Examination of the flipped classroom approach in the context of bibliometric analysis and GPT-3 model

Derya YÜREĞİLLİ GÖKSU[1] , Volkan DURAN [2]

[1]Gazi University, Faculty of Education, Ankara,Turkey
[2]Iğdır University, Faculty of Arts and Sciences, Iğdır, Turkey

Abstract

The aim of the study is the examination of the flipped classroom approach used in foreign language lessons on the opinions of gifted students in the context of bibliometric analysis of the literature and the analysis of GPT-3 model chatbot. In this study, the descriptive method was used. It is aimed to obtain in-depth information according to qualitative techniques by using the qualitative data collection method to determine the opinions of the gifted students on the applied approach, in which the Flipped Classroom approach is used.First bibliometric analysis was used to examine the literature regarding the term Flipped Classroom in web of science by using different analysis methods like using graphs and curve fitting as well as creating nodes and graphs in vosviewer program. In the second part of the analysis, to collect data, student interviews were audio recorded voluntarily. Secondly, the opinions of the students on the "Flip-Face Classes" approach were revealed by using GPT3. According to findings, learning environments can be established by creating more entertaining and gamified supplementary activities using the added time from the flipped classroom and learning environments where students learn by doing it themselves to improve academic progress and attitude. Traditional language instruction, like other fields, replaces the lecture element with the "flipped classroom" method and uses technology outside of class to help students use class time more efficiently.

Keywords: Flipped Classroom, bibliometric analysis, qualitative analysis with GPT-3, GPT-3

1. Introduction

The term "flipped classroom" refers to a trend in education where lectures are recorded and shared online rather than being delivered live in front of a classroom. It is the students' responsibility to learn the material by watching videos outside of class. As a result, pupils are able to retain more information when active learning strategies are used in the classroom instead of the more conventional techniques (Foldnes, 2016). The term "flipped classroom" refers to an educational model in which traditional homework assignments are completed in class and vice versa. The premise is that the learner can learn independently by watching the instructional videos rather than passively listening to the lecture. The premise is that the learner can learn independently by watching the instructional videos rather than passively listening to the lecture. One way to look at it is

as a contemporary take on the time-tested academic routine of independent study supplemented with classroom debate. Naturally, the present use is not so straightforward, but the benefits are substantial. The most popular justification for flipped classroom techniques is that they promote experiential learning and aid in the building of knowledge via active participation from the students. Therefore, the meanings of "experiential learning" and "construction of knowledge" have been expanded to include the following: learning through interaction with other people; developing the capacity to apply or transfer one's knowledge and skills to other contexts; and acquiring a deeper understanding of topics (Cantor, 1997; Kolb, 1984; Awidi and Paynter, 2019).

Teachers are seeking to update their methods of instruction to keep up with the rapid evolution of technological tools for the classroom. Some language instructors have also begun using similar methods in their own courses. For the simple reason that education won't progress if it isn't delivered in a manner that takes into account how students now study. Among these novel uses, the "Flipped Classroom" paradigm has seen widespread adoption in the contemporary education. In contrast to more conventional approaches, students may see the theoretical content anytime they choose outside of class, and they can complete the assigned homework assignments in class with the help of the instructor. Teaching a foreign language using such a manner has several advantages for both the students and the instructors involved since it makes better use of class time. The "Flipped Classroom" movies may be prepared utilizing either online materials or the teacher's personal recordings (Temizyürek&Ünlü,2015).

The aim of the study is the examination of the flipped classroom approach used in foreign language lessons on the opinions of gifted students in the context of bibliometric analysis of the literature and the analysis of GPT-3 model chatbot.

Themes

- The flipped classroom approach
- Bibliometric analysis results for the terms of the flipped classroom and gifted education
- Text and sentiment analysis results of the gifted students regarding flipped classroom

2. Method

In this study, the descriptive method was used. It is aimed to obtain in-depth information according to qualitative techniques by using the qualitative data collection method to determine the opinions of the gifted students on the applied approach, in which the Flipped Classroom approach is used.

First bibliometric analysis was used to examine the literature regarding the term Flipped Classroom in web of science by using different analysis methods like using graphs and curve fitting as well as creating nodes and graphs in vosviewer program.

In the second part of the analysis, to collect data, student interviews were audio recorded voluntarily. Then the audio recordings were deciphered. The study population of the research consists of 5th-grade students studying at Etimesgut Science and Art Center in the 2017-2018 academic year. The study group consists of 10 students who voluntarily participated in the research among these students. In the research, firstly, the literature review was completed by examining the articles published about the Flipped Classroom approach. In the observation form used in the research, the students were asked, "What are your thoughts about the Flipped Classroom application?" and "Which English skills would you think would be missing if we hadn't built the Flipped Classroom app?" questions were posed. Research data were obtained through individual interviews.

Secondly, the opinions of the students on the "Flip-Face Classes" approach were revealed by using GPT3. In the field of machine learning, OpenAI has created a model known as GPT-3 (Generative Pre-trained Transformer 3) that uses neural networks. It has been educated on data from the internet and can produce any kind of text from a little quantity of input. Because of its autoregressive nature, GPT-3 leverages deep learning to provide natural-sounding output that continues the user's query. It can do several operations in the field of natural language processing, including text categorization, machine translation, and question answering. Its scale is unprecedented for a neural network, with 175 billion parameters. GPT-3 can be used for a variety of tasks, including natural language generation, understanding customer feedback and sentiment analysis, market research, product research, customer experience management, content creation for marketing campaigns, SEO optimization, and business analysis . In this process we just insert the deciphered dialogue between student and teacher in GPT-3 and give the interpretation of GPT-3. In the second part of the study we analyze the sentiments of the students dialogues by using GPT-3. When we give each dialogue we give the following command to GPT-3:

"I will give you a dialogue between a teacher and student. each dialogue begins with the teacher's introduction and student's response. The dialogue has a dialogue title and number like "dialogue 1, dialogue 2 etc. The dialogue is about the views of the students regarding the flipped classroom method. What I want you from analyze overall sentiments both qualitatively and quantitatively for each dialogue. I will give you the dialogues in Turkish in brackets as follows::"

In this research we analyzed the text by using GPT-3 chatbot but the results are checked by the interviewer fort he compliance of the results given by GPT-3 with the text, if the

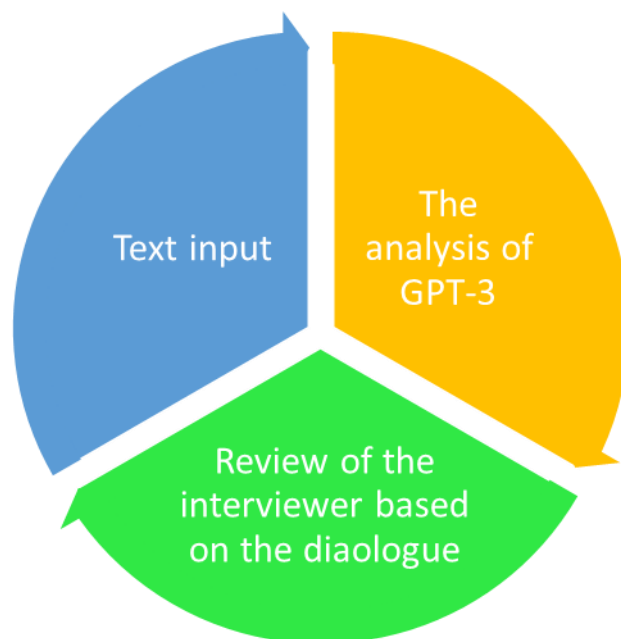text is not compatible with the text the analysis would be done again but we didn't need it to do that.

Figure 1. Text analysis procedure via GPT-3

Purpose of the Study

The views and emotions of students towards the "Flipped Classroom" will be ascertained as a result of this research. We'll talk about the potential benefits for both students and educators if this method were used more widely in the Turkey. One may also argue that the Flipped Classroom approach is cost-free and works with the present infrastructure. Since the world is becoming more interconnected, it is imperative that schools prepare students to apply what they have learned via the aid of modern technologies. PISA 2012 scores showed that Turkey lagged much behind the other OECD nations, scoring in the low 40s out of a total of 65. The lack of a personalized learning environment and insufficient use of technology are two major factors contributing to Turkey's lower international test scores. This study suggests that Turkey's education system might benefit from the Flipped Classroom strategy. In this light, the potential benefits of such an approach to the present-day schooling system might be explored.

Bibliometric Study Regarding Flipped Classroom in Web of Science

When we analyze the bibliometric results of the term "flipped classroom" in web of science in terms of web of science categories, we observed that 2534 articles are in educational research, 1094 of them are in education scientific disciplines, 345 of them are in computer science interdisciplinary applications, 330 of them are in social sciences interdisciplinary, 300 of them are in computer science theory methods, 248 of them are in engineering electrical electronic, 194 of them are in engineering multidisciplinary, 210 of them are in computer science and information systems, 177 of them are in management, 111 of them are in chemisty multidisciplinary field. There is an exponential increase from nursing to engineering to educational sciences in terms of categories.
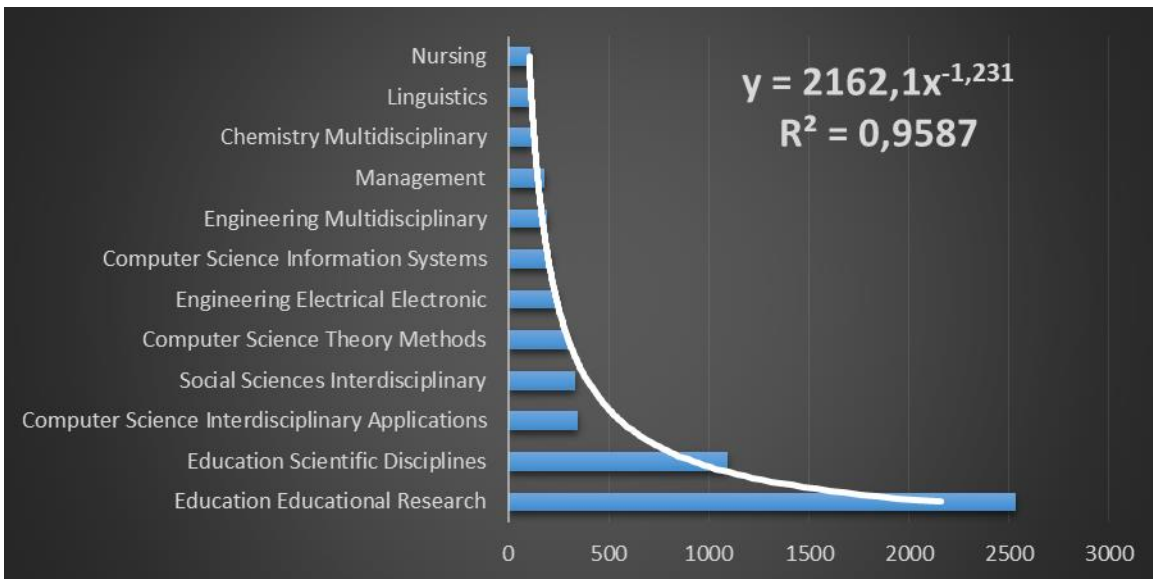

Figure 2. The distribution of the keyword "flipped classroom" in web of science in terms of disciplines

The majority of "flipped classroom" entries in the Web of Science database are related to education research. This shows that the flipped classroom model is the most commonly used and researched model in the field of education. Also, the word is widely used in computer science's many cross-disciplinary and education-related applications. Aside from these three primary areas, other prominent topics include the social sciences, computer science theory and techniques, and engineering higlighting the advantages of using technology in the classroom and the promise of the flipped classroom model, especially in the context of STEM education. In this context, the flipped classroom model offers several opportunities to improve engineering instruction. Because of the practical nature of engineering, the flipped classroom method may be utilized to provide students additional time to work on projects and participate in hands-on activities during class

time. In addition, the flipped classroom facilitates more personalised teaching and evaluation, which may be especially helpful for engineering students, whose coursework often requires in-depth knowledge of the content and expert problem-solving skills. Conclusions drawn from this analysis point to the widespread multidisciplinary interest in the flipped classroom model. It can be inferred that research in this area seems to focus on flipped classroom and its effect on student engagement and learning outcomes.

When we look at the publications including the keyword "flipped classroom" there is a logarithmic increase from 2011 to 2022 and the logarithmic equation explaining the 81 % of the variance indicating that the publications. The fact that the logarithmic equation can account for 81% of the variation in the data shows that the number of publications grows over time. 19% of unexplained variation in the equation indicates that other variables may also be influencing the total number of articles. We can say that its early stages of development in these time periods, the number of publications increased at a relatively slow rate but as the topic becomes more established and gains more attention, the number of publications increased more rapidly. It can be inferred that the flipped classroom topic has been reached a point where it is well-established and has a significant body of research, the number of publications have at constant value in recent years in web of science. However, publication rates in a subject may have been affected by a number of external variables, including changes in research goals, the availability of financing, and the pace at which new technologies are introduced. It should be pointed out that there has been a logarithmic increase in that area does not guarantee that this will continue.
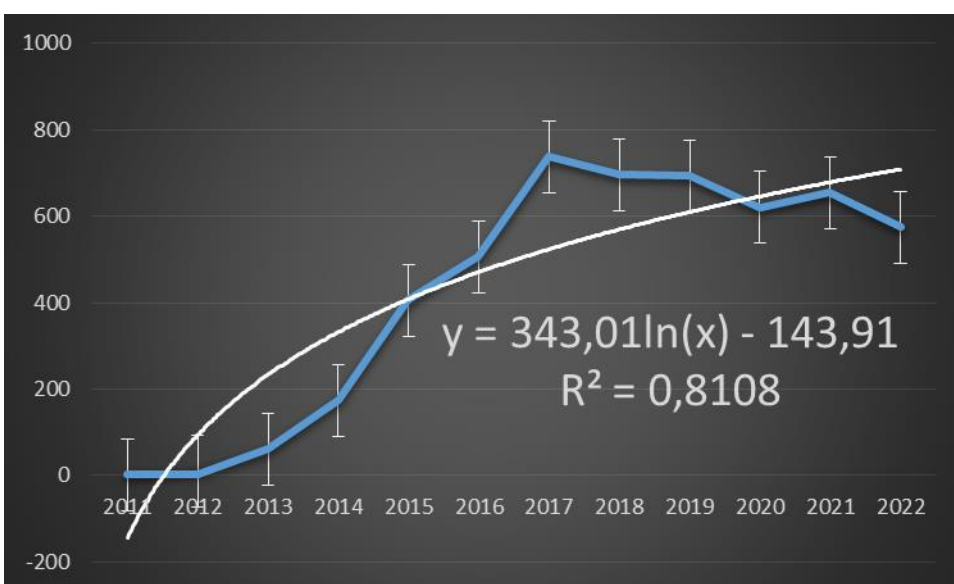

Figure 3. The publications including the keyword "flipped classroom" from 2011 to 2022

When we look at the document types, them most written document are the article types and the second one is the proceeding paper and the third one is review articles. There is an exponential increase from retraction to letters to proceeding papers to articles in this respect. The exponential rise from retraction to letters to proceeding papers to articles suggests that research on the flipped classroom method is becoming more common and is gaining recognition in the educational community. Articles are the most common type of written document in the flipped classroom method, followed by proceeding papers and then review articles. It also indicates that there is a growing body of literature on the issue, particularly in the form of review articles, and that the study on this topic is getting increasingly in-depth as more and more studies are published in the form of articles and subsequent papers. Research papers on the flipped classroom approach are on the rise, which indicates the concept is gaining traction in the area of education.
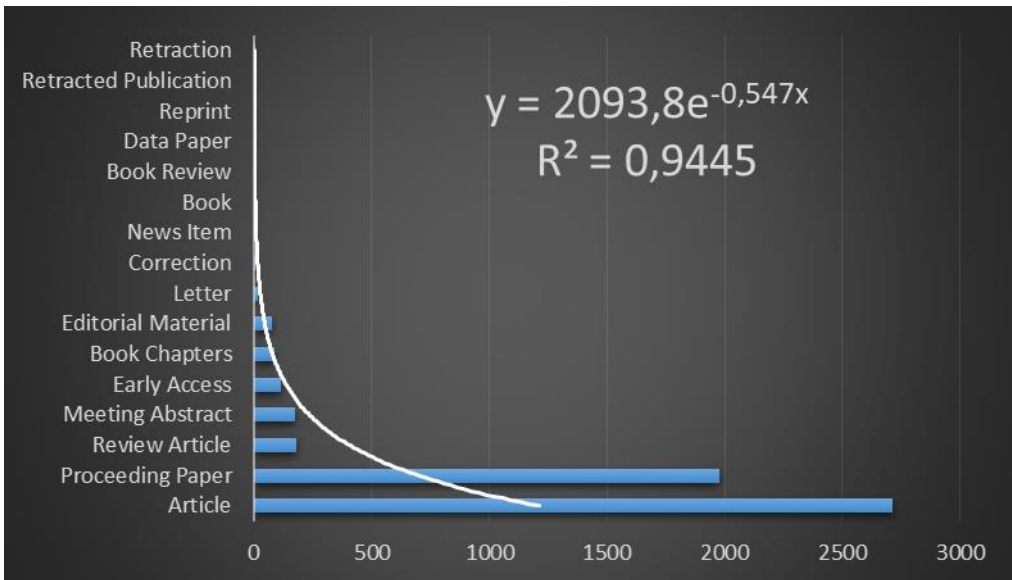

The chart shows the equation $y = 2093,8e^{-0,547x}$ and $R^2 = 0,9445$

Figure 4. The publications including the keyword "flipped classroom" in terms of document types

When we look at the publications including the keyword "flipped classroom" in terms of countries, the most publications are written in USA and the second country conducting research on this topic is China. It seems that books and book chapters are very scarce comparing to articles and proceeding papers in web of science collection.
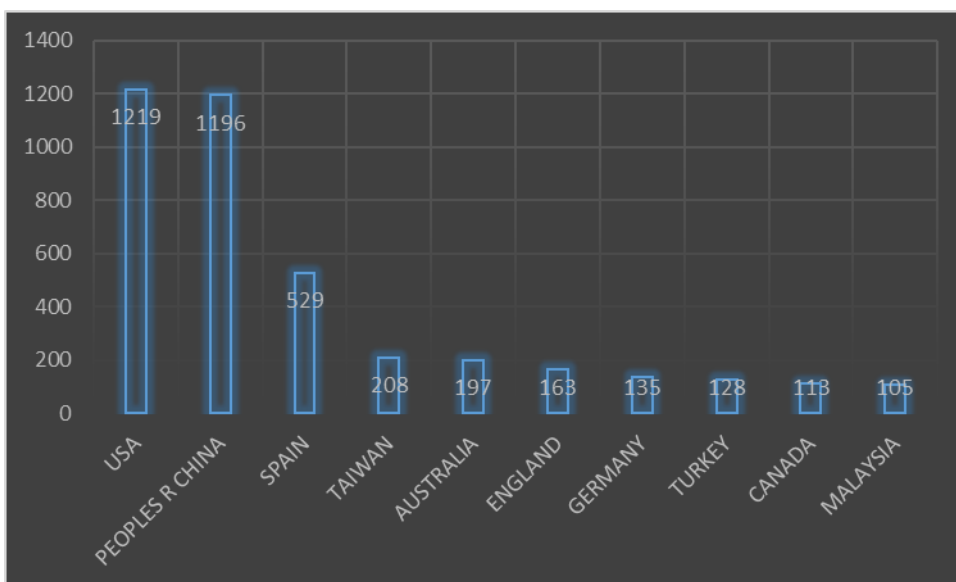
Figure 5. The publications including the keyword "flipped classroom" in terms of countries

When we look at the co-authorship between the countries where minimum number of documents of a country taken as 2, it is observed that four of them meet this criteria among the 14 coutnries. Co-authorship in VOSviewer refers to the collaboration between researchers or institutions from different countries on a research project or publication. When we look at the network diagram it seems that there is no so much strong collaboration among the countries in the network diagram so we don't include them as a diagram.

When we look at the co-occurence in the context of author keywords where minimum number of occurences of a keyword chosen to be 3, four keywords meet this criteria among the 120 keywords. It is found that flipped classroom is specifically related to active learning in the context of author keywords in VOSviewer where the co-occurrence refers to the frequency with which certain keywords are used together in the same publications.
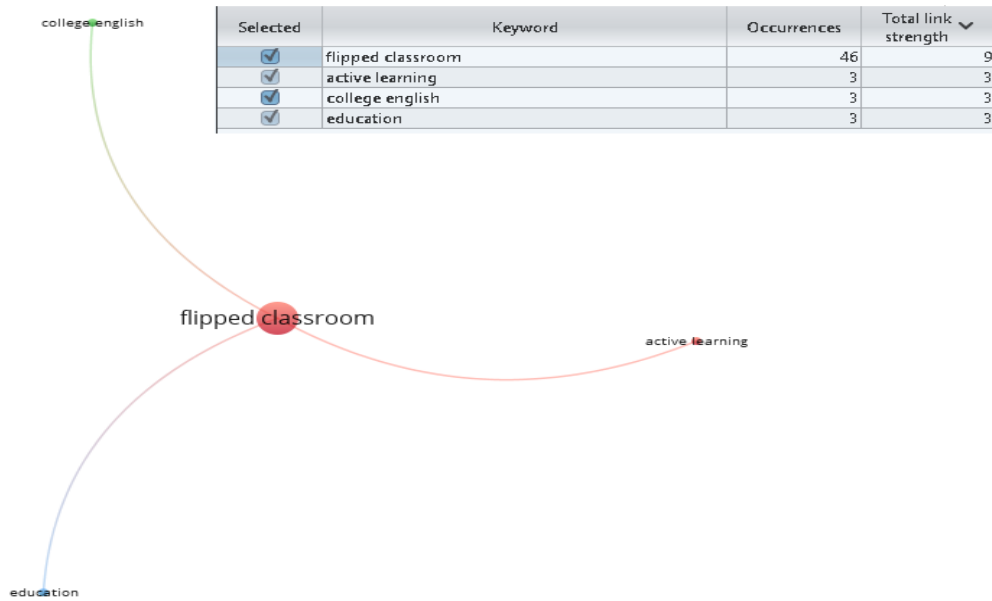
Selected	Keyword	Occurrences	Total link strength
✓	flipped classroom	46	9
✓	active learning	3	3
✓	college english	3	3
✓	education	3	3

Figure 6. The co-occurence in the context of author keywords

When we look at the citations in the context of countries where the minimum number of documents of a country was chosen to be 2 and the minimum number of citations of a country was chosen to be 1, among the 14 countries 3 of the meet the criteria. In terms of total link strength China and USA come to fore.

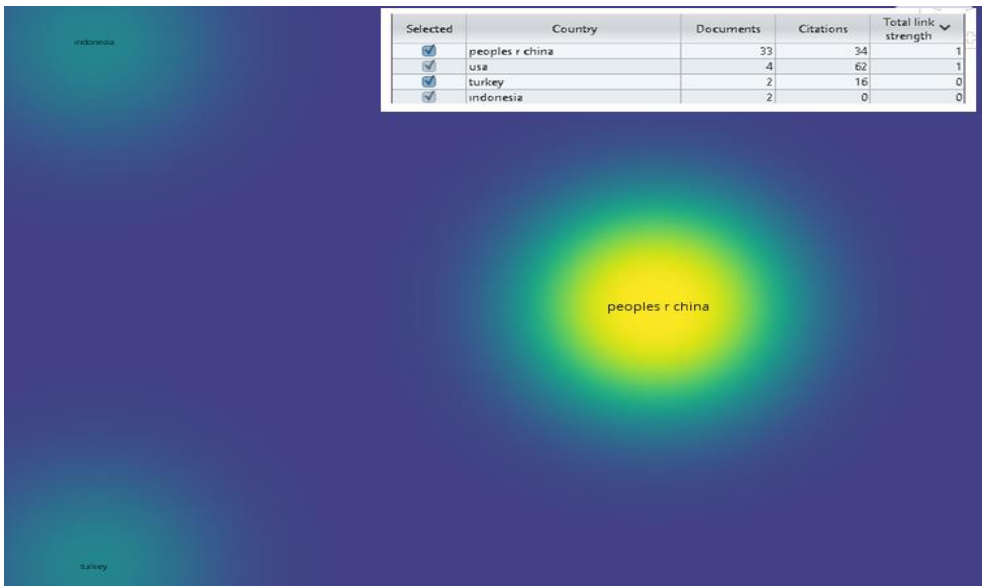| Selected	Country	Documents	Citations	Total link strength
✓	peoples r china	33	34	1
✓	usa	4	62	1
✓	turkey	2	16	0
✓	indonesia	2	0	0

Figure 7. The citations in the context of countries

3. Results

The opinions of the students on the "Flip-Face Classes" approach were revealed by using GPT3

First analysis of raw data of the participant 1.B. (male) given by GPT3 is given as follows:

> "Regarding the Flipped Classroom application, the user states that he/she watches and learns the subject in the videos and comes prepared for the lesson. He also says that thanks to online communication, he can ask questions to the teacher, reinforce the subject by taking tests and find the opportunity to learn on his own. He states that since no grades are given in the tests, he can make his own self-evaluation and realize his mistakes. In this way, he has the opportunity to learn the right thing by opening it again."

> According to Doğan's research on the flipped classroom in 2015, the participants could not interrupt the lesson in front of others, not distract the subject, etc. during the lesson. The fact that they prefer to ask questions in the online environment when they do not dare to ask questions for reasons revealed that the online environment created a democratic environment and offered equality of opportunity for all students.

Second analysis of raw data of the participant 2 Ç (male) given by GPT3 is given as follows:

> "User's thoughts about Flipped Classroom application are that this application saves time, they come to class prepared and their self-confidence increases. He also says that it is convenient because he can ask questions to the teacher thanks to online communication and he carries school to home and home to school. He sees it as a great advantage, especially since he can get information by asking questions to the teacher."

> In a study conducted by Johnson (2013), a subject stated by a student as one of the advantages of the Flipped classroom model is "to be able to work at one's own pace and to stand out when selected in the classroom. This

situation has also reduced the stress for certain tasks to be done in the next lesson".

According to a study conducted by Enfield in 2013, the experimental group students who were subjected to the application stated that conducting a preliminary study on comprehension was effective, students had knowledge about the content and increased their ability to learn independently.

Third analysis of raw data of the participant 3 D (female) given by GPT3 is given as follows:

"Talking about the benefits of the Flipped Classroom application, the user states that it primarily saves time, improves students' listening and comprehension skills, provides the opportunity to ask questions to the teacher and online communication, reinforces the subject by solving a test, provides active participation in the class, and provides the opportunity to review old topics. He thinks that speaking, listening, writing and reading skills would be incomplete if Flipped Classroom was not implemented."

Hashemifardnia, Namaziandost, & Shafiee (2018) investigated the effect of applying flipped classes on students' reading comprehension in an Iranian secondary school. Before coming to the lesson, the students read each text and had the opportunity to discuss it with their classmates. As a result of the analysis results, it was seen that there was a significant difference between the post-tests of the experimental and control groups. The findings revealed that the reading skill performances of the experimental group showed a higher result than the control group.

Fourth analysis of raw data of the participant 4 E (female) given by GPT3 is given as follows:

"Among the skills we will be missing, listening and writing skills would be at the forefront. Because we learn how to pronounce and write words through videos. We also improve our listening skills thanks to the activities in the videos. In the absence of the Flipped Classroom application, we would not be able to stay passive in our lessons and benefit from learning activities, as we

would not be able to benefit from time. Since we could not do the activities given by our teacher, we would not be able to improve our speaking and listening skills."

In a study conducted by Roth & Suppassetseree (2016), they aimed to find out whether the flipped classroom model improved the English listening skills of Cambodian university candidate students. In order to investigate the effectiveness of the flipped classroom model and to measure students' understanding of English listening texts, the researchers used questionnaires and semi-structured interview forms related to flipped classroom. In this study, both quantitative and qualitative methods were applied, similar to the current research. The results showed that the application of the flipped classroom model improved the English listening skills of Cambodian university prospective students. The results of this study revealed that it can be of great help in guiding English teachers who teach English as a foreign language to improve their English listening and listening comprehension skills.

Fifth analysis of raw data of the participant 5 H (female) given by GPT3 is given as follows:

"Thanks to the Flipped Classroom application, our learning process has become more effective and efficient. Since we can watch the videos prepared by our teacher at home, we can prepare before the lesson. In the classroom, we can interact one-on-one with our teacher. In this way, our speaking and listening skills develop more. We can also be more active in the classroom because we can use the topics we learned at home. We can communicate with our teacher whenever and wherever we want. In this way, we can ask our questions before or after the lesson and we can understand the subjects better. The Flipped Classroom app has been very useful, especially for our listening and speaking skills."

According to a study conducted by Sayın (2012) on the importance of language skills with 52 beginner and intermediate level university students, two-thirds of the students found the acquisition of speaking skills important. In addition, they also stated the acquisition of listening skills in the first or second importance. Both skills were seen as basic skills in English. However,

students still stated that they were not as successful in these two skills as they were in the others. In this case, the results of the second sub-problem in the experimental research revealed the successful effect of the flipped classroom practice on listening skills.

Sixth analysis of raw data of the participant 6 M (male) given by GPT3 is given as follows:

"Flipped Classroom is a learning method that allows students to learn more effectively at school by previewing lessons at home. With this method, it is said that school time is used more effectively and students can ask their teachers better questions and understand better the parts they do not understand. In addition, it is thought that students' listening and speaking skills can be improved."

The study on the flipped classroom model conducted by Ahmad (2016) in Egypt was carried out on a single-group experimental design. The study was conducted with students who learned English as a foreign language. 34 university students participated in the study, which aimed to investigate the effect of the flipped classroom model on listening comprehension. The results of the analysis proved that the listening comprehension skills of the participants were in favor of the Post-test.

Seventh analysis of raw data of the participant 7 T (male) given by GPT3 is given as follows:

"The Flipped Classroom app allows students to learn more effectively at school by previewing the lesson at home. Thanks to this method, students have more time, can do different activities and work at home. If they don't understand the video, they can watch it again and watch the video whenever they want. They come to the class prepared and understand the subjects better thanks to the work they do in the classroom. Thanks to the tests they do at the end of the video, they can improve themselves and learn how to pronounce words in the video. They can communicate with their teachers online and ask them about subjects they do not know. In this way, they can

participate in the lesson more actively and the topics stay in their minds more because they are handled visually. Without the Flipped Classroom app, students' listening and speaking skills would be lacking. Because there were no opportunities for the development of skills such as teachers' pronunciation in the video and listening activities in the classroom. In addition, although the time in the classroom was short, the students would not be able to control themselves and take tests."

In the study conducted by Johnson (2013), 12 out of 63 students (19%) considered having more time in classrooms for activities and problem solving as an advantage regarding the flipped classroom model. They saw being able to do most of their homework in class as an opportunity for them.

Likewise, according to a study conducted by Talbert in 2012, it was revealed that the time and quality allocated to the application process increased in the classrooms that were prepared for the lesson by watching the lesson topic from the video in the flipped classroom model.

Eighth analysis of raw data of the participant 8 Y (female) given by GPT3 is given as follows:

"Flipped Classroom is a learning method that allows students to learn more effectively at school by previewing the lesson at home. This method allows students to develop their listening, speaking, reading and writing skills. In addition, students can control themselves, do group work and strengthen their communication with their friends. Because in the normal system, such activities cannot be done and time is not enough. But with the Flipped Classroom app, students can repeat at home, fast forward and rewind, and better understand topics by taking notes. In addition, they are more comfortable taking tests and can reinforce the topics by participating in better activities at school. The fact that students do not have enough time in regular school is due to fewer people and better activities."

According to Orlova (2009), video recordings have a special value for people whose native language is not English and who are taking courses in the field of English speaking. Because this allows them to focus not only on the non-verbal part of their learning, but also on their communicative competence,

which includes language proficiency, knowledge of basic language functions, and learner-teacher interaction. These situations, which Orlova stated, prove the accuracy of the positive results obtained in the study on speaking skills. Because the target audience learning English as a foreign language has different learning speeds in the classroom environment, and they have the opportunity to advance, pause and rewind the video at home according to their own speed, the flipped classrooms used in the research provided an opportunity to focus on communicative competencies, as Orlova stated.

Ninth analysis of raw data of the participant 9 Y (male) given by GPT3 is given as follows:

"... there is a forgotten subject, I can watch it again at home and learn. This gives me the opportunity to understand and remember better. I also learn the pronunciation and intonation of the videos, which improves my speaking and listening skills. It is especially useful when learning a foreign language."

Tenth analysis of raw data of the participant 10 Z (male) given by GPT3 is given as follows:

"Another benefit is that it allows us to recall forgotten topics. We can repeat the subjects we learned in the videos at home and we remember the forgotten subjects better. In addition, since we are in control of the learning, the lessons are more effective. We can review the topics again. We can go back to remember and understand the things we have learned. We can also communicate online with teachers. Student-teacher communication is getting better and we can get answers to our questions faster."

In an experimental study conducted by Kaya and Oral in 2013, it was revealed that the students in the experimental study groups saw the cognitive contribution of the video lessons to the lesson and that the students in both groups found the video lessons interesting and enjoyable, and that the students only focused on the subject while watching the video lessons. The fact that the students can access the video lessons recorded on the website at any time at different times and have the opportunity to watch the places they do not understand as many times as they want has had a positive effect on their success.

The sentiment of the students on the "Flip-Face Classes" approach were revealed by using GPT3

First sentiment analysis of raw data of the participant 1.B. (male) given by GPT3 is given as follows:

> "Overall, the student in this dialogue expresses positive sentiments towards the flipped classroom method. They mention specific benefits such as saving time in class, being able to ask teachers questions in person, and having the ability to pause and review the material. They also mention how the flipped classroom method helped them improve their listening and speaking skills in English.
>
> Quantitatively, the student uses phrases such as " because of this ", " therefore ", "because of this" which are all indicating positive sentiment."

> In a study by Quyen and Loi (2018), they stated that flipped classrooms are a creative way for teachers to maximize students' lesson time. They stated it as a motivating teaching method in teaching content subjects. The study was carried out using a quasi-experimental design, with the pre-test and post-test on speaking skills. In addition to these, the speaking performance of the students was measured as a result of the application by using the flipped classroom model in the foreign language classes of the students by using a questionnaire and a semi-structured interview form to examine the effects, similar to the one in the current study. In addition, students' attitudes towards the model were also investigated in the study. As a result of the research analysis, it has been proven that the students have improved their speaking skills and created a positive perception about the model thanks to the flipped classroom model.

Second sentiment analysis of the participant 2 Ç (male) given by GPT3 is given as follows:

> "Overall, the student in this dialogue expresses positive sentiments towards the flipped classroom method. They mention specific benefits such as having more time in class, being able to review the material at home, being more prepared for class, and being able to have more active participation in class.

They also mention how the flipped classroom method helped them improve their listening and speaking skills in English.

Quantitatively, the student uses phrases such as "we have more time", "we do more different activities", "we have more time", "it stays more in our mind" which are all indicating positive sentiment."

According to Teng (2017), as the use of the flipped classroom model spreads across educational disciplines, teachers who teach English as a foreign language need to consider its potential in their field. Framed according to constructivist pedagogy, this model synthesizes a teaching example that clearly demonstrates the benefits of being able to perform in the classroom to improve the speaking skills of foreign language learners. In addition, the flipped classroom model also demonstrates how education offers opportunities for increased academic achievement. It is emphasized that the model can shift a verbal lesson from passive learning to active learning, and the role of university teachers in facilitating students' relations with speaking. Interviews with students also showed that the target audience was satisfied with the flipped classroom model.

Third sentiment analysis data of the participant 3 D (female) given by GPT3 is given as follows:

"Overall, the student in this dialogue expresses positive sentiments towards the flipped classroom method. They mention specific benefits such as it being educational, improving their listening, speaking, reading, and writing skills, having more control over their own learning, and being able to participate in group work and communicate with classmates more effectively. They also mention how the flipped classroom method helped them improved their memory retention with visual aids and helped them to be better prepared for class activities and tests.

Quantitatively, the student uses phrases such as "it was very good", "it was educational", "it improved", "I could control myself", "while being able to do group work" which are all indicating positive sentiment.

Li & Suwantep (2017) examined the effects of the flipped classroom model on the acquisition of English speaking skills in the context of teaching English as a foreign language. A quasi-experimental study was conducted with two groups of freshmen studying at a university in Thailand. During the 12-week experiment, a flipped classroom model was applied to the experimental group of 46 people on grammar and vocabulary through online video lessons. In addition, the remaining time of the students was spent in the classroom by using formal drama to improve their speaking skills based on knowledge learned online. The control group consisting of 48 people was applied the traditional method through face-to-face teaching and they were asked to do question-answer studies using the speaking activities in the textbook. In order to collect data, pre-tests and post-tests for speaking skills, student questionnaires and student interviews were conducted. Analysis results showed that the experimental group's speaking skills scored significantly higher than the control group.

Fourth analysis of raw data of the participant 4 E (female) given by GPT3 is given as follows:

"Overall, from the dialogue 4, it can be inferred that the student has a positive view of the flipped classroom method and finds it more convenient and flexible than traditional methods. They mention that they are able to come to class more prepared and able to understand the material better and the added flexibility of being able to practice and review the material at home, and communicate with the teacher online.

Quantitatively, the sentiment in this dialogue is positive. The student uses words and phrases such as "prepared," "more knowledgeable," "we understand better," "save time," "we can do it faster," "learn faster," "listening in a relaxed atmosphere," "anywhere we go," "we watch," and "as we want". These words and phrases suggest that the student sees the flipped

classroom method as a positive change from traditional methods and that it is more convenient and flexible for them."

Horwitz et al. (1986) stated that one of the main reasons for the emergence of anxiety in the foreign language learning process is focusing on listening and speaking skills. They stated that the situation that most triggered the emerging anxiety of the target audience was about impromptu speaking. In the case of developing listening skills, they explained that differences in sound and language structure can increase the anxiety of the target audience by creating an obstacle to understanding.

MacIntyre & Gardner (1991) argue that as a result of speaking a foreign language is a situation that can increase anxiety in speaking, individuals have trouble recalling what they know from memory when they experience anxiety, they tend to work hard to make up for it, and they struggle with avoidance due to the successes that have emerged, that is, learned helplessness. . Therefore, this situation leads to silence and withdrawal instead of participation in activities and motivation in students, and expresses that it brings the risk of making mistakes in language skills.

In the current study, in which the flipped classroom model was applied, this avoidance situation as suggested by MacIntyre and Garder was not observed, and on the contrary, because they came to the classroom with high self-confidence, anxiety decreased not only in speaking skills but also in other skills.

Fifth analysis of raw data of the participant 5 H (female) given by GPT3 is given as follows:

"For Dialogue 5, the student expresses generally positive sentiment towards the flipped classroom method. They mention that the approach allows them to learn visually, which helps them to remember the material better, and that they come to class more prepared and confident as a result. The student also notes that they are able to save time and that they are able to learn at their own pace, by rewinding and reviewing the material as needed. They also mention that they are more active in class because they come more prepared and that they can learn at their own pace.

Quantitatively, the sentiment in this dialogue is positive. The student uses words and phrases such as "visually," "prepared," "confident," "learn better," "learn more easily," "save time," "shorter," "more time here," "take less time," "we can fast forward and backward," "we can learn at our own pace," "we get active," and "we learn at our own pace". These words and phrases suggest that the student sees the flipped classroom method as a positive change from traditional methods and that it is more convenient and flexible for them."

The content of a research conducted by Mok (2014) includes conducting the Programming course with the flipped learning Model in order to increase the participation in the course and enrich the content. Although the students within the scope of the research made positive statements in general, they expressed their dominant views on the fact that the teaching of the lessons with the Flipped classroom model supports the cooperative learning method and facilitates learning. In addition, students stated that watching the videos over and over is one of the most prominent benefits of this method and that this situation has the feature of reinforcing what has been learned.

Sixth analysis of raw data of the participant 6 M (male) given by GPT3 is given as follows:

"For Dialogue 6, the student expresses positive sentiment towards the flipped classroom method. They mention that they like it and that it helps them to come to class more prepared and to understand the material better. They also mention that they are able to communicate with the teacher online and that they are able to review the material at their own pace. They also mention that they are able to self-evaluate themselves with the test and that they can improve their mistakes.

Quantitatively, the sentiment in this dialogue is positive. The student uses words and phrases such as "I liked it," "we come prepared," "helps us understand better," "I felt confident," "I can communicate online," "I was asking questions," "I understood better," "I was self-learning," "we talk about the test ," "don't grade," "we self-evaluate," "see what's right and wrong" and "we can get a better grade" which indicate positive sentiment towards the flipped classroom method."

According to Blair, Chris & Majarah (2016) The results of this study showed a correlation between participation and student performance in both traditional and flipped approaches, and a decrease in participation in the flipped classroom. It is possible for students to think that watching the screen recordings is enough to pass the lesson; however, the data show the importance of class participation. The distinguishing feature of the flipped classroom is the independent acquisition of content followed by interaction with the content through practice, projects, problem solving and peer collaboration. A student-centered environment that emphasizes active learning by doing will necessitate participation in the course and therefore participation that should be encouraged.

Seventh analysis of raw data of the participant 7 T (male) given by GPT3 is given as follows:

"From the given dialogue, it can be inferred that the student has a positive sentiment towards the flipped classroom method. They mention specific benefits such as time savings, being more prepared for class, and having more opportunities for self-paced learning and communication with the teacher. Additionally, the student uses phrases such as " I liked it" and "good" to express their satisfaction with the method. Overall, the sentiment towards the flipped classroom method is positive.

Eighth analysis of raw data of the participant 8 Y (female) given by GPT3 is given as follows:

"This dialogue is about the student's views on the flipped classroom method. The student expresses overall positive sentiment towards the method, citing several benefits such as time savings, increased flexibility in learning, ability to review and reinforce material, and improved participation and engagement in class. They also mention being able to review past material through recorded videos and feeling more confident to ask questions and participate in class. The student does not express any negative sentiment or have any additional comments. Overall, the sentiment in this dialogue is positive towards the flipped classroom method.

Additionally, the student uses phrases given as below indicating that overall text has a positive sentiment:

" very useful method"

" saves time"

" more comfortable environment"

"able to pause and continue later"

" able to improve ourselves"

" able to improve speaking and listening"

" able to make absentees to understand and active in class"

" able to share confidently in class"

" able to review past material"

" able to review material more freely at home"

Kılıç (2017) stated that anxiety is an emotional state that negatively affects the basic language skills of speaking, listening, reading and writing, and this situation has been demonstrated both empirically and theoretically by many researchers. The result is that the anxiety levels of foreign language students can be an obstacle to learning a foreign language, and the teacher should be responsible for what needs to be done to reduce the anxiety levels of students in this situation. In this case, it will be beneficial to devote a certain part of the lessons to activities and achievements that will reduce the anxiety level of students.

Ninth analysis of raw data of the participant 9 Y (male) given by GPT3 is given as follows:

"This dialogue is about the student's views on the flipped classroom method. The student expresses overall positive sentiment towards the method, citing several benefits such as time savings, increased flexibility in learning, ability to review and reinforce material, and improved participation and engagement in class. They also mention being able to watch videos at their own pace and style, feeling more confident in English class, being able to review past material through recorded videos, and being able to evaluate their own progress through tests. They also mention that without Flipped

Classroom method, they would have difficulty in listening and writing in English. The student does not express any negative sentiment or have any additional comments. Overall, the sentiment in this dialogue is positive towards the flipped classroom method.

Additionally, the student uses phrases given as below indicating that overall text has a positive sentiment:

" saving time"

" time goes much faster"

" able to do according to our own style"

" coming with confidence"

" bringing home to school"

" able to communicate with the teacher online"

"doing more instructional activities"

" while having fun"

 " able to improve speaking and understanding"

" remembered visually"

"no one gets angry because of many mistakes"

" able to listen and write"

" would not save time"

Tenth analysis of raw data of the participant 10 Z (male) given by GPT3 is given as follows:

"This dialogue is about the student's views on the flipped classroom method. The student expresses overall positive sentiment towards the method, citing several benefits such as having more time, increased self-confidence, being able to bring home to school and vice versa, being more active and easier to learn, having more fun in class, being able to review past material, and having visual aids for better retention. They also mention that without Flipped Classroom method, they would have difficulty in speaking and listening in English. The student does not express any negative sentiment or

have any additional comments. Overall, the sentiment in this dialogue is positive towards the flipped classroom method.

The phrases indicating that this dialogue has a positive sentiment:

" we have more time"

" we become more confident"

" bringing home to school"

" we became more active because we know"

" we learned more easily"

" we loved the class more"

" we felt confident when we understood the topic"

" we can still understand the topic even if we forget it after a couple of months"

" we were able to do more activities and learn more easily by bringing home to school"

" things we learn visually stick better in our memory"

" we are able to speak and understand better when we watch the videos prepared by our teacher"

" we are able to attend class prepared after watching the video"

" I would have thought that I would have been left behind in speaking and listening skills"

" because we can do reading and writing at home and in class we develop ourselves more in speaking and listening"

" we also improve ourselves by using the words we learned at home"

According to Aydoslu (2005), attitudes form the emotional basis necessary for motivation. The attitudes of students in the learning environment also affect motivation and motivation. Therefore, in order for students to have high motivation, learning-teaching environments should be diversified by taking into account the individual development characteristics, intelligence and interests of the students while determining the educational environments and teaching strategies. According to this result revealed in Aydoslu's study, in the current study, thanks to the application of flipped

classrooms, the teaching environment in the classroom could be enriched and diversified thanks to the videos that were prepared taking into account the interests of the students and that they were ready for the lesson by watching them at home. In the results of the analysis, it was revealed that the attitudes of the students about this situation showed parallelism.

4. Discussion

First of all, the "flipped classroom" articles in the Web of Science database are associated with educational studies, however there is also a sizeable presence of "flipped classroom" publications in computer science and related fields. Data also shows that the total number of articles has grown exponentially over time, with 81% of the observed variance explained by a logarithmic equation. This indicates that the idea of flipping the classroom has been around for a while and has generated a substantial body of literature. Not only that, but articles, followed by subsequent papers, and finally review articles, make up the bulk of all published works.. The data also demonstrates the topic's appeal outside the realm of computer science and its allied disciplines, with a sizable representation in the social sciences and engineering, among others. The research also shows that there is a rising awareness of the potential advantages of using a flipped classroom paradigm, especially in the STEM fields.

The results of this examination of participant answers indicate that the Flipped Classroom strategy is generally well-received. According to the students, it helps them get more out of their classes, boosts their confidence, and enhances their relationships with their instructors. Participants also said that they were able to study previously covered material and take a more active role in class as a result of using this strategy. Participants, on the whole, appear to have a favorable impression of the Flipped Classroom approach and recognize it as a means to enhance their education. The flipped classroom concept has been shown to improve student learning. Most of the research found that using the flipped approach led to better outcomes for students. Researchers have also noted a number of favorable outcomes associated with this paradigm (including increased learning motivation and improved student attitudes) (Akçayir and Akçayir, 2018). Some research support this finding, for example, the flipped approach has the potential to be more cost-effective than conventional teaching methods; and students appear to prefer the flipped approach (O'Flaherty & Phillips, 2015). Similarly, Cheng, Ritzhaupt& Antonenko (2019) found a statistically significant

effect size (g = 0.193; p < .001; with a 95% confidence interval of 0.113–0.274) in favor of the flipped classroom instructional strategy.

The participants in these discussions had overwhelmingly favorable attitudes on the flipped classroom approach. The advantages of saving time, being more prepared for class, enhancing listening and speaking abilities, and taking responsibility for one's own education are mentioned by all participants. Many students report feeling more prepared for class activities and exams after using the flipped classroom approach because of the emphasis placed on visual aids for learning. Some studies find that flipped classrooms have numerous advantages for learning in terms of affective terms. For instance, the flipped model has been shown to improve student achievement and satisfaction with learning (Missildine, Fountain, Summers, & Gosselin, 2013). There is a growing body of research that demonstrates the efficacy of the flipped classroom model through various forms of indirect evidence, including notable improvements in student content engagement and retention, as well as increased satisfaction with the educational experience as reported by both students and teachers (Mason, Shuman, & Cook, 2013; Awidia &Paynter, 2019). Many research suggest that it increases in interest, positivity, dedication to the study, communication , involvement socializing, independence and control over one's own learning pace (Huang et. al. 2019; Lee et. al. 2018; Tse et.al 2019; Parra-González et. al. 2020).

In order to increase the academic success of the students in general and to change their attitude towards the lessons in a positive way, learning environments can be created by producing more fun and gamified additional activities with the increased time thanks to the use of the flipped classroom, and learning environments where the student learns by doing it personally. Students who will continue their education life in many different fields in the future may not always find an instructive guide with them. Thanks to this approach, they can reduce their anxiety levels by improving their individual learning performances. As revealed in the results of the research, many students who met the homework-style approach at school stated that they came to school without fear before coming to school. A learning process related to such approaches can be prepared for students in advance and such learning situations can be encouraged (Yüreğilli Göksu, 2018).

5. Conclusions

In order to increase the academic success of the students in general and to change their attitude towards the lessons in a positive way, learning environments can be created by producing more fun and gamified additional activities with the increased time thanks to the use of the flipped classroom, and learning environments where the student learns by doing it personally. Students who will continue their education life in many different fields in the future may not always find an instructive guide with them. Thanks to this approach, they can reduce their anxiety levels by improving their individual learning performances. As revealed in the results of the research, many students who met the homework-style approach at school stated that they came to school without fear before coming to school. A learning process related to such approaches can be prepared for students in advance and such learning situations can be encouraged.

This is the age of natives and if digital immigrants want to educate this new generation, they teach and reuse their methods and materials in accordance with their learning styles. In the western world, students are becoming more active in education. researching, questioning, learning by doing, learning by increasing the use of technology is to make them individuals who can internalize and apply what they have learned. It carries out various activities in schools. The "behavioral" traditional educational practices of the past have been abandoned and increasingly "constructivist" education and training in all branches by catching the era methods and technological applications are more involved in education.

Traditional education in language teaching like other branches instead of the traditional lecture part, in parallel with the "flipped classroom" approach, it is completed with the support of technology in outside environments and helps the student to spend his/her in-class time more effectively.

The main limitation of this study is the algorithm of GPT-3. Secondly, the model can analyze the content with questions and direction in a more elaborate sense and therefore, the questions that were not asked could be conceived as the second limitation of this study. The third limitation could be regarded the interview questions with the students.

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