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Examination of Teacher Candidates' Views on Peer Learning Performed with Interactive Videos in the Blended Learning Process

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Abstract

Today, the speed of the development of technology has various effects in many areas. In the field of education, some concepts, methods, techniques, theories and models come to the fore with the effect of technology and attract the attention of researchers. One of them is blended learning. Blended learning is a learning process in which both face-to-face learning processes and learning processes in online environments coexist. Today's learners are expected to be able to solve problems, work collaboratively, and have strong communication. It is thought that peer learning can be used in constructivist teaching processes in order to gain these features. Peer learning involves learners performing their learning by interacting with each other. In this study, it is aimed to determine the opinions of teacher candidates about peer learning realized with interactive videos in the blended learning process. The study group consists of 37 Computer and Instructional Technologies Education Department teacher candidates, 11 women (29.73%) and 26 men (70.27%) enrolled in the "Special Teaching Methods - II" course in the spring semester of 2018-2019 academic year. In the online part of the study, a web 2.0 tool (Edpuzzle) was used to prepare interactive video content. The videos prepared by the peers regarding the course content were expected to be watched online and before the face-to-face lessons. In the face-to-face learning process, students progressed the learning process interactively with their peers. At the end of the process, the data were collected with the data collection tool named "teacher candidate opinion form" developed by the researchers from the study group. The collected data were analyzed with content analysis and interpreted by the researchers. In the study results, the opinions of the teacher candidates about the process after their learning experiences were determined. It was found that a great majority of the teacher candidates had a positive opinion about the peer learning realized with interactive videos in the blended learning process.

Keywords: Blended Learning, Peer Learning, Flip Classroom, Enriched Interactive Video

1. Introduction

The body of a manuscript opens with an introduction that presents the specific problem under study and describes the research. Today, changes in the expectations of the system, employers, students, administrators, teachers and parents from the teaching processes have paved the way for the creation of innovative processes. In the literature regarding this situation, it is stated that it is necessary to conduct studies to understand the situations related to developments in digital technologies for education, philosophical thoughts, new subject areas that have been emphasized, approaches, etc., in order to achieve the goals in the teaching process. (Ipek & Ziatdinov, 2017). As a result of the studies conducted in this context, new approaches, models and theories are emerging in order to support learning. Blended learning, which provides an enriched learning process that supports the learner from various angles, is one of these approaches (Peña, Martínez-Reyes, & Soberanes-Martín, 2020).

Blended learning is the effective use of different presentation formats in which e-learning processes are included (Procter, 2003). In a more recent definition, blended learning is defined as the combination of face-to-face teaching and online teaching processes (Graham, 2006). In the literature, it is stated that the use of blended learning has advantages such as increasing the effectiveness of learning, providing rich access opportunities, providing optimization in terms of cost and time, and ensuring that the results come out as desired (Singh & Reed, 2001). In another study, the advantages of blended learning are stated as providing an improved pedagogy, increasing accessibility and flexibility, and increasing efficiency in terms of cost-effectiveness (Graham, 2006). It is stated that the use of blended learning can support students to have a positive attitude towards learning, and students can have high benefit, motivation, and satisfaction in using blended learning (López-Pérez, Pérez-López, & Rodríguez-Ariza, 2011).

Video content is quickly seen as a widely used learning tool in online and blended lessons (Blackstock, Edel-Malizia, Bittner, & Smithwick, 2017). Interactive videos have a very important place in commercial studies related to entertainment and can be considered popular among learners (Hong, Tsai, Ho, Hwang, & Wu, 2013). In the literature, it is stated that the use of interactive videos enriched with questions in teaching processes can be easily used and considered useful by learners (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). In his study, Vural (2013) observed that interactive videos enriched with questions increase the amount of interaction of learners and positively affect the time spent on the material. Similarly, in another study, it is mentioned that using interactive video enriched with questions is effective, efficient, and remarkable in the learner's learning process (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). Considering that only the inclusion of an interactive video enriched with questions in the environment may not positively affect learning, it can support the desired learning outcomes and student success if used in a planned manner (Vural, 2013). It was stated that the learners were satisfied with the use of interactive video enriched with questions and that they think it should be popularized (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017).

It is seen as a critical situation for learners to interact with their peers in the learning process (Michinov, Brunot, Le Bohec, Juhel, & Delaval, 2011), and it is stated that it can positively affect learning when peer learning is used that supports peers' interactions (Topping, 2005). As a result of the literature review conducted by the researchers, there was no study on determining the opinions of teacher candidates on peer learning, which was realized with videos enriched with questions in the blended learning process. In this context, it is thought that the study will contribute to the literature.

1.1 The Purpose of the Study

The aim of this study is to examine the opinions of teacher candidates about peer learning realized with interactive videos enriched with questions in the blended learning process. In order to achieve this aim, the following research questions have been tried to be answered.

- 1.How is the teacher candidates' use of interactive video materials enriched with questions?
- 2.What are the opinions of the teacher candidates about interactive video materials enriched with questions?

3. What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?

2. Method

In this study, the content analysis method, one of the qualitative research methods, was used in order to determine the opinions of teacher candidates about peer learning realized with interactive videos enriched with questions in the blended learning process. In this context, the study group, research design, data collection tools and data analysis processes are given under this heading.

2.1 Study Group

The study group consists of 37 Computer and Instructional Technologies Education Department teacher candidates, 11 women (29.73%) and 26 men (70.27%) enrolled in the "Special Teaching Methods - II" course in a state university in Turkey in the spring semester of the 2018-2019 academic year. In addition to the study group, eight teacher candidates who had successfully completed the course before participated in the study as peer tutors.

2.2 Data Collection Tools

In the study, a semi-structured data collection tool named "teacher candidate opinion form" prepared by the researchers was used. There are open-ended and 5-Likert items in the data collection tool.

2.3 Research Design

As shown in Figure 1, at the beginning of the study, experienced peer teacher candidates were selected by the researchers. In this process, experienced and knowledgeable teacher candidates who had previously successfully completed the course in the subject area were selected. Then, a blended learning process was carried out for four weeks. When the blended learning process was completed, the data were collected with the "teacher candidate opinion form," which is a data collection tool. Then, the analysis of the data was carried out and reported.

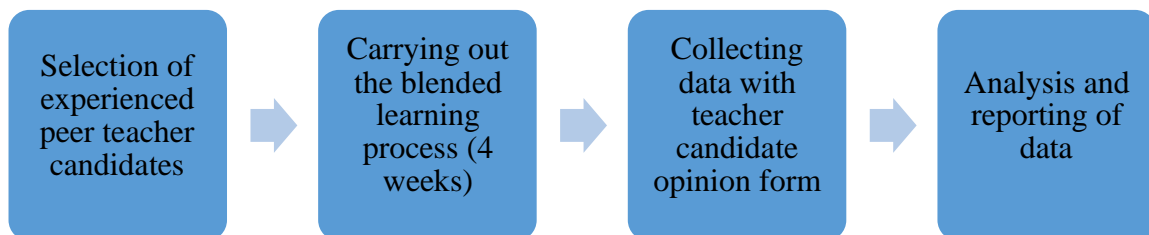


Figure 1. Design of the research process

2.4 Blended Learning Process

The flip classroom model was used in the blended learning process. In this model, the learners perform the theoretical knowledge online at their own learning speed. Then the practice activities, which are considered the fun part of the lesson, are carried out in a face-to-face environment. Interactive videos enriched with the questions prepared by the peers on block-based programming were used in this process carried out within the scope of the "Special Teaching Methods - II" course, which has a course content suitable for this structure. Interactive videos enriched with prepared questions were presented to the teacher candidates through the learning management system. The document with a part of the image in Figure 2, which contains information

about interactive videos enriched with questions, sample visuals and links, was shared with the teacher candidates in order to be able to progress in accordance with individual learning processes.



Figure 2. A screenshot from the document prepared for teacher candidates

There are two sections in the document called "Scratch basic training videos" and "Scratch examples." In the "Scratch basic training videos" section, there are 13 video contents such as "Scratch download and installation," "Scratch interface introduction," "Scratch dummy add and speaking," etc., prepared by peers. These videos were presented to teacher candidates in the Edpuzzle environment with the forward jump feature turned off. Watching these videos has been reviewed and encouraged by the researcher. In the "Scratch examples" section, there are seven video contents such as "Cat mallet game," "Pattern game", "Let's get to know English colors," and so on prepared by peers. The links and class code where they can access the Edpuzzle environment to access the videos are included in the document. The screenshot of one page of this document is presented as an example in Figure 3.



Figure 3. A screenshot from the document prepared for teacher candidates

In the document, questions were added to all the videos presented to teacher candidates in the Edpuzzle learning environment, and the teacher candidates were expected to answer the questions. A screenshot of interactive videos presented to teacher candidates in the Edpuzzle environment is presented in Figure 4.



Figure 4. A screenshot from the Edpuzzle interactive video environment presented to the teacher candidates

Teacher candidates were asked to watch interactive videos enriched with questions before the lessons, answer the questions, and complete the lesson's implementation tasks. They were expected to create videos prepared with the expression of peers and interactively with peers in the classroom. After four weeks, the process was completed by collecting data with the data collection tool.

2.5 Data Analysis

The data obtained with the teacher candidate opinion form were analyzed by using content analysis and descriptive statistics methods. In the content analysis, the data were examined by the researchers. The researchers encoded the data in line with these studies, and common codes were determined with a consensus about the differences encountered in coding. In the data given in the findings, the frequencies show the coding numbers and the percentages show the percentage distribution of the codes for the expressions.

2.6 The Role of the Researcher

The researchers took part in the study as participant observers. Researchers took a guiding role by taking part in all processes in the working environment.

3. Results

The findings obtained about the purpose of the study and the research questions related to the purpose are presented in this section. Some of the statements of the teacher candidates selected by the researchers were also stated as direct quotations.

3.1 RQ1- How are the teacher candidates' use of interactive video materials enriched with questions? Findings on the research question

Regarding the research question, the data regarding the subscription status to the web 2.0 environment where interactive videos enriched with questions take place are given in Table 1.

Table 1: Teacher candidates' subscription status to the environment where interactive videos enriched with questions take place

Subscription status	The number of teacher candidates (<i>f</i>)	Percentage (%)
Subscribed	36	97.30%
Unsubscribed	1	2.70%

As shown in Table 1, 36 (97.30%) of 37 teacher candidates who participated in the study subscribed to the environment where interactive videos enriched with questions were included, and 1 (2.70%) did not.

Regarding the research question, the data on the teacher candidates' watching the interactive videos enriched with questions more than once are given in Table 2.

Table 2: Teacher candidates' statuses of watching interactive videos enriched with questions more than once

Multiple watching statuses	The number of teacher candidates (<i>f</i>)	Percentage (%)
Multiple watched	24	64.86%
Multiple unwatched	13	35,14%

As can be seen in Table 2, it is seen that 24 (64.86%) of 37 teacher candidates who participated in the study watched interactive videos enriched with questions more than once, 13 (35.14%) did not watch more than once.

Regarding the research question, the data regarding the frequency of visits of the teacher candidates to the environment with the interactive videos enriched with questions are given in Table 3. As seen in Table 3, of 37 teacher candidates who participated in the study, 2 (5.41%) always, 11 (29.73%) frequently, 17 (45.96%) sometimes, and 7 (%) 18.92) rarely visited.

Table 3: The frequency of the teacher candidates' visits to the environment where interactive videos enriched with questions take place

Frequency of visit	The number of teacher candidates (<i>f</i>)	Percentage (%)
Always	2	5,41%
Frequently	11	29,73%
Sometimes	17	45,96%
Rarely	7	18,92%

3.2 RQ2- What are the opinions of the teacher candidates about interactive video materials enriched with questions? Findings on the research question

The items in the data collection tool related to the research question were examined, and the findings obtained are presented below. Regarding the research question examined in this context, the opinions of the teacher candidates on the item "I find it unnecessary to teach the subjects by preparing video lessons." are given in Table 4.

Table 4: The opinions of teacher candidates on the item "I find it unnecessary to teach the subjects by preparing video lessons."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	1	2.70%
Agree	1	2.70%
Undecided	5	13.51%
Disagree	11	29.73%
Strongly disagree	19	51.35%

As seen in Table, of 37 teacher candidates who participated in the study on the item, 4, 1 (2.70%) strongly agree, 1 (2.70%) agree, 5 (13.51%) undecided, 11 (29.73%) disagree and 19 (51.35%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "Being able to repeat the subject as many times as I want with video lessons helps me to learn." are given in Table 5.

Table 5: The opinions of teacher candidates on the item "Being able to repeat the subject as many times as I want with video lessons helps me learn."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	18	48.65%
Agree	17	45.95%
Undecided	2	5.41%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 5, it is seen that, of 37 teacher candidates who participated in the study on the item, 18 (48.65%) strongly agree, 17 (45.95%) agree and 2 (5.41%) undecided.

Regarding the research question, the opinions of the teacher candidates on the item "Video lessons help me understand the subject." are given in Table 6.

Table 6: The opinions of teacher candidates on the item "Video lessons help me understand the topic."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	16	43.24%
Agree	20	54.05%
Undecided	1	2.70%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 6, it is seen that, of 37 pre-service teachers who participated in the study on the item, 16 (43.24%) strongly agree, 20 (54.05%) agree and 1 (2.70%) undecided.

Regarding the research question, the opinions of the teacher candidates on the item "I get the opportunity to learn at my own pace with video lessons." are given in Table 7.

Table 7: The opinions of teacher candidates on the item "I get the opportunity to learn at my own pace with video lessons."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	19	51.35%
Agree	16	43.24%
Undecided	2	5.41%
Disagree	0	%0
Strongly disagree	0	%0

As can be seen in Table 7, it is seen that, of 37 pre-service teachers who participated in the research on the item, 19 (51.35%) strongly agree, 16 (43.24%) agree and 2 (5.41%) undecided.

Regarding the research question, the opinions of the teacher candidates on the item "I can also learn what I have learned from video lessons by reading a book or on a computer screen." are given in Table 8.

Table 8: The opinions of teacher candidates on the item "I can also learn what I have learned from video lessons by reading a book or text on a computer screen."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	5	13.51%
Agree	10	27.03%
Undecided	16	43.24%
Disagree	5	13.51%
Strongly disagree	1	2.7%

As seen in Table 8, of 37 teacher candidates who participated in the research on the item, 5 (13.51%) strongly agree, 10 (27.03%) agree, 16 (43.24%) undecided, 5 (13.51%) disagree and 1 (2.70%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I find video lessons boring." are given in Table 9.

Table 9: The opinions of teacher candidates on the item "I find video lessons boring."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	0	%0
Agree	0	%0
Undecided	8	21.62%
Disagree	15	40.54%
Strongly disagree	14	37.84%

As can be seen in Table 9, it is seen that, of 37 teacher candidates who participated in the study on the item, 8 (21.62%) undecided, 15 (40.54%) disagree, and 14 (37.84%) strongly disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I think my level of success has increased thanks to the video lessons." are given in Table 10.

Table 10: The opinions of teacher candidates on the item "I think my level of success has increased thanks to the video lessons."

Opinion	The number of teacher candidates (<i>f</i>)	Percentage (%)
Strongly Agree	8	21.62%
Agree	21	56.76%
Undecided	7	18.92%
Disagree	1	2.70%
Strongly disagree	0	%0

As seen in Table, of 37 teacher candidates who participated in the study on the item, 10, 8 (21.62%) strongly agree, 21 (56.76%) agree, 7 (18.92%) undecided and 1 (2.70%) disagree.

Regarding the research question, the opinions of the teacher candidates on the item "Video lessons make teaching more effective." are given in Table 11.

Table 11: The opinions of teacher candidates on the item "Video lessons make teaching more effective."

Opinion	The number of teacher candidates (f)	Percentage (%)
Strongly Agree	16	43.24%
Agree	17	45.95%
Undecided	3	8.11%
Disagree	1	2.70%
Strongly disagree	0	%0

As seen in Table 11, of 37 teacher candidates who participated in the study on the item, 16 (43.24%) strongly agree, 17 (45.95%) agree, 3 (8.11%) undecided and 1 (2.70%) disagree.

Regarding the research question, the opinions of the teacher candidates on the item "I think teaching with video lessons is enjoyable." are given in Table 12.

Table 12: The opinions of teacher candidates on the item "I think teaching with video lessons is enjoyable."

Opinion	The number of teacher candidates (f)	Percentage (%)
Strongly Agree	16	43.24%
Agree	13	35.14%
Undecided	5	13.51%
Disagree	3	8.11%
Strongly disagree	0	%0

As seen in Table 12, of 37 teacher candidates who participated in the study on the item, 16 (43.24%) strongly agree, 13 (35.14%) agree, 5 (13.51%) undecided and 3 (8.11%) disagree.

3.3 RQ3- "What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?" Findings on the research question

Regarding the research question, the general opinion of the teacher candidates regarding the peer learning process carried out by using interactive videos enriched with questions in blended learning is given in Table 13. As seen in Table 13, 36 (97.30%) of 37 teacher candidates who participated in the study had a positive opinion about the peer learning process, which was carried out using interactive videos enriched with questions in blended learning, and 1 (2.70%) had a negative opinion.

Table 13: The opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning

Opinion	The number of teacher candidates (f)	Percentage (%)
Positive	36	97.30%
Negative	1	2.70%

The statements of some of the teacher candidates who have these views were selected and specified by the researchers. One of the teacher candidates (T7) states that the peer teaching process carried out offers a sincere, useful and enjoyable learning process by using the expression "Peer learning has been on the rise in recent times, entering educational settings. Peer learning is very useful because it is a friendlier environment among friends. I think it is a way of learning where individuals enjoy learning." Another teacher candidate (T5) states that it is an effective process and that he can focus more on the learning process he spent with his peers by saying, "I think it was pretty effective. Since some people are familiar to us, I actually focused more on them." Another teacher candidate (T27) states that he has a positive view of the process and that he thinks it contributes to his learning with the expression, "It was very positive, while I was telling my friends, my knowledge and

experience increased more." Another teacher candidate (T8) states that it can positively affect the students' motivation regarding the lesson in the learning process carried out with their peers by saying, *"I think peer learning is definitely better than the lecturer's narration. I think peers can teach each other in a more appropriate language. I think that this system will increase the motivation of the students to the lesson."* Another teacher candidate (T31) states that peers can understand each other more easily and contribute to their needs with the expression, *"I think that peer education is very important, saying that only the wearer knows where the shoe pinches. We can have common thoughts on our own needs, shortcomings, expectations and projects. We can reveal different imaginations. Thanks for your efforts at the end of the term, sir :)"* Another teacher candidate (T29) states that listening to the lesson from his peers is a good experience by saying, *"It was good for me to listen to a lesson from someone I know."*

4. Conclusion and Discussion

4.1 RQ1- How are the teacher candidates' use of interactive video materials enriched with questions? Conclusions regarding the research question

It is thought that 36 (97,30%) of 37 teacher candidates who participated in the study subscribed to the environment with interactive videos enriched with questions, and it can be interpreted positively for using statuses. In addition to this, when looked at multiple watching statuses of the teacher candidates for interactive video materials enriched with questions, it was seen that 24 (64.86%) teacher candidates watched more than once, 13 (35.14%) did not watch it more than once. In this case, it is thought that teacher candidates make use of as many materials as they want in line with their needs. Another case examined within the scope of this research question is the frequency of the teacher candidates' visits to the environment with interactive videos enriched with questions. Considering the frequency of visits of the teacher candidates, 2 (5.41%) were always, 11 (29.73%) often, 17 (45.96%) sometimes, and 7 (18.92%) rarely visited the environment. This situation can change depending on the needs and the amount of individual effort, as in watching videos multiple times. For this reason, it is thought that teacher candidates use the system according to their learning speed, prior knowledge, and the number of repetitions they need.

4.2 RQ2-"What are the opinions of the teacher candidates about interactive video materials enriched with questions?" Findings on the research question

Considering the views of the 37 teacher candidates participating in the study about interactive video materials enriched with questions, it was determined that that most of them think that it is not unnecessary to learn with video lessons, the possibility of repeating as many times as desired in line with individual needs will support learning, video lessons provide support to understand the subject, video lessons provide the opportunity to learn at the speed of individual learning, video lessons are not boring, the success level is positively affected by video lessons, it will make teaching more effective, and they have an enjoyable learning process.

4.3 RQ3-"What are the opinions of the teacher candidates about the peer learning process carried out by using interactive videos enriched with questions in blended learning?" Conclusions regarding the research question

Examining the findings of the teacher candidates' opinions on the peer learning process, which is carried out using interactive videos enriched with questions in blended learning, it is seen that 36 (97.30%) of 37 teacher candidates who participated in the study had a positive view on the peer learning process performed using interactive videos enriched with questions in blended learning, 1 (2.70%) teacher candidate has a negative opinion. Considering this situation, it can be thought that most of the teacher candidates have a positive opinion about the process. In addition to this, when the statements of the teacher candidates regarding the process are examined, it is seen that a cooperative process is important; they can communicate with their peers more easily, they can express themselves more comfortably, they have an effective learning experience, and they express their positive thoughts intensely.

When the literature is examined, it is seen that the planned use of interactive videos enriched with questions can support the learning process to become effective and productive, and learners can find it as an easy-to-use and useful learning experience (Koçdar, Karadeniz, Bozkurt, & Büyük, 2017). When this situation is compared with the results obtained from the statements of the teacher candidates who participated in the study, it is thought that the results obtained are parallel to the literature. Vural (2013) stated that enriched interactive videos positively affect the time spent by learners on the material. It can be inferred that the fact that more than half of the teacher candidates included in the findings of the study watched interactive video materials enriched with questions more than once is in parallel with this statement in the literature. It is stated in the literature that the blended learning used in the design of the study has advantages such as increasing the effectiveness of learning in the learning process, providing rich access opportunities, and supporting the formation of desired outcomes (Singh & Reed, 2001). Similar to the literature, it is seen in the outputs of the study that the teacher candidates stated that they think the learning process takes place as an effective and beneficial process.

This study was conducted to determine the opinions of teacher candidates about peer learning carried out with interactive videos enriched with questions in the blended learning process. As a result of the study, it was found that teacher candidates generally had positive opinions about peer learning carried out with interactive videos enriched with questions in the blended learning process.

4.4 Recommendations

Peer learning performed with interactive videos enriched with questions in the blended learning process is a method that can be viewed positively by teacher candidates. In this context, this method can be used in application studies.

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