Full research paper

EFFECTS OF TEACHING A LEARNING PSYCHOLOGY COURSE IN DIFFERENT WAYS ON THE STUDENT'S SUCCESS AND ATTITUDES

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ABSTRACT

The aim of this study is to determine the effect of teaching a learning psychology course in different ways on students' academic success and attitudes towards the course. The experimental research method was used in this research. The participants were students in the second year of a psychological counseling and guidance program in a state university in Turkey. The data were collected by Learning Psychology Course Achievement Test and student letters. ANOVA, Kruskal Wallis and Wilcoxon Signed Rows test were used in the analysis. Student letters were analyzed through content analysis. In the first group, the lecturer taught the class interactively each week with the presentations prepared by the researchers. In the second group, no lectures were made in this group. At the beginning of the lesson each week, students were given the outputs of the presentations and the lesson was carried out with two activities each week. In the third group, the flipped learning model was applied in this group. As a result of the study, it was concluded that the standard deviation was smaller in the group in which the flipped learning model was applied compared to the other two groups.

KEYWORDS

Flipped learning model, learning psychology course, student attitude, student-centered education, student success

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Highlights

- *The students' learning performances were close to each other, and the students in the whole group learned well.*
- *The standard deviation was smaller in the group in which the flipped learning model was applied. This shows that the flipped learning model is effective on students' success.*
- *The students in the flipped learning group liked the lesson very much, found the lesson efficient, had fun, and were surprised at how quickly time passed.*
- *The students in the flipped learning group thought that group studies contributed to their exchanges of ideas with their friends, getting to know each other, and learning from each other.*

INTRODUCTION

Global changes in science and technology have had a significant impact on education as well as many other fields (Benson, 2012). The purpose of education today is to train students who can solve problems, adapt their knowledge to real life, work collaboratively, and engage in lifelong learning (Hains and Smith, 2012). For this reason, educational environments in which the student merely watches on the sidelines and the teacher works as the only actor in the classroom cannot attract the attention of the students. It is not possible to have effective and permanent learning in such environments (Rodriguez-Valls and Ponce, 2013).

The strength of student-centered education comes from the fact that it allows students to learn from their own experience, to structure information, and to reflect on it (Daley, 2003). Scientific research supports student-centered education. Studies show that student-centered education increases

students' motivation for learning, increases the level of knowledge recall, provides in-depth knowledge, and has positive effects on creativity, critical thinking, success, student participation, student satisfaction, student self-esteem, and learning motivation (Kılıc and Sahin, 2016; Maden, Durukan and Akbaş, 2011; Salinas, Kane-Johnson and Vasil-Miller, 2008; Scott, Buchanan and Haigh, 1997; Smart and Csapo, 2007).

Effective teaching practices can be implemented by using different methods and techniques in line with student-centered education principles. Teachers should learn and try different methods and techniques in order to better respond to students' interests, wishes, and needs and to organize the classroom better (Ha, 2013). When the results of the research in the literature are examined, it is seen that student-centered strategies, methods, and techniques such as project-based learning, inquiry-based learning, problem-based learning, collaborative learning, and flipped learning are used, which are effective in increasing academic success (Baepler, Walker and Driessen, 2014; Donovan and Lee, 2015; Green, 2015; Harvey, 2014; Lazonder and Harmsen, 2016; McCallum et al., 2015; Vernon and Blake 1993).

Within the scope of this research, it was aimed to conduct a course effectively while using different teaching methods to make the students active. For this reason, three different lesson designs of different styles and levels were prepared, each aiming to bring the students to the center and make them active. By comparing these lesson designs, it was aimed to reveal the advantages and disadvantages of each and thus guide teachers who want to use different methods and techniques in their classrooms.

One of the student-centered strategies used in this research is the flipped learning model. The flipped learning model is a model that includes traditional learning in the classroom and online learning, which is also described as a blended learning approach and has become quite popular recently (Bergmann and Sams, 2012; Tucker, 2012). Flipped learning is one of the models used by integrating technology into student-centered education. With the introduction of technology into educational environments, it allowed the design of teaching materials suitable for different student characteristics, and besides enriching the educational environments, it enabled efficient learning environments to be created by facilitating accessibility ofeducational environments (Nemtchinova, 2007). According to Sams and Bergmann (2013), the main component of the flipped learning model is increasing the quality of face-to-face education by using the most efficient time spent at school with students. It is stated that the work done at home increases the students' active participation and success (Frydenberg, 2012; Okmen, 2020; Stone, 2012; Talbert, 2012). While students acquire lower-level information outside the classroom through technology, they use their higher-level thinking skills with teachers and classmates in the classroom (Bergmann and Sams, 2012).

In addition to these positive features, some negative features of the flipped learning model are also mentioned in the literature. Talbert (2012) states that in this model, students should work individually at home and watch the content of the lessons, but this creates difficulties for students who do not have individual learning habits. There are studies that say that the obligation to work at home is a disadvantage of this model (Alsancak Sirakaya, 2015; Turan and Goktas, 2015). Considering these disadvantages of flipped learning in the literature, in this study, students in one group were taught using a different model suitable for student-centered understanding. In this model, the home learning section, which is seen as a disadvantage of flipped learning, was removed and every stage of teaching and learning was carried out only at school. In this way, it was tested whether a new model could be introduced by producing a solution to the disadvantageous parts of the flipped learning model.

In the third model applied within the scope of the research, the course was taught in the style of presentations, but interaction was provided with the students using the question-and-answer technique. The question-and-answer technique, which is seen as a way to make students effective, is a technique used to learn what students understand, to increase their interest in the lesson, and to develop higher-level thinking skills (Kubat, 2018). While teachers determine the level of learning through questions and whether learning takes place in an organized manner, they offer the student the opportunity to learn a new topic (Buyukalan Filiz, Celik, and Toraman 2018). Although the question-and-answer method does not fully comply with the student-centered understanding, the effect of asking students for examples, interactive lesson processing, and requesting a portfolio with the requested homework at the end of the course was investigated and the effects of this method were compared with the other methods.

In this study, it was aimed to conduct lessons effectively by using different teaching methods to make the students active and to make comparisons between these three models used in the course process. In this context, the aim of this study is to determine the effect of teaching a learning psychology course in different ways on students' academic success and attitudes towards the course. This basic purpose has been applied to answer the following questions in the research framework:

- What is the effect of teaching a learning psychology course in different ways on students' academic success?
- What are the opinions of the students about the lessons?

MATERIALS AND METHODS

This section includes information on the research model, working group, application process, data collection, data analysis, and validity and reliability.

Research Model

Experimental research method was used in this research. Experimental researches are studies to test the effect of differences created by the researcher on the dependent variable (Buyukozturk et al., 2013). "Pretest-posttest group design" was used to determine the effect of the course on students' academic achievement. Each of the groups in the design was assigned as an experimental group. The symbolic view of the design was given in Table 1:

	Pretest	Treatment	Posttest
E_1	P_1	X_1	P_4
E_2	P_2	X_2	P_5
E_3	P_3	X_3	P_6

E1: Experiment Group-1, E2: Experiment Group-2, E3: Experiment Group-3

P1,2,3: Pretest, P4,5,6: Posttest

X1: Experiment Process-1, X2: Experiment Process-2, X3: Experiment Process-3

Table 1: Pretest-Posttest Research Design

Working Group

The participants were Psychological Counseling and Guidance program students studying in 2nd class in a state university in Turkey. The working group was determined by the "convenient sampling" method. Convenient sampling is based on the items that are available, fast and easy to reach (Baltacı, 2018). In this study, the students of the three classes currently taking the course constituted the working group. The numbers of females and males in the working groups were given in Table 2:

	Female	Male	Total
1st Group	25	12	37
2nd Group	19	9	28
3rd Group	28	12	40
Total	72	33	105

Table 2: Number of Working Group Students

As can be seen in Table 2, there are 105 students in the study group. There are 37 students in the first group, 28 students in the second group and 40 students in the third group. 72 students are females and 33 are males.

In order to determine the equivalence of the groups, it was examined whether there was a significant difference between the students' GPA (Grade Point Average) scores. GPA of the students were obtained from the university system. ANOVA test results for this purpose were given in Table 3:

	N	Mean	Standard Deviation	*df*	*F*	*p*-value
Group 1	31	2.87	0.25			
Group 2	21	2.96	0.31	2	0.96	0.39
Group 3	34	2.88	0.18			

Table 3: ANOVA Test Results Regarding GPA Scores of Groups

As can seen in Table 3, according to the ANOVA test results, there was no significant difference between the groups' GPA scores ($F = 0.961$, $p > 0.05$). In this case, it can be said that all groups were equivalent in terms of GPA scores.

In order to determine the equivalence of the groups in terms of information related to the course, "learning psychology course pre-test" was applied before the research. ANOVA test results related to the differences between the pretest scores of the groups were given in Table 4:

	N	Mean	Standard deviation	*df*	*F*	*p*-value
Group 1	31	46.65	6.68			
Group 2	21	47.43	9.06	2	0.35	0.71
Group 3	34	45.41	10.86			

Table 4: ANOVA Test Results Regarding the Pretest Scores of the Groups

As seen in Table 4, ANOVA test did not show any significant difference between the groups according to the pretest results ($F = 0.35$, $p > 0.05$). In this case, it can be said that the information of each group was equivalent to each other before the applications.

Application Process

The application process of the research was carried out by the lecturer and two doctoral students who are responsible for conducting the course at the university.

Before this application, a term plan was prepared for each group by the researchers. The learning psychology course, which lasted 14 weeks in total, was held on Wednesday each week in three groups. In the first three weeks, basic information was given in all groups and pretesting was applied. Experimental application started on 4th week and lasted for a total of 11 weeks. The evaluation of the course was done with the final exam and portfolio. At the end of 14 weeks, the final test that replaced the final exam was applied and student portfolios were evaluated.

First Group

In this group, the lecturer taught lesson interactively each week through the presentation prepared by the researchers. During the lesson, the examples in the presentation were given and students were asked to create various examples. In addition, the lecturer enriched the presentation of the lesson with various stories, jokes and memories. The output of the presentation was distributed to the students at the beginning of each lesson and the students took notes on these outputs while listening to the lesson. At the end of the lesson, students were given homework and asked to put this homework in their portfolios. As homework, tasks such as preparing questions, writing examples, finding similarities and differences, preparing concept maps, preparing puzzles, writing acrostic or poetry, writing slogans, writing the reflection of theories on education were given.

Second Group

No lecture was made in this group. At the beginning of the lesson each week, students were given the outputs of the presentations and the reflections of theories on education, and the students were asked to read and discuss these in the first weeks individually and in the next weeks in groups. For this, students were given 20-30 minutes. After that, the lesson was carried out with two activities each week, which made it necessary to use the information on the subjects. In this process; snowball, station, bearing, thinking with six hats, fishbone, butter-bread, aquarium, drama techniques; writing poetry, completing stories, preparing puzzles, writing letters, matching cards, drawing questions from the jar, finding similarity-difference, preparing a concept map, structured grid activities were used. In this group, no assignment was given for the pre-class and post-class learning period. The students were asked to put their studies in their portfolios. Students were given compensatory duties for weeks when they couldn't attend classes.

Third Group

The flipped learning model was applied in this group. Lecturing videos were taken through the presentations prepared for each lesson. Before the lesson, the lecturing videos and a document was sent to the students. Before coming to class, students were asked to watch the video, write the examples, read the document about the reflection of the theory on education and do the task (preparing a question, summarizing and answering the given question). Before the students came to class, they sent their tasks to the researchers via WhatsApp and received the necessary feedback. In the course, three different activities were organized for the students each week. In this process; snowball, station, bearing, thinking with six hats, fishbone, butter-bread, aquarium, drama techniques; writing poetry, completing stories, preparing puzzles, writing letters, matching cards, drawing questions from the jar, finding similarity-difference, preparing a concept map, structured grid activities were used. In this group, no assignment was given for the pre-class and post-class learning period. The students were asked to put their studies in their portfolios. Students were given compensatory duties for weeks when they couldn't attend classes.

Data Collection

The data were collected by "Learning Psychology Course Achievement Test" and student letters.

Learning Psychology Course Achievement Test

In this research, "Learning Psychology Course Achievement Test" was developed to measure the academic success levels of the students at the end of the application. First of all, a table of specifications was prepared in order to ensure the content validity. Within the scope of this specifications table, a question pool consisting of 109 questions was created by three researchers. A pilot application was carried out to ensure the validity and reliability of the achievement test. For this purpose, two separate pilot test forms with 109 questions in the question pool were prepared. Test-1 form consisting of 55 questions was applied to 132 students and Test-2 form consisting of 54 questions was applied to 133 students. Students who took the test were university students who took the learning psychology course before. As a result of the analyzes, the average item difficulty of Test-1 was 0.40, and the average item difficulty of Test-2 was 0.40.

A total of 50 questions were selected by the researchers, taking into account the table of specifications and pilot application analysis results for use in the final test. As a result of the pilot application, items with less than 0.2 item discrimination indexes were not used in the final test. 6 items from Pilot Test-1 with item discrimination indexes between 0.2 and 0.29 and 2 items from Pilot Test-2 were used in the final test by arranging the answer options.

The final test was applied as a pre-test at the beginning of the semester and as a post-test at the end of the semester. All of the 105 students (Group-1 = 31, Group-2 = 21, Group-3 = 34) participated in all of the tests in the study group.

Student Letter

In order to determine their attitude towards the lesson, the students were asked to write a letter about their feelings and thoughts about the process at the end of the semester. Letters were received from 93 of 105 students (Group-1 = 34, Group-2 = 22, Group-3 = 37) in the study group

Data Analysis

The analysis of quantitative and qualitative data collected in the research was explained under separate headings.

Quantitative Data Analysis

Data were analyzed by using a statistic program to determine the effect of the flipped learning model on academic achievement. First of all, normality tests were carried out. If the sample size is greater than 35, the Kolmogorov-Smirnov (K-S) test can be used, and if it is small, the Shapiro-Wilk test can be used (Demir, Saatcioğlu and İmrol, 2016). Since the sample size in all the groups in this study is less than 35, Shapiro-Wilk test results are taken as the basis. According to the normality test results, it was observed that the students' GPA (Grade Point Average) and pre-test scores were normally distributed in each group, and the post-test scores did not show the normal distribution in any group.

ANOVA, one of the parametric tests, and Kruskal Wallis test, which is one of the non-parametric tests, and Wilcoxon Signed Rows test were used in the analysis.

Qualitative Data Analysis

Student letters were analyzed through content analysis. Content analysis is defined as a detailed and careful examination of a particular material to define patterns, categories or meanings (Leedy and Ormrod, 2005; Neuendorf and Kumar, 2002). The data analysis process was carried out in three stages (Kilic et al., 2019): organizing data, summarizing data and associating/interpreting. The data were combined and grouped and made ready for analysis at the stage of organizing data. The forms were coded to express each participant. These codes were also used in direct quotes. During the stage of summarizing data; coding and classification processes were carried out. The data were coded by two researchers, then the codes were compared and the missing ones were completed. Later, during the stage of the classification stage, these codes were collected under categories and subcategories. The categories that emerged were interpreted by associating them with each other at the stage of association/interpretation.

Validity-Reliability

Kuder Richardson-20 (KR-20) reliability was used to examine the internal consistency of the achievement test. As a result of the calculation, the reliability coefficient of Test-1 (KR–20) was 0.806, and the reliability coefficient of Test-2 (KR-20) was 0.861. Tests with a reliability coefficient of 0.70 and above are generally considered to have sufficient reliability (Fraenkel and Wallen, 2000). In this case, both tests can be said to be reliable.

The data collection and analysis process is explained in detail for the validity and reliability of qualitative data. In the content analysis, the creation of categories was done meticulously. The content analyzed data was coded separately by two researchers. The consistency was calculated using the reliability formula proposed by Miles and Huberman (1994) and the agreement between the codings was found to be 89% compliance. Missing codes were examined by examining non- agreement codes. Objectivity was tried to be obtained through direct quotations from student letters. All raw data of the study was filed and stored for review.

RESULTS

In this research work, after the analysis of qualitative and quantitative data, the findings of each data type were presented separately. Results were gathered under the titles of "academic success" and "opinions about the conduction of the course."

Academic Achievements

Academic success was examined under the titles which are "comparison of the pretest-posttest scores of the groups" and "comparison of the posttest scores of the groups".

Comparison of the Pretest-Posttest Scores of the Groups

Descriptive statistics related to the pretest and posttest scores of the groups were given in Table 5:

	N		Mean	Standard deviation
Group 1	31	Pretest	46.65	6.68
		Posttest	76.39	13.36
Group 2	21	Pretest	47.43	9.06
		Posttest	77.33	12.03
Group 3	34	Pretest	45.41	10.86
		Posttest	79.18	7.63

Table 5: Descriptive Statistics on Pretest and Posttest Scores

Looking at the statistics in Table 5, it is seen that the posttest scores of all groups are quite high. Looking at the last test averages, it can be seen as the averages from the highest to the lowest are Group 3 ($X = 79.18$), Group 2 ($X = 77.33$), and Group 1 ($X = 76.39$). The highest value belongs to the 3rd group who applied flipped learning.

It is seen that Group 3 has the highest standard deviation ($s = 10.86$) in the pretest, but the lowest standard deviation ($s = 7.63$) in the posttest. It is also seen that Group 1 has the lowest standard deviation ($s = 6.68$) in the pretest, but it has the highest standard deviation ($s = 13.36$) in the posttest. A smaller standard deviation means that students' test scores are close to each other and so their learning is close to each other, that is, students learn well together. The fact that a higher standard deviation indicates that the distribution of the group moves away from the normal distribution, and that means that, there are students who learn well as well as students who do not learn well. This means that the teaching service offered to Group 3 is of higher quality.

The results of Wilcoxon Signed Ranks test performed to determine whether there is a significant difference between the pretest and posttest scores of the groups were given in Table 6:

	N	Mean rank	Sum of ranks	*z*-value	*p*-value
Group 1	0	0.00	0.00	-4.86	0.00
	31	16.00	496.00		
	0				
Group 2	0	0.00	0.00	-4.02	0.00
	21	11.00	231.00		
	0				
Group 3	0	0.00	0.00	-5.09	0.00
	34	17.50	595.00		
	0				

Table 6: Wilcoxon Signed Ranks Test Results Regarding Pretest-Posttest Scores

When Table 6 is examined, it is seen that there is a significant difference between the pre-test and post-test scores of the students who take "learning psychology course success test". They are ($z = -4.86, p < 0.001$) in Group 1, ($z = -4.02, p < 0.001$) in Group 2 and ($z = -5.09, p < 0.001$) in Group 3. It is seen that these differences are in favor of the post-test in each group. In this case, it can be said that the operations performed in each group positively affected learning.

Comparison of the Posttest Scores of the Groups

Kruskal Wallis test was performed to determine whether there was a significant difference between the post-test scores of the groups at the end of the course. The Kruskal Wallis test results regarding the posttest scores of the groups were given in Table 7:

	N	Mean rank	Standart deviation	X^2	p-value
Group 1	31	43.08			
Group 2	21	43.64	2	0.01	0.99
Group 3	34	43.79			

Table 7: Kruskal Wallis Test Results Regarding Posttest Scores

As seen in Table 7, no significant difference was detected between the posttest scores of the groups (X^2 = 0.01, $p > 0.05$). This shows that the applications done on three different groups do not differ academically.

Student Opinions

The opinions of the students about the conduction of the course were examined separately for each group.

Opinions of the Students in the First Group

Opinions of the students in the first group, where courses were taught interactively with the students through slides are discussed under three headings which are "Views on the design of the course", "opinions on examples, stories and memories" and "opinions on homework".

Opinions on the Design of the Course

The opinions of the students in the first group regarding the design of the course were given in Table 8:

Categories		Codes
Positive Views	Learning	Giving lecture is useful and efficient. It was impossible to understand the lecture without listening. This style of learning is better than the ones in other groups. The distributing presentations' printouts was effective in learning. Enabled the subject to perceive as a whole.
	Course Participation	There was an active lecture giving. Student was also effective in giving lecture.
	Permanence	The information was catchy.
	Attractiveness	The course was interesting and beautiful. I came to lecture willingly. I hung on the course's every word. I left the class happily. I excitedly waited for the next course. I liked the course and enjoyed it.
Negative Views	Learning	I would understand better with the station technique.
	Course Participation	I tried to participate in the course, but I could not. Slides were read in the course, and the students could not participate. I did not attend the course, and I do not like to attend anyway. It should have been interactive.
	Permanence	Subject teaching is not permanent. I noticed that I forgot the information right after the course.
	Attractiveness	It wasn't fun like the other group. I would love to try it. Using the same method every week caused fading. Plain lecturing was not nice. The course was boring. I was tired at the end of the course. Sometimes I was sleepy in the course. The content caused students to lose attention. The course time was long.
	Diversity	It would have been nice to done some activities during the course. Different materials should have been used. There should have been different methods and techniques. It was upsetting that the station techniques was not used.

Table 8: Opinions on the Design of the Course

As can be seen in Table 8, the students' views on the design of the course were categorized under two categories as "positive opinions" and "negative opinions".

It is seen that students have positive and negative opinions about the way the course is taught. Although it is stated that this method has a positive effect on attendance, it is seen that the method is negative in terms of student participation. The students think that the course is not interactive and they cannot participate in the course with this method. There are two different opinions that the course provides permanence and not. When positive opinions are examined in terms of attractiveness, it is seen that some of the students love the course, attend it intentionally and leave it happily.

It is striking that some of them dislike the course and think it is long, tiring and boring. In the Diversity subcategory, it is observed that students want to do activities, learn with fun, use different materials with different methods and techniques. Although they want to learn with diversity and fun and do not find the course very interesting, it is discovered that students generally think that they understand the course better in this way. It is noticed that students think that good learning is provided through lecture giving, it is not possible to understand the course without listening, and they are able to perceive the subject as a whole very well in this way.

Some direct quotes from students' opinions under these categories are given below:

S9: "*I think it is more beneficial to carry out the course in the form of a station technique. Because plain lecturing and giving homework is not interesting.*"

S19: "*I think just giving examples in the course, which rarely happened, was not enough. I was trying to participate more in the course and digest the content but unfortunately this was not always happening.*"

Opinions on Examples, Stories and Memories

The opinions of students in the first group regarding examples, stories and memories were given in Table 9:

Categories		Codes
Positive Opinions	Given by the teacher	Sudden rises and reactions attracted attention. It was stunning, diverse, interesting and beautiful. I would like to listen to it more. It provided permanence. It was effective in learning. It provided reinforcement. It was nice to listen to the past experiences.
	Requested from student	It was effective, useful and efficient. It made me feel my ideas were valuable. He made the student active. He established a connection between the student and the course. Made the student stay awake during the course.
Negative Opinions		Examples are similar, different examples should be given. We were able to give examples rarely. Sometimes not giving examples made it difficult for me to understand.

Table 9: Opinions on Examples, Stories and Memories

As can be seen in Table 9, students' opinions about examples, stories and memories are categorized under two categories as "positive opinions" and "negative opinions".

It is seen that students have positive and negative opinions about the examples, stories and memories in the course, but positive opinions are quite high. The students think that the examples given by the teacher, the stories and memories he tells are interesting and beautiful, are effective in learning, and are useful in terms of permanence and strengthening. It is also seen that students find it effective and beneficial to be asked for samples and thus they feel active in the course. However, there are also some students who think that there are not enough examples given by the teacher and that they cannot give enough examples.

Some direct quotes from students' opinions under these categories are given below:

S27: "*When you give examples in the course, you give very similar examples or I confuse them because the theories are similar. My request to you is to give wide variety of examples, not only through us or similar things, while giving examples in the lesson.*"

S28: "*The examples given in the course and your memories that you shared with us were very nice. Occasionally, when you take examples from us and use it in the course helped us learn many things.*"

Opinions about Homework

The opinions of the students in the first group regarding the homework were given in Table 10.

As can be seen in Table 10, students' views on homework are categorized under two categories as "positive opinions" and "negative opinions".

It is observed that students have both positive and negative views towards homework. Some of the students think that homework offers the opportunity to repeat topics, strengthen the course and contribute positively to their learning. It is seen that some students think that homework such as acrostic, poetry, writing slogans are unnecessary and useless, they should be done during the course instead of being given as homework, and homework should be checked daily.

There are students who find their homework interesting as well as students who think that their homework is not interesting. It is discovered that students generally find homework difficult. It is seen that students think that homework requires skills, takes a lot of time, is tiring and causes stress.

Some direct quotes from students' opinions under these categories are given below:

S30: "*Some homework's contents such as slogan and acrostic push me very hard. These make me say 'What is it about?'.*"

S33: "*It was nice that you make us write questions. Even Though It sounded very simple, it was a homework that at least measure if we really understand the subject.*"

Categories		Codes
Positive Opinions	Learning	Strengthened the course. Gained strength in terminology. Provided repetition of the topic. Enabled better learning of topics. It was effective and useful in learning. Question preparation assignments were efficient.
	Easiness	It was not difficult.
	Permanence	Ensured permanence
	Attractiveness	It provided learning with fun. It was interesting and fun. It was done with love.
Negative Opinions	Learning	Acrostic, poetry, slogan, etc. were illogical, unnecessary, useless. I wish there were no homework. There should have been quizzes instead of homework. Homework should have been done during the course time. Homework should have been checked day by day. Homework was not useful.
	Easiness	Homework such as acrostic, poetry and slogan required creativity. Some homework was difficult. Doing homework every week was tiring. Homework took a lot of time. Homework was a burden. Homework was a stress factor.
	Attractiveness	Doing homework was not interesting. The homework was overwhelming

Table 10: Opinions about Homework

Opinions of the Students in the Second Group

The opinions of the students in the second group, where the activities were done in groups by reading the presentations without any lecture, are gathered under three categories which are "opinions about the design of the course", "opinions about the reading task" and "opinions about the activities".

Opinions on the Design of the Course

The opinions of the students in the second group regarding the design of the course were given in Table 11:

As can be seen in Table 11, students' opinions on homework are categorized under two categories as "positive opinions" and "negative opinions".

It is seen that students have positive and negative opinions about the design of the course. When sub-categories are examined, it is observed that students have mostly negative opinions about this method in terms of education, but they have mostly positive opinions about attractiveness. This situation shows that students find the way the course is taught is fun and interesting, but they are worried about not learning. While, in the first group, the opposite was true. It was seen that the students generally did not find the course interesting, but they thought it had a positive effect on learning. This situation shows that students have the idea that they learn better with the traditional method. It is also observed that students have positive opinions about this method that it provides active participation and free self-expression in the course.

Some direct quotes from students' opinions under these categories are given below:

S2: "*I had fun in some activities, I got bored in others, I did not understand why. This system did not contribute to the teaching of the course to me. I am a kind of person who understands better when teacher explains.*"

S4: "*Overall, it was a fun course. But my expectation was a little more homework-based curriculum. Nevertheless, I think I have reached a certain level of knowledge during this semester.*"

Opinions on Reading Assignment

The opinions of the students in the second group regarding the reading assignment given to them to understand the subject at the beginning of the course were given in Table 12.

As can be seen in Table 12, students' opinions about the reading task consist of only one category, "negative opinions".

It is seen that the students do not have a positive opinion about asking them to learn the subject by reading the documents given to them at the beginning of the course. It is noteworthy that all of the students' opinions on this issue are negative. The thing that the students complain the most is that the duration is not enough. In addition, it is observed that they were bothered since they had to read the documents within a certain period of time. Moreover, also observed that they think that they did not understand and did not learn the subject only through the document.

Some direct quotes from students' opinions under these categories were given below.

Categories		Codes
Positive Opinions	Learning	It was understandable and instructive. It was effective. I learned involuntarily. Topics are better structured in my mind. My creative thinking and productivity increased.
	Course Participation	I actively participated in the course. I was able to express myself freely.
	Attractiveness	It was a very interesting course / experience. I came to the course willingly with joy. It was fun and enjoyable. It was the first time in my life that I had such a course. It was student-centered. It was better than listening to the teacher with being bored. I did not understand how time passed.
Negative Opinions	**Learning**	Many subjects have been wasted. This process did not work in learning. We couldn't learn effectively and properly. It should have been based on giving lecture and homework. I would prefer the subject to be taught. We deflected from the focus. I had difficulties in learning. I prefer to listen teacher and take notes. Since there is exam, I would prefer subjects to be taught.
	Attractiveness	I was stunned and disliked because it was different than what we used to. I couldn't like the course. I did not have motivation to come and participate the course. I had no motivation.
	Responsibility	The structure of the course necessitated a teacher. Leaving the responsibility to the student did not make me happy.
	Applicability	We do not have enough capabilities for this application. It was not an appropriate processing in terms of class size and duration.

Table 11: Opinions on the Design of the Course

Categories		Codes
Negative Opinions	Limited Time	We could not finish reading the handed papers. The time given to read was insufficient. I can learn by reading one by one, I couldn't catch up. It is not appropriate to assume that everyone can to read at the same time.
	Designated Time	Reading a slide in a period of time put me in stress. Information should have been given before the course. Course notes should have been given in advance.
	Inability to Understand the Subject	I read without understanding. I have read just enough to do the activities. I could not understand the subject by reading. Without understanding the subject, we moved on to the activity. We couldn't get the necessary information just by reading the presentations.
	Other	Reading in pairs was not efficient.

Table 12: Opinions on Reading Assignment

S5: "*The problem for me was that the time was short. We read the form in a short period of time and started writing poem. I started writing poem before I could finish reading the form. Thus, I didn't get any yield.*"

S8: "*I think that more time should be given while reading the course notes. Because, performing the application before it was clearly understood and thinking about timing, caused both the application not to be understood and taking more time while the application was done.*"

Opinions About Activities

The opinions of the students in the second group regarding the activities were given in Table 13.

Categories		Codes
Positive Opinions	Learning	The activities were useful, provided learning. I learned the subject in class with activities. We learned how to use of methods and techniques.
	Participation	Even the student who never participated was actively involved.
	Permanence	During the finals week, I realized that the activities were permanent.
	Group Interaction	Group interaction was nice. I spoke / communicated with people I never spoke to. I united with my classmates.
	Attractiveness	The activities were fun. The activities were varied and beautiful.
Negative Opinions	Learning	Activities were like games, not like learning activities. The activities were not instructive / useful. There were no warnings or corrections in the activities. The activities were not instructive since the subject was not understood. The methods could not be used for learning purposes.
	Limited Time	Activities were rushed, they should have been done slowly. The time was short. The time could not be used properly / time was wasted.
	Attractiveness	Some activities were boring. We did not do the tasks willingly.
	Group Interaction	There was no respect for someone else's ideas. There were some problems in group works. Working as a group was not good. Everyone in the group did not fulfill their responsibilities. Some people in the group assumed the duties.
	Other	There was a lot of noise during the events. I felt uncomfortable reading the activities from the blackboard. Photocopying the activities was a problem.

Table 13: Opinions About Activities

It is observed that students have positive and negative opinions about the activities. There are two different opinions that activities affect learning positively and they do not contribute to learning. It is seen that the students think that the activities are not instructive before the subject is understood adequately. One of the reasons for the negative opinions about the activities is that they were done in a limited time. Both giving reading assignment at the beginning of the course and having timing problem in the activities indicate that course time is not adequate for both course subject to be understood and activities to be completed.

Although there are positive opinions that it provides interaction for group work and provides an opportunity to socialize with classmates, it is striking that there are also some negative opinions.

Some direct quotes from students' opinions under these categories were given below:

S7: "*Yes, doing homework or activities as a group can be nice, but it is nice as long as everyone is aware of their responsibilities and respects the others ideas. I can say that I sometimes had minor problems in this regard.*"

S10: "*The activities were very fun… However, having limited course time caused some activities to be done in a hurry. So, it made me think we couldn't fully understand the subject.*"

Opinions of the Students in the Third Group

It is observed that opinions of students in the third group, where the flipped learning model was applied and the activities were done in groups are gathered under three categories which are "Opinions about the design of the course", "Opinions about pre-course studies" and "opinions about activities".

Opinions on the Design of the Course

The opinions of the students in the third group regarding the design of the course were given in Table 14:

Categories		Codes
Positive Opinions	Learning	These subjects could not be taught any better than this. The course was very efficient. We learned different methods and techniques. I discovered myself. We will collect the outcomes. It was more effective than normal course. A verbal course could be taught with application. When I studied for the exam, I saw that I already knew / learned well. My brain sizzled during the course, and it used all its functions. We learned without stress.
	Course Participation	We provided active learning. The course was interactive. The course was in the hands of the student. Everyone participated in the course effectively. Whether we wanted it or not, we attended the course. I was able to express myself.
	Permanence	Information was permanent. It remained in my mind when applied I saw that I remembered all of them while I was working on the final. I still remember them all.
	Responsibility	For the first time, I took notes in a course, and I kept a file. For the first time, I felt responsible.
	Attractiveness	I was like going to a meet my friends and have fun. I saw what could I do in a few hours. This course raised my expectation for the other courses. It was the most enjoyable, fun and beautiful course in this semester. I have never seen such a course execution before. The lesson satisfied me, I enjoyed it, I liked it. I am happy that I attended the course. There was no deficiency in the course. Other courses began to be boring. I saw that education can be loved. It was the most diverse, different and creative course I have ever seen. I feel myself lucky. I saw that you can have fun while learning. We did not realized how time passed.
	Diversity	Each course we used different methods and techniques. Using technology was an advantage.
Negative Opinions	**Learning**	I learn better individually. I have doubts about its benefit. I think we will get low score from the final exam. It could be learned better with the classical style. I couldn't learn very well. The technique did not work on us.
	Permanence	It was not permanent.
	Easiness / Difficulty	It was the most struggling course. It was difficult both materially and spiritually. Learning was up to us. Sometimes, I'm tired in the process.
	Other	There had to be a midterm and final exam. It was a course not suitable for absenteeism. Keeping files is a waste of paper. If there were weekly quizzes. Assigning homework in midterm week was not good.

Table 14: Opinions on the Design of the Course

As can be seen in Table 14, students' opinions on activities consist of two categories which are "positive opinions" and "negative opinions".

It is seen that students have positive and negative opinions about the design of the course. It is observed that about the learning, the students find the course efficient, they learn the subjects well, and they learn without stress. In addition, it is also seen that some students prefer individual learning, classical learning, plain lecturing and taking notes.

It is seen that the students find the course to be very positive in

terms of attendance. It is observed that students have positive opinions that they participate the course no matter if they want to or not, that they express themselves, that the course is given interactively, and that the course is in the hands of the students. The students think that the information is permanent and state that they feel a sense of responsibility in this course. It is noteworthy that the sub-category with the highest density is the attraction category. It is seen that the students liked the course and the conduction of the course. The students state that they had a lot of fun in the course, they were very surprised about the process, and they did not understand how time passed in the course. Students indicated that after this course, their expectations from other courses have increased, that other courses have started to be boring and that they see that with the help of this course education can be liked. These indications of the students showed how much they liked this course.

The difficulty of the course is the thing that students complain most. It is seen that some of the students think that the course is the most challenging, it is tiring and sometimes it is frustrating.

Some direct quotes from students' opinions under these categories were given below:

S1: "*Good thing, I learned this way. I discovered many areas where I was successful. Most importantly, we learned what group work is. Do you know that we worked shoulder to shoulder with many of our friends that we did not communicate, and learned all together?*"

S3: "*I am one of the most delighted with these activities. Because, I think the course should be in the student's hands and the course should be conducted by the student. And this course made me very satisfied in this sense.*"

Opinions about the Pre-Course Tasks

The opinions of the students in the third group regarding the pre-course tasks were given in Table 15:

Categories		Codes
Positive Opinions	Videos	I watched the places I don't understand again. Watching videos before coming to the class provided learning. The videos increased the efficiency. The videos enabled regular studying. Learning at home with videos was good in every respect. The learning environment at home was comfortable with videos. I watched the video as much as I wanted whenever I wanted.
	Homework	Homework was too much. Homework has contributed a lot to me. Homework made us come to course ready. Homework was useful. Homework was efficient. It was useful to give feedback on homework. Very good feedback was given to our homework. Reading the articles was enjoyable.
Negative Opinions	Videos	It was difficult to watch the videos in unfavorable dormitory conditions. Although it was good at first, it later became unbearable. It was not suitable for this course because it was verbal. Presentations should be given instead of videos. The more examples should have been given in the videos. If quizzes were done from videos. Presentations should also be given along with the videos.
	Homework	Regular homework mode forced me, and I was not accustomed to. Homework sometimes seemed like cruelty. Homework was too much and boring. Homework was done at the last moment / last day. Homework was tiring. I was yelling while doing homework. I felt lazy to do homework. I sometimes had trouble creating examples. I didn't like to summarize subjects. We said "homework again?".

Table 15: Opinions about the Pre-Course tasks

As can be seen in Table 15, students' opinions on activities consist of two categories which are "positive opinions" and "negative opinions".

Students have both positive and negative opinions about pre-course tasks. The students think that the videos given to take home were useful for learning. They also think that the videos allow them to watch them anytime, wherever they want, and watch them over and over again. It is observed that some of the students prefer presentations instead of videos to be given. They have some difficulties while watching the videos in the dormitory.

It is seen that in general, students find homework efficient and useful in terms of preparation and learning, but it is also seen that some students get tired, struggled and bored while doing homework.

Some direct quotes from students' opinions under these categories were given below:

S16: "*First of all, when I listened to the lecture videos and do homework every week beforehand, I would question the tasks we did as "Why do we do this?" But while I was studying for the exams on the final week, I realized that it really helped me a lot.*"

S19: "*Watching videos and doing homework before coming to course allowed us to work regularly… Homework was not difficult. So, it was not hard to do.*"

Opinions About Activities

The opinions of the students in the third group regarding the activities were given in Table 16:

Categories		Codes
Positive Opinions	Learning	Activities made a great contribution to learning. The activities were instructive. The activities were efficient. I learned easily through activities. The subject was strengthened well with the activities. I understood the subject better with the activities. What was learned at home was reinforced.
	Participation	Even when I came to the course feeling tired, I loved the activities. I am very happy to attend different activities.
	Attractiveness	It was fun to listen to friends' activities. The course became entertaining with activity. It increased my interest in the course. I have never done so much activity in my previous education life. The activities were very enjoyable, fun. I enjoyed the activities. With the activities, I did not understand how the course is finished. Methods and techniques were very good.
	Group Interaction	We exchanged ideas with friends. We strengthened friendship. We learned unity and solidarity with group work. We learned from each other with group work. We completed each other' weak sides as a group. It was easy to do activities as a group. I have established relationships with people I have never contacted. People with no relationship worked together. The communication of the class was very good.
Negative Opinions	**Learning**	Some activities were left unfinished. The activities were not instructive.
	Limited Time	The time given at the activities was very short. The activities were done very fast, it was a rush of breeding.
	Workload	The number of activities could have been smaller. The high number of activities prevented satisfaction. We were very tired with the activities.
	Attractiveness	We did the activities for necessity.

Table 16: Opinions About Activities

As can be seen in Table 16, students' opinions on the activities belonged to one of two categories, which are "positive opinions" and "negative opinions".

The students have both positive and negative views about the activities, but the positive views are decidedly high. Students generally think that the activities affected learning positively and strengthened what they learned at home. However, some students think that they could not learn through activities. It is observed that the students participated in the course through the activities and found the activities very attractive. Students think that the course became fun with the activities, that their interest in the course increased, and that they did not understand how the class ended while they were busy enjoying the activities.

It is seen that the most intense subcategory of activities is group interaction subcategory. The students think that the activities contributed to their exchanges of ideas, to mingling, to learning from each other, to unity and togetherness, and to socialization. The students also have some negative opinions about the duration of activities being short and the number of activities being high.

Some direct quotes revealing students' opinions within these categories are given below:

> S15: "*For the first time, I took notes in a course. I organized a file. I felt responsible for a course… Every topic remained in my mind with the activities you did. Although weeks have passed, I still remember.*"
> S29: "*I am sure that if we had done this course in a classical way, the information would not have been learned so easily and it would not have been so permanent. With the activities we did in the course, we coded each subject with something in our mind.*"

DISCUSSION

The following conclusions were reached regarding the effect of the models used on academic success:

First of all, it was concluded that there was no significant difference between the posttest success scores of the groups, that the students' levels of learning success were close to each other, and that the students in the whole group learned well. This shows that the three different applications arranged according to student-centered approaches had positive effects on success, although their levels were different. Other studies have shown that student-centered education increases students' academic achievement, increases their motivation to learn, increases the level of knowledge recall, and provides in-depth understanding (Kilic and Sahin, 2016; Maden, Durukan and Akbas, 2011; Salinas, Kane-Johnson and Vasil-Miller, 2008; Smart and Csapo, 2007).

It was also concluded that the standard deviation was smaller in the group in which the flipped learning model was applied compared to the other two groups. Senemoğlu (2011) stated that the fact that almost all of the students participated in the teaching showed that the quality of the teaching service was at a very good level, and the degree of students' participation in the teaching-learning process is the best indicator of the quality of teaching service. Furthermore, when students are able to participate in the teaching-learning process at the highest level, the majority of students learn at the highest level and their success levels are close to each other. This shows that the flipped learning model is effective on students' success. In terms of academic success, the flipped learning model and traditional classes have been the subject of many studies. In the literature, there are studies stating that flipped learning increases students' academic success (Asıksoy and Sorakın, 2018; Bishop and Verleger, 2013; Butt, 2014; Mason, Shuman and Cook, 2013; Okmen, 2020). Cho and Lee (2018) also reached the conclusion that this model has a positive effect on learning as a result of their meta-analysis study.

At the end of the present research, the results regarding the opinions of the students in the first group, where the lessons were taught through presentations interactively with the students, were as follows:

First, it was concluded that the students found the examples given in the lessons and the stories and memories that were shared interesting and good, and they thought they were effective in learning and beneficial in terms of permanence and reinforcement.

In the lessons designed as presentations, although memories and stories were told and different examples were given, it was concluded that some of the students were satisfied with this situation but some of them did not like the lessons, which they found to be long, tiring, and boring in terms of student participation and wanting to learn with activities. This shows that shared memories and stories are not enough for students to be sufficiently active and that the students wanted to be more active. Research has shown that the use of various activities in the educational environment increases student motivation (Okmen, 2020; Sirakaya, 2017; Su and Cheng, 2015; Yıldırım and Demir, 2016) and provides students with the opportunity to actively participate (Di Bitonto et al., 2014; Okmen, 2020; Rowkaya, 2017).

These students reported that they learned better with the traditional method and the students generally thought that this application was effective on their success although they did not find the lesson fun or interesting. This is the result of students' and teachers' traditional perceptions that they learn better through lecturing. In her study, Sahin (2020) determined that students' perceptions of education were mostly focused on "lecturing" and that traditional practices in lessons had a large place in their perceptions of learning.

Although some of the students thought that the homework assignments were unnecessary, difficult, stressful, and not interesting, other students thought that the homework offered the opportunity to repeat topics, reinforced the lessons, and contributed positively to learning. Considering that the classroom activities in the other two groups that held the students' attention were given as homework in Group 1, and that these students did not find this homework purposeful, especially the acrostics, poetry, and puzzle-style tasks, the importance of doing these activities in groups becomes clear. In addition, these types of homework were thought to have an important role in the academic success of the students in this group. Kaplan (2006) conducted a study to investigate whether homework assignments had an impact on students' levels of success and concept learning. According to the results of that research, homework had a positive effect on students' success and concept learning and also had a positive effect on students' attitudes towards the lesson. Similarly, Sarıgöz (2011) stated that when students did their homework on time, they reinforced the subjects that they studied at school, understood the subjects better, and were more motivated about the lessons.

The results of the opinions of the students in the second group, where the activities were done in groups by reading presentations without any lectures, were as follows:

First, it was concluded that they thought the lessons were fun and interesting with the activities, but they experienced learning anxiety because there was no lecturing. This showed that the students had the idea that they learned better with the traditional method and this also supports the results of the first group.

It was concluded that giving documents to the students and asking them to learn the subject by reading them in the classroom had negative effects and caused them anxiety about not learning. It was seen that because the reading and comprehension speeds of the students were different, it was not realistic to ask students to read and learn the subject in the classroom in a limited and insufficient amount of time, and it was not effective in learning. This also supported the effectiveness of learning the subjects in the flipped learning model in the home environment before the lesson, whenever the students wanted.

The students did not find activities done without understanding the subject instructive, and the short duration and the high number of activities made it difficult for the students to follow the activities and had a negative effect on their learning. The fact that there was a shortage of time both for the reading task given at the beginning of the lessons and for the activities indicates that the classroom time was not sufficient for both understanding the lesson and doing activities. This again emphasizes the effectiveness of performing the understanding-comprehension parts of the lessons at home before class and allocating more time for activities as in flipped learning.

The opinions of the students in the third group, where the flipped learning model was applied, were found to be as follows:

First, it was concluded that the students liked the lessons and the teaching of the lessons very much, found the lessons efficient, had fun in the lessons, and were surprised at how quickly time passed in class. This shows that the flipped learning model had a positive effect on students' attitudes towards the lessons. Numerous studies in the literature have also shown that the flipped learning model positively affects students' attitudes and motivations towards the lesson (Chen et al., 2015; Clark, 2015; Gross et al. 2015; Heyborne and Perrett, 2016; Ojennus, 2016; Okmen, 2020; Tawfik and Lilly, 2015).

The students found home videos and homework useful for lesson preparation and learning, and even if they felt forced and bored, they had positive thoughts about watching the videos whenever they wanted, watching them wherever they wanted, and watching them again and again. Although there are studies in the literature reporting that the obligation to work at home in the flipped learning model is a disadvantage of this model (Alsancak Sirakaya, 2015; Rowkaya, 2017; Turan and Goktas, 2015), a large number of students stated that the work done at home increased their active participation and success (Frydenberg, 2012; Herold et al., 2012; Okmen, 2020; Stone, 2012; Talbert, 2012).

The students also thought that the activities were effective in their learning and reinforced what they had learned at home, while the lessons became fun with the activities and increased their interest and participation in the lessons. The group studies contributed to their exchanges of ideas with their friends and helped them get to know each other, learn from each other, gain responsibility, build unity and togetherness, and socialize; the only negative situation related to the activities was the shortage of time. Studies show that methods that require students to work with each other increase students' achievements (Nam and Zellner, 2011; Okmen, 2020; Shy-Jong, 2007) and motivations (Arısoy, 2011; Okmen, 2020). Scott, Buchanan, and Haigh (1997) also stated that teaching practices in which the students are active, rather than the teacher, create more effective and permanent learning.

In the literature, it has been reported that there may be difficulties in classroom management and time management in classrooms where the flipped learning model is applied (Danisman et al., 2017) and that some students may not be able to complete their projects because the speed of the students to fulfill the tasks is not equal. For the same reason, some students may finish their projects early, and because they then have to wait in the classroom, they may become bored (Danisman et al., 2017; Thoms, 2012).

Based on the results obtained throughout this research, various suggestions can be presented. Some of them are as follows: The same research design could be repeatedly tested in different schools (private or government), with different participants and by different researchers. In-class practices should be prepared to keep students active and practicing, and to attract students' attention. Group activities should be included in the teaching process. Lectures should be enriched with different examples and stories. Teachers should enrich their general teaching styles with regard to their own subject areas. Homework should be assigned in a way that gives students the opportunity to repeat and reinforce subjects. Home tasks should be prepared to be completed within half an hour. Class tasks should be prepared while ensuring that they can be completed within the allotted period.

CONCLUSION

This research has shown us that different methods used according to the student-centered approach have positive effects on students' achievements. However, in the group for which the flipped learning model was applied, the majority of the students learned at a high level and their success levels were close to each other. This shows that a high quality of education was provided in this group.

Although the students found the examples, the stories, and the memories shared in the lectures to be interesting and good, these were not sufficient in terms of student participation, and the students preferred to learn via activities. In addition, the students had the perception that they learned better by the lecture method and this may be a result of the education system that they have grown up with.

It was seen that not enough time could be given to both lectures and activities, and activities performed without understanding the subject sufficiently were not found to be instructive by the students. This reveals the importance of the flipped learning model, which allows the "comprehension" step of the lesson to be carried out at home before the lesson and accordingly allows more time for activities in the lesson.

The flipped learning model positively affected the students' attitudes towards the course. The students liked the teaching of the lessons very much, had fun in the lessons, and were surprised at how quickly time passed. Group work allowed the students to exchange ideas with their friends, learn from each other, gain responsibility, build unity and togetherness, and socialize.

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