Preservice Teachers' Views about Flipped Classroom Model

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Abstract

This study aimed at examining the views of preservice teachers regarding teaching activities carried out by using the Flipped Classroom (FC) model. Case study was employed as a qualitative research method under the study. Criterion sampling one of the purposeful sampling methods was used in the study, where fifteen preservice teachers in their senior year in Science Teaching Department constituted the study group. A questionnaire consisted of 7 open-ended items was developed by the researchers for purpose of use as a data collection tool in the study. The data obtained from the study group were analyzed by means of content analysis. Upon the study, it was observed that the participants had initially been highly biased towards the FC, but the students' biases were finally eliminated at the end of the study. Moreover, they conveyed their opinions on the FC specifically in terms of communication/interaction, educational benefit and affective characteristics. From a student's perspective, the participants reported their views on the use of Facebook as an FC and they mainly pointed out to its educational benefits. Whereas, from a teacher's perspective, they reported their views on educational benefits, the content of the FC and their roles as teachers.

Keywords: *Flipped classroom, flipped learning, learning with video, LEGO, preservice teachers, robotic.*

Öğretmen Adaylarının Ters Yüz Edilmiş Sınıf Modeline Yönelik Görüşlerinin İncelenmesi

Özet

Araştırmada Ters Yüz Edilmiş Sınıf (TYES) Modeli kullanılarak gerçekleştirilen öğretim faaliyetlerine yönelik öğretmen adaylarının görüşlerinin incelenmesi amaçlanmıştır. Araştırma nitel araştırma yöntemlerinden durum çalışması kullanılarak gerçekleştirilmiştir. Amaçlı örnekleme yöntemlerinden ölçüt örneklemesi kullanılarak belirlenen Fen Bilgisi Öğretmenliği Lisans Programı 4. Sınıfta öğrenim gören 15 öğretmen adayı çalışma grubunu oluşturmuştur. Çalışmada veri toplama aracı olarak araştırmacıların geliştirdiği 7 adet açık uçlu maddeden oluşan bir anket kullanılmıştır. Çalışma grubundan elde edilen veriler içerik analizi yapılarak incelenmiştir. Araştırmanın sonunda katılımcıların çalışma başlangıcında TYES'e yönelik büyük ölçüde önyargılı oldukları, çalışma sürecinde sonunda öğrencilerin önyargılarının ortadan kalktığı görülmüştür. Bununla birlikte TYES ortamı ile ilgili iletişim/etkileşim, eğitsel yarar ve duyuşsal özellikler temaları altında görüşleri bulunmaktadır. TYES ortamı olarak Facebook kullanımına yönelik görüş bildiren katılımcılar TYES ortamına yönelik öğrenci bakış açısıyla büyük oranda eğitsel yararlarından bahsetmişlerdir. Öğretmen bakış açısıyla ise eğitsel yararlar, TYES içeriği ve öğretmen olarak rolleri ile ilgili görüş bildirmişlerdir.

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Anahtar Kelimeler: *LEGO, öğretmen adayı, robotik, ters yüz edilmiş sınıf modeli, ters yüz edilmiş öğrenme, video ile öğretim.*

Introduction

Today's education and teaching environments are influenced by technological developments. The impact of such developments on education and teaching processes can be seen in the reports which are periodically published by New Media Consortium (NMC History, 2014; Baran, 2013). As a result of such impact, technologies have been integrated to education and teaching environments. The integration of technology into the education and teaching process has yielded a number of subjects such as Massive Open Online Courses, Tablet PCs, Games, 3D Printing, Cloud Computing, and Mobile Learning (Johnson et al., 2014). The Flipped Classroom model is also among the subjects that are on the agenda and are integrated to the education and teaching process.

In general, the Flipped Classroom (FC) Model requires that conventional classroom activities are carried out at home and homework assignments are made in the classroom (Bergmann, & Sams, 2012). The model basically involves a video recording of the course content to be lectured by the teacher. The recorded video is then uploaded on the Internet (on Youtube, Facebook and similar media). Before attending the class, students view the videos uploaded by the teacher and learn about the subject to be lectured in the classroom. When students attend the class, they practice the subject they learned via videos by carrying out the activities planned by the teacher. So, the course content is studied during out-of-class hours mainly via video materials in the FC model; student-oriented activities are performed during the class hours to allow students to demonstrate what they have learned and to reinforce knowledge (Mason, Schuman, & Cook, 2013). Here, the teacher adopts a student-oriented approach as a basic means of teaching, instead of directly giving a lecture (Bergmann, & Sams, 2012).

The initial implementation of the FC model targeted secondary school students (Bergmann, & Sams, 2012). However, the researches which were carried out later covered secondary and higher education (Hsieh, Wu, & Marek, 2016; Gencer, 2015; Turan, 2015). It was observed that all of these studies contributed to the teaching process of the FC model, increased student motivation and usually yielded positive results. The relevant literature review on the FC model in Turkey addresses very few experimental studies compared to those carried out at a global scale. On the other hand, FATİH Project which was launched by the Ministry of Education in 2012 envisages integration of technology in educational stages at all school levels (MEB, 2012); it is of importance that the project should integrate innovative educational models such as FC into the education and teaching process, and opinions of teachers and students should be identified. In this frame, preservice teachers as teachers of the future are expected to gain awareness on the FC model and to test the model. In

addition, it is considered that the opinions of preservice teachers on the FC model will guide the future FC activities. Thus, the study aimed at examining the views of preservice teachers regarding teaching activities carried out by using the FC Model. Preservice teachers learned how to use the product LEGO Mindstorms EV3 (including LEGO blocks, being able to be programmed block named EV3 Brick, various sensors, servo motors) by watching the videos, which were developed by the researchers, in out-of-class hours via a closed Facebook group used as an FC environment; the preservice teachers performed their classroom activities with LEGO products without lecturing during class hours. Following the activities performed, the preservice teachers were asked about their views on the FC environment.

Method

The study aimed at examining the views of preservice teachers regarding teaching activities carried out by using the FC Model. Efforts to examine cases, phenomena, norms and values studied with perspectives of individuals subject to the study are among the basic features of qualitative researches. Case study is a qualitative research design by which results of a particular case are introduced and studied in depth (Hood, 2009; Yildirim & Simsek, 2013). Therefore, case study was employed as a qualitative research method under the study.

Participants

Criterion sampling, which is one of the purposeful sampling methods, was used in selection of the study group. Criteria such as availability of Internet access for preservice teachers during out-of-class hours, their membership or subscription to Facebook and their participation to the study on a totally volunteer basis for the hours determined each week were ascertained as the criteria in scope of the criterion sampling. Preservice teachers received education at the 4th year of the Bachelor's Program in Science Teaching Department of the Faculty of Education, Bartın University were informed about the study to be carried out before the practice, and about the criteria, and 15 preservice teachers formed the study group.

Roles in the Study of Researchers

The researchers introduced themselves during selection of the study group and gave information about the study to be carried out. The preservice teachers intending to participate at the study were selected under the light of such information. During the implementation process, the researcher prepared the FC videos and shared them on the Facebook group in phases. During the process of activities carried out by preservice teachers on the FC environment, their questions were quickly responded. Whereas, during the process of activity in the classroom, the researchers worked

both as teachers and counselors. When proceeding to the data collection stage, they again assumed a role as researchers and performed the data collection process.

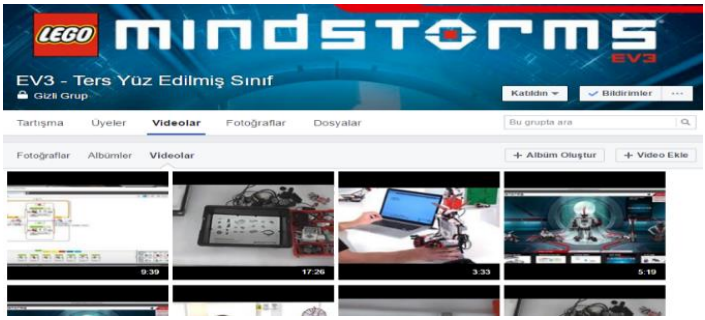
Data Collection Tool

A survey consisting of 7 open-ended items was developed by the researchers for purpose of use as a data collection tool in the study. By expert opinion (5 experts: two Computer and Instructional Technologies Education Department lecturers, two Educational Science Department lecturers and one Turkish Education Department lecturer), necessary revisions were made to the questionnaire items prepared. The questionnaire contains items about opinions of preservice teachers at the time when they first heard about the FC study, after the beginning of the FC study and about the Facebook environment used as the FC. Additionally, the preservice teachers were asked to evaluate the performed FC study from a student's perspective. Finally, they were asked to evaluate the performed FC study from a teacher's perspective.

The Application, Data Collection Process

The implementation process of the research was conducted through a 6-week study within the spring semester of the academic year 2015 - 2016. Students were given information and a study group was formed during the first week of the term. The study was carried out within the next 6 weeks. Following the 6-week study, written data were collected from preservice teachers. The preservice teachers jointly scheduled a certain date and time so that the study would be performed and full participation would be ensured. In this context, face-to-face activities were carried out for 3 class hours each week.

A closed group was created by the researchers for the FC on the Facebook environment in scope of the implementation process; and the preservice teachers were added to the group (Picture 1). Videos, images and documents were uploaded step by step to the FC environment each week in connection with the activities to be carried out.



Picture 1. Close Facebook Group

Accordingly, 15 videos, 12 images and 3 documents on LEGO Mindstorms EV3, and robot programming in total, prepared by the researchers, were uploaded to the FC. In order to find out the participants' opinions on time lengths of videos, the videos prepared by the researchers were set for durations of 3 to 20 minutes. Whereas, during classroom activities, the preservice teachers performed direct practices in relation to the course subject they studied on the FC environment.

Data Analysis

The data obtained in scope of the research were analyzed by means of content analysis. The data collected by means of a questionnaire consisting of open-ended items were examined in depth and encoded. The relations between the encoded items were reviewed and the themes were revealed. Finally, the relations between such themes were explained.

The Reliability and Validity of Research

The researchers ensured interaction via Facebook groups between the preservice teachers both on the FC environment and the classroom environment throughout the entire period of activity. A more relaxed and sincere environment was made available for the participants during the data collection process. Expert opinions were received and necessary arrangements were made during development of the data collection tool and whenever needed in scope of the study. The data obtained at the end of the data collection process were examined objectively and without any comments added thereto. Furthermore, the participants' statements were quoted. The participants were in no way influenced by any leading statements during the data collection process.

Finding

This part includes results of the analysis on data obtained in scope of the study. The data obtained were examined in 5 categories, which are as follows: initial opinions on the FC, general opinions on the FC, opinions on Facebook as an FC environment, opinions on the FC environment from a teacher's perspective, and opinions on the FC environment from a student's perspective.

The participants were asked about their opinions at the beginning of the activity when they were informed that teaching would be provided on the FC environment via videos during out-of-class hours and practices would be performed during class hours. The results of the content analysis on answers given by the participants are shown in Table 1.

Table 1.
Results of Content Analysis on Opinions of Preservice Teachers on the FC

Category Name	Theme	Codes
First Opinions on the FC	Positive	Excitement
		Curiosity
		Courses of Interest
		Enjoyable
	Negative	Prejudice
		Anxiety
		Hesitation

When Table 1 is viewed, it is seen that the participants mostly (n=12) had negative bias on performing activity via the FC environment. Apart from that, there was also a significant number (n=8) of participants reporting that they wanted to know about the activity and that they had increased interest in the course. Below are some of the statements made by the participants regarding initial opinions on the FC:

"At first I felt a little hesitation and I had bias, thinking that I wouldn't be able to succeed in the course"(S1).

"Honestly I was really excited when I first saw them"(S4).

"I had concerns about how it must be done because it was a technological practice which we hadn't seen before"(S7).

"I acted with bias on following the course via the group. As I didn't know about weekly intensity and content of the course, I thought the content might have been intense. On the other hand, I was wondering about what kind of an activity we would be doing"(S10).

"At first I thought 'How can we do such things? I was really curious"(S14).

The participants were asked about their opinions which emerged or changed over the course of the activity performed on the FC environment. The results of the content analysis which was performed on basis of the mentioned question are given in Table 2.

Table 2.
Results of Content Analysis on General Opinions of Preservice Teachers on the FC

Category Name	Theme	Codes
General Opinions on the FC	Educational Benefits	Saving on Time
		Knowledge Consolation
		Informative
		Be Prepared to come to the Course
		Active Participation
		Course Contribution
	Communication/ Interaction	Exchange of Opinions
		Collaboration
		Task Sharing
		Teacher-Student Communication-Interaction
	Emotional Features	Self-reliance
		Courses of Interest
		Motivation Enhancement

When Table 2 is examined, it is observed that the participants (n=14) mainly gave opinions on educational benefits of the activity. On this regard, the students also stated in their opinions that they studied on the FC environment and prepared themselves for the activity, thereby saving on time for practice and feeling encouraged to actively take part in the course. The participants further stated that they always had the opportunity to contact the teacher on the FC environment and they exchanged ideas about the activity with their peers and the teacher on the mentioned environment, pointing out to their collaboration with their peers during the classroom activity. There are also students who reported that they had increased interest and motivation for the activity. Below are some of the statements made by the participants regarding opinions on the FC:

"While programming, I could not understand how small or big the engine looked. I watched the video and learned" (S2).

"We studied the lesson earlier and then spent all of the class hours making practices" (S4).

"I applied what I learned from videos to the course, so I had the chance to test them" (S9).

"…We can prepare for the content by watching the videos" (S12).

"The videos made us equipped for the upcoming class" (S14).

"I grew interest in the subject as I watched the videos, I felt eager to start the activities immediately" (S15).

The participants were asked about their opinions on Facebook which was used as an FC environment in scope of the study. The results of the content analysis which was performed in this context are given in Table 3.

Table 3.
Results of Content Analysis on Opinions of Preservice Teachers on Facebook as an FC Environment

Category Name	Theme	Codes
Opinions on Facebook as an FC Environment	Access to the FC	Availability of Access Via Mobile Devices
		Widespread Use
		Easy to Use
		Notification Feature
	Educational Benefits	Suitable for FC
		Communication-Interaction
		Facility
		Visually Rich
		Make Sharing Opportunity

When Table 3 is examined, it is seen that all the participants reported positive opinions on the use of a Facebook group as an FC environment. In this context, the availability of access via mobile devices, widespread use of the Facebook group and delivery of notifications to members of the group when videos or similar items are posted on the FC are indicated by the participants as benefits in terms of access to the FC. As for the educational benefits of the use of Facebook as an FC environment, the participants stated that the Facebook group is a convenient environment for the FC, that they felt comfortable with this environment as they were already familiar with it in visual terms, that they could easily perform communication-interaction via the Facebook group and could also easily share content on this environment. Below are statements by some of the participants on the use of Facebook as an FC environment:

"Without Facebook group we would have to learn in class…" (S4).

"The Facebook group gave us an understanding of the subject and its visual feature enabled us to permanently keep in mind what we learned" (S6).

"It's a very popular social media platform... We receive notifications when any media is posted or shared with us" (S7).

"I think the Facebook group is very useful as a sharing environment" (S11).

The participants were asked to evaluate the performed FC study from a student's perspective. The results of the content analysis which was performed in this context are given in Table 4.

Table 4.
Results of Content Analysis on Opinions on the FC Environment from a Student's Perspective

Category Name	Theme	Sub Themes	Codes
Opinions on the FC Environment from a Student's Perspective	Positive	General	Independent of Time Easy Access to Knowledge
		Educational Benefit	Saving on Time Space No Limits More Practice Time Be Prepared to Come to the Course Again Watch Opportunity Informative
	Negative	-	Video Time Making Instant Application Requirements Technical Problems
	Recommendations	-	Interaction Added to Video Important Point to be Emphasized

When Table 4 is viewed, it is seen that the participants (n=13) mostly reported positive opinions on the FC environment from a student's perspective. In context of these positive opinions, the participants stated that the activity eliminated time and place restrictions considerably, they had easy access to information, they had the opportunity to watch the videos again to review the points they had difficulty in understanding, and they had much more time to make practice in the classroom. Nevertheless, they suggested that the videos should be provided in an interactive manner, and important points in the videos should be zoomed in or emphasized otherwise to draw attention. Whereas, in frame of negative opinions, the participants stated that some of the videos were long, which was affected by a number of technical challenges (e.g. low Internet connection speed, etc.) in their locations and that they needed to do practice immediately in some of the activities. Below are some of the statements by the participants on the FC environment from a student's perspective:

"I performed the activity via the videos. The videos showed me how to do it... They helped me like a guide" (S3).

"The examples shown in the videos were very helpful during our practice. I think that the Facebook group has a positive effect on our learning" (S7).

"We have easy access to the video. We have the opportunity to watch the video again when we miss something…. But it can be difficult to watch when there is any problem with the Internet connection" (S12).

"There was a connection problem while watching the videos. I rewound and watched again" (S15).

The participants were asked to evaluate the performed FC study from a teacher's perspective. As the study group consists of preservice teachers in their 4th year of education and they receive the teaching practice course, the participants were asked to make an evaluation to that end. The results of the content analysis which was performed in this context are given in Table 5.

Table 5.
Results of Content Analysis on Opinions on the FC from a Teacher's Perspective

Category Name	Theme	Codes
Opinions on the FC from a Teacher's Perspective	FC Content	Suitable for Teaching Science Short Video to Study Again Possible Answers to Questions
	Educational Benefit	Watch Again Abstract Concept Teaching Saving on time Learning Made Easy Active Participation Interesting
	Teacher Role	FC Environment Tracking Views Rate Control
	Video Features	Video Time Visuality

Table 5 demonstrates that all the participants gave opinions on educational benefits of the FC application in their class when they start duty as teachers. In frame of these opinions, the participants mainly reported that the videos lecturing the course content could enable students to listen to the subject over and over again, the videos could give a clearer description of abstract concepts in Science Course, provide more practice within a limited time period and ensure easier learning. Moreover, they stated that the FC activities were suitable for the Science Course teaching, that they could include summary videos into the course lecturing videos and that the answers to any questions which might be directed by students in the classroom could be included in the videos. Apart from the foregoing, the participants also indicated that this online environment would allow students to follow any similar future activity to be performed by these future teachers and that the number of views of such videos would be checked by them. Meanwhile, some of the participants stated that they would keep the durations of videos as short as possible

and make greater emphasis on visual appeal. Below are some of the statements by the participants on the FC environment from a teacher's perspective:

"...As a Science teacher, I think that visual items should be used to improve perception of students during lessons and to enable them to learn more easily... I am supposed to know whether all of my students have watched the videos and to organize progress of the course accordingly" (S1).

"This activity is expected to attract the attention of our students considering their age level. Science Course can be more efficient when it is practiced and experienced by children within an entertaining environment made available for them. Thus, the Flipped Classroom model can provide such opportunities more easily for children." (S7).

"It has a time saving quality. Even if the class hours end, students can watch the videos in their free time. They can watch the video over and over again…" (S10).

Discussion and Conclusion

The study aimed at examining the views of preservice teachers regarding teaching activities carried out by using the FC Model. This part contains the results achieved under the light of the findings which were obtained during the study.

The majority of the participants were seen to have negative opinions on the FC prior to the application. However, such negative opinions were seen to have been replaced by positive opinions over the course of the study. Similar results were achieved in the study performed by Turan (2015). It can be said that this basically stems from the fact that the participants are not familiar with FC environments or such environments may bring along extra workload. With regard to the FC, some of the participants reported that they were curious and excited about the FC as they would be working with it for the first time and it involved the use of technology.

At the end of the activity, the participants stated that the FC made contributions in educational terms. Such contributions were reported to include the qualities of saving time, being prepared for class, contribution to class, active student participation and reinforcement of knowledge. In this case, it may be concluded that the FC significantly contributes to a more efficient use of class hours and supports individual efforts of the student. Nevertheless, the participants also reported that communication-interaction the teacher-student and student-student was ensured on the FC environment, and activities in class hours were carried out in collaboration. The participants additionally reported that they had increased interest and motivation for the course. Similar results were achieved in other studies performed (Turan, 2015; Abeysekera & Dawson, 2015).

The participants did not convey any negative opinions on the use of Facebook as an FC environment but gave opinions on the accessibility and educational benefits offered by Facebook. In this context, it was stated that Facebook is widely used today, that it is easily accessible via mobile devices and is also easy to use. It was

also stated that the notification feature of Facebook is important for the FC. Additionally, the results contained opinions on the educational benefits of communication / interaction and sharing features on Facebook.

Upon evaluation of the FC by the participants from a student's perspective, the opinions received were mainly about the educational benefits of the FC for themselves. Such benefits were reported to include the qualities of saving time and place, more time for practice in class, the opportunity to watch the videos again and being prepared for class. Thus, it may be concluded that the FC contributes to a more efficient use of class hours and supports individual efforts of the student. Furthermore, the participants suggested that the videos viewed should be provided with interactive quality, and important points in the videos should be individually emphasized. Filiz and Kurt (2015) were seen to be supportive of this suggestion in their study. On the other hand, some of the participants stated that some of the videos were long, that they needed to do practice while watching some of the videos and they sometimes had difficulty in watching the videos due to Internet connection problems in their location. In scope of the activity, videos with durations of 3 to 20 minutes were added to the FC environment. The time lengths which were reported to be long according to the participants' statements are 16 and 20 minutes. Therefore, it is considered that the maximum time length of the videos to be prepared for activities should be 15 minutes. Similar results were seen to have been achieved in terms of time lengths of videos under a number of studies carried out (Gencer, 2015; Gaughan, 2014).

As a result of their evaluation on the FC from a teacher's perspective, the participants stated that the FC was suitable for the Science Course teaching, that the answers to any questions which might be directed by students in the classroom could be included in the videos and that summary videos should also be made available for the course lecturing videos prepared. Moreover, it was concluded that the FC provided educational benefits by contributing to saving of time in the classroom, teaching of abstract concepts in a more comprehensible manner, and easier learning. It is seen that similar results were achieved under relevant studies in the literature (Turan, 2015; Farah, 2014; Boyraz, 2014). From a teacher's perspective, the participants also stated that the FC would enable them to monitor students and to check the number of views of the videos.

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Genişletilmiş Özet

Ters Yüz Edilmiş Sınıf (TYES) genel anlamda; geleneksel olarak sınıfta yapılanın evde, ev ödevlerinin ise sınıfta yapılmasını öngören bir modeldir (Bergmann, & Sams, 2012). Modelin temelinde öğretici ders içerisinde anlatacağı konuyu videoya aktarmaktadır. Daha sonra bu videoyu internet ortamına (Youtube, Facebook ve benzeri teknolojiler üzerinden) yüklemektedir. Öğrenciler derse gelmeden önce öğreticinin yüklediği videolara çalışmakta ve anlatılacak konu öğrenimini gerçekleştirmektedir. Öğrenci derse geldiğinde, öğretici tarafından planlanan etkinlikleri yaparak videolar vasıtasıyla çalıştığı konunun uygulamasını yapmaktadır. Sonuç olarak TYES ile ders içeriği temelde videodan oluşan materyaller vasıtasıyla ders dışı saatlerde çalışılmakta, ders süresinde öğrencilerin anladıklarını ortaya koyacak ve bilginin pekiştirilmesini sağlayacak öğrenci merkezli etkinlikler yapılmaktadır (Mason, Schuman, & Cook, 2013). Burada öğretici doğrudan öğretmek yerine temel öğretim aracı olarak öğrenci merkezli yaklaşımı benimsemektedir (Bergmann, & Sams, 2012).

Türkiye'de TYES ile ilgili alan yazın incelendiğinde dünya genelinde yapılan çalışmalara göre çok az sayıda deneysel olarak gerçekleştirilmiş çalışmaya rastlanılmıştır. Öte yandan, Milli Eğitim Bakanlığı tarafından 2012 yılında başlatılan tüm eğitim kademelerinde teknolojinin bütünleştirilmesini öngören FATİH Projesi (MEB, 2012) ile TYES gibi yenilikçi eğitim modellerinin eğitim öğretim sürecine dahil edilmesi, öğretmen ve öğrencilerin görüşlerinin belirlenmesi önem arz etmektedir. Bu bağlamda geleceğin öğretmenleri olan öğretmen adaylarının TYES modeline yönelik farkındalık kazanmaları ve TYES modelini denemeleri gerekli görülmektedir. Dolayısıyla araştırmada TYES modeli kullanılarak gerçekleştirilen öğretim faaliyetlerine yönelik öğretmen adaylarının görüşlerinin incelenmesi amaçlanmıştır. Bu bağlamda TYES ortamı olarak kullanılan gizli Facebook grubu aracılığıyla ders dışı saatlerde araştırmacılar tarafından geliştirilen videolar vasıtasıyla öğretmen adayları LEGO Mindstorms EV3 ürününü nasıl kullanacaklarını öğrenmiş, ders saatlerinde herhangi bir anlatım yapılmadan LEGO ürünleri ile çalışmalar gerçekleştirilmiştir. Yapılan çalışmalar neticesinde öğretmen adaylarına TYES ortamına yönelik görüşleri sorulmuştur.

Araştırma nitel araştırma yöntemlerinden durum çalışması kullanılarak gerçekleştirilmiştir. Araştırmanın çalışma grubunun belirlenmesinde amaçlı örnekleme yöntemlerinden ölçüt örneklemesi kullanılmıştır. Ölçüt örneklemesi kapsamında öğretmen adaylarının ders dışı zamanlarda internete bağlanabilmesi, Facebook'a üyeliğini olması ya da üye olması ve her hafta belirlenen saatlerde çalışmaya tamamen gönüllü olarak katılması koşulları belirlenmiştir. Belirlenen ölçütleri sağlayan 15 Fen Bilgisi Öğretmenliği Lisans Programı 4. sınıf öğrencileri çalışma grubunu oluşturmuştur. Veri toplama aracı olarak araştırmacıların geliştirdiği 7 adet açık uçlu maddeden oluşan bir anket kullanılmıştır. Anket içerisinde öğretmen adaylarının TYES modelini ilk duyduklarındaki, TYES

çalışması başladıktan sonraki ve TYES olarak kullanılan Facebook ortamını deneyimlerine ilişkin görüşlerini almaya yönelik maddeler bulunmaktadır. Ayrıca öğretmen adaylarına gerçekleştirilen TYES çalışmasını bir öğrenci olarak değerlendirmeleri istenmiştir. Son olarak da gerçekleştirilen TYES çalışmasını bir öğretmen olarak değerlendirmeleri istenmiştir.

Araştırmanın uygulama süreci 2015-2016 akademik yılı bahar dönemi içerisinde 6 hafta süren bir çalışma ile gerçekleştirilmiştir. Dönemin başlangıcındaki ilk hafta öğrencilere bilgilendirme yapılmış ve çalışma grubu oluşturulmuştur. Devamındaki 6 haftada çalışma gerçekleştirilmiştir. 6 haftalık çalışmanın sonunda öğretmen adaylarından veriler yazılı olarak toplanmıştır. Araştırma kapsamında elde edilen verilerin analizi için içerik analizi yapılmıştır.

TYES'e yönelik ilk görüşler incelendiğinde, katılımcıların TYES ile çalışmaya büyük ölçüde olumsuz yönde önyargılı oldukları görülmüştür. Bunun dışında katılımcılar nasıl bir çalışma olacağı konusunda meraklandıklarını ve derse yönelik ilgilerinin arttığını ifade etmişlerdir. TYES ile ilgili genel görüşler incelendiğinde katılımcılar büyük ölçüde çalışmanın eğitsel yararları ile ilgili görüşler belirtmişlerdir. Bu bağlamda TYES ortamında çalışarak çalışmaya hazırlıklı geldiklerini, böylece zamandan tasarruf edildiğini ve çalışma için ayrılan sürece uygulamalar yapıldığını belirten öğrenciler bu sayede çalışmanın derse aktif katılmalarını sağladığını da görüşlerine eklemişlerdir. TYES ortamı olarak Facebook'a yönelik görüşler incelendiğinde katılımcıların tamamının Facebook grubunun kullanılmasına yönelik olumlu görüşler belirttiği görülmüştür. Bu bağlamda mobil araçlarla erişilebiliyor olması, yaygın kullanımı ve TYES'e eklenen video ve benzeri öğeler sonucunda grup üyelerine bildirim gitmesi özellikleri katılımcılar tarafından TYES'e erişime yönelik olarak ifade edilmiştir.

Katılımcıların TYES ortamını öğrenci bakış açısıyla değerlendirdiğinde büyük ölçüde olumlu yönde görüş bildirdiği görülmüştür. Olumlu görüşler kapsamında büyük oranda çalışmanın zaman ve mekan sınırlılıklarını ortadan kaldırdığı, bilgiye kolayca ulaşabildikleri, videoları tekrar izleyerek takıldıkları noktaları gözden geçirebildikleri ve sınıf içerisinde uygulama yapmak için daha fazla zaman elde ettiklerini ifade etmişlerdir. Bununla birlikte videoların etkileşimli ve video içerisinde yer alan önemli unsurların yakınlaştırılarak ya da farklı bir şekilde belirginleştirilerek vurgulanması öneri olarak belirtmişlerdir. Katılımcılardan büyük ölçüde öğretmen olduklarında TYES uygulaması yaparak derslerine eğitsel olarak yarar sağlayacağına ilişkin görüşler alınmıştır. Bu görüşler çerçevesinde ders içeriğinin video ile anlatılmasıyla öğrencilerin konuyu tekrar tekrar dinleyebileceğini, Fen Bilimlerinde yer alan soyut kavramların videolar vasıtasıyla daha rahat anlatılabileceği, kısıtlı ders süresi içerisinde daha fazla uygulama yapılabileceği ve öğrenmeyi kolaylaştıracağı katılımcılar tarafından başlıca ifade edilmiştir. Bununla birlikte TYES uygulamalarının Fen Bilimleri öğretimi için uygun olduğunu, ders anlatım videolarının yanında özet anlatım içeren videolar

koyabileceklerini ve öğrencilerin derste muhtemel soracakları soruların yanıtlarını videolara ekleyebileceklerini belirtmişlerdir.

Araştırmanın sonucunda katılımcıların büyük bir kısmının uygulama öncesinde TYES ile ilgili olarak olumsuz görüşlere sahip olduğu görülmüştür. Ancak çalışma süreci ilerledikçe bu olumsuz görüşlerin ortadan kalktığı yerini olumlu görüşlerin aldığı görülmüştür. Turan (2015) tarafından yapılan çalışmada da benzer sonuçlara ulaşılmıştır. Katılımcılar çalışma sonunda TYES'in zamandan tasarruf, derse hazırlıklı gelme, derse katkısının olması, öğrencinin aktif katılımı ve bilgiyi pekiştirme gibi eğitsel yararlarından bahsetmişlerdir. Bu durumda TYES'in büyük ölçüde ders içi zamanın daha verimli kullanılmasına ve öğrencinin bireysel çalışmasını desteklemesine yönelik katkı sağladığı sonucuna ulaşılabilmektedir. Bununla birlikte TYES ortamı üzerinde öğretmen-öğrenci ve öğrenci-öğrenci iletişiminin/etkileşiminin sağlandığı, ders içi zamanlarda gerçekleştirilen çalışmalarda iş birliği içerisinde çalışıldığı katılımcılar tarafından ifade edilmiştir. Katılımcılar Facebook kullanılması ile ilgili olarak olumsuz bir görüş belirtmemiş, Facebook'un erişim özellikleri ve eğitsel anlamda sağladığı yararlara ilişkin görüş bildirmişlerdir. Bu bağlamda Facebook'un günümüzde çok yaygın kullanıldığını, mobil cihazlardan kolayca erişilebildiği ve kullanımının kolay olduğu ifade edilmiştir. Katılımcıların birer öğrenci olarak TYES'i değerlendirmeleri sonucunda büyük ölçüde TYES'in'nin eğitsel olarak kendilerine sağlayacağı yararlara yönelik görüşlerini öne çıkmıştır. Bu görüşler zamandan ve mekândan tasarruf edildiği, ders içerisinde daha fazla uygulama süresinin olduğu, videoları tekrar izleme olanağının olduğu ve derse hazırlıklı geldikleri şeklindedir. Ayrıca katılımcılar izledikleri videolara etkileşim katılmasını ve konudaki önemli noktaların videoda ayrıca vurgulanmasını önermişlerdir. Katılımcılar birer öğretmen olarak TYES'i değerlendirmeleri sonucunda TYES'in Fen Bilimleri öğretimi için uygun olduğunu belirtmiş, ders sırasında öğrencilerden gelecek muhtemel soruların yanıtlarının videolara eklenebileceği ve hazırlanan anlatım videolarının özet videolarının da hazırlanması gerektiğini ifade etmişlerdir.