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AN ANALYTICAL STUDY RELATED LEARNING WITH FLIPPED CLASSROOM MODEL

Okan SARIGÖZ

Mustafa Kemal University, Faculty of Education, Department of Educational Sciences

okansarigoz@mku.edu.tr

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Abstract

The Flipped Classroom Model is a student-centered learning model in which students effectively assimilate subjects in the classroom, where they often perform their learning out of school with materials such as narrative, film, presentation, or video. The purpose of this study is to examine the effect of the Flipped Classroom Model on the academic success of prospective teachers. Experimental pattern model with pretest-posttest control group was used in the study. One experimental and the other control group were determined for the study. The study group of the investigation is the second grade students who study at the Department of Elementary Teacher Education in Mustafa Kemal University Faculty of Education in 2016-2017 academic years. The study lasted for six weeks. An achievement test was developed previously by the researcher and the developed achievement test was applied twice to the groups as pre-test and post-test for the study. Studies of the validity and reliability of the success test that is used in research was determined and value of KR-20 that is the reliability coefficient of the test containing 25 matters was calculated as 0.83. *As a result of the research,* the academic achievement of all the students who are studying according to both the traditional education system and the Flipped Classroom Model improved. However, the academic achievement of the students who are studying according to Flipped Classroom Model improved more than the academic achievement of students who are studying according to the traditional education system.

Keywords: *Inverted Classroom Model, Flipped Classroom Model, Transformed Learning Model, Inverse Education Model, Exchanged Learning Model*

TERS YÜZ EDİLMİŞ SINIF MODELİ İLE ÖĞRENMEYE İLİŞKİN ANALİTİK BİR ÇALIŞMA

Özet

Ters Yüz Edilmiş Sınıf Modeli, öğrencilerin daha önceden hazırlanmış olan anlatı, film, sunum veya video gibi materyaller yardımıyla öğrenmelerini çoğunlukla okul dışında gerçekleştirdikleri sınıfta ise konuları etkili bir şekilde özümsedikleri

öğrenci merkezli bir öğrenme modelidir. Bu araştırmanın amacı, Ters Yüz Edilmiş Sınıf Modelinin öğretmen adaylarının akademik başarısına olan etkisini araştırmaktır. Araştırmada öntest-sontest kontrol gruplu deneysel desen modeli kullanılmıştır. Araştırma için biri deney diğer kontrol grubu olmak üzere iki grup belirlenmiştir. Araştırmanın çalışma grubunu 2016-2017 öğretim yılında Mustafa Kemal Üniversitesi Eğitim Fakültesine bağlı Sınıf Öğretmenliği bölümünde okuyan 2. sınıf öğrencileri oluşturmaktadır. Çalışma 6 hafta sürmüştür. Çalışma için araştırmacı tarafından daha önceden bir başarı testi geliştirilmiş ve geliştirilen başarı testi gruplara öntest ve sontest olmak üzere ikişer defa uygulanmıştır. Araştırmada kullanılacak olan başarı testinin geçerlik ve güvenirlik çalışmaları yapılmış ve 25 maddeden oluşan testin güvenirlik katsayısı olan KR-20 değeri 0.87 olarak hesaplanmıştır. Araştırma sonucunda, hem geleneksel eğitim sistemine göre hem de ters yüz edilmiş sınıf modeline göre ders işleyen tüm öğrencilerin akademik başarıları artmıştır. Ancak ters yüz edilmiş sınıf modeline göre ders işleyen öğrencilerin akademik başarıları geleneksel eğitim sistemine göre ders işleyen öğrencilere oranla daha fazla artmıştır.

Anahtar Kelimeler: *Ters Yüz Edilmiş Sınıf Model, Flipped Classroom Model, Dönüştürülmüş Öğrenme Model, Tersine Eğitim Model, Çevrilmiş Öğrenme Model*

1. Introduction

In today's educational system, which is increasingly anticipated from education and blended with technology especially with student-centered methods, educators are trying to determine or establish the most effective learning approach. Many educators have the same view that education should be done individually, especially because individuals are different from each other in terms of learning style. All educators thought active learning models in the case of individual stand-alone learning models. Many active learning models are intended to provide student knowledge at school and on an individual basis. However, there are active learning models that are beyond traditional understanding. One of these models is the *Flipped Classroom Model* (Kardaş & Yeşilyaprak, 2015; Baker, 2000; Demiralay & Karataş, 2014; Lage, Platt & Treglia, 2000), *Transformational Learning Model* (Akkoyunlu & Gündüz, 2015), *Lesson at School Learning at Home Model* (Demiralay & Karataş, 2014), *Blended Learning Model* (Turan & Göktaş, 2015), *Flipped Classroom Model* (Gençer, Gürbulak & Adıgüzel, 2014; Torun & Dargut, 2015; Şahin & Şahin, 2016; Filiz & Kurt, 2015; Gençer, 2015; Turan, 2015; Bolat, 2016) also called *Inverse Learning Model* (Boyraz, 2015).

According to some researchers, Flipped classroom learning model was first put forward by the academics in the field of Social Sciences who had a lot of reading assignments at Miami University (sociology, psychology, philosophy, law etc.) (Gençer, 2015; Lage, Platt & Treglia, 2000). According to some other researchers, the model is the same as the Inverted Classroom Model, which is addressed to all learning styles, including different educational resources, where the multimedia is

commonly used by Lage, Platt & Treglia in the Economics Introductory course at Miami University (Kara, 2016). Although the names on the models are different, according to Kara (2016), both models have the same characteristics. According to Temizyürek & Ünlü, (2015), inverted classes were first conceptually presented with the presentation of J. Wesley Baker as an international conference on learning and teaching in 2000. According to some researchers, the model started to be heard by other academics or circles just after recorded and broadcasted in online lecture courses for students who missed chemistry classes by Jonathan Bergmann and Aaron Sams who was a teacher at Woodland Park High School in 2007 (Arnold-Garza, 2014; Şahin & Şahin, 2016; Talbert, 2012: 1).

According to Bristol (2014), the Flipped Classroom Model is a learning model that reverses the traditional educational process, in which learners view video lessons at the beginning of the lesson especially at home, execute their learning experiences, and internalize subject with various activities in class. According to Yıldız, Kıyısı & Altıntaş, (2016), Flipped Classroom that is a blended learning process in which the traditional education concept which is centered on teachers and bounded by class walls is reversed. According to Abeysekera & Dawson (2014), unlike traditional course work, the model is a teaching approach that changes the location and timing of lectures and homework, allowing students to work more collaboratively and practice their learning. According to Younking, (2014), the Flipped Classroom Model is an approach that reverses the learning, allows students to encounter in presentation materials with various communication and instructional technologies, such as videos or different digital media before class and classroom time is spent with discussion, analysis and problem solving activities.

According to Serçemeli (2016), Flipped learning approach is one of the new approaches which are thought to be able to overcome the problems and deficiencies of the current education system. According to Cockrum (2014), although it takes time to prepare, Flipped Classroom Model allows teachers to improve transformative experiences, create flexible instructional strategies, and make lessons interesting for their students.

Learning usually takes place under teacher control, in schools, or in classrooms in many learning or teaching methods (Özkartal, 2016). Students reinforce what they have learned in school by doing a general repetition when they go home, or repeating subjects while doing homework given by the teacher (Özkartal, 2013-2015). In the Flipped Classroom Model, which was developed based on the constructivist learning approach, contrary to the traditional learning approaches, the place and time of the lectures and home-works were changed and the videos prepared for the students are given at the beginning of the lesson, thus cooperative learning front so that they are allowed to can practice at home and practice with the group and assimilate the topic in class (Davies, Dean & Ball, 2013; Balaman, 2015; Strayer, 2012; Doğanay & Yüce, 2010; Bergman & Sams, 2012; Hali, 2014; Mull, 2012; Abeysekera & Dawson, 2014; Bolat, 2016; Bristol, 2014).

According to Bishop & Verleger (2013), Flipped Classroom Model consists of in-class and out-of-class learning activities. Individual and group learning activities are included in class and individual computer-based learning activities are included out of classroom.

There are some characteristics that distinguish Flipped learning from classical learning models. According to Bolat (2016), some of these characteristics are; independence of the learning from the classroom, in the classes as where the wrong or missing learning is corrected, the active use of computers, the internet, online networks and software, and the shifts in work in the classroom and at home (Dönger, 2016a-2016b). Moravec, Williams, Aguilar-Roca, & O'Dowd, (2010), compared the traditional model and Flipped Classroom Model as you see in this comparison;

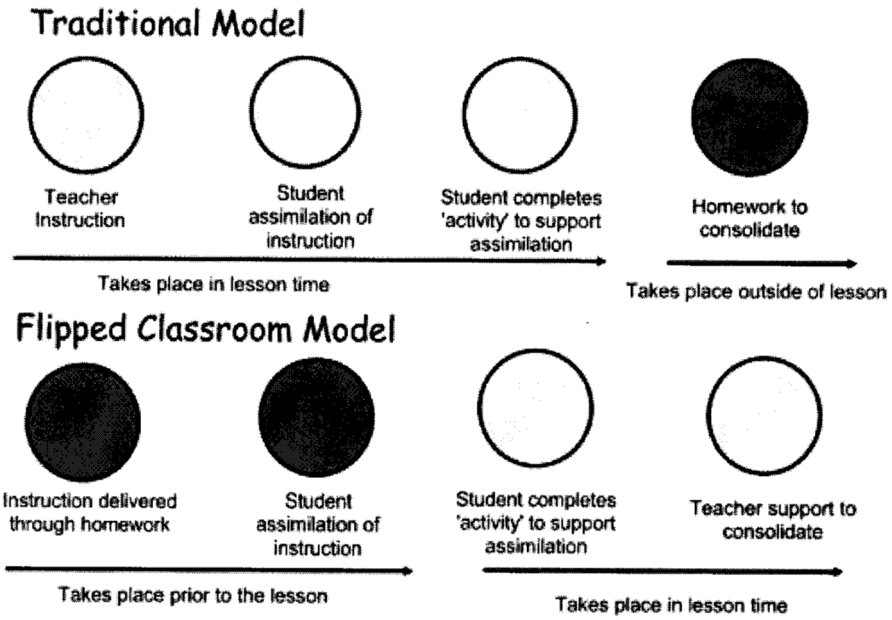

Figure 1: A Comparison Between The Traditional And Flipped Classroom Models (Moravec, Williams, Aguilar-Roca & O'Dowd, 2010)

While learning related subject is coordinated by the teacher from the beginning and based on information transfer and the student is informed at the last step of the learning phase in the traditional learning models, the student in the Flipped Classroom Model works and learns subject onwards the first step and reviews topics at two steps left. Furthermore, according to Geçer, Gürbulak & Adıgüzel (2014: 882), students in the Flipped Classroom Model receive basic information with out-of-class lectures, reading and other resources, and working with challenging and high level cognitive activities in the classroom is required differently from traditional teaching systems.

2. METHOD

2.1. Research Question

Does the lessons which are teached with Flipped Classroom Model differentiate the academic success of teacher candidates?

2.2. Purpose of the Research

The goal of this study is investigating whether the Flipped Classroom Model differentiate the academic success of teacher candidates studying at the faculty of education or not. Based on the data obtained from the research and the interviews with the prospective teachers, some suggestions about the Flipped Classroom Model will be tried to be introduced.

2.3. Population and Sample

All the students who study at the programs affiliated to the Faculty of Education in Mustafa Kemal University is the population of this research and the second grade students who study at the Department of Elementary Teacher Education in Mustafa Kemal University Faculty of Education is the sample.

2.4. Research Model

In this research it was attempted to determine effects of Flipped Classroom Model on the teacher candidates studying at the faculty of education. An achievement test was prepared for the students studying in the second grade and the developed achievement test was applied to the students twice as pre-test and post-test for this purpose in order to measure academic success of teacher candidates. Studies of the validity and reliability of the success test that is used in research was calculated and the items with the substance discrimination index of less 0.20 in the test questions are removed from the test, and then value of KR-20 that is the reliability coefficient of the test was calculated as 0.83 and a test consisting of 25 items was obtained. In the research, experimental pattern model with pretest-posttest control group was used. According to Karasar (2010: 97), two groups with pretest-posttest control group model are formed with neutrality assignment, one of these groups is called as experimental group and the other is called control group and both groups are measured at the beginning and end of research.

3. RESULTS

In this section, achievement levels of the teacher candidates who study at the department of education in the faculty of education on Flipped Classroom Model and findings about the research are also included. In the study, an achievement test was administered twice at the beginning and at the end of the study, and the responses of the teacher candidates to the achievement test were tabulated and interpreted.

Table 1: *The Results of the t-test Analysis of the Relationship Between the Pre-Test Data of the Experimental Group and the Control Group Pre-Test Data of Students Participating in the Study*

Groups	N	$\bar{X}$	Ss	Sd	-t	P
1. Experimental group pre-test	34	25.71	7.803	66	.834	.407
2. Control group pre-test	34	27.35	8.460			
Total	68					p>0.05

As the data in Table 1 were examined, it was found that there was no statistically significant difference between the experimental group pre-test data and control group pre-test data obtained by the scores of students who participated in the achievement test in order to determine the levels before the research started (p>.05). This result indicates that the experimental group and the control group students have equal academic levels before they started the research.

Table 2: *Results of the t-test Analysis of the Relationship Between the Pre-Test Data of the Experimental Group and the Post Test Data of the Experimental Group of the Students Participating in the Study*

Groups	N	$\bar{X}$	Ss	Sd	-t	P
1. Experimental group pre test	34	25.71	7.803	66	18.698	.00
2. Experimental group post test	34	68.53	10.838			
Total	68					p<0.05

As the data in Table 2 were examined, it was found that there was a significant difference between the experimental group pre-test data and experimental group posttest data in favor of the experimental group post-test data obtained by scores of the students participated in the research which they gave achievement test to determine the levels before and after the investigation, (p<.05). This result indicates that the students in the experimental group had higher levels of academic knowledge at the end of the research.

Table 3: *Results of the t-test Analysis of the Relationship Between Control Group Pre-Test Data and Control Group Post-Test Data of the Students Participating in the Study*

Groups	N	$\bar{X}$	Ss	Sd	-t	P
1. Control group pretest	34	27.35	8.460	66	10.226	.00
2. Control group post test	34	56.18	14.092			
Total	68					p<0.05

As the data in Table 3 were examined, it was found that there was a significant difference between the control group pre-test data and the control group post-test data and in favor of the post-test data obtained by scores of the students participated in the research which they gave achievement test to determine the levels before and after the investigation, (p<.05). This result indicates that the control group students' academic knowledge levels increased at the end of the research.

Table 4: *Results of the t-test Analysis of the Relationship Between the Experimental Group Post-Test Data and Control Group Post-Test Data of the Students Participating in the Study*

Groups	N	$\overline{X}$	Ss	Sd	-t	P
1. Experimental Group posttest	34	68.53	10.838	66	4.052	.00
2. Control Group post test	34	56.18	14.092			
Total	68					p<0.05

As the data in Table 4 were examined, it was found that there was a significant difference between the experimental group post-test data and control group post-test data and in favor of experimental group post-test data obtained by scores from the students participated in the research which they gave achievement test which determines the levels before and after the investigation, (p<.05). This result indicates that students in the experimental group had a higher level of academic knowledge at the end of the study compared to the control group.

4. CONCLUSION AND DISCUSSION

An achievement test was applied to the experimental group and the control group before starting the research, and on both of the groups, it was searched for determine the success at the beginning of the study. As a result of the analyzes, the responses of the experiment group and the control group to the achievement test were analyzed and it was found that the levels of the groups were close to each other.

In the analysis of the pre-test data of the experimental group and the post test data of the experimental group, it was found that the achievement of the students increased so there was a significant difference in favor of the experimental group post-test. This indicates the success of education with Flipped Classroom Model. Therefore, it has been reached that Flipped Classroom Model has raised the student's success to the expected level from the data of the research.

In the analysis of the pre-test data of the control group before starting the research and the post-test data of the control group at the end of the research, it was found that the achievement of the students increased so there was a significant difference in favor of the control group post-test. This result indicates the success of the education that the students have taken according to the traditional education

model. Thus, it has been reached that the traditional model in the research has raised the student's success but failed to raise it to the expected level from the data of the research. It can be said that the success of the students in the courses which are taught by the traditional method has increased. However, student-centered, modern and contemporary methods that have emerged as an alternative to traditional methods increase the success of students even more. Therefore, the education given to the students should be in accordance with the new modern and contemporary teaching models in terms of being more productive as well as increasing the achievements of the students by reducing the forgetfulness of them.

It was found that the success level of experimental group students higher than the control group students from the results of analyzes related responses of students to the achievement test after the research. This result indicates that the success of the students in the courses taught with the Flipped Class Model is higher than the success of the students in the courses taught according to the traditional method. Therefore, it will be more appropriate to teach lessons based on the Flipped Classroom Model.

Flipped Classroom Model is a method that has been used in many countries. For this reason, implementation must begin as soon as possible in our country. It can be said that this method will be beneficial for both teachers and students especially in terms of preventing the loss of time in the lessons that the students can easily understand based on this research.

Moreover, it has been found that students remarked that Flipped Classroom Model encouraged them to investigate, learning was more entertaining, they learned new things while researching, this model can reduce forgetfulness and this model was especially effective in helping and increasing achievement. Therefore, both the schools affiliated to the Ministry of Education and the courses given in university education should be given in accordance with the Flipped Classroom Model.

Students also stated that they could watch the course materials given by the teachers, especially video recordings repeatedly and thus both the teaching technologies and especially the video recordings make it easy to learn. Therefore, students had opportunity to reinforce the topics, make the subject repetition and re-learn the parts where they forgot thanks to watching the instruction videos over and over again. Due to these reasons, lessons should be taught according to the Flipped Classroom Model.

Moreover, if Flipped Classroom Model is used in all courses, the curriculums of all courses should either be reprogrammed or the curricula should be rearranged by changing the necessary parts in the curriculum of all courses.

REFERENCEES

Abeysekera, L. & Dawson, P. (2014). Motivation and cognitive load in the Flipped Classroom: Definition, rationale and a call for research. *Higher Education Research & Development,* 34(1), 1-14.

Akkoyunlu, B. & Gündüz, A. Y. (2015). Dönüştürülmüş (Flipped) sınıflar uygulaması: Bir ders örneği. *5. Uluslararası Öğretmen Yetiştirme Siyaseti ve Sorunlar Sempozyumu Bildiriler Kitabı,* (30 Nisan-2 Mayıs), Bakü, Azerbaycan. (s. 211-220).

Arnold-Garza, S. (2014). The Flipped classroom teaching model and its use for information literacy instruction. *Communications in Information Literacy*, 8(1), 7-22.

Baker, J. W. (2000). The classroom Flip: using web course management tools to become the guide by the side. In Jack, A. (Ed.) Jacksonville, FL, US, Florida Community College at Jacksonville, 2000, (pp. 9 – 17). Selected Papers from the 11th International conference on College Teaching and Learning.

Balaman, F. (2015). Analyzing the attitudes of vocational school students' computer aided education based on different variables. *Adıyaman University Journal of Educational Sciences,* 5(2), 190-210.

Bergmann, J. & Sams, A. (2012). Flip your classroom: Reach every student in every class every day. Alexandria, VA: International Society for Technology in Education, ASCD.

Bishop, J. L. & Verleger, M. A. (2013). The Flipped classroom: A survey of the research. 120th ASEE Annual Conference & Exposition (pp. 1-18). Atlanta, GA.

Bolat, Y. (2016). Ters yüz edilmiş sınıflar ve eğitim bilişim ağı. *Journal of Human Sciences,* 13(2), 3373-3388.

Boyraz, S. (2015). *İngilizce öğretiminde tersine eğitim uygulamasının değerlendirilmesi.* Yayımlanmamış Yüksek Lisans Tezi. Afyon Kocetepe Üniversitesi Sosyal Bilimler Enstitüsü, Afyonkarahisar.

Bristol, T. J. (2014). Educate, excite, engage. *Teaching and Learning in Nursing*, 9, 43-46.

Cockrum, T. (2014). Flipping your English class to reach all learners: Strategies and lesson plans. New York: Routledge.

Davies, R. S., Dean, D. L. & Ball, N. (2013). Flipping the classroom and instructional technology integration in a college-level information systems spread sheet course. *Educational Technology Research and Development,* 61(4), 563–580.

Demiralay, R. & Karataş, S. (2014). Evde ders okulda ödev modeli. *Eğitim ve Öğretim Araştırmaları Dergisi,* 3(3), 333-340.

Doğanay, A. & Yüce S. G. (2010). Öğrencilerin düşünme becerilerinin geliştirilmesinde rehberli yardım: Bir öğretmenin sözel ifadelerinin analizine ilişkin durum çalışması. *Kuram ve Uygulamada Eğitim Yönetimi,* 16(2), 185-214.

Dönger, A. (2016a). Ortaöğretimde Okuyan Öğrencilerin Yabancı Dil Kaygısı. VIII. Uluslararası Eğitim Araştırmaları Kongresi, 5-8 Mayıs, Çanakkale 19 Mart Üniversitesi, Çanakkale.

Dönger, A. (2016b). Eğitim Fakültesinde Okuyan Öğrencilerin Yabancı Dilin Gerekliliğine İlişkin Görüşleri. VIII. Uluslararası Eğitim Araştırmaları Kongresi, 5-8 Mayıs, Çanakkale 19 Mart Üniversitesi, Çanakkale.

Filiz, O. & Kurt, A. A. (2015). Ters-yüz öğrenme: Yanlış anlaşılmalar ve doğrular. *Eğitim Bilimleri Araştırmaları Dergisi,* 5(1), 215-229.

Gençer, B. G. (2015). *Okullarda ters-yüz sınıf modelinin uygulanmasına yönelik bir vaka çalışması.* Yayımlanmamış Yüksek Lisans Tezi. Bahçeşehir Üniversitesi Eğitim Bilimleri Enstitüsü, İstanbul.

Gençer, B. G., Gürbulak, N. & Adıgüzel, T. (2014). A new approach in learning and teaching: The Flipped Classroom. In A. C. Ilhan, A. Isman, C. Birol & A. Eskicumali (Eds.), Proceedings of International Teacher Education Conference (pp. 881-888).

Hali, S. (2014). Tarih öğretimi ve ders kitapları. *Gazi Osman Paşa Üniversitesi Uluslararası Türk Eğitim Bilimleri Dergisi,* Ekim Sayısı, 158-166.

Hali, S. & Bolat, Y. (2016). History teaching based on the fundamental sources of Turkish culture. *Journal of Human Sciences*, 13(3), 5772-5785.

Kara, O. (2016). Ters yüz sınıf. *Tıp Eğitimi Dünyası,* 45, 12-26.

Karasar, N. (2010). Bilimsel araştırma yöntemi. Ankara: Nobel Yayın Dağıtım.

Kardaş, F. & Yeşilyaprak, B. (2015). A current approach to education: Flipped learning model. *Ankara University Journal of Faculty of Educational Sciences,* 48(2), 103-121.

Lage, Maureen J. Platt, Glenn J. & Treglia, Michael. (2000). Inverting the classroom: A gateway to creating an inclusive learning environment. *The Journal of Economic Education,* 31(1), 30-43.

Moravec, M., Williams, A., Aguilar-Roca, N. & O'Dowd. D. K. (2010). Learn before lecture: a strategy that improves learning outcomes in a large introductory biology class. *CBE Life Sci Educ*, 9, 473-481.

Mull, B. (2012). Flipped learning: A response to five common criticisms. November Learning. http://novemberlearning.com/resources/articles/flippedlearning-a-response-to-fivecommoncriticisms-article. Adresinden 15.03.2017 tarihinde alınmıştır.

Özkartal, M. (2015). Turkish Mythology and Its Place in Education of Art. *International Journal of Turkish Education Sciences,* 3(5), 83-98.

Özkartal, M. (2013). Variability of Students' Achievements and Attitudes towards Turkish Legends and Epics in Visual Arts Course at Primary Schools. *International Journal of Social Sciences,* 1(1), 1-14.

Özkartal, Z. (2016). Sınıf Öğretmenlerinin İlköğretimde Verilen Sanat Eğitimine Yönelik Analitik Bir Çalışma. XV. Uluslararası Sınıf Öğretmenliği Eğitimi Sempozyumu, 11-14 Mayıs, Muğla Sıtkı Koçman Üniversitesi, Muğla.

Serçemeli, M. (2016). Muhasebe eğitiminde yeni bir yaklaşım önerisi: ters yüz edilmiş sınıflar. *Muhasebe ve Finansman Dergisi,* Sayı: Ocak, 115-126.

Sever, G. (2014). Bireysel çalgı keman derslerinde çevrilmiş öğrenme modelinin uygulanması. *Eğitimde Nitel Araştırmalar Dergisi,* 2(2), 27-42.

Strayer, J. F. (2012). How learning in an inverted classroom in fluencies cooperation, innovation and task orientation. *Learning Environments Research,* 15(2), 171–193.

Şahin, S. & Şahin, Z. (2016). Flipped classrooms and new generation education digital student coaching. *International Journal of New Trends in Arts, Sports & Science Education,* 5(4), 13-19.

Temizyürek, F. & Ünlü, N. A. (2015). Dil öğretiminde teknolojinin materyal olarak kullanımına bir örnek: Flipped classroom. *Bartın Üniversitesi Eğitim Fakültesi Dergisi,* 4(1), 64 – 72.

Torun, F. & Dargut, T. (2015). Mobil öğrenme ortamlarında ters yüz sınıf modelinin gerçekleştirilebilirliği üzerine bir öneri. *Adnan Menderes Üniversitesi Eğitim Fakültesi Eğitim Bilimleri Dergisi,* 6(2), 20-29.

Turan, Z. (2015). *Ters yüz sınıf yönteminin değerlendirilmesi ve akademik başarı, bilişsel yük ve motivasyona etkisinin incelenmesi.* Yayımlanmamış Doktora Tezi, Atatürk Üniversitesi, Erzurum.

Turan, Z. & Göktaş, Y. (2015). Yükseköğretimde yeni bir yaklaşım: Öğrencilerin ters yüz edilmiş sınıf yöntemine ilişkin görüşleri. *Yükseköğretim ve Bilim Dergisi,* 5(2), 156-164.

Yıldız, D. G., Kıyıcı, G. & Altıntaş, G. (2016). Ters yüz edilmiş sınıf modelinin öğretmen adaylarının eleştirileri ve görüşleri açısından incelenmesi. *Sakarya University Journal of Education*, 6(3), 186-200.

Youngkin, C. A. (2014). The Flipped Classroom: Practices and opportunities for health sciences librarians. *Medical Reference Services Quarterly,* 33(4), 367-374.