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The Influence of Flipped Learning on Attitudes of Students towards Technology in 8th Grade Math Lesson

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ABSTRACT: *The basic aim of this study is to determine the influence of Flipped learning on attitudes of students towards technology in the 8th grade math lesson. The workgroup of this study is consisted of the 8th grade students of Mithatpaşa Secondary School that is in the centre of Giresun. Two of the 5 eighth grade classes were included in the study. One of the classes that has 32 students is determined as the experimental group and the other class that has 30 students is determined as the control group. In the study, in the forming of the both experimental and control groups, 'rendom sampling method' that is one of the probability based sampling methods was used. The findings were collected by using both qualitative and quantitative data collection tools. Before-after application in the quantitative size, to determine the attitudes of students towards technology 'The Turkey version of students' attitudes scale towards technology (PATT-TR)' that has 24 items and that was developed by Yurdagül and Aşkar (2008) was applied to the experimental and control groups. During the application, videos that are appropriate for the lesson content were prepared for the experimental group which was determined as flipped classroom and these videos were uploded to 'Education information Network' by the teacher. Finally, at the end of the qualitative practice, qualitative data were collected by usingsemi-structured interview form and using document analysis developed by Koç (2016).*

Keywords: *Flipped classroom, flipped learning, Learning, teaching, technology.*

I. INTRODUCTION

Learning is the process of changing behaviour of the individual permanently as a result of his communication with the environment. This process for the individual is gaining a different dimension day by day with the development of technology. Because, technology has become indispensable to our life. At home, at school, at work, life without technology has became almost unimaginable. Especially, in the teaching programmes/curriculum prepared, the importance of technology is repeatedly emphasized. This importance is taken into consideration not only in the programmes but in new models/approaches and in the process of learning as well. For example, in recent years, both in Turkey and in the world, there have been recommendations/studies about forming flipped classrooms and its implementation. As a term, the flipped classrooms that have come to the agenda with Baker's (2000) presentation titled '*The classroom flip, using web course management tools to become the guide by the side*'(Temizyüret ve Ünlü 2015:66) that he gave this lecture in an international conferance on learning and teaching offer students the opportunity to use technology. In other words, by means of technology, students learn not in the classrooms, but they learn by following the videos that are prepared by their teachers. In flipped classrooms, these videos are recorded before and they are presented to the studens by using 'Khan Academy', 'Coursera', 'TED talks', 'YouTube', 'Kidblog', 'moodle' and 'YouTube' 'Kidblog', 'moodle' and Blackboard. While forming these videos, devices such as *Zaption.com* (You Tube; Vimeo; PBS and National Geographic) are used (Temizyyürek and Ünlü 2015:66). Because of this and similar aspects, the flipped classrooms are different from the traditional classrooms (Jonson & Renner 2012). In other words, in the flipped classrooms, time is not wasted by listening to teachers. Students try to discuss and ask questions that they encounter in the videos and the subjects that they don't undestand by forming groups in the classroom or by doing individual studies with the guidance of the teacher. There have been many studies that such a learning process improves high level behaviours at students (Gannod, Burge & Helmick, 2008, Staker, 2011, Başal, 2011, Christensen, Horn &Staker, 2013). But, in Turkey there were very few studies about flipped learning or flipped classrooms. However, in the 21st century that is technological era, teaching programmes want to educate individuals who use technology, question and solve problems. The flipped classrooms are needed to educate such individuals. Because, the flipped learning classes put the student in the centre with the applications both in class and out of class and so it is expected to contribute positively to student's achivement. Therefore, with the studies, the flipped learning and flipped classrooms that are the application area of the flipped learning are required to explain to teachers, parents, administrators, experts and in the application of the programme that is prepared in accordance with constructivist education understanding effectively, the importance of the flipped classrooms need to be emphasized. Starting from these explanations, the problem sentence of the study is to determine the students' attitudes towards technology in the flipped learning in the 8th grade math class. In the study, the answers of the following questions are searched:

1. Is there a significant difference between the scores of the students' attitudes towards pre-test technology in the experimental and control groups.
2. Is there significant difference between the scores of the students' attitudes towards pre-test and post-test technology in the control group.
3. Is there significant difference between the scores of the students' attitudes towards pre-test and post-test technology in the experimental group.
4. Is there significant difference between the scores of the students' attitudes towards post-test technology in the experimental and control groups.
5. What are the thoughts of the students related with the efficiency of the flipped learning?

II. METHOD

2.1 Research Model

In the study, the mixed method in which qualitative and quantitative research designs are taken together has been used. In the mixed method, qualitative and quantitative data total tools are collected simultaneously, the analysis techniques are used simultaneously and they are applied at different times in the way of completing each other (Tashakkori ve Teddie, 2003:11). In this study, dominant and less dominant mixed design have been preferred and accordingly both qualitative and quantitative data collection tools have been used in the study. In the quantitative dimension of the study that is dominant, in order to determine the attitudes of the students towards technology in the flipped learning, pretest-posttest paired control group design that is one of the semi-experimental designs has been used. In the qualitative dimension that is less dominant, case study design has been used in order to both support and make understandable the data obtained in the qualitative dimension. Starting from qualitative design, in the study, the data from semi-structured interview forms and document analysis have been collected.

2.2 Study Group

The workgroup of this study is consisted of the 8th grade students of Mithatpaşa Secondary School that is in the centre of Giresun. The workgroup is formed from 32 students that is determined as the experimental group and from 30 students that is determined as the control group and in total 62 students. In the study, in forming of both experimental and control groups, 'rendom sampling method' that is one of the probability based sampling methods was used.

2.3 Data Collection Tools

In the study, the data has been collected by using both qualitative and quantitative data collection tools. Before and after application in the quantitative size, to determine the attitudes of students towards technology in the experimental and control groups 'The Turkey version of students' attitudes scale towards technology (PATT-TR)' that has 24 items and that was developed by Yurdagül and Aşkar (2008) has been used. The scale has been applied to 3308 students at the age of between 12-16 in state and private schools in the cities of Ankara, Istanbul, Izmir, Izmit, Mersin, Çorum, Batman, Gümüşhane, Ardahan. The scale consists of sub dimensions named as 'trend towards technology', 'the contribution and importance of technology' and 'technology for everyone'.

In the study, during the application 10-minute- videos that are suitable to the lesson content were prepared for the experimental group which was determined as the flipped classroom and these videos were uploded to 'Education information Network' by the teacher and the students followed the lesson by watching these videos. Afterwards, the students were divided into groups of 5-6 according to the subjects the teacher taught in the class and they were asked if they had any questions about the subject(s) they watched. In the groups, the students solved tests individually or in groups, they asked questions and they formed discussion groups. In the control group, the teacher taught the lesson in line with the current programme, completed the learning process with homework and tests. In the study, at the same time, semi-structured interview form developed by Koç (2016) has been prepared. While the form being prepared, expert opinions were applied and necessary correction were made in line with the recommendations/criticisms from the experts. Afterwards, by taking the opinios of 12 students from the experimental group about the flipped learning, the interview form was applied. The interview with the students were recorded. Finally, in order to provide data diversities in the study, by taking the pictures of the classroom application, the findings from other data resources were tried to be supported.

2.4 Data Analysis

In the analysis of the data in the study, in order to determine whether the scores that were obtained from the PATT-TR scales which were applied to the experimental and control groups show normal distribution, Shapiro-Wilks value has been considered; that the condition of the value is smaller than 0.05 has been required.

At the end of the anlysis, in the anlysis of the data related with pretest-posttest of the scale of 'PATT-TR', the parametric test has been used. In the study, in order to compare the pretest-posttest scores of the groups in which the distribution is normal, the t-test in independent groups has been used; in order to compere the pretest-posttest scores in the experimental and control groups in the dependent groups the t-test has been used. In the anlysis of qualitative data, descriptive and content anlysis methods have been used. Besides, from the photos that were taken during the application in the class have been quoted.

III. FINDINGS AND INTERPRETATIONS

3.1 The findings on the significant difference between the attitude scores of the students of the experimental and control group towards pre-test technology

t-test results of the avarage attitude scores of the students in experimental and control groups towards pre-test technology was given in Table 1.

Table 1. t-test results of the avarage attitude scores of the students in experimental and control groups towards pre-test technology

Sub dimensions	Measurement	N	$\overline{X}$	ss	sd	t	p
Trend towards technology	Experimental Grouppre- test	32	23,63	2,63	60	4,418	0.12
	Control Group pre- test	30	20,43	3,04			
Negative dimension of the technology	Experimental Group pre- test	32	27,03	2,55		3,165	0.35
	Control Group pre- test	30	24,80	2,98			
The contribution and importance of technology	Experimental Group pre- test	32	21,59	1,75		0,935	0.38
	Control Group pre- test	30	21,13	2,11			
Technology for everyone	Experimental Group pre- test	32	21,20	1,48		2,087	0.12
	Control Group pre- test	30	23,70	1,32			

When the data in Table 1 is analysed, between the avarages of attitude scores towards pre-test technology of the experimental and control group students, significant diversity hasn't been observed [$t_{(60)}$= 4,418; $t_{(60)}$= 3,165; $t_{(60)}$= 0,935 ; $t_{(60)}$= 2,087; p>0.05]. When the aritmetical avarage of the groups is analysed, the avarages of attitude scores towards pre-test technology of the experimental group students has been seen that the trend toward$\overline{X}$echnology is=23,63; the negative dimension of the te$\overline{X}$ology is =27,03; the contribution of technology and its$\overline{X}$portance is = 21, 59; technology for$\overline{X}$eryone is= 21,20.The avarage attitude scores of the students in the control group towards pre-test technology is that the trend towards tec$\overline{X}$ology is=20,43, the negative dimension of the technolog$\overline{X}$s= 24,80; the contribution of technology and its importance is$\overline{X}$ 1, 13; technology for everyone is $\overline{X}$ 23,70. This finding can be interpreted that the groups are very near to each other and the difference between the groups can't be observed (p>0.05), the groups are equal to each other.

3.2 The findings on the significant difference between the attitude scores of the students of the control group towards pre-test and post-test technology

t-test results of the avarage attitude scores of the students in control groups towards pre-test and post-test technology was given in Table 2.

Table 2. t-test results of the avarage attitude scores of the students in control groups towards pre-test and posttest technology

Sub dimensions	Measurement	N	$\overline{X}$	ss	sd	t	p
Trend towards technology	Pre test	30	20,43	3,04	29	9,573	0.26
	Post test	30	27,00	2,93			
Negative dimension of the technology	Pre test	30	24,80	2,98		5,476	0.25
	Post test	30	27,80	1,44			
The contribution and importance of technology	Pre test	30	21,13	2,11		3,327	0.25
	Post test	30	29,83	14,01			
Technology for everyone	Pre test	30	23,70	1,32		5,359	0.88
	Post test	30	11,36	1,51			

When the data in Table 2 is analysed, between the avarages of attitude scores towards pre-test and post-test technology of the control group students, significant diversity hasn't been observed [$t_{(29)}$= 9,573; $t_{(29)}$= 5,476; $t_{(29)}$= 3,327; $t_{(29)}$= 5,359; p>0.05]. The avarage attitude scores of the students in the control group towards pre-test technology is that the trend towards t$\overline{X}$nology is=20,43, the negative dimension of the tec$\overline{X}$ology is= 24,80; the contribution of technology and its importan$\overline{X}$is= 21, 13;technology for everyone is = 2$\overline{X}$'0. The avarage attitude scores of the students in the control group towards post-test technology is that the trend towards technology is=27,00, $\overline{X}$ negative dimension of the technology is= 27,80; the co$\overline{X}$bution of

technology and its importance is= 29,83; technology for everyoneis= 11,36. This finding can be interpreted that the materials that are used in Math lesson which is taught in accordance with the current programme doesn't effect the attitudes towards technology of the students in the control group.

3.3. The findings on the significant difference between the attitude scores of the students of the experimental group towards pre-test and post-test technology

t-test results of the avarage attitude scores of the students in the experimental group towards pre-test and posttest technology was given in Table 3.

Table 3. *t-test results of the avarage attitude scores of the students in the experimental group towards pre-testand post-test technology*

Sub dimensions	Measurement	N	$\overline{X}$	ss	sd	t	p
Trend towards technology	Pre test	32	23,63	2,63	31	17,800	0.00*
	Post test	32	35,43	2,07			
Negative dimension of the technology	Pre test	32	27,03	2,55		15,867	0.00*
	Post test	32	17,03	2,57			
The contribution and importance of technology	Pre test	32	21,59	1,75		11,979	0.00*
	Post test	32	26,09	1,65			
Technology for everyone	Pre test	32	21,20	1,48		13,482	0.00*
	Post test	32	13,28	1,27			

*p<0.05

When the data in Table 3 is analysed, between the avarages of attitude scores towards pre-test and post-test technology of the experimental group students, significant diversity has been observed[$t_{(31)}$= 17,800; $t_{(31)}$= 15,867; $t_{(31)}$= 11,979; $t_{(31)}$= 13,482; p<0.05] . When the aritmetical avarage of the groups is analysed, the avarages of attitude scores towards pre-test technology of the experimental group students has been seen that the trend towards technolo $\overline{X}$ is =23,63, the negative dimension of the technology is $\overline{X}$ =27,03; the contribution of technology and its importance is $\overline{X}$ 21, 59; technology for everyone is= $\overline{X}$ 20.The avarage attitude scores of the students in the experimental group towards pre-test technology is that the trend towards technology is =35,43, the $\overline{X}$ gative dimension of the technology is= 17,03; the co $\overline{X}$ ibution of technology and its importance is = 26,09; technolo $\overline{X}$ for everyone is = 13,28. This fin $\overline{X}$ ig can be interpreted that the experimental group studens, with the flipped learning, want to choose a job related with technology, they like the activities related with technology, they think that technology is beneficial to the future of a country, technology has got useful sides more than harmful sides, they think that technology is the future's subject, the use of technology will increase the welfare of a country, it will decrease the unemployment, everybody will not be able to find job in the field of technology and everybody will not be able to get education in the field of technology.

3.4 The findings on the significant difference between the attitude scores of the students of the experimental and control groups towardspost-test technology

t-test results of the avarage attitude scores of the students in the experimental and control groups towards post-test technology was given in Table 4.

Table 4. *t-test results of the avarage attitude scores of the students in the experimental and control groups towards post-tes technology*

Sub dimensions	Measurement	N	$\overline{X}$	ss	sd	t	p
Trend towards technology	Experimental Group post- test	32	35,43	2,07	60	13,126	0.00*
	Control Group post- test	30	27,00	2,93			
Negative dimension of the technology	Experimental Group post- test	32	17,03	2,57		20,134	0.00*
	Control Group post- test	30	27,80	1,44			
The contribution and importance of technology	Experimental Group post- test	32	26,09	1,65		1,499	0.139
	Control Group post- test	30	29,83	14,01			
Technology for everyone	Experimental Group post- test	32	13,28	1,27		5,385	0.00*
	Control Group post- test	30	11,36	1,51			

*p<0.05

When the data in Table 4 is analysed, between the avarages of attitude scores towards post-test technology of the experimental group students, significant diversity has been seen [$t_{(60)}$= 13,126; $t_{(60)}$= 20,134; $t_{(60)}$= 1,499; $t_{(60)}$= 5,385; p<0.05]. When the aritmetical avarage of the groups is analysed, the avarages of attitude scores towards pre-test technology of the experimentalgroup students has been observed that the trend

towards technology is =35,43, the negative dimension of the technology is =17,28; the contribution of technology and its importance is= 17,28; technology for everyone is = 13,28.The avarage attitude scores of the students in the control group towards pre-test technology is that the trend towards technology is =27,00, the negative dimension of the technology is=27,80; the contribution of technology and its importanceis = 29,83; technology for everyone is= 11,36. This finding can be interpreted that the students, in the flipped learning classrooms want to have some works related with technology, the works related with technology are not boring, they find the hobbies related with technology entertaining, technology is important in life and they want to be educated in the field of technology. In other words, the students in the flipped learning classrooms have improved positive attitudes towards technology. The students in the control group stated that technology will effect the society negatively, it won't contribute to the development of the society and the studies in the field of technology will not make people happy.

3.5 The findings about the students' opinions related with the efficiency of the flipped learning

The findings about the students' opinions related with the efficiency of the flipped learning are given in Table 5.

Table 5.*The Descriptive Analysis Results of the Students' Opinions on the Effectiveness of the Flipped Learning*

Interview Questions	**Category**	**Source**		**Source Density**	
		f	**%**	**f**	**%**
How do you define the flipped learning?	Collective working	10	50	15	53.8
	Using the technology actively	10	50	13	46.2
	TOTAL	20	100	28	100
What is the difference of the classrooms where there is the flipped learning from the classes where the math lesson was taught?	Active classroom	8	44.4	13	46.2
	Trational classroom	10	55.6	15	53.8
	TOTAL	18	100	28	100
How has the techonologic equipment that you used in the flipped learning contributed to your learning process?	Learning by questioning	9	45	8	38.1
	Combine the knowledge technology	6	30	7	33.3
	Sharing the knowledge	5	25	6	28.6
	TOTAL	20	100	21	100

As seen in the table 5, the students define the flipped learning as collective working and using the technology actively. In the interviews with 12 students, it is understood that the students have defined the flipped learning as working in collaboration [working with a group (f=5), working together (f=3), forming groups (f=3), working by sharing (f=2) and working as a team. Starting from these findings, it can be stated that the students define the flipped learning as the knowlegde and skills that they obtain by means of technolojy devices and sharing them with the groups in the classroom (for example:1-2-3-4-5) and discuss about them.

[1]. *"I have heard the flipped learning for the first time. I liked it very much. Our teacher mentioned us about this learning. To me, that we don't have any homework is very nice. At school we study together with our friends as group works."* (S_1)
[2]. "*It was so boring to listen to the lesson in the classroom. Now, we are learning with our teacher's videos at home. At school we are doing our homework in the group. I loved this learning classroom*." (S_2)
[3]. *"I wish this type of learning would continue. What a beautiful thing it is. We don't have to listen to the lesson for hours*." (S_3)
[4]. "*….With the flipped learning, I am able to listen to the lesson again whenever I want. By coming together with the group, we share our knowledge*." (S_4)
[5]. *"…. I didn't use to like the math lesson very much but now I started to like it with this learning. We can discuss about our homework with our friends group."* (S_6).

The students have defined the flipped learning that it uses technology actively. According to the students, the flipped learning improves the skill of using technology actively [they can use technology everywhere (f=4), they listen to the videos whenever they like (f=3), they listen to their lessons limitlessly (f=3), they listen to the video again and again from EBA (f=3)]. In this finding, it can be said that with the flipped learning, the students are able to use the devices and materials related with the lesson at school, at home, in the car, in the library (example: 6-7-8-9) and by repeating and revising they consolidate the subject better.

[6]. *"… before I hadn't revised my lessons so much….. I am always re-watching my teachers' videos with the help of this learning."* (S_5)
[7]. *"…. When I go to bed, I am revising the subjects of the next day's Math lesson with the flipped learning….."* (S_6)
[8]. "*Our olders say that technology is harmful. Let them hear about the flipped learning and see how benefical it is. To me you should use this technology consciously."* (S_7)

[9]. "*Whenever told about technology, smart boards used to come to my mind. But with the flipped learning, I am repeating and revising my subjects at the school service or library all the time.*" (S_8)

As understood from the table 5, the students have stated that the classrooms in which there is the flipped learning is "active classroom" [they joing in the group activity willingly (f=3), they participate in the individual works actively (f=2), they don't receive the knowledge passively (f=2), they learn by using their five senses (f=2), they show open participation (f=2), they don't establish one-sided communication (f=1), they use the technology efficiently (f=1)]. In the current math lessons, it has been observed that there is a traditional classroom [the students communicate with only the teacher (f=3), there are not any group works (f=2), all the time the lesson is told (f=2), questions from lesson boks are solved (f=2), there are not different activities (f=2), the method of telling the lesson is used excessively (f=2), the order of the desk is back to back.] Starting from this finding, it can be said that in the flipped learning classrooms, the students join the group works actively (example: 10-11-12-13), in the traditional classrooms, there is only one-sided communication (example: 14-15-16) and this situation causes the students to have passive participation.

[10] "*I like studying in groups.*" (S_9) (example:Figure1)

Figure 1: The students join the group works actively

[11] "…..*Not on my own,I like studying in groups.*" (S_1)
[12] "*In the flipped classrooms, we have formed very good groups and we study very well*." (S_4)
[13] "*When a student studies in a group, he can learn better.*" (S_5)
[14] "*Before the flipped learning, we used to discuss about the subjects with our teacher."* (S_{10})
[15] "….*We only listen to the teacher."* (S_{11})
[16] "….*We never use any technological devices…. I was bored very much.*" (S_{12})

As seen in the table 5, with the flipped learning, it has been seen that technological equipment is used more, the students learn by questioning [it provides a flexible classroom condition(f=2), it questions the knowledge by repeating in different situations (f=2), it takes different opinions in the group into consideration (f=2), it brings different teachers together (f=2)]. Besides this, in the flipped classrooms, it can be said that the students combine the knowledge with technology [the students can get the subjects that the teacher teach more easily(f=4), they have the opportunity to watch the lesson videos all the time (f=3), for the last thing, about sharing the knowledge they share the things they have learned from their immediate environment (f=2), they exchange knowledge with their teachers from the different resources (f=2), they share lesson materials in the virtual platform (f=2). From this point of view, it can be concluded that, with the flipped learning, the students can get the subject and the questions more comfortably that the teacher teaches and asks (example:17-18-19-20).

[17] "*…Before, I used to ask the things that I didn't understand to my teacher. Now, I turn on the video whenever I want and watch the lesson again…..*" (S_8)

[18] "*I didn't like going to the teachers' room and ask my questions but now, with the flipped learning, I can ask my questions in the lesson more comfortably….."(*S_9)

[19] "*I study my lessons at home and ask my questions related with the subject I study….."* (S_{10})

[20] *"I had never imagined that I would study math at home and come to school so. I am learning very well as if our teacher was giving me private lessons."* (S_{11}).

IV. DISCUSSION, RESULTS AND SUGGESTIONS

Between the avarage attitude scores towards technology of pre-test of the experimental and control groups students, and pre-test and post-test of the control group students , significant differentiation has not been observed. In other words, between the attitude scores of the students of the experimental group which is determined as the flipped classroom any differentiation wasn't observed and the activities that are performed according to the current programme, workshops, the teacher's in classroom activities don't change the students' attitutes towards technology.

In the experimental group where the flipped learning takes place, it has been concluded that the students want to choose a profession related with technology, technology is an important factor in the country's development and it decreases the unemployment in the society. In other words, the future anxiety of the students in the flipped learning classrooms becomes less (Marlowe, 2012). At the same time, the students in these classrooms establish multidirectional communication and they consolidate their learning and gain experience by adding technology to the learning process. (Thoms, 2013; Sams & Bergmann, 2012). An individual with his experience thinks that technology will be useful and it will direct his future plans/goals (Filiz&Kurt, 2015).

The conclusion has been reached that the flipped learning classrooms are effective on the students' attitudes in the future towards technology and they have improved positive attitudes against technology. According to Prensky (2001), technology provides a significant contributions to the individuals' teaching-learning process. Because of these contributions of technology, teachers take technology to their classrooms and aim that their students should benefit from this technology. Of course, suitable classrooms should be established in order to achieve these goals. The flipped classrooms provide the students to make use of technology and at the same time the teachers to act economically about time and place. In the flipped classrooms the teacher is not in the position of conveying knowledge and the student is not in the position of memorizing the knowledge any more. In other words, in the flipped classrooms, the students study in cooperation, they show open participation in the lesson and students and teachers are in constant communication (Turan&Göktaş, 2015)

In the flipped learning environment students learn to share within the group, they get unlimited technology, they improve their multi-sided communication and they always search the points they don't understand. According to Kalanda (2005) technology creates positive attitudes on student's learning in the classroom and it provides students to participate in the learning process actively. Although, today, students don't make use of technologic devices much at schools, it has been observed that in the classrooms where technology is used they have significant changes in the success of students (Volk ve Ming, 1999, Becker ve Maunsaiyat, 2002). In the increase of this success, the Ministry of Education has had many important projects in recent years (for example: Innovative Technologies for Participating Classroom (ITEC). The aim of such projects is to provide both the students and teachers to use the teaching-learning process in an effective way by using technology. For example, the teacher in the flipped classrooms doesn't spend most of his time by giving a lesson about the subject. The students who watch and listen to the videos in which the teacher's lectures are before coming to school prepare only projects in the classroom, do their homework and have quizes. Turan and Göktaş (2015) have stated that that the students do these kinds of studies in the flipped classrooms provide them to participate the lesson actively, they don't memorize the lessons, it makes learning easy, it provides them to learn the subjects again and again and it is observed that they come to school prepared.

Suggestion:

- In the classrooms where technology is used intensively, which skills of the students improve can be studied.
- The contribution of the different lessons of the flipped learning to the teaching-learning process can be studied.
- The effect of the application of the flipped learning classrooms at different class levels on the achievement of the student can be studied.

REFERANCE

[1] Başal, A. (2012). The Use of Flipped Classroom in Language Teaching. *The 3 rd Black SeaELT Conference "Technology, A Bridge to Language Learning"* November 15-17, 2012 SAMSUN.

[2] Becker, K. H.& Maunsaiyat, S. (2002). Thai Students" Attitudes and Concepts of Technology. *Journal of Technology Education, 13* (2): 6-20.

[3] Christensen, C. M., Horn, M. B., & Staker, H. (2013). Is K-12 Blended Learning Disruptive? Anintroduction of the theory of hybrids. Clayton Christensen Institute. Fromhttp,//www.christenseninstitute.org/wp-content/uploads/2013/05/Is-K-12-Blended-Learning-Disruptive.pdf.

[4] Filiz, O. & Kurt, A.A. (2015). Flipped Learning: Misunderstandings and the Truth.Journal of *Educational Sciences Research. INTERNATIONAL E-JOURNAL*, Volume:5, No:1, April 2015.

[5] Gannod, G., Burge, J., & Helmick, M. (2008). Using the Inverted Classroom to Teach Software Engineering. International Conference on Software Engineering (ICSE). Leipzig, Germany 8 May 2008.
[6] Johnson, L. W.,& Renner, J. D. (2012). *Effects of the flipped classroom model on a secondary computer applications course: student and teacher perceptions, questions and student achievement.* Unpublished phd thesis, University ofLouisville.
[7] Kalanda, K. (2005). *Factors influencing college students' attitudes toward technology*. MSc Thesis, University of South Africa.
[8] Prensky, M. (2001). Digital natives, digital immigrants. *On the Horizon, 9*(5), 1-6.
[9] Temizyürek, F. & Ünlü, N.A (2015). Dil öğretiminde teknolojinin materyal olarak kullanımına birörnek: "flipped classroom". *Bartin UniversityJournal of Faculty of Education*Volume 4, Issue 1, p. 64 -72, June 2015, BARTIN – TURKEY
[10] Tashakkori, A. ve Teddlie, C. (2003). *Handbook of mixed methods in social & behavioral research*. Thousand Oaks: Sage.
[11] Thoms, C. L. (2013). Maximizing the blended learning curriculum by using the ‚flippedclassroom' approach in the workplace. *The International Conference on E-Learning in theWorkplace*. New York.
[12] Sams, A. & Bergmann, J. (2012). *Flip your classroom: Reach every student in every class everyday*. International Society for Technology in Education (ISTE).
[13] Strayer, J. F. (2011). *The teacher's guide to flipped classroom. from*, http,//www.edudemic.com/guides/flipped-classrooms-guide/
[14] Staker, H.,& Horn, M. (2012). *Classifying K-12 blended learning.* Retrieved from http://files.eric.ed.gov/fulltext.
[15] Volk, K., Yip, M. W.,&Lo, T. K. (2003). Hong Kong pupils" attitudes toward technology: the impact of design and technology programs. *Journal of Technology Education, 15*(1): 48-63.