

## FLIPPED CLASSROOM MODEL IN EDUCATION

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**ABSTRACT:** Today, the traditional classroom model teaching approaches in which learners are not active and teacher control everything is found insufficient by the educators. The effect of change in information and technology is seen in education field, too. In our world in which the only unchanging thing is change, the meaning of concepts such as education, teachers, learner, learning process are changing and as a result the expectation of learners from learning process varies. Consequently, different teaching models which respond the expectations of learners whose expectations differ are needed. One of these models is “Flipped Classroom Model” which started to spread recently. In this model, the effective use of out-of-class time is seen. In such a way that, the teaching in the classroom is presented to learners out of class, it is defined as carrying out the homework and activities, which are expected to be taught out of class because learners need teachers, in the classroom. For this purpose, this study aims to give information about emergence, development process, basis and procedures of Flipped Classroom Model and also reveal unknown aspects of model through discussing effects, advantages and disadvantages in company with literature.

### INTRODUCTION

There have been important changes in education system up to now and these changes are still going on. Many different methods and models are used during the transition process of learning approaches from the approaches that centralize teacher to the ones that centralize students. A model enabling students reach the contents individually, have an active role and follow according to individual interest areas is initially preferred with contribution of rapid changes in technology today (Bishop & Verleger, 2013).

Changing living conditions, increasing economic pressures, globalization and business life impacts, technological developments and accordingly facilitating the access to information have shown that traditional teaching models are insufficient and led to a situation in which the expectations from education differ. The generation, today, is called “millennial generation” (Wilson, Gerber, 2008) or “digital natives” (Prensky, 2001). When compared to previous generations, millennium generation has more access to technology, information and digital media. For that reason, on the contrary to previous generations, the millennium generation show less tolerance towards learning processes based on lecturing (Roehl, Reddy, Shannon, 2013). This situation has uncovered obligations to create learning environment for individuals towards making them question, use technology effectively and have high level thinking skills (Tezci and Perkmén, 2013).

In recent years, the learning concept which is expressed in various ways such as “Flipped Classroom” and “Inverted Classroom” (Baker, 2000; Lage, Platt & Treglia, 2000) in international studies and “Ters-Yüz Sınıf Modeli” (Gençer, Gürbulak and Adıgüzel, 2014; Sırakaya and Özdemir, 2014), “Çevrilmiş Öğrenme Modeli” (Sever, 2014) or “Evde Ders Okulda Ödev” (Demiralay, 2014) in Turkish, partly surpass the borders which are built by learning environments.

### What is FLIPPED CLASSROOM?

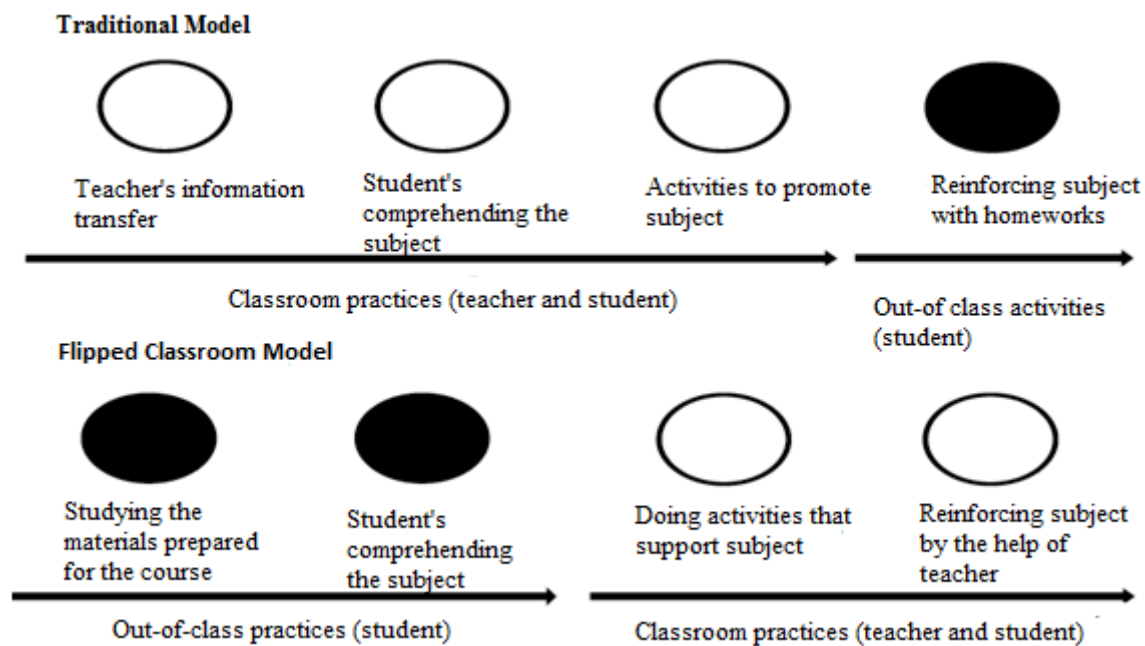
A learning model which is called Flipped Classroom and translated into Turkish as “Ters yüz Öğrenme” has emerged recently. The term flipping in Flipped Classroom is used to define the interchange of homework and classroom activities (Ash, 2012). The term “Flipped Classroom” was first emerged at an international conference on learning and teaching by J. Wesley Baker that he used it in his article “*The classroom flip, using web course management tools to become the guide by the side*” in 2000. In pursuit of this study, Lage and his friends did a study using a similar term called “*The Inverted Classroom*”

Flipped classroom model is a part of a broad educational movement which covers the blended learning, inquiry-based learning and other educational approaches and the tools that integrate flexible, efficient learners (Johnson, Becker, Estrada and Freeman, 2014). Besides, it is also a model which contributes to make learners take their own learning responsibilities (Fulton, 2012). Flipped classroom model provide an environment which include Project based or real world practices for learners in order to learn the subject better at class time. The learner realizes

learning watching course videos, listening podcasts, reaching e-books and meeting with peers online instead of getting information presentation from teacher at class time. Learners can reach to these broad sources any time they needed. So that, the teacher can spend more time to interact with each individual. The main goal is to provide learners a more authentic learning (Johnson, Becker, Estrada and Freeman, 2014).

The flipped classroom model approach was first seen under the name of inverted classroom in the study of a group of professors at Miami University (Lage et al., 2000; 30-43). In literature, this approach was used as inverted classroom then it was used as flipped classroom. The flipped classroom concept was first used and practiced by Jonathan Bergmann and Aaron Sams working at University of Northern Colorado (Talbert, 2012; 1). These two chemistry educators realized that students need teachers more while they are doing their homework not while they are taught and they recorded course videos for the students who could not Show up in the class in order to make them watch these videos and use the classroom to discuss the subjects and do other activities. After that, this method started to be noticed (Bergman and Sams,2012).

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**Figure 1.** Comparison of Traditional Education Model and Flipped Classroom Model (Moravec et al, 2010)

As it is shown in the figure, we see that the places of classroom practices are changed out-of-class practices in flipped classroom model. In flipped classroom model, educator is no longer a direct person to educate, use different Technologies and provide flexible learning to students one by one or as a group. Teacher discusses the subjects that are not understood well by the students and reinforce the subject with different activities (Hamdan et al., 2013; 4).

In flipped classrooms students watch lesson videos at any computer, from their tablets, smart phones or from different media players at any time as they want. They bring their homework to the classroom and participate actively to learning process (Knewton.com, 2011). Flipped classroom approach does not eliminate the education in the class directly. On the contrary, this approach maximizes the time spend for each student instead of spending time for all students at once (Hamdan et al., 2013; 15).

Flipped (inverted) classroom which is defined as changing the place of classroom practices and out of class practices (Lage, Platt, & Treglia, 2000) is described as a popular pedagogical approach in science, math and other lessons. Flipped classroom model provide an environment which include Project based or real world practices for learners in order to learn the subject better at class time. The learner realizes learning watching course videos, listening podcasts, reaching e-books and meeting with peers online instead of getting information presentation from teacher at class time. Learners can reach to these broad sources any time they needed. So that, the teacher can spend more time to interact with each individual. The main goal is to provide learners a more authentic learning (Johnson, Becker, Estrada and Freeman, 2014).

The reason why flipped classroom is preferred is that teacher has the chance to spend more time on classroom activities and to correct the problems with classroom activities. In this way, even in crowded classes success can be achieved. Thus, the result of researches literature also supports this. The superior sides of flipped classroom model to traditional classroom practices are given in table which was created by Bergmann and Sams (2012).

**Table 1.** Comparison of Traditional Education Model and Flipped Classroom Model  
(Bergmann and Sams, 2012)

| <i>Traditional Classroom</i>                      |                  | <i>Flipped Classroom</i>                          |               |
|---|------------------|---|---------------|
| <i>Activity</i>                                   | <i>Time</i>      | <i>Activity</i>                                   | <i>Time</i>   |
| <i>Warm-up activity</i>                           | <i>5 min</i>     | <i>Warm-up activity</i>                           | <i>5 min</i>  |
| <i>Going over homework</i>                        | <i>20 min</i>    | <i>Question and answer activity</i>               | <i>10 min</i> |
| <i>Presentation of new content</i>                | <i>30-45 min</i> | <i>Guided and independent practice activities</i> | <i>75 dk</i>  |
| <i>Guided and independent practice activities</i> | <i>20-35 min</i> |   |               |

The superior sides of flipped classroom to traditional classroom are especially about realizing more effective activities. In the light of information given in Table 1, it is seen they the activities in flipped classrooms are 40-55 minutes more than traditional classroom. This proves that it provides permanent learning. However, before applying this model, a good planning is important. Miller (2012) states that there are five basic factors that should be considered while planning flipped classroom model (Karadeniz, 2015).

**1-Meaningful Content:** The teacher should determine and take into consideration the content that will be saved. The reasons that the related content is necessary for the exam or will be used after graduation may not take attention of student. In this context, content should be creative and meaningful that increase the awareness feeling of student and also can be used in real life.

**2- Attention Grabbing Models:** while preparing a meaningful content, how the student will use this content is also important. Student should turn the acquired content into experience in classroom environment. Accordingly, while designing the classroom activities, some models such as problem-based learning, game-based learning, group interactive learning and project-based learning should be benefited.

**3- Technology:** Fort he flipped classroom model the technology used is also important. Teacher should have analyzed well which technology will be more effective during learning process and which ones will prevent this. During this process, teacher should consider many factors such as which media could be used to play the video, whether it supports mobile technology or not, the size and quality of video.

**4- Reflection:** teacher should have an expectation for each video prepared for students. Teacher should expect students be aware of the things they learned, transfer and adapt their knowledge in the scope of the video they watched. If reflection is not a planned fact within the scope of general structure, it will be a wrong attitude to expect flipped classroom be successful. It is important to improve the high-level skills of students and make them deal with contents and activities that can be reflected towards goal of courses.

**5- Time and Place:** Expecting students to watch videos as homework and not supporting them through this period may not be adequate. Thinking that not all the students may have same opportunities may lead to a way to design a structure which can support students at out of class activities. Another important point is that, students should be provided an appropriate time and place to watch videos. Thus, students will be able to watch videos in an appropriate environment under their control at a time span they want.

Shortly, the schools are given the mission to reach modern societies with modern philosophical approaches. The schools which have this mission are expected to turn into life centers which support cooperative learning and focus on problem solving and learning on learning skill in order to have an active role during learning process of students.

Apart from this, it is stressed that some models should be used while actualizing this duty. The first one is flipped classroom that started to be used at schools. The basic hypothesis is that students learn the subject that will be taught in the class before lesson through videos so that teacher have more time for supportive activities and practices (Tucker, 2012). The real reasons of using flipped classroom are its being student-centered, creating a learning environment which use activities towards research, creativity and problem solving, turning classroom into a laboratory or a studio changing the role of teacher from giving information also the student from just learning, converting them into individuals, in brief, bringing a “constructivist” understanding (Aybat, 2013). Flipped Classroom Model consists of also some concepts such as Constructivist Approach, Research-Based Methods, Active Learning and Student-Centered Learning (Amber, 2013).

### **Principles and Practices of the Model**

Many different approaches and practice styles of this model are being used. While the content of classes are recorded for students to make them watch the videos as homework out of class, in some practices these videos are watched in classrooms. In a different practice, different sources are advised to students according to their individual learning needs instead of making them watch videos and they are expected to benefit from these sources preferably (Ash, 2012).

Bergmann and Sams who wrote the book “Flip Your Classroom: Reach Every Student in Every Class Every Day” published in 2012 and practiced one of these learning methods for the first time had made some changes in their model after their study in 2006. According to this change, they developed “Current Approach in Education and Teaching: Technology Assisted Flexible Learning” “Flipped Mastery Model” over traditional Flipped Learning model. In this developed new model, students are not forced to watch video. Instead of this, students are given directions which include reading texts, videos and different sources related to course subjects and course goals. Student benefit from the sources given in accordance with his learning style and needs, also join the tests and exams according to his learning ability independent form class.

According to Chen and his friends (2014) even if many “Flipped” learning models are developed, the focus of each are different. As a result, while traditional “Flipped” Learning model by Khan Academy and “Flipped Mastery Model” by Bergmann and Sams (2012) focus on transferring content to students, Gerstein (2011) work on learning cycle of “Flipped Classroom Model”, Staker and Horn (2012) concentrate on physical and virtual dimensions (Chen et al., 2014). Chen et al. (2014) who think that these approaches are inadequate in determining the numbers of sub dimensions purposed a more comprehensive model for higher education. In this model called FLIPPED, each letter symbolizes subscales. According to this;

**F-** Flexible Environments

**L-** Learner-Centered Approach

**I-** Intentional Content

**P-** Professional Educators

**P-** Progressive Networking Learning Activities

**E-** Engaging and Effective Learning Experiences

**D-** Diversified and Seamless Learning Platforms

This new model had been applied in some fields such as nursing, engineering, mathematics, physics, biology, chemistry education and its effectiveness was proved with different study findings. It was proved with the practice by Bergmann and Sams (2008) and Baepler, Walker, Driessen (2014) that this new model had a positive effect on student success in the field of chemistry education. Gaughan (2014) used this method in history classes and stressed that model is more successful, students follow up course materials regularly and they got ready for class. Turan (2015) who used this method for students of preschool education and stated that the when compared to traditional model, the ones who got education using this method were more successful and had a more motivation level also their cognitive load was lower. In another study, Kara (2016) used this method for medical students during their internship period and stated that students defined the internship period more efficient after this method and this method can be used at clinical education.

### **The Advantages of Flipped Classroom Model Approach**

The Flipped Classrooms which are called radical changes by Bergmann and Sams have many advantages for both teachers and students. The advantages can be ordered as in the following (Fulton, 2012).

- Each student can follow their courses according to their own understanding speed, there is opportunity to watch again and again if necessary
- Homework is done in class; students can ask questions about the subjects they did not understand comfortably, educators may also provide suitable solutions according to the talent of the students.
- Students have a chance access course 7/24.
- Time spent in classroom is used more effectively in terms of both students and educators.
- Educators who have taught using this method indicated that they got higher results from the tests when compared to traditional method results.

In a study by national case analysis study center which has more than 15.000 members in the fields of science, technology, engineering and math, the views of almost 200 educators who use flipped classroom model are evaluated and according to the results the advantages are given as below (Herreid and Schiller, 2013; 62):

- More time can be spent with students about the original research
- Students are able to spend more time with scientific equipment that can only be used in the classroom
- Students' being able to easily follow the classes which they couldn't because of sport, conference activities
- Method pushes up student to think and study inside and outside the classroom
- Students' being more active in the learning process
- Students will participate to the learning environment more actively, and this will cause students to love the work they do.

### **The Disadvantages of Flipped Classroom Model Approach**

There are some disadvantages of flipped classrooms. The first one that comes to mind is creating the video content which takes most of teachers' time. If the teacher does not contact with students actively out of class, this can make students feel like doomed and may affect their motivation negatively. The students who are used to traditional model may face some problems in getting used to this new model and adapting themselves. If the videos prepared by teachers to make students watch can make students have difficulty in understanding the subjects (Talbert, 2012; 2).

In a study by national case analysis study center which has more than 15.000 members in the fields of science, technology, engineering and math, the views of almost 200 educators who use flipped classroom model are evaluated and according to the results the disadvantages are given as below (Herreid and Schiller, 2013; 62):

- Students may oppose this new method as they will face the course subject out of class for the first time. They may come to the class without preparing themselves for active learning. This problem can be solved out with the subjects learned from videos or reading sources out of class or with the exams online or in class.
- The tools such as video and reading sources should be created in accordance with class activities. Most of the educators use videos as part of out of class education. However, the educators in the study stated that students had difficulty in finding quality videos. The number of quality videos prepared by educators is quite less and time is needed to create them.

Jenkins (2012), Duerden (2013) and Miller (2012) state that flipped classroom model has some disadvantages as well as advantages these disadvantages can be summarized as;

- Following whether the students watch the video or not is difficult for teachers.
- Students who do not have learning capacity face difficulty in learning environment.
- Needing computer and internet for the application of model complicate the applicability of model.
- Need for technology increase cost.
- Students who learn through videos do not ask questions, have difficulty in establishing relationship between topics and as a result have difficulty in learning if there is no internet connection or computer.
- Not being able to create an environment where students can speak while learning the subject and their reaction can be measured.

### **CONCLUSION**

Because the Flipped Classroom Model which is spreading around the world and whose effect is revealed with many studies is so new, there are many issues that are not agreed. There are many different practice styles of this method. However, main components such as direct teaching in classroom, using effective learning strategies,

benefiting from teaching Technologies are common points of almost all practices. In addition to this, the number of participations to network called “Flipped Learning Network” is increasing day by day and the standards of this practice are still being mapped up. When the necessities of today and the profile of “learners” considered, it is obvious that different teaching methods than traditional ones are needed. As Prensky (2001) stated this time is the time of digital natives and if the digital immigrants, in other words, teachers would like to teach the new generation, they should redesign their methods and materials according to learners’ learning styles. Almost all the students follow up technology, smart phones or tablets are in the center of their life and also they use internet to follow up social media sites (Facebook, Twitter, Instagram, etc.). For that reason, the teachers present educational outputs of lesson contents that will attract students’ attention through educational social network tools such as Edmodo, Wiziq, edcanvas etc. In this way, it is aimed to carry teaching outside the class and increase readiness of students and also there will be more time for interaction and activities with students in classroom.

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