to their advantages, this result also supports the finding that the PSTs found video diaries as contributive to communication and cooperation. Consistent with the results of this study, in their study conducted with 20 PSTs who were attending the school experience course in the department of computer education and instructional technologies, Akkoyunlu et al. (2016) reported that prospective teachers found reflective diaries boring and weak in terms of communication and regarded them as increasing their workload. Similarly, the findings of Fidan and Debbag's (2018) study showed that the PSTs experienced some technical problems related to video shooting and editing also psychological problems such as feeling uncomfortable, stress, excitement, difficulties in speaking, tension during video shooting process. The findings of their study also showed that these problems could be minimised after the participants had adapted to this process.

Consequently, it may be asserted that using video-formatted learning diaries, along with those in text format, for teacher training is practical and effective in professional, technical, mental and psychological terms. Importantly, the study findings indicated that the video-based learning diaries had may have more potential than text-based diaries. Therefore, in teacher training processes, video diaries may be utilised in the contexts of both professional development and supplementary assessment and evaluation tools. The standards and technical process formed for the creation of learning diaries in the school experience course or practical training can be a guide for educators, lecturers or prospective teachers. They may pedagogically need the evaluative tools to support the learners' vocational skills, social and personal development in higher education. To increase the effectiveness of vocational courses in the teacher education, video diaries or, similarly, vlogs can be integrated as an instructional technology into the curriculum.

The current study has some limitations. Firstly, the study is limited to interpreting the findings for causal-comparative. Hence, the impact of learning diaries in various formats on certain variables might be studied comparatively through experimental research in the future. Secondly, another limitation of this study is that video diaries not suitable for interaction outside of school. For this, the videos should be uploaded to several platforms such as YouTube, Vimeo or to learning management systems. Hence, PSTs can comment on the videos of each other or like/dislike them. In-class activities can take a long time in crowded classrooms. Therefore, such activities in the virtual environments can save time as an extracurricular pedagogical practice in the digital age. According to Koc and Yildiz (2012), for prospective teachers, thinking reflectively over their own activities and doing self-evaluation may increase the efficiency of the teaching practice.

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APPENDICES

APPENDIX-A: The main criteria to create learning diaries

SCHOOL LIFE	PERSONAL AND PROFESSIONAL QUALIFICATIONS	TEACHING-LEARNING PROCESS
<ul style="list-style-type: none"> - Organizational structure - Interaction and collobaration with other teachers - School rules - Physical and technological structure - Internal and external stakeholders - Health, cleaning and security services - Library and consultation services - Food and beverage services - Break time or out-of-class activities - Specific days and weeks - Social role of school - Cultural, sporting, artistic activities - Legislations an regulations - Laboratories - Sport and recreation areas - Club activities - Physical appearance of classes 	<ul style="list-style-type: none"> - Professional ethics - Technological pedagogical content knowledge (TPACK) - Personal and social development - General culture knowledge - Actuality knowledge - Appearance and hygiene - Role-model - Personal values and behaviours - Responsibilities - Subject-area knowledge - Lifelong learning or 21th century skills 	<p><u>Plan</u></p> <ul style="list-style-type: none"> - Preparation of lesson - Curriculum, syllabus, lesson plan <p><u>Instructional methods</u></p> <ul style="list-style-type: none"> - Instructional design for learning - Technology-supported education - Student-centred methods and techniques - Individual and group activites - Instructional materials - Interdisciplinary paradigms <p><u>Classroom management and communication</u></p> <ul style="list-style-type: none"> - Time management - Classroom rules - Classroom management styles - Problems and their solutions in the class. - Feedback to student, reward and punishment system - Effective communication - Teacher or student behaviours and relationships with each other - Interaction with students and teacher - Gesture and facial expressions - Use of language - Individual differences <p><u>Assessment and evaluation</u></p> <ul style="list-style-type: none"> - Traditional and complemental assessment and evaluation tecniques - Diagnostic, summative, formative assessment and evaluation - Criteria and standards to assess and evaluate - Assessment of cognitive, affective and psychmotor learnings. - Monitoring the student development