

## Development of the project activities of future primary school teachers based on a collaborative environment

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### Abstract

The aim of this study is to determine the views of future primary school teachers on the development of project activities based on a collaborative environment. Permanent teaching is provided by providing diversity in learning with new generation learning techniques. For this purpose, the project activities listed in the education faculties of the universities were analysed. Primary school teacher candidates' opinions on whether education is provided in a cooperative learning environment in project activities are very important. Depending on the results of this research, it will be clear whether the prospective classroom teachers will use these techniques in their future professional lives. For this purpose, a qualitative research method was used with the participation of 72 university students in the spring term of 2021–2022 in order to determine the opinions of the students of the classroom teaching department studying at the university about the collaborative environment. Project-based teaching and two universities with education faculties were included in the

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research. The research study group consists of senior students studying at the education faculty of the university. As a result of the survey, the opinions of future classroom teachers about the probe activities and the collaborative environment were taken. Semi-structured interview questions prepared by the researchers were asked of the students. It was revealed that, in the last year, teacher candidates studying in the department of primary school teaching were effective in project-based learning and supported the collaborative approach. In the same way, it was suggested that the project activities of the teacher candidates should be increased.

Keywords: Teacher training, classroom teaching, project-based teaching, collaboration, education;

## 1. Introduction

One of the most important tasks of education is the formation of desired behaviours. While giving education, it is aimed at developing personality, which is one of its functions. Education continues in the family. The family is an educator. After the family, the most important educator is the teacher for the school-age class. While teachers' educational lives are equipped with their own knowledge and learning, they have many beliefs, attitudes and values related to education and learning (Uzunboylu & Altay, 2021; Tılıç, 2020; Ünsal, 2019). The difficult situations that an individual may encounter in a short time are stereotyped in the pattern of self-efficacy and how high the education level will be in the future (Cervone, Mercurio, & Lilley, 2020; Fenyi & Sapaty, 2022). In learning, the teacher is the facilitator and mediator, so the teacher is assigned to design learning that can optimise students' knowledge. One of these is the learning model, which is used to identify learning designs and develop them. In a study, it was concluded that teachers, in particular, create awareness that is beyond what they teach in the classroom, and 'how' they teach also unconsciously teaches lessons. This situation leads to the conclusion that teachers, especially primary school teachers, are responsible for their education and behaviour in the classroom (Fenyi & Sapaty, 2022).

Menon, Leng, Naimie, Danaee, and Abuzaid (2021) tried to examine the measurable steps of teachers and how this affects students' learning. They investigated many studies in the classroom setting, including the conceptualisation, evaluation and analysis of the psychosocial dimensions of teacher communication style. The learning model is a plan used to shape the curriculum, make learning material and be a learning guide (Abidin, Herman, Jupri, & Farokhah, 2021; Hast, 2022; Schreglmann & Öztürk, 2018). In addition, the model has been translated into a broad body of learning systems that include certain philosophical foundations or theories of learning through pedagogical methods (Hägg & Gabrielsson, 2019). In other words, the learning model is a conceptual framework used in learning.

Although project-based learning and problem-based learning (PBL) approaches share the same acronym, there can be some similarities as well as significant differences between them (the same is true for project-based learning and PBL). While project-based learning aims to solve students' problems with the help of teachers, PBL is mainly based on finding a solution or asking questions about a problem or issue (Amini, Setiawan, Fitria, & Ningsih, 2019; Naviri, Sumaryanti, & Paryadi, 2021; Shin, 2019). In addition, the project-based learning process, as a whole, aims to produce a product. In project-based learning, learning occurs when the student comprehends the concepts and understands the content of the subject in the process of creating the target product. Keleman, Rasul, and Jalaludin (2021) tried to define the processes required for project-based learning step-by-step.

Asking questions, finding necessary and reliable materials about the project, asking a research question, explaining the relevant research plan, writing a project proposal, collecting data, analysing and drawing conclusions and presenting the project are some of the processes. As can be seen, many of the processes that need to be done actually involve solving scientific problems. The most important feature of PBL covers the process from the formulation of the research question to its presentation and individual or sometimes group work to the final stage of the presentation of the students as a whole.

In the century we live in, there is an understanding that is called 21st-century skills, which is based on the acquisition of knowledge at the basic level instead of all of the information, which tries to gain high-level thinking skills, such as critical thinking and creativity, and encourages learners to cooperate in the support of technology (Saputri, Rinanto, & Prasetyanti, 2019). Project-based learning (PBL), which actively involves students from preschool to university (K–12) in daily life by making projects, offers important opportunities for the acquisition of 21st-century skills (Belwal, Belwal, Sufian, & Al Badi, 2020; Ralph, 2016). The project, which is at the centre of project-based learning, can be used to contribute to learning as well as to solve the problems that teachers encounter in their classrooms. When the relevant literature is examined, there are studies on the difficulties encountered in the application of PBL (and project preparation) as well as the benefits it provides (Kastayev et al., 2022; Wengrowicz, Dori, & Dori, 2014). Rogers, Cross, Gresalfi, Trauth-Nare, and Buck (2011) examined the difficulties experienced by teachers who applied PBL in their classrooms for the first time, the reasons for the difficulties and what they did to overcome them. Accordingly, it has been determined that the challenging nature of the project and the perception of the project are the basis of the difficulties experienced. The perception is shaped by experiences and the openness or resistance of teachers to using PBL is affected by perceptions.

When the studies are examined, it is seen that the difficulties encountered in the project implementation process are due to the perceptions arising from insufficient experience; these perceptions affect the project outputs negatively, but the perceptions of the pre-service teachers who do not have any experience with the project are not emphasised. Pre-service teachers need to learn about PBL and projects (Hou, 2010), which have become increasingly popular recently, before starting the profession (Zafirov, 2013). Candidates who will carry out the teaching profession, using the project approach or doing research during their undergraduate education will not contribute to solving the educational problems they encounter in their teaching life. In this context, the competencies of teacher candidates (Karışan & Bakırcı, 2018) who will train human resources, such as engineers and scientists, who will find solutions to the problems of humanity in the future, are undoubtedly very important. Acun (2010) stated that learning to research is actually learning to learn and expressed the importance of the subject as follows: 'Acquiring existing knowledge and skills is not enough alone in today's world where there are rapid changes in knowledge. Therefore, professionals who know how to learn (who can do research) are more successful than others. Happens'. Since the perceptions of those who have had various project experiences before the project trainings to be given to the teacher candidates during their undergraduate education are revealed through the studies, the course objectives and contents can be arranged accordingly.

Collaborative learning is the process of realising learning by working in small groups and helping each other learn (Açıkgöz, 2003). During group work in cooperative learning environments, students can find opportunities that they cannot gain on their own, but can gain important learning experiences as a result of their interaction with other friends in the group (Hwang, Lui, & Tong, 2005; Lai & Wu, 2006). Unlike individual learning methods, in this method, students are based on the principle of working together to fulfil the tasks assigned to them and solving the problems they encounter. It is an important factor in the emergence of creative ideas in the process of communicating among students and sharing their knowledge and ideas (Açıkgöz, 2003; Yelken, 2009). According to Doymuş, Şimşek, and Şimşek (2005), cooperative learning is a learning approach in which small heterogeneous groups are formed in both classrooms and other environments, by helping each other learn about an academic subject for a common purpose, increasing their self-confidence, improving their communication, problem-solving and critical thinking skills and actively participating in the learning–teaching process.

### *1.1. Research purpose*

The aim of this study is to determine the views of future primary school teachers on the development of project activities based on a collaborative environment. Permanent teaching is provided by providing diversity in learning with new generation learning techniques. In recent years, there have been studies showing that education is effective in every age group. However, in the results obtained from the studies, it is seen that the project activities that provide learning so effectively are not done frequently enough.

### *1.2. Purpose of the study and research questions*

Based on the purpose, the following research questions are posed:

Question 1: What does the teaching profession mean to you?

Question 2: What kind of contributions do the project activities provide you?

Question 3: What are your views on cooperative learning?

## **2. Method**

In this study, the case study technique, one of the qualitative research methods, was used. The classroom teaching department obtained the opinions of pre-service teachers on the development of project activities based on a collaborative environment. The interview method, which is one of the qualitative research methods, was carried out with a descriptive study approach in detail (Pastirmacioglu, Caliskan, Ozcan, & Uzunboylu, 2018). Hennink, Hutter, and Bailey (2020) stated that the focus of qualitative research is the research model that helps us understand the participants' own perspectives and interpretations on a situation or topic.

### *2.1. Data collection tools*

In order to reach the data of this study, a demographic information form prepared by the researchers after taking expert opinions was used. In the same way, semi-structured interview

questions were prepared in order to reach the data from the research. The interview questions prepared by the researchers were submitted for the approval of the experts. Five research questions were prepared as a result of the researchers' observations and literature review. In terms of understanding the questions, a pilot study was conducted and the last form of the questions was given between the two findings and three interview questions were included in the research.

## 2.2. Research group

The use of the qualitative research method was carried out in this study with the participation of 72 university students in the spring term of 2021–2022 in order to determine the opinions of the students of the classroom teaching department studying at the university about the collaborative environment with project-based teaching. Two universities with education faculties were included in the study. The research study group consists of senior students studying at the faculty of education at the university. As a result of the questionnaire, the opinions of future classroom teachers about probe activities and collaborative environment were taken.

Table 1. Demographic information of future primary school teachers

		<i>f</i>
Gender	Girls	45
	Boys	27
	Total	72
University	First	38
	Second	34
	Total	72

45 female and 27 male students are among the senior students of the classroom teaching department studying at the university participating in the research. Two universities were included in this study. 38 students were from the first university and 34 students were from the second university.

## 3. Results

### 3.1. Findings on the definition of the teaching profession

Table 2. Teaching profession definition

	<i>f</i>
Providing teaching	62
Guide	40
Professional responsibilities	22
Realise the curriculum	12

From the findings of the senior class teacher candidates studying at the university regarding the definition of the teaching profession, it was found that they saw teachers as the person providing

education. Again, the teacher was defined as the guide. There are 22 teacher candidates who stated that professional responsibilities come to mind when the teaching profession is mentioned. On the other hand, 12 pre-service teachers saw teachers as the person who implemented the curriculum.

Opinions of some of the students are as follows:

‘Teacher means teaching. Our main task is to provide education. In the trainings we receive at universities, we learn how to teach teaching. It is our duty to learn how a student can better understand a subject’.

‘Teacher is someone who teaches students. Besides, he is the person who fulfils the curriculum’.

### 3.2. Findings on the benefits of project activities

Table 3. Advantage of project activities

	<i>f</i>
Providing learning	35
Fun content designs	31
Collaborative learning	12

When the findings of senior students studying in the classroom teaching departments of universities regarding the advantages of project-based teaching applications are examined, there are 35 students who state that they provide learning, 31 students who state that they offer fun content design opportunities and 12 students who say that they provide learning with cooperation.

Opinions of some of the students are as follows:

‘We used the project-based teaching technique in our lesson. Learning contents were prepared, goals were set, we prepared them together with the teacher and our friends. I learned things that I did not know by getting support from my friends. Collaborative learning is provided’.

‘Project-based learning provides fun content design. It should be used in teaching theoretical subjects’.

### 3.3. Findings on cooperative learning

Table 4. Opinions about cooperative learning

	<i>F</i>
Interactive learning	25
Providing group work	22
Student-centred approach	21
Social skills	18

When the findings of future classroom teachers studying at the faculty of education at the university regarding the cooperative learning process are examined, cooperative learning provides effective learning and supports group work. It has been found that there are some teacher candidates who say that it increases students' interaction and gains social skills.

Opinions of some of the students are as follows:

‘Cooperative learning is very different from traditional learning. In cooperative learning, learners learn interactively. It is a great advantage that it offers the opportunity to work between groups’.

‘Social gains are very high in the cooperative learning process. In cooperative learning, learning takes place among learners as interactions with the group are provided. There are many things we learn from each other’.

#### **4. Discussion and conclusion**

In this study, which aims to determine the opinions of future classroom teachers about cooperative education in project-based teaching activities, when the results obtained are examined, it is concluded that most of the teacher candidates are effective. Universities, where undergraduate and graduate education are taken, do not only produce information for the public's benefit. In addition, they are institutions that share the knowledge they produce and enable new research to be carried out. Although the aim of universities from the past to the present seems to be to provide a profession to their students, the most basic duty is to provide an environment where scientific research will be carried out and to support these studies (Öztürk & Tanrıverdi, 2019). Classroom teachers also serve as models for students. In this way, it is ensured that future generations receive efficient education (Akpınar, Kuzu, & Erdamar, 2018).

The opinions of future classroom teachers on the concept of teaching were asked. When the findings related to the definition of teaching are examined, it has been determined that they see teaching as a person who gives education. Again, he was defined as a guidance teacher. When the teaching profession is mentioned, it has been concluded that he sees the teachers as the people who fulfil his professional responsibilities and as the people who implement the programme. This result is very pleasing. It is seen that they are aware of the department in which they study teaching and their main point is the teacher. This result is positive in terms of diversifying types of training to be given by the people who will provide the training.

When the results of the final year students studying in the classroom teaching departments of the universities regarding the advantages of project-based teaching applications are examined, it has been found that they provide learning, students who provide learning opportunities, students who provide fun content design opportunities and they provide learning with cooperation. Considering this result, it is known that there are two types of teaching methods, alternative learning methods and traditional learning methods. In Copper (2002), it is one of the alternative learning techniques in project-based learning. It is based on a structure designed to ensure student–student solidarity and emphasise individual responsibility. One of the most distinctive features of cooperative learning is that the points students need to be successful in the course depend on their individual achievements. Project-based learning is one of these effective methods.

When the findings of future classroom teachers working in the education faculty of the university regarding the cooperative learning process were examined, it was concluded that cooperative learning provided effective learning and supported group work. It has been determined that there are teacher candidates who say that it increases the interaction of students and enables them to gain social skills.

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