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Flipped learning model practices in social studies course in primary school *

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Abstract

Learning environments are undoubtedly one of the important factors in enabling the learner to access information easily and effectively. it is not possible to expect effective access to knowledge in a teaching approach in which the teaching environment has unchanging patterns, the teacher assumes the role of absolute transmitter and the students listen to what they are told as passive individuals. Today's understanding of education, instead of teaching practices with all these restrictive features, has begun to change direction towards an understanding of education in which the student actively participates in the process of acquiring knowledge, learns by experiencing, experimenting, questioning and discovering, and the teacher designs and guides this whole process. At the same time, technology, which is the pioneer of change by affecting all areas of society, has inevitably started to be used in educational environments. With the use of technology in educational environments, teaching approaches in which teaching is carried out of the classroom independently of time and place have become widespread. Today, one of the teaching approaches suitable for this understanding is the flipped learning model. With this model, the traditionally defined teaching approach is reversed. Accordingly, the theoretical part of the course, which includes the processes of acquiring knowledge, was moved outside the classroom. In the classroom, the effectiveness of learning environments is tried to be increased through learning experiences in which students are active. The primary school period has a critical importance in the development of a teaching approach in which learners take responsibility for their own learning processes, actively participate in teaching experiences and use online environments for educational purposes as a competence in students. Because this competence, which will be developed in students in primary school, will form a basis for them to take responsibility for their own learning, to discover ways of accessing

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information and to use online environments for educational purposes. All courses in primary school serve the purpose of preparing individuals for the social, cultural and economic tasks they will take when they become adults, and providing the most basic knowledge and skills for these tasks. Social sciences course is one of these courses. The aim of this research is to determine the reflections of the flipped learning model on the learning-teaching process within the scope of primary school Social Studies course and to reveal the applicability of the model at primary school level. The research was carried out with action research design from qualitative research methods. The participants of the study were determined by using criterion sampling from purposeful sampling methods. In this context, the research was conducted with 8 primary school 4th grade students. The data collection process was carried out in two interconnected stages: field entry and application process. In the process of entering the field, data were collected through academic achievement tests to identify students who had problems in the Social Studies course. Then, teaching activities based on the flipped learning model were carried out. On the other hand, action plans were developed to solve the problems encountered during the process. In this process, more than one data collection tool including observation, interview, researcher diary, student diaries, student products, virtual classroom environment data were utilised. Data were analysed simultaneously. The data obtained were analysed with inductive approach. A total of seven action cycles designed according to the flipped learning model were carried out with the students in the social studies course. As a result of the research, it was determined that the students enjoyed the teaching process based on the flipped learning model, and that the model allowed the students to progress at their own individual pace, to repeat and to access the course content at any time. It was also observed that there was an improvement in the academic achievement of the students. As a result, it was determined that the flipped learning model is beneficial for students' cognitive and sensory development. In this direction, it is suggested that this model should be used as a teaching approach in primary school level and social studies course.

Introduction

In educational environments dominated by traditional methods, it is not possible for students to learn by thinking, researching and structuring knowledge. As a result of such a process, which is usually carried out with a teacher-oriented approach, students graduate from educational institutions with superficial knowledge that they memorise (Akpınar & Gezer, 2010). As a result of this situation, as individuals who have not developed creativity, higher-order thinking, problem solving and research skills, they cannot take steps to produce solutions in the face of complex situations they encounter in the later periods of their lives (Özpolat, 2013). The inadequacy of traditional teaching approaches to gain the knowledge, skills, attitudes and values required by the age has paved the way for new developments in the field of educational sciences. Accordingly, in many developed countries, effective learning approaches centred on the student have come to the fore (Açıkgöz, 2002). This change in the understanding of teaching has led to a different view of the teacher. With this new perspective, the

understanding that the teacher is the absolute source of knowledge has been moved beyond. Accordingly, the teacher was asked to assume a role in designing the student's processes of accessing and constructing knowledge. While the need for a structuring in educational environments is felt with this change in the understanding of teaching on the one hand, on the other hand, the impact of technological developments that rapidly affect the society has started to be felt rapidly. It is not possible to continue with an understanding of education that cannot meet the needs of individuals born in the age of technology. For this reason, efforts to integrate developing technologies with educational processes have gained momentum. All these developments have made it necessary to redesign learning environments (Hayırsever & Orhan, 2018).

In recent years, it is seen that teaching approaches that integrate teaching practices and developing technologies have become widespread. One of the prominent approaches in these integration efforts is the blended learning model. This learning model is an instructional approach that utilises the advantages of face-to-face and distance learning environments to complement the weaknesses of both learning environments (Garrison & Kanuka, 2004). Blended learning, with the help of technology, allows students to realise teaching activities in and out of the classroom by doing and experiencing. Teachers have a guiding responsibility in designing all these processes (Sarıtepeci & Yıldız, 2014; Sontay & Karamustafaoğlu, 2022). Since the blended learning model offers the opportunity to use online tools in educational environments, students have the opportunity to access teaching practices even outside the classroom. In this way, the time, place and speed of teaching activities can be adjusted by the student themselves according to their own needs. Students perform some teaching activities outside the classroom with their own efforts. In the classroom, they perform face-to-face teaching practices. As a result of this integration, the blended learning process is completed. The main purpose of conducting teaching processes based on blended learning application is to ensure more efficient use of the time allocated for teaching in the classroom (Demetry, 2010; Stein & Graham, 2014). In terms of having a student-centred understanding, defining a guiding role for the teacher in the whole teaching process and integrating teaching activities with technology, blended learning is a model that can provide the desired qualities of educational environments today.

In the literature, different classifications have been made regarding the application forms of blended learning (Rossett & Frazee, 2006; Staker & Horn, 2012; Twigg, 2003). Within the scope of this research, the blended learning classification of Staker and Horn (2012) was taken into consideration. The reason for using Staker and Horn's (2012) classification in this research is that it addresses blended learning approaches in a clear, systematic and inclusive framework. The related model defines different forms of implementation in accordance with the needs of the research. The relevant model is shown in Figure 1.

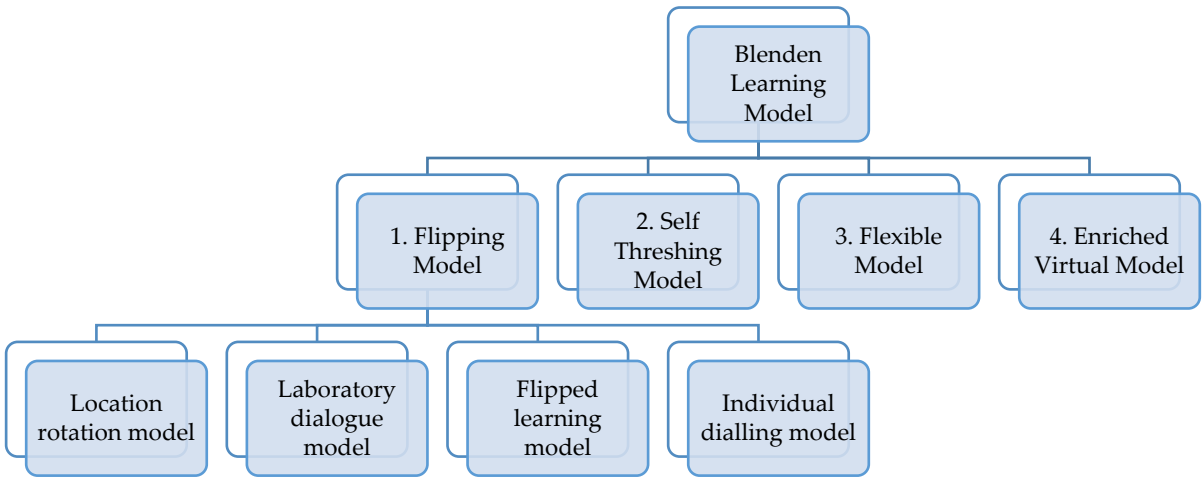


Figure 1. Staker and Horn's classification of blended learning

According to Staker and Horn (2012), blended learning can be applied in different ways for educational purposes. The quality of the applications is determined by variables such as the type, time, weight of the technologies used and the role of the individuals involved in the teaching practices. The flipped learning (FL) model used in this research is one of the ways of applying the 'flipping model' within the blended learning classification (Staker & Horn, 2012). With the 'flipping model', students switch between different learning environments within a programme, course or a subject. The basic principle in this practice is that at least one of the environments used should be an online learning environment (Staker & Horn, 2012). Accordingly, other environments can be designed as face-to-face, group work or project assignments. The FL model is one of the models designed based on this principle (Staker & Horn, 2012). This learning approach, which is named as 'inverted classrooms, flipped classrooms, flipped learning' (Bishop & Verleger, 2013; Talbert, 2012) in the literature, has been translated into Turkish as inverted learning model (Karaca, 2016; Koçak, 2019; Ok, 2019; Yıldız, 2017), flipped classroom model (Çevikbaş, 2018; İyitoğlu, 2018), reverse education (Boyraz, 2014), transformed classroom model (Talan, 2018; Uçar & Bozkurt, 2018) and flipped learning (Filiz & Kurt, 2015; Sever, 2014). Although the nomenclature of the model is different, the definitions are similar to each other. In the most general sense, FL model is defined as a learning model in which educational technologies and face-to-face teaching activities are handled together (O'neil et al., 2012). In this model, in which students are expected to reach basic level knowledge outside the classroom with their own efforts, it is aimed that the time in the classroom is mainly allocated to higher level skills such as application, problem solving and discussion (Johnson, 2012). In other words, the FL model is based on the idea that students come to school by completing their preparations for the lessons outside the classroom (Bergmann & Sams, 2014). In the FL model, the teaching process takes place in three stages: pre-class, class and evaluation (Bergmann & Sams, 2012; McLaughlin et al., 2016; Talbert, 2012). The pre-class phase refers to the process in which the content is shared with the students through the online environment and the students are prepared for the content shared in line with their own needs. The in-class phase refers to the process in which students can demonstrate their competences and make practices that can reinforce what they have learnt individually or in groups through active participation. In the third stage, students' out-of-class and in-class activities are evaluated using various strategies (McLaughlin et al., 2016).

The FL model is based on the peer instruction method developed by Eric Mazur, a physics educator at Harvard University, in the early 1990s (Correa, 2015). With this method, Mazur suggested that in order for the students to learn the concepts in complex subjects, the course readings should be given to them in advance and the homework based on the readings should be left to the class (Mazur, 1997). For this purpose, Mazur has developed an electronic platform where students can read from textbooks, gain basic knowledge before class, and ask and answer questions to each other. In this way, by allocating the time in the classroom to student-centred activities, it aimed to reinforce knowledge and eliminate missing or incorrect learning (Talbert, 2017). A similar practice was developed by Professor J.W. Baker at Cedarwille University in the USA. Professor Baker noticed that students wrote down what they were told in their notebooks during lectures and did not think about the information they wrote down. Professor Baker has argued that classroom time has failed to move beyond a structure in which knowledge is transmitted under the guidance of the teacher and students merely take notes. Aiming to change this situation and enrich the time in the classroom, Baker decided to share the lesson presentations he prepared with his students before the lesson. in line with this decision, he asked the students to work on the presentations he would share with them before coming to the lesson. Professor Baker described this method, which he developed and applied in a conference in 2000, as classroom flip (Baker, 2000). In 2007, the first example of the FL model in secondary education was applied by Bergmann and Sams. These two educators shared the presentations with their students by recording the presentations in audio and video format with the idea that students who missed the lectures should complete their deficiencies. According to Bergmann and Sams, students can learn basic level knowledge outside the lesson by using materials related to the lesson. In this way, they can reinforce their learning by doing higher level activities under the guidance of the teacher in the classroom (Talbert, 2017). After the success of this application in a short period of time, the FL model became recognised (Kara, 2016).

The primary aim of the classrooms where the FL model is implemented is to increase the quality of face-to-face education. In order to achieve this aim, the so-called traditional methods, which are based on teacher activity, are reversed. Accordingly, lower level skills such as transferring knowledge are left to teaching activities outside the classroom, while higher level skills such as structuring, assimilating and retaining knowledge are left to teaching activities in the classroom (Bergmann & Sams, 2014; Kansızoğlu & Bayrak Cömert, 2021; Strayer, 2012). With the FL model, teaching is no longer a one-way structure that is only teacher-oriented in the classroom. In this model, teaching is transformed into a two-dimensional structure based on teaching activities carried out inside and outside the classroom. Within this structure, the teacher is assigned the role of a guide who designs both dimensions of the teaching process. Students are expected to take responsibility for active participation in the process (King, 1993; Milman, 2012). The fact that students come to the classroom environment by studying the content prepared for them saves the time that the teacher needs to use for lecturing in the classroom. In this way, the time saved is allocated to teaching activities related to the subject. The fact that students come to the classroom environment with prior learning helps them to participate effectively in teaching processes (Morin et al., 2013).

In classrooms where traditional teaching practices are carried out, a significant part of the lesson time is devoted to the control of the homework given in the previous lesson and the presentation of the content related to the subject to be taught (Filiz & Kurt, 2015). The presentation of the instructional content by the teacher corresponds to the acquisition of low-level objectives such as recall and comprehension. However, these objectives can also be achieved by students' own individual efforts. Teaching activities corresponding to higher level objectives such as application, analysing, evaluating and creating, in which students need more guidance from the teacher, are generally tried to be gained through homework. Nevertheless, homework is the subject of many studies as a phenomenon that is constantly complained about by students, teachers and parents. In different studies, it has been concluded that homework is perceived as a burden by students, develops negative attitudes towards school, creates boredom towards studying, families are obliged to help their children to complete homework, and this situation causes stress both in themselves and in students (Duru & Çöğmen, 2017; Kırmızıgül, 2018; Öcal, 2009; Rudman, 2014; Şen & Gülcan, 2012; Van Voorhis, 2004; Warton, 2001; Xu, 2005). In the FL model, learning related to cognitive steps expressed as lower level is acquired outside the classroom through homework, while learning related to cognitive steps expressed as higher level is acquired in the classroom through active learning experiences (Arshad & Imran, 2013; Rutkowski & Moscinska, 2013). In addition, the control of out-of-class work is completely given to the students. In this way, it is ensured that students act with a sense of responsibility and have the opportunity to direct their own learning processes. From this point of view, the activities that students carry out outside the classroom go beyond the traditional understanding of homework and turn into a structure in which they develop their responsibility to do homework with pleasure (Strayer, 2007). It is important for students to enjoy the activities outside the classroom in order to ensure permanent learning. Especially for the social studies course, which is perceived as a rote-based and boring course (Çimen, 2022; Gönenç & Açıkalın, 2017), the FL model is considered important.

Social studies is a course in life that enables individuals to become equipped with effective citizenship qualities and thus to make efforts for the development of the society in which they live. Because of this structure, it requires that global and social problems are addressed in the social studies course. In this course, it is aimed that individuals recognise these problems and produce solutions to them (Gürdoğan-Bayır, 2023). The field of interest of social studies is society. In this course, importance is given to the development of social relations by enabling children to participate in the society in which they live as knowledgeable (Shamsi, 2004). The social studies course examines the place of human beings in society by making use of social sciences. In parallel with these examinations, it improves their place in society by providing individuals with knowledge, skills and values. In general, this course can be considered as a field that makes people happy, peaceful and sensitive to other living things (Deveci & Bayram, 2022). In order for the social studies course to reach the determined objectives, it is important to teach the course effectively. What is learnt in the course should be meaningful for the student and

should be from life, the course should provide permanent learning and transfer what is learnt to life. The use of technology stands out as an important tool that supports this process. Today, digital technologies support students' multidimensional thinking, problem solving and critical perspective development skills as well as providing quick access to information. Technological tools used in social studies education can provide students with the opportunity to make connections between the past and the present, to understand global events and different cultures. In fact, technology-supported learning environments strengthen cooperation and social interaction by increasing student interaction and create a more inclusive educational environment by adapting to different learning styles (Elvan & Mutlubaş, 2020). In this context, the integration of technology in the social studies course will contribute to students' access to information more effectively and critically, and to raise them as individuals who are more sensitive to social events.

There are many factors affecting students' learning in the course. The student's attitude and perception towards the course, the content of the course and the way the course is taught are some of these factors. In the social studies course, students' misuse of the internet in particular causes undesirable behaviours in the learning process (Gönenç & Açıkalın, 2017). In today's conditions, it can be said that it is wrong to keep technology and the internet away from learning processes. Considering that children are intertwined with technology, technology can be used to increase students' interest in the lesson and make the lesson fun. In this case, teachers can use strategies, methods and techniques to integrate technology with the lesson (Bennet & Scholes, 2001, cited in Alataş, 2008). One of the technology-based learning approaches that teachers can integrate into the social studies course is the FL model.

In Turkey, it is seen that the researches within the scope of FL model are mostly conducted at secondary school, high school and university level. At the primary school level, few studies based on the FL model were found (Ağırman, 2023; Çınar, 2023; Erbil, 2019; Erkan, 2023; Gündoğan-Enderöz, 2021; Güreli Kıvrak, 2023; Güven-Demir, 2018; Kaya, 2023; Naycı, 2017; Oğuz, 2023; Sekin, 2023; Şengün, 2021; Taşkın Serbest, 2023; Uçaş, 2023). There are a limited number of studies based on FL model in primary school social studies course and they are generally based on quasi-experimental design and mixed research type in terms of methodology. These studies in the literature can be categorised under three dimensions. The first dimension includes the studies examining the effect of FL model on students' academic achievement. The second dimension includes studies focusing on determining the effect of FL model on students' motivation levels towards social studies course. The third dimension consists of studies that address the views of teachers, students and parents on the FL model.

Today, developments in technology have closely affected educational environments as well as all areas of society. It is important to integrate developing technologies with educational environments and to organise this integration in a way to cover the primary school level. Because primary school education has a critical importance in transferring social change and development to individuals through educational environments. However, the importance of the social studies course in the realisation of the individual's social existence cannot be denied. In order for individuals to be equipped with the knowledge, skills, attitudes and values required by the age and to be able to use online environments for educational purposes in parallel with the technological developments that manifest themselves in every field of society, they should be educated in a way to include the social studies course from the primary school level. The FL model can enable individuals to reach the mentioned qualities in primary school. National and international research findings reveal that FL model-based teaching practices increase students' academic achievement (Baepler et al., 2014; Bergmann & Sams, 2016; Bhagat et al., 2016), improve their self-confidence and motivation (Aras, 2021; Chao et al., 2015; Kayan, 2020; Mason et al., 2013), and ensure the retention of what is learnt (Topalak, 2016). The findings of the studies conducted in the context of primary school social studies course revealed that the FL model increased students' social studies course achievement, motivation levels towards the course and reading comprehension skills. In these studies, students stated that they found the lessons based on the FL model enjoyable, that it provided effective and collaborative learning opportunities, and that it

increased participation in the lesson. Parents, on the other hand, expressed that they were generally satisfied with the FL model and that the model increased the time students allocated for studying at home.

The fact that a limited number of studies have been conducted at the primary school level for a model that has such a positive effect on teaching processes is considered as a deficiency. In addition, this study is expected to provide an important research area in terms of revealing the usability of the flipped learning model at the primary school level and within the scope of the Social Studies course, providing researchers, teachers and prospective teachers with an idea about the possible strengths and weaknesses of the FL model, and providing resources on how the model can be used effectively in the primary school social studies course. Considering all these reasons, it is thought that this study will contribute to the literature.

Purpose of the research

As pointed out in the theoretical framework of the study, the design of teaching activities away from a student-centred approach and the failure to reflect technological developments in educational environments negatively affect the quality of education in schools (Ertmer & Ottenbreit-Leftwich, 2010; Hattie, 2008). As long as teaching practices are designed with a one-dimensional understanding based on teacher effectiveness and carried out only in the classroom environment, it will be inevitable to experience quality problems in education. In Turkiye, there are research findings that contribute to the structuring of teaching environments with a student-centred approach through various methods and techniques in the social studies course (Acar & Acar, 2023; Güneş et al., 2021; Taş & Akoğlu, 2020; Yılmaz & Çolak, 2012). It is thought that teaching practices based on the FL model will contribute to the design of teaching environments with a student-centred approach. The aim of this study is to reveal the reflections of the FL model on the learning and teaching process within the scope of primary school social studies course. On the basis of this purpose, answers to the following research questions are sought.

1. How are teaching activities based on the FL model carried out?
2. What is the effect of FL model on students' academic achievement?
3. What are the problems encountered in the implementation of FL model based teaching activities?
4. How can the problems encountered during FL model based teaching activities be solved?
5. What are the opinions of students, teachers and parents about FL model based teaching activities?

Method

Research model

Action research, which is a qualitative research design, was used in the study. Action research is a practical strategy employed in social sciences in situations that require organised and reflective research (Stringer, 2004). Action research is the process of collecting data, gathering and analysing these data in a systematic way in order to ensure change, development and improvement on a subject related to social fields (Bogdan & Biklen, 2007). Action research is described as a systematic process carried out by teachers in which information is collected about how educational activities are carried out and how well students learn, and then actions are taken to improve (Mills, 2011). The aim of this research is to reveal the reflections of the FL model on the learning and teaching process in the context of social studies course. Since the research design requires the evaluation of the process in a cycle, the action research design was found appropriate to the nature of the research.

The research process was conducted according to Mills' (2003) action research cycle. Mills lists this cycle as identifying the focus area, collecting data, analysing and interpreting data, and developing an action plan. Mills' (2003) action research cycle is shown in Figure 2.

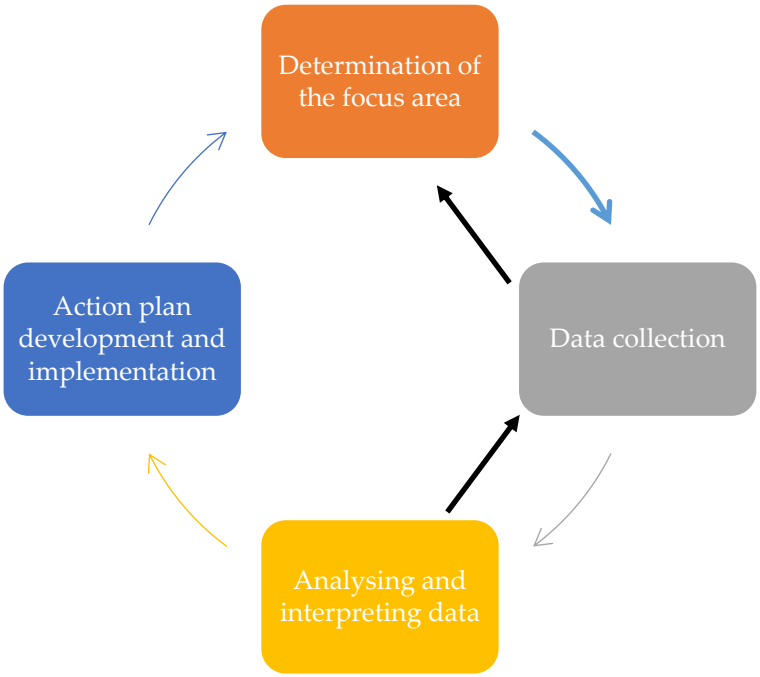


Figure 2. Mills' dialectical cycle of action research

Determination of the focus area: In action research, it is first necessary to determine the focal area to be studied. As a result of the literature review, it was found that homework causes boredom in students towards school work, causes students to develop negative attitudes towards school, families often help their children with their homework, this situation brings an additional burden to them and is perceived negatively (Duru & Çöğmen, 2017; Kırmızıgül, 2018; Öcal, 2009; Rudman, 2014; Şen & Gülcan, 2012; Van Voorhis, 2004; Warton, 2001; Xu, 2005). Following the literature review, the starting point of the research was to produce solutions that would both eliminate the existing negativities regarding homework and increase the quality of educational environments. In this process, technology-supported solutions have been focussed on the idea that the use of technology in both social life and educational environments has become widespread. Therefore, with technology, it is aimed both to enable students to be involved in teaching practices in out-of-school time and to increase the quality of teaching processes at school. In this context, blended learning applications have been guiding due to their features such as using technology in education and training processes, involving students in learning activities in school and out-of-school environments, and reducing the negative consequences of homework. Based on this view, the FL model, which is one of the application forms of blended learning, was determined as an approach that can be used in teaching processes.

Data collection: After defining the focus area of the research, data collection tools were determined by considering the research questions. The data of this study were collected through different data collection tools including semi-structured interviews with students, teachers and parents, student and researcher diaries, video recordings of in-class teaching practices, activity outputs of teaching activities, virtual classroom environment data of out-of-class teaching practices, academic achievement tests, weekly subject tests and validity committee meeting records.

Analysing and interpreting data: Data analysis in action research starts with the beginning of the implementation process and continues until the research is finalised. In this process, data collection and analysis processes continue simultaneously. In this study, the researcher recorded the lessons with a video camera every week and macro analyses were made. The data obtained as a result of the macro analyses were presented to the validity committee (see below) and inferences were made regarding the action plans to be implemented the following week. Apart from macro analyses, learning outcomes obtained from the students were evaluated, interviews were conducted, and the researcher's field notes and student diaries were kept regularly. The data obtained in this way were also presented to the

validity committee. Quantitative data collection tools were also used in the study. In this context, subject tests conducted at the end of each implementation week and learning domain achievement test scores developed by the researcher were utilised.

Action plan development and implementation: At this stage, action plans for the implementation of the FL model were prepared. The action plans prepared include activities for the implementation of the FL model and the solution of the problems encountered during the implementation. The activities were prepared in the form of lesson plans and arranged according to the learning outcomes of 'Active Citizenship' and 'Global Connections' learning areas in the 2018 Social Studies Curriculum. The implementation process of the research lasted a total of ten weeks, including two weeks of observation, seven weeks of implementation and one week of final measurements. Instructional practices were carried out three lesson hours per week for seven weeks. The activities were prepared according to the subject content in the learning areas of 'Active Citizenship' and 'Global Connections'. The activities were terminated after the validity committee members expressed their opinions that the collected data had reached sufficient saturation.

Participants

Qualitative research is conducted in detail with small samples selected in a purposeful way. In action research, which is a qualitative research design, purposeful sampling method is generally used (Özpınar & Aydoğan-Yenmez, 2014). Purposive sampling is based on the assumption that the researcher wants to explore, understand, gain insight and that it is imperative to select a sample from which most things can be learnt (Merriam, 2015). The fact that action research is not a random practice, but emphasises a systematic and collaborative process (Gürgür, 2017) makes it necessary to use purposive sampling method in such research. Within the scope of this research, criterion sampling, which is one of the purposeful sampling types, was used to determine the participants. Criterion sampling is based on the study and review of all situations that meet some predetermined criteria. The criteria or criteria mentioned here can be created by the researcher or a pre-prepared list of criteria can be utilised (Patton, 2014). The critical point in criterion sampling is that the situations to be selected are rich in terms of providing information (Yıldırım & Şimşek, 2016). In the study, criterion sampling method was used in two stages. One of these stages is the determination of the school where the application will be carried out. In determining the school, it was tried to reach the participant group that would best reflect the implementation process of the FL model. In order to reveal all positive or negative situations related to the action research process, it was planned to conduct the research under relatively more limited conditions. The reason for this is the idea that healthier results can be obtained in terms of addressing the process in all its aspects. As a result of the exploratory observations and the evaluations made with the classroom teachers working in the schools, it was decided to conduct the research in a primary school located in a low socioeconomic educational environment. The primary rationale for this decision is that the FL model offers advantages to ensure equal opportunities in education. Students with low socioeconomic status face factors such as lack of access to adequate learning resources outside the classroom (Yelgün & Karaman, 2015), insufficient materials to support learning at home (Topdağ & Çağlayan-Akay, 2024) and parents' inability to provide academic support (Erdil, 2010). These negativities make it difficult for students to actively participate in classroom learning processes (Korkmaz, 2023; Seban & Perdeci, 2016). The FL model provides students with access to educational resources outside the classroom, offers material support for teaching processes in the home environment and provides the academic support that students need outside of school. Finally, such a practice can contribute to the limited studies in the literature to understand the effects of the FL model on students with different socioeconomic profiles. The results of teaching practices for low socioeconomic students can be a guide for making education more inclusive and sustainable. From this perspective, the study can make a valuable contribution in both theoretical and practical terms.

After determining the school, it was tried to determine the class in which the application would be carried out. There are four 4th grade classes in the selected school. The teachers of these classes were interviewed and asked whether they would like to participate in the research. During the interviews, the teachers of classes A and D conveyed their concerns to the researcher that the research might disrupt their teaching practices. Class teachers of B and C classes expressed their willingness to participate in the study. The number of students in class B was 19 and the number of students in class C was 27. Due to the high number of students, it was decided to determine the participating students from the C branch. After determining the school and branch where the application would be carried out, the stage of selecting the participant students was started. Criterion sampling method was also used to select the participant students. In this context, the participant determination forms developed by the researcher and revealing the academic achievement scores of the students were applied. These forms consist of questions related to two different learning areas in which the teaching practice will be carried out. With the help of SPSS, the scores obtained by all students from the forms were ranked. The eight students with the lowest score from each achievement test were determined. Then, the relationship between the scores was revealed by correlation analysis. At this stage, the correlation coefficient was used to determine the relationship between the scores. According to the correlation coefficient obtained, the students with the lowest scores were identified and included in the action research group. The participant identification form scores of the students in the action research group are shown in Table 1.

Table 1. Participant identification form scores of participant students

Students*	**Participant identification form score****
Mehmet	15
Fatma	15
Ferit	16
Merve	16
Zafer	14
Ayşe	16
Kadri	16
Rabia	15
Average score of the class	**18,2**

* Students were given code names; ** Total number of correct answers obtained from the active citizenship achievement test (28 questions) and global connections achievement test (25 questions).

The purpose of working with students with low academic achievement scores is to determine the results of the implementation process of the FL model in the most unfavourable situation. Demographic information about the participant students is shown in Table 2.

Table 2. Demographic information of the participant students

Variable	Name of Students *							
	Mehmet	**Fatma**	**Ferit**	**Merve**	**Zafer**	**Ayşe**	**Kadri**	**Rabia**
Gender	Boy	Girl	Boy	Girl	Boy	Girl	Boy	Girl
Age	11	12	10	11	10	11	11	9
Mother's education	-	Primary	Primary	-	-	High school	Primary	Primary
Father's education	Primary	High school	High school	High school	-	High school	High school	High school
Mother's employment status	-	-	-	-	-	-	-	-
Father's employment status	+	+	+	+	+	+	+	+
Monthly income (tl)	< 5500	< 5500	< 5500	< 10000	< 5000	< 5000	< 5500	< 10000
Number of family members	8	7	6	8	9	5	5	7
Pc/tablet at home	-	-	-	-	-	+	-	+
Internet at home	-	+	-	+	+	+	-	+
Using the internet while studying	-	+	-	+	+	+	-	+
Daily internet usage (hours)	-	4	2	2	2	2	-	2

* Code name were given to the participants; **The '-' sign indicates absence for number and ownership, illiteracy for educational status, and non-employment for employment status.

Research environment

The research was conducted in the spring term of the 2021-2022 academic year in the 4th grade of a public school affiliated to the Ministry of National Education in Siirt province. The implementation of the research was carried out in an unused classroom in the school. The other students, who were not included in the action research group and made up the rest of the class, carried out the social studies lesson simultaneously with their teachers in their own classrooms. In the classroom where the research was conducted, there is one smart board, one normal blackboard, teacher's desk and chair, bookcase, student desks and tables. In order to provide the necessary conditions for the students, eight student desks and eight student desks were placed in the classroom. The teacher made changes in the classroom layout from time to time according to the activities to be carried out in the classroom. Depending on the situation of the activity, the students took the U-arrangement or in groups facing the teacher. During the research process, students who did not have access to computers were provided with laptop computers, mice, headphones and tablet computers. Students were asked not to bring their laptops/tablet computers to the classroom. They were asked to use these devices only outside the classroom. At the beginning of the implementation, 3 students did not have internet access at home. The family of one of these students has fulfilled this deficiency since the first week of the implementation. The other 2 students accessed the internet by purchasing internet packages through their families' mobile phone lines. In the classroom teaching activities, the smart board of the classroom and the laptop computer brought to the classroom by the teacher were used. A video camera was used to record the in-class applications. The video camera was positioned in various parts of the classroom according to the structure of the activities carried out in the classroom.

Role of the researcher

The researcher also played the role of practitioner within the scope of the research. The researcher completed his undergraduate and graduate education in the field of Classroom Education. The researcher observed that technology integration in schools was not at the desired level both during his teaching period and during his studies at the university. She received similar feedbacks from the

teachers and school administrators she interviewed over time. The researcher started the implementation phase by going to the school where the implementation would take place for the first time on 14 March 2022 of the spring term of the 2021-2022 academic year. In this process, she carried out the identification of participating students, prepared action plans, kept video records for in-class activities and virtual classroom application records for out-of-class activities, kept student diaries for students after each application, and transferred her observations to the researcher diary as the implementing researcher. At the end of the implementation process, the researcher conducted semi-structured interviews with students, teachers and parents and micro-analysed the data collected weekly. The researcher presented the results of the analyses to the validity committee and developed the next action process in accordance with the cyclical process of action research in the light of the feedback received. The researcher acted objectively in the processes of analysing the data obtained, creating and reporting the findings, and directly conveyed the views of the participants.

Ethical dimension of the research

Within the scope of the research, necessary permissions were obtained from both the ethics committee of Siirt University and the Ministry of National Education. In addition, verbal and written permissions were obtained from the principal of the school where the research was conducted and the teacher of the class in which the participant students were selected. In the last stage, the parents of the students in the action research group were informed in detail about the research and written approvals of both parents and students were obtained.

Role of the validity committee

The main purpose of the validity committee is to ensure that the research conducted has a systematic continuity. This committee also ensures the validity and reliability of the action research. The validity committee, which was formed both to add a systematic continuity to the research and to ensure the validity and reliability of the research from a critical perspective, consists of members who are experts in the field of basic education and computer technologies. The committee has three members. One of these members is an expert in the field of computer technologies. In addition to his studies on FL model, he also has a book chapter. Another committee member is an expert in basic education. The member has studies on life science education and social studies education. The third member of the committee was the researcher himself. The validity committee met regularly every week. The implementation at the school was carried out on Tuesday every week, and the validity committee met on the first Wednesday following the implementation. The researcher firstly analysed the video recordings of the lesson recorded during the implementation, the notes taken in the researcher's diary, student diaries and the outputs of the in-class and out-of-class activities. The researcher presented the data obtained as a result of all these analyses to the validity committee. The analyses made in the committee meetings were discussed and action plans for the following week were created. These action plans were also recorded in the committee decision book. Validity committees were recorded with a video camera. These recordings were then transcribed and analysed by the researcher and the findings were written in the committee record book. The first validity committee meeting was held on 10.03.2022 before the beginning of the field studies. The last validity committee meeting was held on 25.05.2022, which coincided with the week when the teaching practices ended. Ten committee meetings were held in total.

Preparation of videos

Teaching practices based on FL model were carried out within the scope of social studies course. In this direction, firstly, it was determined which learning areas the teaching practices would be based on. Accordingly, the learning areas of 'Active Citizenship' and 'Global Connections' at the 4th grade level in the 2018 Social Studies Curriculum were decided. Then, the stage of transforming the content of these learning areas into videos to be used in the virtual classroom environment was started. Within the scope of the FL model, the licence of the animated video preparation programme named VYOND was purchased in order to design the videos to be created for students to watch outside the classroom. All of the videos used during the teaching practices were created with this programme. The VYOND

programme enables the creation of animated videos based on ready-made templates created by the producer or templates to be created by users. A total of ten video animations with content from two different learning domains were created through the VYOND programme, which also allows adding audio and video to the animations. Some screen scenes of the created videos are given in Image 1 and the distribution of the videos according to the learning domains is given in Table 3.

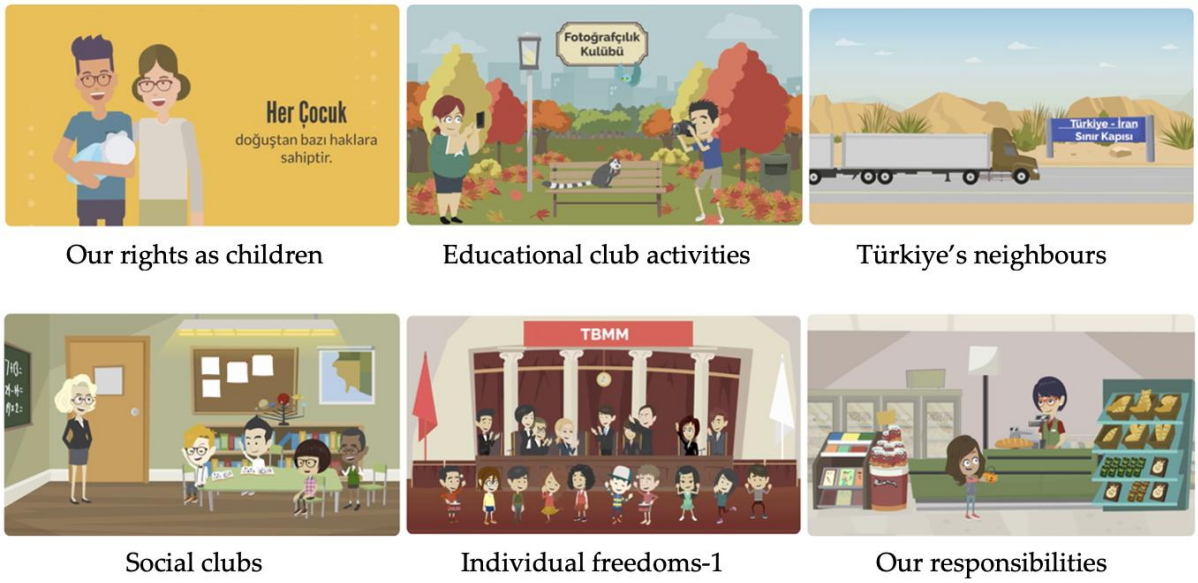


Image 1. Sample visuals of video animations

Table 3. Distribution of videos prepared in Vyond environment according to learning areas

Learning area	Name of the video	Duration of the video
Active Citizenship	Our rights as children	07:40
	Our responsibilities	04:33
	Educational club activities	04:35
	Social clubs	04:15
	Individual freedoms-1	04:02
	Individual freedoms-2	06:48
Global Connections	Get to know the countries	07:00
	Türkiye's neigbours	08:13
	Turkic republics	06:27
	Different countries different. cultures	09:45

Data collection

In this study, multiple data collection methods were used in accordance with the nature of action research (Mills, 2011). Research data were collected through semi-structured interviews with students, teachers and parents, student and researcher diaries, validity committee records, video recordings of in-class teaching activities, virtual classroom application records of out-of-class teaching activities, academic achievement tests related to learning areas and weekly subject tests. The data collection tools used in the research are shown in Table 4.

Table 4. Data collection tools used in the research

Researcher	Students	Teacher	Parents
Researcher diary (Qualitative)	Active citizenship achievement test (Qualitative)	Interwiev form (Qualitative)	Interwiev form (Qualitative)
Validty committee (Qualitative)	Global connections achievement test (Qualitative)		
	Student diary (Qualitative)		
	Online environment data (Qualitative)		
	Weekly subject tests (Qualitative)		
	Video recordings (Qualitative)		
	Interwiev form (Qualitative)		
	Activity sheets (Qualitative)		

Semi-structured interview: Semi-structured interview forms developed by the researcher were used to obtain the opinions of the students, the classroom teacher and the parents who participated in the research process. Care was taken to ensure that the questions used in the interviews reflect both the researcher's field observations and the implementation process of the FL model in the best way possible. In this context, the researcher first created forms consisting of different numbers of questions for the classroom teacher, participant students and parents. The forms were submitted to the validity committee and finalised after being discussed in the committee. The content of the interview form for the classroom teacher and participant students consisted of 7 questions, while the content of the interview form for the parents consisted of 6 questions.

The form prepared for the students consisted of questions prepared to determine the opinions of the students about the application process of the FL model and the reflection of the application on their course success and study habits. Semi-structured interviews were conducted with eight students during the research. In the interview with the classroom teacher, the teacher was asked questions prepared to determine the reflections of the FL model on the implementation process, students' academic achievement and study habits. In the interviews with the parents of the students, questions prepared to determine the opinions of the parents about the implementation process of the FL model and the activities carried out by the students outside the classroom were asked. A total of eight parents were interviewed, one parent representing each student participating in the research. All of the interviews were conducted in the classroom allocated for the research. The details of the interviews with the participants are shown in Table 5.

Table 5. Information on the interviews conducted with the participants

Participant type	Number of participants	Date of interview	Interview duration
Teacher	1	18-20 May 2022	58 minutes
Student	8	21 May 2022	88 minutes
Parent	8	22-23 May 2022	104 minutes

Student diaries: Two different media were used for student diaries. The first medium was the notebooks distributed to the students at the beginning of the implementation process. Students were asked to note down their thoughts about the activities they would carry out both inside and outside the classroom during the week in the notebooks distributed to them. After studying the homework content uploaded to the virtual classroom application and after the activities they carried out in the classroom, they were asked to note down their thoughts. While keeping a diary, it was stated that they should write the date they noted their thoughts at the top of the page. The comments written by the students on the chat flow screen of the virtual classroom application were also accepted as diary notes. The students were asked to be in constant communication with each other through the Google Classroom application

and to share their questions about the subjects they were studying or their positive or negative thoughts about the application process. These posts of the students were also taken into consideration as student diary notes.

Researcher diary: The researcher recorded her own experiences about the implementation process with a researcher diary. The researcher created this diary via computer environment. The researcher recorded her observations and opinions about in-class and out-of-class teaching activities and her evaluations about the meetings after the validity committees in her diary.

Validity committee data: During the validity committee meetings, the opinions and suggestions of the committee members regarding the activities were recorded with camera and voice recorders. These recordings were transcribed and used as data.

Video recordings: The in-class learning activities carried out by the researcher with the students were recorded by video. The video recordings were analysed after each implementation week, and the data obtained were presented at the validity committee meetings and provided ideas for action plans to be developed.

Teaching activity documents: The worksheets of the activities carried out by the students in the classroom and the learning products they produced were used as supporting data for the findings of the research.

Online environment data: In accordance with the nature of the FL model, out-of-class teaching activities constitute one dimension of the teaching activities. Google Classroom application was used to organise and follow the out-of-class teaching activities of the students. The studies carried out by the students on the virtual classroom created through this application, their correspondence with their other friends and the researcher, access to the teaching materials uploaded to the virtual classroom environment and information about their repetition status were recorded as online environment data. These records were analysed and used in the process of reporting the findings.

Achievement tests: The researcher developed achievement tests related to 'Active Citizenship' and 'Global Connections' learning domains in which FL model based teaching practice was carried out. This process was carried out in accordance with the test development stages. Accordingly; firstly, content validity was tried to be ensured. In this direction, the subjects and sub-subjects of the related learning areas were determined. For this purpose, the 2018 Social Studies Curriculum and the textbooks approved by the Ministry of National Education for use in primary schools were used. After determining the subject and sub-subjects, a question pool was created by taking Bloom's cognitive domain taxonomy into consideration. For each achievement test, 30-item draft forms were created. The draft forms were submitted to expert opinion. For each draft form, the opinions of a group of 10 experts were obtained. In the light of expert opinions, the Content Validity Ratio (CVR) value was calculated for each item based on Lawshe's content validity approach. The calculated value was compared with the Content Validity Index (CVI) constant (Adıgüzel, 2019). After the calculations and comparisons , it was determined that content validity was achieved for both achievement tests. Accordingly, it was decided that the active citizenship learning domain achievement test would consist of 30 items and the global connections learning domain achievement test would consist of 27 items. The items that were decided to be included in the achievement tests were evaluated in terms of spelling, form and expression deficiencies by taking expert feedback into consideration. In this process, the related deficiencies were eliminated and the validity study was completed.

For the reliability analyses of the achievement tests, a pilot study was conducted with a group of 65 students studying in the 4th grade of primary school. After the pilot study, item discrimination indices were first calculated within the scope of item analyses. For this process, the differences between the item score averages of the lower and upper 27% groups participating in the pilot study were tested using independent sample t-test (Adıgüzel, 2019). As a result of this process, it was tried to determine the items to be included in the test by checking whether the t value obtained depending on the Levene

value was negative / positive and whether $p<0.05$ or $p>0.05$. As a result of this process, it was decided to remove 1 item from the active citizenship learning domain achievement test and 2 items from the global connections learning domain achievement test. After the calculation of item discriminations, item difficulties were determined. After the calculations, the items with an item difficulty index below 0.19 were removed from the tests. Accordingly, it was decided to remove 1 item from the active citizenship learning domain achievement test and 2 items from the global connections learning domain achievement test from the tests. After the validity and reliability studies, it was decided that the active citizenship learning domain achievement test consisted of 28 items and the global connections achievement test consisted of 25 items. Finally, the internal consistency and reliability coefficients of the achievement tests were determined. According to the calculations, the Cronbach Alpha value of the achievement test of the active citizenship learning domain was 0.84 and the Spearman Brown reliability coefficient value was 0.78. The Cronbach Alpha value of the global connections learning domain achievement test was 0.88 and the Spearman Brown reliability coefficient value was 0.89. These results show that the developed achievement tests are valid and reliable measurement tools. The achievement tests developed were firstly used to determine the eight students included in the action research group. Then, they were used as pre-test and post-test to observe the academic achievement of the group in which FL model based teaching activities were carried out.

Weekly subject tests: Weekly subject tests were prepared by the researcher and uploaded to the virtual classroom weekly through the online environment. The content of the subject tests consisted of multiple-choice, fill-in-the-blank, open-ended and true-false questions related to the topic. With the weekly subject tests, it was aimed to monitor the weekly development processes of the students.

Implementation process

Details on the implementation process are described below.

Week 1 and 2: In the first week of the research, the school and the classroom where the implementation would be carried out were determined. In the second week of the research, the virtual classroom environment was introduced to the students in the action research group.

Week 3, 4, 5, 6, 7, 8 and 9: In the specified weeks, teaching practice based on the FL model was carried out. The process was continued by making changes in the action plans according to the data obtained and the decisions taken in the validity committee. The action research process carried out according to the FL model continued for a total of 21 lesson hours. The implementation process was completed after the implementation of all of the action plans developed.

Week 10: After the completion of the action research process, the application of achievement tests was carried out. In addition, interviews were conducted with the students included in the action research group, their parents and the classroom teacher. The steps related to the implementation process of the research are shown in Figure 3.

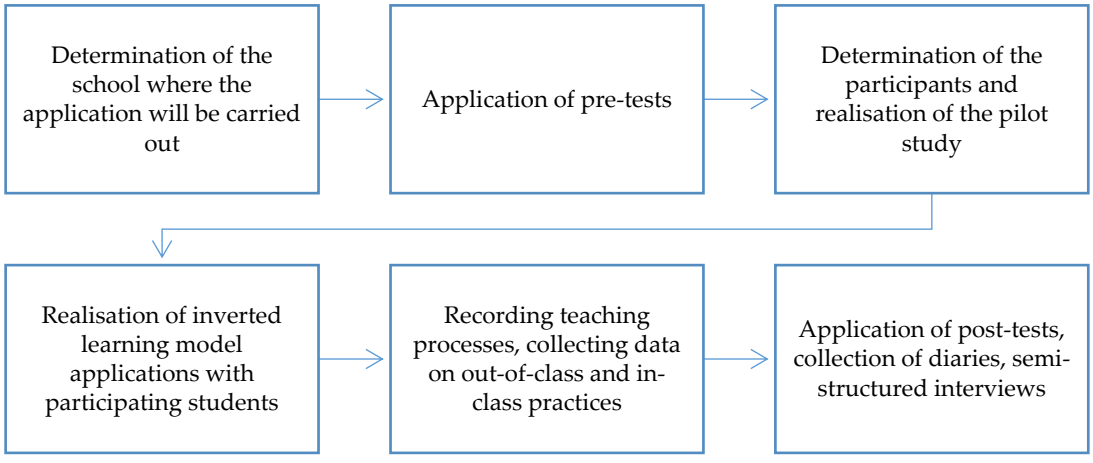


Figure 3. Implementation process of the research

Preparation of lesson plans

The researcher created the lesson plans that she would use during the action research process. The Social Studies course at the 4th grade level of primary school is implemented three hours a week. The researcher created 21 lesson plans for a total of seven weeks. Firstly, draft plans were prepared by the researcher for each lesson. The prepared plans were presented to the opinions of the validity committee members. The plans were finalised by considering the feedbacks. While creating the lesson plans, the features of the FL model were taken into consideration. The plans prepared accordingly were designed to organise in-class and out-of-class activities. It was taken into consideration that out-of-class teaching practices should be organised in such a way that students could work individually or in groups, and in-class teaching activities should be based on active participation. The lesson plans prepared have a quality that students will reinforce the knowledge they have acquired in the out-of-class environment.

Designing classroom learning activities

Within the scope of the research, 24 activities were designed for the in-class applications to be carried out. While developing learning experiences, attention was paid to some situations. Accordingly, care was taken to ensure that the teaching activities designed were of such a nature that students could participate in the process based on their own experiences, express their ideas by discussing with each other, and do both individually and as a group. The activities designed for the learning outcomes of Active Citizenship and Global Connections learning areas are shown in Table 6.

Table 6. Classroom teaching activities designed in the context of learning experiences

Learning area	Learning outcome	Teaching activty
Active Citizenship	Gives examples of his/her rights as a child.	My most important rights
		You have the right
		We promote children's rights
	Takes responsibility for his/her words and actions in family and school life.	Who is right?
		Assessing my responsibilities
		Where does it belong?
		Responsibility? Rights?
	Suggests educational and social activities deemed necessary in school life.	Establishing a club
		Completing the story
		My club
		Club puzzle
	Explains the relationship between the independence of the country and individual freedom.	Letter to heroes
		We complete the poem of independence
		Crossword puzzle
		Let’s make a law
Global Connections	Recognises various countries in the world.	Our world is a jigsaw puzzle / What where?
		My dream country
		Brain box - World
	Understands Türkiye's relations with its neighbours and other Turkic Republics.	Türkiye jigsaw puzzle / Our neighbours
		Türkiye's neighbours country cards
		Turkic Republics country cards
	Compares the cultural elements of different cultures with the cultural elements of our country.	A guest from far away
		Tourism agency
	Respects different cultures	Which country does it belong to?

While designing the activities, the characteristics of the subject areas were taken into consideration. Each designed activity was discussed in the validity committee and renewed in line with the feedback of the committee members. 4. A section from the dialogue between the expert members

and the researcher regarding the gamification activity named 'we make laws' carried out in the classroom during the implementation week is as follows:

…

Researcher: *I plan to create groups in the class to represent the legislative, executive and judiciary. For example, the legislative authority will put a bill on children's rights to a vote. The draft law will be voted in the parliament, maybe it will be discussed. The law adopted by the parliament will then be submitted to the president, who represents the executive branch. The president will examine the law and approve it.*

Expert-1: *So what will be the implementation at the judicial level?*

Researcher: *For example, the president can send the law to the parliament in the first stage. Then the parliament reviews and approves the law. Then it is sent to the president again. If the President does not approve this time, it can be taken to the judiciary. I can also add such a scenario.*

Expert-2: *There may be two different scenarios. The first scenario could be one in which the president approves the law. The second scenario could be one in which he does not approve it. He sends it to parliament again. If he refuses a second time, I think he can apply to the judiciary.*

Researcher: *The President accepts it for the second time, but takes it to the judiciary. It can happen.*

…

In the teaching activities listed in Table 6, various teaching techniques that appeal to different learning styles and encourage students' active participation were applied. Brainstorming and story completion techniques were used to develop creative thinking skills. Cooperative learning techniques were used to increase group work and collaboration. Discussion and question-answer methods were used to help students internalise the concepts of rights and responsibilities. In addition, game-based learning techniques such as puzzle solving and jigsaw puzzles were utilised to support the development of cognitive skills. In some of the activities, drama and problem solving techniques were also used to develop students' problem solving skills.

In the teaching process based on the FL model, in-class and out-of-class practices were structured to complement each other. In the out-of-class teaching process, students worked with online materials, videos, texts and digital resources to discover the contents related to basic knowledge and concepts individually. In this process, students were expected to have the necessary prior knowledge for the next lesson and to come to the class ready for discussion. In addition, for some teaching activities, students were given questions or short tasks that would help them to construct their thoughts and they were enabled to be an active part of the learning process. In the classroom, students had the opportunity to apply, analyse and deepen the knowledge they acquired in the out-of-class learning process. For example, students were involved in group discussions and collaborative learning activities within the scope of the activity 'Introducing children's rights'; in the activity 'Let's make a law', students were involved in problem solving, critical thinking and generating creative ideas with the help of gamification. In the classroom practices, the researcher assumed a guiding role and encouraged students to share their views and learn from each other. In addition, cooperative learning techniques were used to increase the active participation of students through activities such as 'Establishing a club' and 'My dream country'.

In the course process, students were at the centre of the learning process and were positioned as active participants. Students individually assumed responsibilities for learning in the out-of-class process and acquired basic knowledge by analysing online contents, videos and other materials provided by the researcher. In the classroom, students used their prior knowledge and participated in activities aimed at developing high-level cognitive skills such as problem solving, collaboration, critical thinking and generating creative ideas. Especially during group work, discussions and creative activities, students experienced taking responsibility, expressing their ideas and learning in interaction with other students. In this process, the researcher selected and presented appropriate learning materials to support students' individual learning in the teaching process outside the classroom. In the classroom, he encouraged in-depth learning by guiding students' discussion, application and problem solving processes and guiding them with questions when necessary. In addition, he organised group activities that increased cooperation among students and encouraged the sharing of different opinions. The researcher provided feedback on the learning process throughout the teaching process. The role of the researcher in each teaching activity is shown in Table 7.

Table 7. The role of the researcher in classroom teaching activities

Subject	Activities	Role of the researcher
I'm a child, I have rights	My most important rights (1) You have the right (2) We promote children's rights (3)	(1) Organises small group discussions to ensure that students understand the concept of rights and guides them in structuring their ideas. (2) Supports students to analyse these situations and develop awareness about the use of rights by presenting sample situations from daily life. (3) Guides students to prepare creative posters or presentations by checking the accuracy of information and supporting the process with guiding questions.
I take responsibility	Who is right? (4) Assessing my responsibilities (5) Where does it belong? (6) Responsibility? Rights? (7)	(4) Creates a fair discussion environment. (5) Supports students to realise their own responsibilities. (6) Guides students to analyse responsibility statements. In this process, he/she asks guiding questions to determine whether the statements belong to social, family or personal life and manages the discussion environment by encouraging students to explain their thoughts. (7) Ensures that students categorise situations correctly.
I participate in educational and social activities	Establishing a club (8) Completing the story (9) My club (10) Club puzzle (11)	(8), (10) Supports students to organise their ideas and prepare presentations by working collaboratively. (9) Provides hints to stimulate students' imagination and guides the process. (11) Contributes to the learning process by guiding students to consolidate their knowledge.
Freedom and independence	Letter to heroes (12) We complete the poem of independence (13) Crossword puzzle (14) Let’s make a law (15)	(12) Guide students to choose their heroes and structure their expressions when writing their letters. (13) Encourage students‘ poetic thinking and creative expression. (14) Structure the process in order to assess students’ prior learning. (15) Organises students' drafting processes, guides their discussions and supports their problem-solving skills.

Table 7. Continued

Subject	Activities	Role of the researcher
Get to know the countries	Our world is a jigsaw puzzle / What where? (16) My dream country (17) Brain box - World (18)	(16) Guides students to learn the world map and encourages them to make correct matches during the puzzle process. (17) Takes on a facilitative role encouraging students to share their dreams and reasons for the country they would like to travel to. Asking guiding questions to support students' country choices. Allowing students to express their opinions and encouraging them to explain their reasons in more detail. (18) Reinforcing students' quick thinking and information recall skills through guiding questions.
Neighbours and Turkish Republics	Türkiye jigsaw puzzle / Our neighbours (19) Türkiye's neighbours country cards (20) Turkic Republics country cards (21)	(19) Helps students consolidate their geographical knowledge while placing the puzzle pieces. When necessary, asks guiding questions and provides feedback for correct placements. (20), (21) Allows students to get to know Turkey's neighbours through country cards. During the activity, the teacher encourages the students to correctly identify the countries based on the information on the card and provides guidance to complete the missing information.
Different countries, different cultures	A guest from far away (22) Tourism agency (23) Which country does it belong to? (24)	(22) Guides students to develop their ability to recognise and empathise with different cultures. (23) Helps students develop their creative thinking and planning skills by running a tourism agency. Ensures that they correctly introduce the touristic features of their chosen country and asks guiding questions to support their presentations. (24) Encourages students to identify countries based on the clues given. Checks the accuracy of the answers, guides the correction of missing or incorrect information and supports students to develop analytical thinking skills.

Analysing the data

The analysis of the data obtained in action research is carried out in a continuous manner (Johnson, 2014). Accordingly, data collection and analysis are carried out together in the action research process. Miles and Huberman (1984 as cited in Gürgür, 2017) defined this process as a systematic analytical analysis approach. In this study, the systematic analytical analysis process defined by Miles and Huberman was followed. In this process, the data related to each teaching week were collected, analysed and the action plan was updated in line with the findings obtained and the process was reapplied. In the first stage of the research, data on out-of-class teaching activities carried out through virtual classroom applications were analysed. These data consist of the outputs obtained from the virtual classroom application, chat screen recordings and materials based on various activities. Students' participation in activities through the virtual classroom application, their interaction processes in the chat system, their access to the content uploaded to the application and their weekly subject test scores were followed and analysed in detail. Data on in-class teaching activities were obtained through video recordings, worksheets and researcher diary. Worksheets and weekly subject test scores were used to monitor students' academic development processes. In addition, data on the functioning of the FL model were obtained through video recordings and the researcher's diary and the details of the process were analysed. All these procedures were carried out separately for each activity week and this process was followed systematically.

Within the scope of the research, the teaching activities carried out in the classroom were recorded with a video camera. These recordings were analysed in two different contexts. In the first context, video recordings of in-class activities each week were analysed at the macro level by the researcher. In this process, the focus was on understanding general patterns, processes and relationships without going into details in the video recordings. The findings obtained from the analysis were presented to the validity committee and discussed. The discussions helped the action cycle process to be carried out in a healthy way. In the second context, the analyses of the video recordings were used to support the findings of the semi-structured interviews and the views of the researcher.

The semi-structured interviews were recorded with a video camera and then transcribed into a written text by the researcher. In the analysis of these data, the qualitative data analysis steps defined by Miles and Huberman (2015) were followed. These steps include the stages of data reduction, data representation, and presentation and verification of results (Miles & Huberman, 2015). In this context, firstly, the data were carefully analysed and the focus was on identifying general themes and patterns. Then, a theoretical framework was created in the light of the literature, and coding and categorisation were made in accordance with this framework. In this process, the frequencies, contexts and relationships of the themes were analysed in order to narrow the scope of the data and transform them into a meaningful structure. In the next stage, the connections between the main themes and sub-themes were revealed. These connections were supported by in-depth analysis of the implicit meanings in the qualitative data. The findings obtained during the analysis process were organised in a way to both answer the basic questions of the research and contribute to the literature. Content analysis was used in the qualitative data analysis process. Content analysis is a data analysis technique carried out according to the stages of coding the data, finding themes, organising codes and themes and defining the findings in order to reach concepts and relationships that can explain the collected data (Yıldırım & Şimşek, 2016). In this process, the coding process was carried out on the transcribed interview records. Firstly, the interview data were read in detail through open coding and important expressions, words or sentences were selected and coded. Then, the codes that were thought to be similar or related were grouped and themes were formed. The themes, relationships and categories obtained were tabulated using diagrams. The themes and categories obtained were interpreted in accordance with the research questions and purpose. Meaningful conclusions were reached by considering the content and context of the data. Diaries and field notes kept by the researcher and students were used to support the data obtained from the interviews.

Quantitative data were also obtained within the scope of the research. Within the scope of the research, academic achievement tests developed by the researcher were applied to determine the participant students. The average scores of the students obtained from the academic achievement tests were analysed using SPSS 22 (Statistical Package for the Social Sciences). At the end of the action research process based on the FL model, achievement tests were used to determine the academic development status of the students. In order to determine the statistical change in the level of academic achievement at the end of the process, firstly, it was decided which test type would be used. In the analysis of the data, the necessary conditions for the application of parametric or non-parametric tests were tested. For this, normality test was applied with the help of SPSS. Since the number of participants to whom each achievement test was applied was less than 50, the results of the Shapiro-Wilk test were examined as the normality test value (Mayers, 2013). As a result of the analyses performed, the p value of the Shapiro-Wilk normality test results of the pre-test and post-test scores of the academic achievement tests was significant ($p<0.05$). However, Skewness and Kurtosis values of the tests gave results outside the acceptable range (-1, +1) for parametric tests (Hair et al., 2013). Based on all these data, it was decided to use non-parametric tests in the analysis of quantitative data. Accordingly, Mann-Whitney U test was used to analyse the data related to independent/non-independent samples and Wilcoxon test was used to analyse the data related to dependent/related samples (Büyüköztürk, 2013). In order to evaluate whether the test results obtained here are significant in theory and practice, the effect size was calculated using Cohen (d) value. Another quantitative data collection tool developed

for the students was subject tests. Average scores were used to analyse the data obtained from these tests and the data obtained were presented graphically.

Credibility

In order to ensure the credibility of the research, credibility, transferability, invariance and confirmability strategies were used in the research process (Guba & Lincoln, 1989, cited in Güler et al., 2013). In qualitative research, credibility means that the collected data create a picture of a small observed reality with all its clarity (Johnson, 2014). In addition, credibility is related to whether the findings of the research are meaningful, whether the research is meaningful for people and readers, and the originality of the subject being researched (Miles & Huberman, 2015). The researcher stayed in the field for a total of 10 weeks in the second semester of the 2021-2022 academic year in order to increase credibility. Many data collection tools were used in the research. Data triangulation was made thanks to the different data collection tools used. In this context, qualitative data collection tools such as observation, diary, video recording and interview were used. The researcher collected data at different times throughout the research process. Weekly subject tests were used to determine the change in students' academic achievement levels. In addition, academic achievement tests were applied at the beginning and end of the study. At the end of the implementation process, the researcher conducted interviews with students, class teachers and parents. The researcher also watched the weekly video recordings and took notes of the dialogues between the students. Observation notes were kept regularly by the researcher on each implementation day. In addition, the lessons were recorded with a video camera. In addition, the data belonging to the virtual classroom environment in which the out-of-class practices took place were recorded via Google Classroom application. Where necessary, screenshots of the virtual classroom application and camera recordings of in-class applications were shared to increase the credibility of the research. In order to increase the credibility of the research, how the lessons were taught, how the Google Classroom application was used, which activities were carried out through this application, data collection processes, participants and roles of the researcher were explained in detail. In addition, the steps related to data analyses were specified in detail. In order to increase the credibility of the research, colleague and participant confirmation was obtained from the validity committee members, thesis monitoring committee members and the classroom teacher throughout the research process.

In qualitative research, the concept of transferability is used instead of generalisation. The transferability of a qualitative research result is related to the detailed explanation of the research process in all its details. This narrative is directly related to the transfer of rich, detailed and accurate information obtained as a result of observation of the research environment, participants and the research process (Güler et al., 2013). In this context, the researcher described in detail the school where the research was conducted, the research environment, the participants of the research, data collection techniques and tools, data analysis methods and how the application was carried out in order to ensure transferability. The researcher tried to reflect his/her descriptions as objectively as possible. The findings obtained as a result of the collected data were presented by comparing them with the findings in the literature. The stages of data collection and data analysis were reflected in detail by the researcher.

In qualitative research, the concept of consistency is used in the sense of reliability or being worthy of being reliable. According to Guba (1981 as cited in Mills, 2003), in order for the research to be worthy of being reliable, the data should be consistent with each other. In order for the data to be consistent or reliable, data collection methods should be diversified or people or persons other than the researcher who provide data control should be included in the process. The researcher organised validity committee meetings every week throughout the process to ensure that the research was worthy of being reliable. At each stage of the process, the data obtained from the macro analyses of the video recordings were presented to the members of the validity committee and action plans were created together with the committee members. The researcher presented the data obtained during the implementation process to the thesis monitoring committee and obtained the approval of the members of the committee. The researcher paid attention to present the data obtained from different data

collection tools in a consistent manner to support each other. The video and audio recordings obtained within the scope of the research were transcribed by the researcher. A certain part of these recordings was checked by another expert. An expert other than the researcher was involved in the scoring of the weekly subject test and academic achievement test forms of the participant students. A certain part of the forms was also scored by this expert. In this way, it was ensured that the scores obtained from the forms were reliable.

In qualitative research, the concept of confirmability is used in contrast to the concept of objectivity used in quantitative research. Confirmability means that the results reached through confirmability are continuously confirmed with the collected data and a logical framework is presented to the reader (Yıldırım & Şimşek, 2016). The researcher used qualitative and quantitative data collection tools together in the research process in order to ensure the confirmability of the research. Achievement tests and weekly subject tests, which are quantitative data collection tools, were used to reveal how students' academic development changed. In addition, observation notes, diaries, video recordings and interviews were used as qualitative data collection tools. In this way, it was ensured that the results supported each other. The results of macro-analyses of the video recordings of in-class teaching practices and the records of the virtual classroom environment were shared with the members of the validity committee. The outputs of the activities carried out by the students and their academic achievement scores were also presented to the committee members. These data made a great contribution to the preparation of action plans.

Findings

The findings of the research are presented under four headings. In the first stage, the findings related to the execution of the activities based on the FL model, which formed the basis of the implementation process of the research, were included. In the second stage, the academic development status of the students was mentioned. In the third stage, the problems encountered during the implementation of the FL model and the solution suggestions for these problems were mentioned. In the fourth stage, the opinions of students, teachers and parents regarding the FL model implementation were included.

Carrying out teaching activities according to inverted learning model

The implementation of the FL model in the social studies course was carried out as shown in Figure 4.

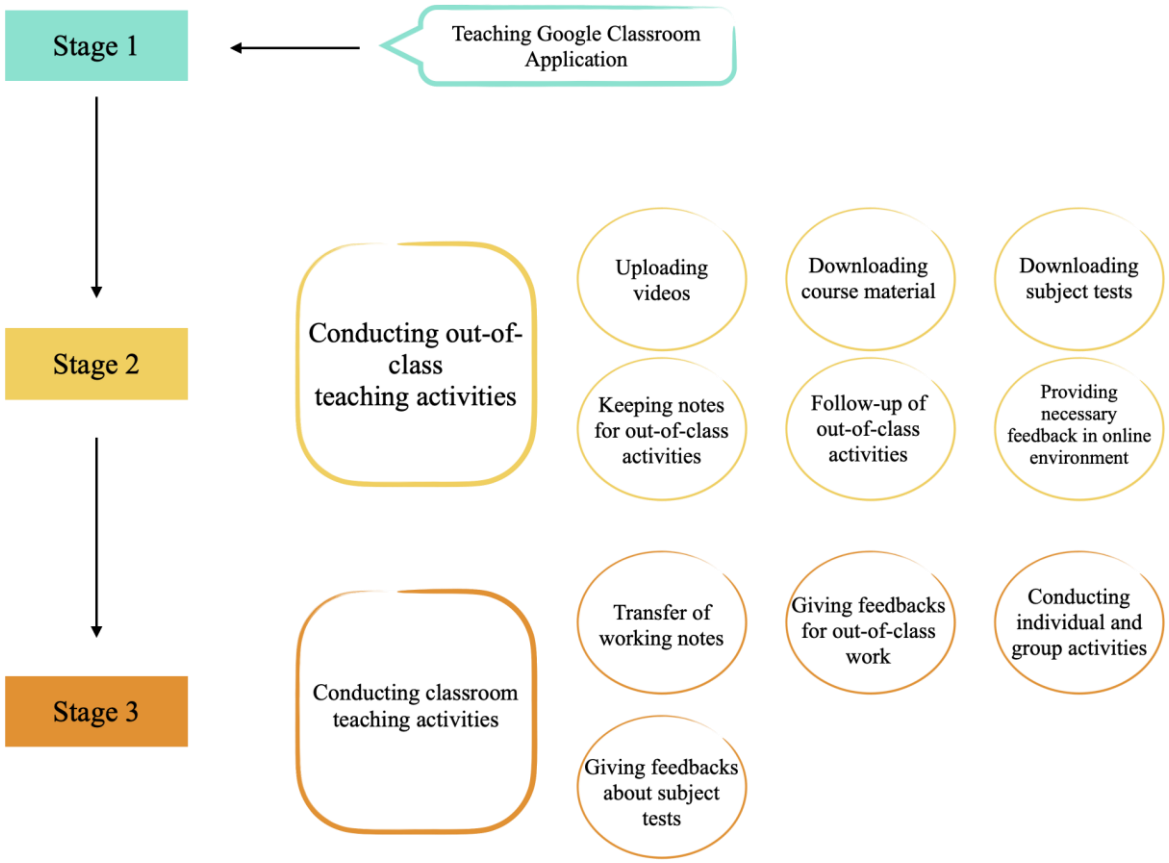


Figure 4. Implementation process of FL model in primary school 4th grade social studies course

In the light of the findings obtained in the research, it was determined that the FL model was realised in 3 stages. Accordingly, the first stage is the determination of the virtual classroom environment to be used to carry out the FL model's out-of-class teaching activities and introducing it to the students. The critical point at this stage is to ensure that the students reach the competence to use the virtual classroom application independently. Accordingly, just before the FL model is started to be used as a teaching method, students should have sufficient experience with the application that is decided to be used as a virtual classroom. In addition, care should be taken to ensure that the virtual classroom application is easy for students to use. Therefore, it was decided to use the Google Classroom application since its interface is Turkish.

The activity process was planned for the introduction of the Google Classroom application and students were brought together to convey the necessary information. The introduction of the Google Classroom application took place in five stages. In the first stage, students were told how to log in to the application. In the second stage, they were shown how to participate in the virtual classroom created by the researcher. In the third stage, it was explained how to access the course content uploaded to the virtual classroom. In the fourth stage, the chat flow screen of the virtual classroom application was introduced. In the fifth stage, it was tried to evaluate their comprehension of the use of the system through a sample lesson video and subject test uploaded to the virtual classroom application. After the researcher observed that the students were able to use the virtual classroom application independently, it was decided to carry out teaching activities based on the FL model with the decision taken at the validity committee meeting.

The second stage of teaching activities based on the FL model is the execution of out-of-class teaching activities. At the end of the action research process, it was determined that out-of-class teaching activities should proceed in certain steps. Accordingly, the process starts with the uploading of the video and other course materials related to the subject to be studied by the student to the virtual classroom environment. Then, the test of the subject to be studied should be uploaded to the virtual classroom environment. Students are expected to take notes about the studies they carry out individually outside the classroom. The teacher should follow the work carried out by the students outside the classroom and provide online feedback.

In the study, firstly, the details regarding the use of the virtual classroom application were determined. The in-class teaching activities to be carried out with the student in the action research group were carried out every week on Tuesday. Accordingly, the video content, other course materials and weekly subject tests of the subject that the students were expected to study were uploaded to the virtual classroom environment on Wednesday of the previous week. The aim here is to give students enough time to prepare before in-class activities. A part of the dialogue between the expert members of the validity committee and the researcher about this process is as follows:

…

Researcher: *I plan to do the in-class teaching application on Tuesday every week. I plan to upload the course content, especially videos and subject tests, which I will upload to the virtual classroom environment, to the system every Friday after the school exit time of the students. I have an idea like 18:00. Thus, at the end of the week, they will have time to watch the videos and solve the subject tests*

Expertise-1: *In my opinion, the earlier we upload the teaching content to the virtual classroom application, the more flexibility we give to the students. Therefore, if you are going to teach the lesson in the classroom on Tuesday, you can upload the content of the lesson until Wednesday at the latest. That way they'll have almost a week's time.*

Researcher: *My concern is that the longer the interval, the more likely it is that the students will forget what they have watched. So I was thinking of keeping the time short*

Expertise-1: *We are conducting an action research. Our aim is to revise our action plans until the healthiest conditions are in place. So we'd better see what the consequences of each situation are. I'm in favour of uploading the content on Wednesday in the first instance.*

Expertise-2: *I agree. They get out of class on Tuesday. They spend that day filling in their diaries. One day later, they start preparing for the next lesson. I am also in favour of uploading the videos on Wednesday*

Researcher: *OK then. I'm taking notes for Wednesday 18:00 as the day the content will be uploaded to the virtual classroom.*

…

During the execution of out-of-class teaching activities, some situations requiring intervention emerged. These situations were eliminated thanks to the decisions taken at the validity committee meetings and the action plans developed by the researcher. In the first of the situations requiring intervention, it was observed that there were students who did not follow the assignments uploaded to the virtual classroom environment or followed them late. The researcher determined that there were different reasons for this situation in the interviews with the students. Accordingly, it was determined that some students had problems accessing the internet, some students did not click on the homework submission button although they accessed the teaching content uploaded to the virtual classroom environment, and some students could not use their computers due to some reasons at home. Carrying the data obtained as a result of the interviews with the students to the validity committee the researcher developed new action plans in the light of the feedback received from the experts and tried to eliminate the situations requiring intervention.

Another situation that requires intervention in the process of conducting out-of-class teaching activities is related to the assignment submission screen. Accordingly, it is not known whether the students have worked on the content uploaded to the virtual classroom environment. Students are expected to give feedback with the 'submit' button after working on the content uploaded to the virtual classroom environment. However, this feedback does not provide healthy information about whether the uploaded content has been studied or not. In order to overcome this situation, the researcher asked the students to take notes about the teaching activities they carried out outside the classroom. It was decided that the students would share the notes they took with the class just before the in-class teaching activities started.

There were also different situations that emerged during the process of out-of-class teaching activities and required intervention.These situations can be expressed as; the frequency of repeating the teaching content uploaded to the virtual classroom environment is low, the virtual classroom chat flow screen is not used sufficiently for communication purposes, and the need to give feedback on students' learning deficiencies arises. The decisions taken and implemented in the validity committee in order to overcome the problems that emerged are shown in Table 8.

Table 8. Decisions taken to overcome the problems encountered in out-of-class teaching activities

Meeting Number	Meeting Date	Decisions Taken
4	30.03.2022	Discussing with families about the use of technological devices that will enable students to access the virtual classroom environment. Discussing with families about students' easy access to the internet outside the classroom. Subject tests are uploaded to the virtual classroom environment every Friday. Monitoring the out-of-class work of the students through the virtual classroom. Communicating with students through the virtual classroom environment. Asking students to take notes about out-of-class teaching practices. Adding warnings to the prepared subject videos reminding students to increase the number of repetitions of their out-of-class work. Adding warnings to the prepared subject videos reminding students to take notes on their out-of-class work.
5	07.04.2022	Ensuring that the chat flow screen of the virtual classroom application is used more effectively by the students. Continuing the practice of uploading the subject content prepared for out-of-class studies to the virtual classroom application every week on Wednesday and the subject test every week on Friday.
6	20.04.2022	Continuing to provide the necessary guidance for students to use the virtual classroom application chat flow screen more effectively.
8	04.05.2022	Discourage the organisation of out-of-class learning implementations in such a way that students can work in groups.

The third stage of teaching activities based on the FL model is the execution of in-class teaching activities. At the end of the action research process, it was determined that in-class teaching activities should be carried out by transferring the study notes kept by the students, giving the necessary feedback for out-of-class work, conducting individual and group activities and giving feedback on subject tests.

Firstly, the details of how the teaching activities will be carried out in the classroom were determined. In line with the decision of the validity committee, it was determined how the activities would be carried out before the first week of the in-class teaching practices. Accordingly, it was decided to carry out the activities individually or in groups in the classroom environment, to give feedback to the students in the introduction part of the lesson, to carry out activities to reinforce the out-of-class

teaching practices and finally to inform the students about the activities to be carried out in the following week.

In the process of implementing in-class teaching activities, just like in the process of implementing out-of-class teaching activities, some situations that needed to be intervened emerged. Especially in the first week of implementation, it was observed that some students did not access the instructional content uploaded to the virtual classroom environment for different reasons, so these students behaved passively in classroom teaching activities. In order to overcome this situation, it was decided to supervise the students through the virtual classroom application and to keep notes for out-of-class teaching activities. Following the in-class teaching activity in the first week, a section from the dialogue between the researcher and the committee members regarding this situation that emerged and required intervention is as follows:

…

Researcher: *I cannot determine whether they have worked on the homework content that I uploaded to the virtual classroom environment. As soon as they press the 'I completed the homework' button, it seems that they have worked on the content, but this is not a very healthy tracking method. We need a method to track out-of-class work*

Expertise-2: *They can take notes. We can ask them to take notes about their work. So that we can monitor what they are working on.*

Expertise-1: *Let them take notes. You remind them to take notes. Thus, they come taking notes. You briefly mention these notes in the introduction part of the lesson. They will also get feedback. We will follow them.*

…

At the committee meeting, it was brought to the agenda at which stage of the activities to be carried out in the classroom environment the feedbacks related to the subject tests uploaded to the virtual classroom environment would be given. The researcher observed that some students did not achieve the desired level of success in the subject test. The committee members stated that the main reason for this situation may be that the course content uploaded to the virtual classroom environment was not repeated sufficiently. In the committee meeting, some decisions were taken to take the necessary steps for students to frequently repeat the teaching content uploaded to the virtual classroom environment. It was also emphasised that feedback on subject tests should be given during in-class teaching activities. The researcher and the committee members agreed that the feedback on the subject tests should be given in the last part of the lesson after the in-class activities were completed. The decisions taken and implemented in the validity committee for different situations that emerged during the process of classroom teaching activities and required intervention are shown in Table 9.

Table 9. Decisions taken in order to eliminate the problems encountered in classroom teaching activities

Meeting Number	Meeting Date	Decisions Taken
4	30.03.2022	Giving feedback on the subject tests uploaded to the virtual classroom environment in the classroom environment and in the last part of the lesson. Taking a short break in the lesson in order to eliminate possible distractions during the lesson. Asking students to share the notes they kept for their out-of-class work at the introduction stage of the lesson.

After the completion of the action research process, it was determined in detail how the in-class and out-of-class teaching processes of the FL model should be carried out within the scope of the primary school social studies course. In order to explain the first sub-objective of the study and to visualise the teaching process based on the FL model concretely in the minds of the readers, the teaching activities carried out during an implementation week are explained in detail below.

Week 7 Implementation Process with FL Model

Learning outcome: Compares the cultural elements of different cultures with the cultural elements of our country.

Detail of the process: This week, in accordance with the FL model, both out-of-class and in-class activities aimed to help students understand and compare cultural differences. Out-of-class and in-class activities were carried out as follows:

Out-of-class activities

Content presentation with animated video: An animated video titled 'Different Countries, Different Cultures' was presented to the students. This video provides basic information by comparing the cultural elements of Japan and other countries with the cultural characteristics of Türkiye. In the video, elements such as the language, capital, festivals, traditions and culinary culture of Japan are discussed in detail.

Use of additional materials: Flashcards introducing the cultural characteristics of different countries were uploaded to the Google Classroom platform. These flashcards contain information about each country, such as its language, geographical location, tourist attractions, festivals and culinary culture. Students learnt general information about different countries by studying these materials.

Subject Test: After analysing the videos and flashcards, students completed a subject test presented via Google Classroom. The questions in the test helped the students to reinforce what they have learnt and to measure their knowledge. The solutions of the test were discussed for feedback and reinforcement after the in-class activities were completed.

In-class implementation process

1. Activity: A guest from far away

Purpose: To develop students' empathy, group work and creative drama skills by comparing Japanese culture with Turkish culture.

Process: The class was divided into groups of 4 students. In each group, one student played the role of a Japanese child and the other student played the role of a Turkish child. Roles such as family elders and friends of the children were also shared by the groups. The groups shared with each other the research they had done about Japan outside the classroom. Then, a day when the Japanese child was a guest in Türkiye within the scope of 23 April activities was enacted with the creative drama method. In this process, the cultural characteristics of Japan (language, holidays, traditions) and the hospitality culture of Türkiye were emphasised.

Expected learning outcomes: Students realise the cultural characteristics of Japan and Türkiye. Developing cooperation, empathy and creative thinking skills.

2. Activity: Tourism agency

Purpose: To develop creative thinking, planning and presentation skills; to be able to compare the cultural differences between the selected country and Türkiye.

Process: Each student prepared a brochure about a country of his/her choice outside the classroom. The brochure included details such as the language, tourist attractions, festivals and culinary culture of the selected country. In the classroom, each student assumed the role of a person running a tourism agency and presented the brochure to his/her friends. Other students played the role of tourists and asked questions to the agency operator about that country and received detailed information. In this process, the prepared brochure was supported with visuals and students were encouraged to demonstrate their creative presentation skills.

Expected learning outcomes: Improving students' skills in collecting, analysing and presenting information. Better understanding and interpretation of cultural differences.

Evaluation

Out-of-class activities: Students' researches, brochure designs and subject test results were evaluated.

In-class activities: Group work and individual presentations are graded on the basis of co-operation, creativity and presentation skills.

The effect of FL model based teaching practices on students' academic achievement

Based on the FL model, achievement tests developed by the researcher and weekly subject test scores were used to determine the development in the academic achievement of the students. At the beginning and end of the action research process, the Active Citizenship Achievement Test developed by the researcher was applied to the students. The Wilcoxon test results revealing the relationship between the pre-test and post-test scores of the Active Citizenship Achievement Test are shown in Table 10.

Table 10. Wilcoxon test results for active citizenship achievement test pre-test-post-test scores

Posttest-pretest	n	Rank mean	Row total	z	p	d
Negative sequence	0	.00	.00	2,524*	.012	0,8186
Positive sequence	8	4,50	36,00			
Equal	0	-	-			

* Based on negative sequences

According to Table 10, there was a significant difference in favour of the post-test between the pre-test and post-test scores obtained from the active citizenship achievement test by the eight students who were included in the action research group and who received education based on the FL model ($z=2.524$, $p<0.05$). When the rank means and rank sums of the difference scores are taken into consideration, it is understood that this difference is in favour of positive ranks, that is, the post-test score. Since the calculated Cohen (d) effect size value was greater than .8 ($d=0.8186$), this significant difference was found to cause a large effect size. Accordingly, the academic achievement levels of the eight students in the action research group in the active citizenship learning domain increased based on the FL model. In other words, it can be said that the action plans realised during the action research process were effective on the development of students' academic achievement.

Another quantitative measurement tool of the research is the Global Connections Achievement Test developed by the researcher. The Wilcoxon test results revealing the relationship between the global connections achievement test pre-test and post-test scores of the action research group are shown in Table 11.

Table 11. Wilcoxon test results for global connections achievement test pre-test-post-test scores

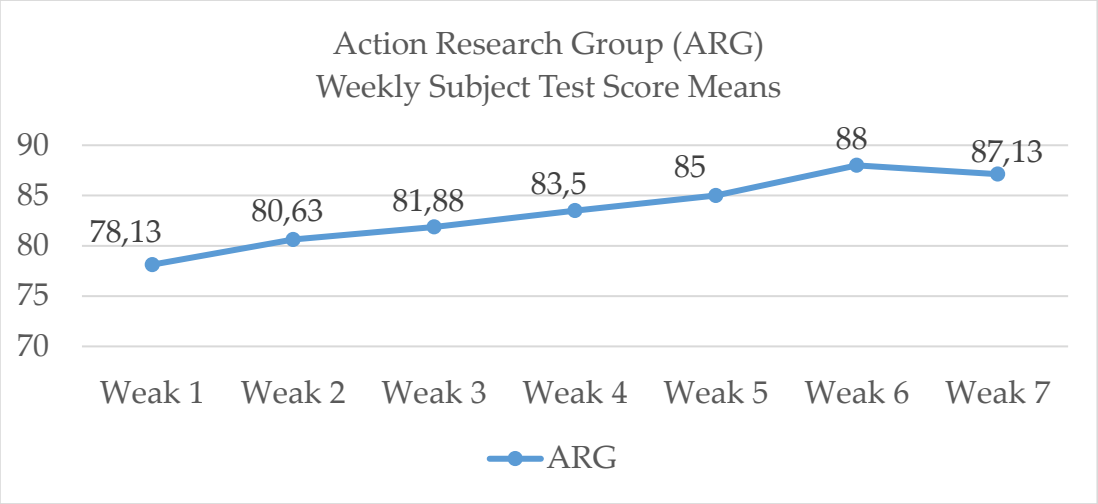
Posttest-pretest	n	Rank mean	Row total	z	p	d
Negative sequence	0	.00	.00	2,527*	.012	0,6785
Positive sequence	8	4,50	36,00			
Equal	0	-	-			

* Based on negative sequences

According to Table 11, there was a significant difference in favour of the post-test between the pre-test and post-test scores obtained from the global connections achievement test by eight students who were included in the action research group and studied based on the FL model ($z=2.527$, $p<.05$). When the rank means and rank sums of the difference scores are taken into consideration, it is understood that this difference is in favour of positive ranks, that is, the post-test score. Since the calculated Cohen (d) effect size value was between .5 and .8 ($d=0.6785$), this significant difference was

found to cause a medium effect size. Accordingly, the academic achievement levels of the eight students in the action research group in the global connections learning domain increased based on the FL model. In other words, it can be said that the action plans realised during the action research process were effective on the development of students' academic achievement.

During the seven-week implementation process, the students in the action research group were given tests related to the topic discussed that week. In this way, data showing the development of the students' knowledge levels on the subject addressed each week were obtained. The subject tests were applied to eight students in the action research group through the virtual classroom application. Graph 1 shows the weekly development comparison of the mean scores obtained by the action research group from these tests.



Graph 1. Development of weekly subject test mean scores of the action research group

When the graph is analysed, it is seen that the mean subject test scores of the students in the action research group have shown an upward trend since the first week of the research process. Accordingly, the mean weekly subject test scores of the eight students in the action research group were 78.13, 80.63, 81.88, 83.50, 85.00, 88.00 and 87.13, respectively. While the lowest mean score of the action research group in the weekly subject tests was 78.13, the highest mean score was calculated as 88.00. In addition, the mean weekly subject test scores of the students in the action research group were in an upward trend from week 1 to week 7. Only the subject test mean score of the last implementation week showed a slight decrease. According to these data, it can be said that the weekly development of the subject test mean scores of the action research group has a consistent structure. Based on the students' academic achievement test pre-test - post-test score comparisons and weekly subject test score averages, it can be said that the teaching activities based on the FL model provided a positive development on students' academic achievement.

In face-to-face interviews with the classroom teacher, the researcher obtained data supporting the findings stated above. The classroom teacher emphasised that the students who were educated based on the FL model achieved more successful results than the rest of the class in the year-end exams she conducted in the context of the Social Studies course. A part of the conversation between the researcher and the classroom teacher on this subject is as follows:

…

Researcher: *What would you like to say when you compare the succsess of the students who are educated according to the FL model in the social studies course with other students?*

Teacher: *I'd say they're doing better now. The students who work with you have better grades.*

Researcher: *Do you have any data on this or are you reporting your observations?*

Teacher: *Let's see, for example (he analyses the scores of his written exam). Especially Mehmet, Ferit and Kadri got 100 marks. Merve and Fatma got 95. Rabia got 85. Ayşe got 80. Zafer got 70. For example, the closest of the rest of the students has 80 points. These were low achievers compared to the rest of the class. Now they are more successful than the other students.*

…

Problems encountered in the teaching process based on FL model an solutions

The problems encountered during the teaching activities based on the FL model were evaluated in four different dimensions. These dimensions are named as student-related problems and solutions, family-related problems and solutions, technological equipment and internet-related problems and solutions, and virtual classroom application-related problems and solutions. The identified problems and solution suggestions for these problems are presented in Table 12.

Table 12. Problems encountered in the implementation of the FL model and solutions

Source of the problem	Nature of the problem	Solution to the problem
Student	Not repeating the content	Uploading the course contents to the virtual classroom application at different times. Adding reminders to video lecture contents
	Inability to focus on the lesson	Breathing exercises for 15-20 seconds
	Not taking notes	Making reminders via virtual classroom. Adding reminders to video lecture contents
	Low internet usage skills	Providing basic internet training
Family	Not providing a working environment	Conducting interviews with families
Technological equipment and internet	Lack of tools and equipment	Providing computer and tablet support to students
	Inability to access the Internet	Providing home and mobile internet access to students
Virtual classroom app	Failure to follow the student	Ensuring that notes are kept about out-of-class activities

In accordance with the nature of action research, the researcher tried to overcome these problems that emerged during the process with the action plans he prepared. Under this heading, the problems that emerged during the research and the solution suggestions developed to overcome these problems are presented. The views presented were supported by quotations from the researcher and student diaries and validity committee meeting decisions.

Problems arising from students and their solutions: Based on the video recordings of in-class activities, homework submission screen records of the virtual classroom application and researcher diary data, it was determined that problems arising from the students were encountered during the execution of the activities during the research process. One of these problems is *the lack of sufficient number of repetitions in out-of-class activities*. Accordingly, the researcher determined that some students did not repeat the study content sent via the virtual classroom application sufficiently during the

realisation of in-class activity activities. The researcher based his views in this direction on the fact that some students did not submit their homework through the virtual classroom application and some students did not participate in the teaching activities organised in the classroom. In addition, the low weekly subject test scores of the students who did not submit homework or did it late strengthened the researcher's views in this direction. In the light of the data, it was understood that there were two main reasons for this finding. The first of these is that the students could not fully adapt to the out-of-class application process because it was the first application week. Students are expected to come to the classroom prepared for the content uploaded to the virtual classroom environment. Since the FL model is inherently different from the usual teaching practices, it may not be easy for students to get used to this situation at first. Reminding efforts may be necessary for students to fulfil what is expected of them regarding out-of-class activities. Another reason is that the teaching content uploaded to the virtual classroom environment was presented together at one time. This situation caused the students to be alone with an intense subject content at once. The researcher also obtained data supporting this idea in the in-class conversations with the students. After the interviews with the students and the decisions taken in the validity committee, the researcher wrote the following in her diary:

> *Some students' attendance is lower than others. In my conversations with students, I have identified different reasons for this. ...not repeating the assignment content sufficiently seems to be the most important reason. The intensity of the assignments uploaded to the virtual classroom environment may be another reason. For this reason, instead of uploading all the homework content to the system at once, we decided to upload the subject tests to the system at intervals of a few days. We also decided to add warnings to the introductory sections of the videos. We also decided to follow up more closely through the virtual classroom application and provide the necessary feedback through the chat flow screen of the application.*

To overcome this problem, the researcher started to upload the homework content on Wednesday and the subject tests on Friday each week. The aim here is to enable students to repeat the subject content uploaded to the virtual classroom environment before solving the subject test. In addition, he added warnings to the content of the animated videos he prepared, reminding the students to repeat the work continuously. The researcher, who increased the follow-up of the students through the virtual classroom application, started to use the chat flow screen of the application for reminders in this direction.

After the action plans developed by the researcher, the number of repetitions of the videos uploaded to the virtual classroom environment increased. An excerpt from the conversation between the researcher and the students on this subject is as follows:

…

Researcher: *Do you think you've watched enought of the video?*

Merve: *I watched the video, teacher. Maybe I watched it ten times.*

Kadri: *I watched it too.*

Researcher*: Did it help tp add reminders to the videos?*

Kadri: *Yes teacher.*

Researcher: *So, did it help to upload videos and the subject test on different days?*

Kadri: *Yes, it helped.*

Researcher: *How did it help?*

Kadri: *I mean, I Watched it again. I watched it again before ı took the test.*

…

After the measures taken by the researcher, it was observed that the number of repetitions of the students in out-of-class studies and accordingly their class participation increased. In this way, a solution was found to the problem of students not doing enough repetitions for the content they were asked to study outside the classroom.

It was observed *that the inability of* some students *to focus on the lesson* was another problem experienced by the students. The researcher determined that some students were distracted during the realisation of in-class teaching activities. The researcher discussed this issue with the members of the validity committee. In line with the suggestions received from the members of the validity committee, the researcher decided to interrupt the activities for a short time when faced with a similar situation and to carry out studies to regain the attention of the students. For this purpose, it was suggested that it would be helpful for all students to do breathing exercises for 15-20 seconds in the presence of a teacher to eliminate distraction. In the later stages of the research, it was observed that students experienced less problems such as distraction and focusing on the lesson.

Another problem arising from the students *is that they do not take notes* for out-of-class activities. The researcher, who found that the virtual classroom application did not provide conclusive evidence of whether the students studied the uploaded content or not, decided that the students should come to the class by taking notes on the out-of-class work they had done on the topic to be covered that week. Despite this decision, the researcher observed that some students did not take notes about the work they carried out outside the classroom. After the validity committee meeting, in order to overcome this problem, it was decided to take notes on the out-of-class teaching practices of the students. For this purpose, reminders were added to the content of the animated videos to remind students to take notes. In addition, similar reminders were made through the virtual classroom application. After these measures, it was observed that the students gained the habit of taking notes. Thus, a solution was provided to the problem of students not taking notes for their out-of-class work.

The low level of internet usage skills is another problem whose source is the students. At the beginning of the study, the researcher observed that some students had inadequate internet usage skills. Internet usage skill is a prerequisite skill in all stages of the research. For this reason, this deficiency was seen as a problem and some studies were carried out by the researcher to overcome this problem. The researcher conducted a training on 21 and 23 March 2022 with eight students included in the action research group to develop basic internet usage skills. After the study, the researcher observed that the students made progress in using the Internet at a basic level. After this application, the problem that the students had about the ability to use the internet was eliminated.

Problems arising from families and their solutions: Another problem encountered during the research process was the problems arising from the families. The researcher observed that some families could not create an environment that would enable students to access the Internet with devices such as tablets, phones and computers (Table 2). Accordingly, only 2 families had access to computers/tablets at the beginning of the research. 6 families have internet/mobile internet access at home. The researcher provided laptop/tablet computers to 6 students. In this way, the technological impossibilities in front of the students to follow the virtual classroom application were eliminated. One of the 2 families, who did not have internet access at home, connected home internet in a short time, while the other family provided mobile data for the student to use on the tablet. In the last stage, 4 of the students had a computer and 4 had a tablet computer. 4 students accessed the internet via mobile data, while the remaining 4 students used home internet. In order to avoid internet access problems in this process, mobile data packages were defined for 2 of the students who will connect to the internet via mobile devices with the permission of their families. In the first week of the implementation, some students could not access the homework content sent to them via the virtual classroom application. The reason for this situation is that other siblings use the tablet or computer at home (distributed to them or already available at home). In addition, some students stated that their families did not allow them to access the virtual classroom application via their mobile devices (this problem was overcome by defining a mobile

data package for the families). In the face of this situation, the researcher brought the issue to the agenda of the validity committee. In the meeting, the idea that this situation was caused by the attitudes of the families and that they should be interviewed to overcome this problem gained weight. The researcher decided to interview the families after the meeting. The researcher interviewed the families in line with the decision taken and recorded the following statements in his diary after the interviews:

> *"In my interviews with the families, I asked that the tablets and computers at home be used primarily by the students participating in the application. I also offered to purchase an additional internet package for the parents' mobile phones for families who had problems with internet access. All the families I interviewed said that this was not necessary and that they themselves could provide internet access for their children. After the family stated that they would take the necessary care in this regard, I ended the interview with the families."*

After the interview with the families, the researcher did not encounter any situation arising from the inability of the students to use technological tools and equipment or to access the internet in the following process.

Problems arising from technological equipment and internet and solutions to these problems: After determining the students to be included in the action research group, the researcher determined that some of the students in the group did not have technological tools such as computers, tablets or mobile phones and internet access, while some of them used their parents' mobile phones for internet access (Table 2). After identifying the students who did not have access to tablets or computers, the researcher decided to overcome their lack of technological tools. The researcher obtained three computers from the university where she worked. The researcher provided three tablet computers for the remaining students. The researcher distributed the computers and tablets to six students just before the beginning of the application. After the researcher distributed the equipment to the students who did not have computers or tablets, the problem arising from the lack of technological tools was eliminated.

The researcher determined that there were students who had problems with internet access. Accordingly, some of the students in the action research group do not have wired internet access in their homes. The out-of-class activities of the teaching process to be carried out based on the FL model will be carried out through the virtual classroom environment. For this reason, it is seen as a necessity for students to have internet access at home. It was determined that only 4 students included in the action research group had wired internet access at home. The rest of the students were able to connect to the internet via their families' mobile devices (Table 1). This situation was seen as a problem from the beginning of the research. In the first week of the implementation, some students could not access the homework content sent to them via the virtual classroom application. Some students justified this situation by the fact that their parents' mobile phones had run out of internet quotas. This situation mobilised the researcher. The researcher brought this situation to the validity committee. In the committee meeting, it was decided to interview the families of the students in order to solve this problem. In the interviews with the families, they were first asked to provide wired internet access to their homes. If this was not possible, they were asked to allocate the internet quotas of their mobile lines to the students. If requested, the researcher stated that the researcher could define a mobile internet package for the families, provided that it was for the use of the children during the implementation period. After the interviews with the families, the researcher wrote the following in her diary:

During my interview with the parents, I asked them whether they would be able to connect the internet to their homes The parents of two students stated that they would try to bind them during the week. The other two parents said that this was not possible for now. I asked these families to spend the internet quotas of their mobile lines carefully. I also told them that I could define an internet package for the students to use if they wanted. The families stated that this was not necessary. I ended my interviews by taking the promise of the parents that there would be no problems that may arise from the internet use of the students.

After the interview with the families, the problems experienced by the students due to internet access decreased in the following weeks. Thus, the internet access problem encountered by the students in their out-of-class studies was eliminated.

Problems arising from the virtual classroom application and their solutions: During the teaching process, a problem was encountered that could not be completely resolved and whose source was the virtual classroom application itself. Accordingly, it was not possible to precisely monitor whether the students were working on the instructional content uploaded to the virtual classroom environment. Each student must click on the 'Mark as completed' tab on the application to indicate that they have completed the assignment content defined for them. Students who do not click on this tab after the date set for the completion of the study are considered to have 'completed the study late', and students who do not click at all are considered to have 'not completed the study'.

The researcher informed the students about this issue in the meeting where the Google Classroom application was introduced and emphasised the importance of the 'Mark as completed' button for the process. However, after the students started to use the application, the researcher started to think that clicking the relevant button could not prove whether the content uploaded to the virtual classroom environment was actually studied or not. The diary notes in which the researcher conveyed his thoughts on this subject are as follows:

…In addition, the fact that students click on the 'completed' button may not necessarily indicate whether they have actually worked on the assignment for which they are responsible. A student who has not done any work through the virtual classroom seems to have fulfilled his/her task after clicking the 'completed' button. There needs to be some proof that the students have been studying. One way of doing this might be to ask them to take notes on their work."

The researcher brought this issue to the agenda of the validity committee and shared his views with the committee members. In the meeting, it was decided that the students would take notes about the activities they carried out outside the classroom. In addition, the idea of sharing their notes in the classroom environment was accepted. As a result, the researcher tried to control the students' working on the homework content uploaded to the virtual classroom environment through the notes they kept. However, the researcher could not find a solution to the deficiency of the virtual classroom application in this sense throughout the study.

Opinions on the teaching proccess based on FL model

The researcher consulted the opinions of students, teachers and parents in order to reveal their thoughts on the FL model. In this context, semi-structured interviews were conducted with a total of 17 people, including eight students, eight parents and the classroom teacher. Student and researcher diaries were also analysed. Based on the data obtained from the interviews and diaries, one theme and 13 sub-themes were reached. Theme and sub-themes are shown in Figure 5.

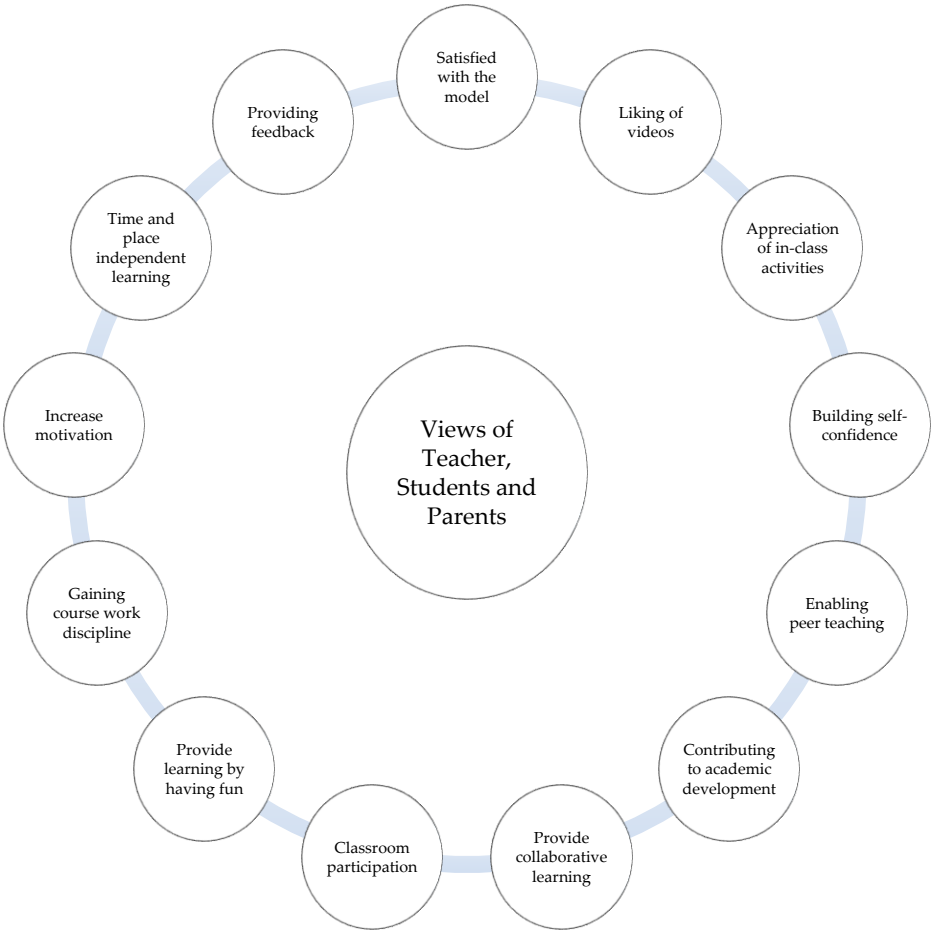


Figure 5. Views of teacher, students and parents on the FL model

Satisfied with the model: The researcher determined that the students were satisfied with the FL model in both in-class observations and face-to-face interviews with the students. The fact that the lesson was fun and that they were not bored during the process came to the forefront as expressions supporting the students' views on their satisfaction. The student with the code name Mehmet stated that they faced a situation different from the usual teaching methods in other courses. Mehmet stated that this new situation was pleasing for them. A part of Mehmet's views in which he emphasised his views on this issue is as follows:

…

Researcher: *Mehmet, there was a model we used in class.A model like studying at home and doing activities at school.I would like to know your general opinion about this model. How do you find this model?*

Mehmet: *Is it a filipped learning model?*

Researcher: *Well, then, since you know the name. What do you think about the flipped learning model?*

Mehmet: *I like it. It is a good madel.*

Researcher: *What you like about it?*

Mehmet: *For example, we had never done this before. Our class teacher always made us write during lessons. At home, for example, we didn't watch videos, we solved tests, but we solved them from the book*

…

Liking of videos: It was determined that the students liked the subject expression videos prepared for out-of-class teaching activities. The students emphasised that the video content was entertaining, that they were not bored while watching the videos and that they felt like watching cartoons. A part of the dialogue between the student with the code name Kadri and the researcher on this subject is as follows:

…

Researcher: *So what do you think about the videos? How do you think the videos you watched were?*

Kadri: *It was very beautiful. It was like a cartoon film.*

Researcher: *What do you think was nice about it? Why did you like it?*

Kadri: *It was fun. It was telling different things. It was giving us information.*

Researcher: *You said it was like watching a cartoon film? Why did you say that?*

Kadri: *Because there are such things when watching cartoons. There are children, for example. It was like that in these videos. It was very beautiful.*

…

Appreciation of in-class activities: During face-to-face interviews, students expressed that they liked the activities carried out in the classroom. One of the aims of the FL model is to use the time allocated for teaching activities in the classroom more effectively and to ensure permanent learning. In this respect, the activities carried out in the classroom are of great importance for the FL model. The students expressed that they liked the activities carried out in the classroom. According to the students, the activities carried out in the classroom made significant contributions both in making their learning permanent and in improving their academic achievement. The statements of Ayşe, who said that the activities carried out in the classroom were important in terms of reinforcing what she studied at home, are as follows:

For example, my knowledge increased, I had fun. I had more fun when I did it with my friends...I learnt more when I did it in the classroom. I studied at home, for example, I also studied here. I studied more, for example.

Based on the opinions expressed by the students during the interviews, it can be said that the activities carried out in the classroom based on the FL model were liked by the students.

Building self-confidence: The researcher determined that the self-confidence of the students increased during in-class observations. It was observed that this increase in self-confidence was related to the implementation of the FL model. The fact that the students came to the class by studying the teaching content transferred to them through the virtual classroom environment helped them gain self-confidence. Fatma, who expressed the view that there is a relationship between gaining self-confidence and coming prepared for the lesson, wrote the following in her diary:

It is very nice to watch the videos. I am not afraid when I come to class because I know what we will cover beforehand.

The classroom teacher also stated that the self-confidence of the students participating in the action research group increased during the interview with her. The views of the classroom teacher on this subject are as follows:

As I said, they were not very participative students. For example, Mehmet didn't talk much. He is actually a smart student. But he was shy. He's attending class now. The others are the same.

Both teachers' and students' opinions and the researcher's observation notes revealed that the FL model increased students' self-confidence.

Enabling peer teaching: At different stages of the teaching process, situations in which peer teaching took place emerged. One of these stages was the implementation process in which the Google Classroom application was taught. The researcher recorded his observations about this process in his diary as follows:

> *At the end of the lesson, students using tablets started to download the android application instead of going to the website of the application. At this stage, I observed that the students helped each other. They started to show each other how to enter the application with their usernames and passwords and how to use the application. I can say that there was a kind of peer teaching environment.*

Another example of peer teaching took place on the chat screen of the Google Classroom application. Students started to ask each other questions and give answers to these questions. Students started to ask questions about their work using the chat flow screen through the virtual classroom environment. The researcher observed that the students gave answers to the questions asked. In addition to these, it was observed that peer teaching frequently took place during the teaching practices carried out in the classroom. Based on the interviews, the researcher's observations and diary notes, it can be stated that teaching practices based on the FL model enable peer learning.

Contributing to academic development: Throughout the teaching activities based on the FL model, activities were carried out to support students' academic development. The results of the achievement tests and subject tests applied to the students revealed that the academic achievement of the students improved. In addition to these data, the researcher's interviews with the classroom teacher and students also revealed that academic achievement improved. In the interview conducted by the researcher with the teacher, it was stated that the academic achievement of the students included in the action research group increased significantly. The teacher expressed her views in this direction as follows:

> *I'd say they're doing better now. The students who work with you have better grades. I am actually conveying both my observations and data. For example, the students who worked with you got better grades in the last written lessons.*

The class teacher made a comparison between the eight students in the action research group and the rest of the class according to the results of the end-of-term exams she had conducted. As a result of this comparison, the class teacher emphasised that she observed that the FL model contributed to the improvement of students' academic achievement.

Provide collaborative learning: The researcher observed that collaborative learning took place among the students during the teaching practices based on the FL model. In the interviews she conducted with the students, he reached opinions that supported her observations. At least one of the teaching activities carried out in the classroom every week consisted of group activities in which two or more students had to come together. In this way, intensive co-operative learning emerged among the students. The researcher recorded this situation in her diary as follows:

> *Some of the in-class activities I designed required students to work in groups. This situation also created a co-operative learning environment for the students. The first ones that come to my mind are the puzzle activity in which they created a map of the world and Turkey, the poster activity in which they introduced children's rights, and the case study activity in which they made laws by representing the legislative, executive and judicial organs. In this respect, I can say that the teaching practices based on the FL model created a co-operative learning environment for the students.*

Classroom participation: The researcher observed that students' participation in the activities increased over time during the implementation process. As the weeks progressed, it was observed that the students submitted their homework on time, the number of repetitions related to the content uploaded to the virtual classroom environment increased, and accordingly, their course participation increased. The notes written by the researcher in the diary about his observations in this direction are as follows:

> *Students want to participate not only in one activity but in all activities. Their willingness to participate in the lesson is at a very high level. I think this is a result of the fact that they come by working at home.*

In the interview with the classroom teacher, she stated that the participation of the students in the action research group increased in other lessons. The conversation between the researcher and the classroom teacher on this subject is as follows:

> …
>
> Researcher: *Did the participation of the students in the action research group in the lessons with you change?*
>
> Teacher: *Yes, actually they are more willing now.*
>
> Researcher: *Can you give an example with names, teacher?*
>
> Teacher: *How can I say? Zafer, for example, is even more willing. He wants to attend classes now. Then Mehmet, for example, is very active. He gets up and talks. So instead of saying one by one, I can say it for all of them.*
>
> Researcher: *What could be the reason for this, teacher?*
>
> Teacher: *Of course, the activities they do with you are most likely. Here, working with technology, participating in a different process. These were good for them. Their self-confidence also increased. When their self-confidence increased, they started to participate in the lesson.*
>
> …

The data obtained by the researcher support the views that all students in the action research group improved their willingness to participate in the lesson.

Provide learning by having fun: The researcher determined that the students enjoyed the activities during the implementation process based on the FL model. The researcher observed that the students had a lot of fun, especially in the observations made during the classroom teaching activities. Student views on this issue also supported the researcher's views. Accordingly, the students stated that they enjoyed the activities carried out in the classroom environment. The conversation between the researcher and the students during the club puzzle activity was as follows:

> …
>
> Researcher: *How did you find the teaching activity?*
>
> Merve: *It was very good, teacher. Let's go it again.*
>
> Rabia: *Yes, teacher, it was very good. Let's do it again.*
>
> Kadri: *Teacher, it was very fun.*
>
> …

It was determined that the students expressed that they enjoyed not only in-class application processes but also out-of-class application processes. Merve expressed her ideas on this subject as *'I have a lot of fun watching videos, so I don't get bored no matter how much I watch'* . Mehmet, on the other hand, stated that the animated and audible videos he watched through the virtual classroom application made the activities they carried out outside the classroom fun, *"The videos are very enjoyable, teacher. They are like cartoons. It is both moving and loud. I have a lot of fun while watching them.'*

Gaining course work discipline: In his observations, the researcher determined that out-of-class activities based on the FL model helped students gain discipline for studying. The researcher observed that the students submitted the homework content uploaded to the virtual classroom environment on time except for the first week of implementation. Based on this data, the researcher developed an opinion that the FL model provides discipline for studying. The findings of the interviews conducted by the researcher supported his views in this direction. Mehmet's mother expressed how the FL model changed Mehmet's study behaviour as follows:

…

Researcher: *In this process, what attracted your attention the most about Mehmet's studying. For example, was there anything that he did not do before but started to do after this practice?*

Mehmet's mother: *As soon as Mehmet came home, he switched on the computer. I thought he was playing games, but he was watching videos. He watched videos almost every day.*

Researcher: *Did you tell him to work or does he sit on his own homework?*

Mehmet's mother: *I used to tell him before. For example, I still tell him in maths, but in social studies he does it without me telling him. He comes home and watches the videos immediately*

Researcher: *Did you ever warn Mehmet to do his homework*

Mehmet's mother: *When he did homework on the computer, he did it without us telling him. He did it willingly. But he only watched the videos. I mean the homework you gave him. But sometimes he didn't do other lessons. I was telling him to look at those lessons too.*

Researcher: *What did he say to you when you asked him to look at other lessons?*

Mehmet's mother: *He said he would do it immediately if they had videos. I mean, he loved videos. He watched them every day. Sometimes he logged in from my phone. He was watching from there. He loved it.*

…

Based on the observations of the researcher and the opinions of students and parents, it was determined that the activities of the FL model carried out outside the classroom enabled students to gain discipline for studying.

Increase motivation: The researcher determined that students' motivation towards the social studies course was high during the implementation process of the FL model. The researcher recorded her observations on this subject in her diary as follows:

Students leave their own classrooms and move to another classroom for the social studies lesson. When I observe the students coming to my classroom after the second bell rings, I see that they are very eager. Sometimes they even compete with each other to enter the classroom first. I can observe that they participate in the lesson with high motivation from the first week.

The fact that the FL model increased student motivation was also reflected in student opinions. In the interview with Ayşe, she stated that her motivation level towards the lesson was high. Ayşe's thoughts on this subject are as follows:

…

Researcher: *How did you feel when you had social studies lessons?*

Ayşe: *Teacher, I felt very happy. I always wanted to have lessons with you*

Researcher: *Why is that?*

Ayşe: *Because we were doing very nice things. For example, we did puzzles. We were a council once. That's why I always wanted to have a lesson with you.*

…

Based on the researcher's observations and student opinions, it can be said that teaching practices based on the FL model increase students' motivation towards social studies course.

Time and place independent learning: The researcher determined that the FL model saved the teaching processes from being time-dependent. The researcher aimed to reveal the students' thoughts on this issue during the semi-structured interviews. Ayşe, one of the students, expressed her views on this issue as *"For example, I could watch the videos whenever I wanted '*. Mehmet expressed his views as *"Sometimes from the computer, sometimes from my mum's phone. For example, once I went to my aunt who did not have internet at home, I wrote my password and logged in from there '*. Both students emphasised that the FL model enabled them to access the teaching content at any time.

Providing feedback: It was determined that the FL model provided an opportunity for students to receive feedback. The researcher recorded the following in her diary:

At the beginning of the lesson, I asked the students to pass on the notes they had taken. Some of them were notes on the subject. Some students had prepared questions about the topics they had in mind. I answered the students' questions.

The researcher also wanted to get students' opinions about the feedback opportunity provided by the FL model. Students emphasised the importance of subject tests in the interviews with them. Accordingly, they stated that the question solutions they performed in the classroom enabled them to see and correct the mistakes they had made. In the interview between the researcher and Merve, the following dialogue developed on this subject:

…

Researcher: *What do you think about reviewing the subject tests in class?*

Merve: *It was very good.*

Researcher: *It what sense was it god?*

Merve: *For example, we were revising, you were telling us our mistakes. We were learning.*

…

Based on both the researcher's opinions and student expressions, it is seen that the FL model offers the opportunity for students to receive feedback.

Discussion, Conclusions and Recommendations

This study was conducted to reveal the reflections of teaching practices based on the FL model at the primary school level and in the context of social studies course. The results of the study show that the FL model implementation was realised in three stages. It was determined that the model was effective on the development of students' academic achievement levels. It was determined that the problems that emerged during the implementation process of the FL model arose from the student, family, technological equipment and internet access, virtual classroom application and designed activities. The problems that emerged were tried to be eliminated with action plans developed in accordance with the nature of action research. Students stated that they were satisfied with the FL model based teaching application, they liked the video content and in-class teaching activities. The students stated that the FL model increased their self-confidence, motivation and course participation, contributed to peer teaching and cooperative learning processes, and made teaching independent from time and space.

In the study, it was determined that the FL model was realised in 3 stages. The first stage is the determination of the virtual classroom environment to be used in order to carry out out-of-class teaching activities based on the FL model and introducing it to the students. The second stage includes the execution of out-of-class teaching activities. The third stage includes the execution of in-class teaching activities.

As a result of the research, it was determined that teaching practices based on FL model improved students' academic achievement levels. Accordingly, it was determined that the post-test scores of the students obtained from the achievement tests related to the two learning areas of the social studies course in which the model was carried out differed significantly positively compared to the pre-test scores. This finding is similar to many research findings in the literature (Aybirdi et al., 2023; Birgili et al., 2021; Erbil, 2019; Güven-Demir, 2018; Lee & Wallace, 2018; Moghadam & Razavi, 2022; Naycı, 2017; Oğuz, 2023; Tutal & Yazar, 2021). However, in the studies examining participant views on the FL model; repetition (Bursa, 2019; Evrensel, 2021), individual speed (Akgün, 2015; İnce, 2022; Yang, 2017), time and space independent teaching (Oyola, 2016), transfer of content with videos (Söğüt, 2019), finding the application process fun (Graziano, 2017; Shillingstad, 2017), active participation (Clark, 2015; Lumpkin & Achen, 2014), feedback (Choe & Seong, 2016) and preparation (O'flaherty & Phillips, 2015) were shown as factors that contribute to the development of academic achievement. The results obtained from the present study are interpreted in a similar causality. Accordingly, the features of the FL model application such as making teaching independent from time and space, providing students with the opportunity to make many repetitions at their own individual pace, being fun, being student-centred, requiring students to come to class prepared, providing feedback to students, being based on student activity and the teacher being in the position of a guide are seen as possible reasons for its positive effect on academic achievement level.

The findings that students' responsibilities towards homework have improved are in line with the findings of the studies in the literature (Bursa, 2019; Evseeva & Solozhenko, 2015; Medone, 2019; Smith, 2015). In all of these studies, it was reported that the FL model increased students' awareness of responsibility. In the present study, the students emphasised that they started to see the teaching content given to them outside the classroom as a part of the process over time. The students stated that this content went beyond a classical homework understanding and was perceived as an integral part of in-class teaching activities. It was determined that the parents' views also supported this situation. In the theoretical dimension of the study, it was mentioned that homework caused some problems for teachers, students and parents. However, it was emphasised that the FL model was thought to contribute to the elimination of these problems. It was seen that the research findings support this view.

It was determined that the FL model increased students' motivation towards the course, and this finding was found to coincide with the results of the research in the literature (Fidan, 2023; Huang et al., 2023; Izadpanah et al., 2023; Jong, 2023; Yarım et al., 2023). In all of these studies, it was reported

that teaching practices based on FL model increased student motivation. In particular, it was mentioned that the use of technology is an important factor that contributes to the development of this situation. In this study, it is thought that the research finding that students' motivation increased can be evaluated in this context.

Some problem situations were encountered during the implementation process of the FL model. It was observed that the most common problem encountered during the implementation was due to the inability to access the internet. Many research findings in the literature point to a similar problem situation (Asep et al., 2023; Baig & Yadegaridehkori, 2023; Mardiha et al., 2023; Storer, 2016). In these studies, it was mentioned that it is not possible to benefit from the FL model in the most efficient way in cases where internet access is insufficient or there is no secure internet access. In the current study, some problems were experienced in the implementation process of the FL model due to the problems experienced by the students due to internet access. In the model, internet access is of vital importance in carrying out out-of-class activities. The inability of students to access the content transferred outside the classroom due to problems arising from internet access causes disruption of the teaching activities to be carried out in the classroom. In the literature, it is seen that internet access problems are frequently mentioned among the reasons for the findings of studies with negative opinions about the model (Akdeniz, 2019; Fraga & Harmon, 2014; Ramirez et al., 2014).

Another problem that arises during the implementation process of the FL model is the technological inadequacies and access barriers to technology. The findings of the studies in the literature also support this finding (Appiah, 2024; Baig & Yadegaridehkori, 2023; Cevikbas & Kaiser, 2023). In these studies, it was emphasised that the problems students experienced in accessing technological tools interrupted the implementation stages of the FL model. In particular, it was stated that children of families with lower socioeconomic levels experienced disadvantages in accessing technology. The findings obtained in the current study were interpreted in a similar cause and effect relationship. Accordingly, the study was conducted in an educational institution located in a low socioeconomic environment. Students' problems in accessing technological tools were attributed to this reason. However, according to the data of the Turkish Statistical Institute (TURKSTAT) for the year 2022, the rate of portable computers such as laptops, tablets and notebooks in households in Turkey was determined as 46.6% (TURKSTAT, 2023). This data reveals the inadequacy of students' access to technological tools throughout the country. FL model has a structure in which teaching activities are carried out not only in the classroom environment but also outside the classroom. Internet and technological tools are two important elements in the execution of out-of-class activities. In order for the model to be carried out efficiently in all its dimensions, it is necessary to provide healthy access to both the internet and technological tools.

When evaluated in the context of social studies education, teaching processes based on the FL model increase students' academic achievement and motivation to learn. Social studies has basic objectives such as understanding individual-society relations, interpreting historical and geographical events, developing critical thinking and active citizenship skills. In this respect, the FL model provides students with the opportunity to obtain information in accordance with their individual learning pace and provides opportunities for collaboration and in-depth discussion in the classroom, which is in line with the goals of social studies education. The increase in students' motivation towards the social studies course with this model may change the perception that the social studies course is generally "memorisation-based". In addition, the increase in academic achievement and the retention of the information learnt can be considered as an important gain in terms of the long-term effects of the social studies course. It can be said that the FL model offers students a more active learning process, provides a more effective understanding of abstract concepts with concrete examples, and supports students' critical thinking and problem solving skills. As a result, increasing the applicability of the FL model in the context of social studies education can strengthen students' interest and participation in the course. This model can also contribute to making social studies education an approach that aims not only to transfer knowledge but also to gain 21st century skills.

In the context of the social studies course, the findings of the studies conducted based on the FL model were similar to or differentiated from the findings of this study. It was determined that the FL model both increased students' academic achievement in the social studies course and strengthened their interest and participation in the learning process. Especially Gündoğan-Enderöz (2021) and Nayci (2017) stated in their studies that the FL model increased student achievement and participation in the lesson and that students found the model fun and useful. Likewise, the potential of the FL model to change the perception that social studies education is memorisation-based was mentioned, and it was emphasised that this model strengthens in-class discussion and collaboration opportunities (Nayci, 2017). However, the fact that the gamified FL model did not have a significant effect on motivation in Şengün's (2021) study is a finding that differs from other studies. In addition, Erbil (2019) also examined the effect of the model on psychosocial variables and found that the model increased individual motivation. This phenomenon is a dimension that was not addressed in the study. Finally, Güven-Demir (2018) drew attention to an outcome such as planning skills, which was not directly included in the study. In summary, while the studies in the literature support the positive findings of this study on the FL model, the different effects on motivation and the problems in the implementation processes present unique differences when compared with other studies.

All these results suggest that the FL model can be utilised at the primary school level. The FL model removes the teaching process from being a one-dimensional structure through out-of-class, in-class and evaluation phases. This situation allows students to participate in teaching processes effectively. In addition, the inclusion of technology in educational processes and enabling individuals to construct knowledge based on their prior learning are the strengths of the FL model. In addition, necessary measures should be taken to prevent negative situations in terms of students' access to internet and technological tools. Especially the socioeconomic status of the families and their internet access opportunities should be well researched. In addition, the teaching process based on the FL model should be well planned. Teaching strategies to be used within the framework of this planning, teaching activities to be used in out-of-class environments, videos and other materials should be structured in a way to ensure the continuity of students' motivation. Otherwise, it will be difficult for the FL model to achieve the intended learning outcomes.

Based on the results of the research, the following suggestions can be made:

- It can be ensured that the social studies course at primary school level is based on the FL model.
- For the FL model to be implemented in the most effective way, internet access and computer hardware are indispensable elements. In this respect, students' computer, tablet and internet access needs can be met by the Ministry of National Education.
- Since it is a teaching model that enables effective learning to occur, in-service training activities can be organised by the faculties of teaching education of universities for classroom teachers about the FL model.
- This research was conducted with a small group of participants within its own context. The data obtained are limited to this context and the data collection methods of the action research model used: Research on the FL model can be conducted with the participation of students from different socioeconomic contexts and designed with different research models. In order to generalise the results related to the model, studies can be conducted with larger samples.

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