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Project-based approach in education

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Abstract

The purpose of our research is to conduct semi-structured interviews with Russian students, as well as with the students studying in one of Kazakhstan's universities in order to find out their attitude to project activities via semi-structured interviews related to project activities with Russian and Kazakhstan students. As a result, the Portuguese study does not focus on the skills that students can develop through participating in project activities and the participants do not provide their description of project activities. It can be concluded that project activities are an integral part of the educational process.

Keywords: Project activity, Higher education, Development.

El enfoque basado en proyectos en educación

Resumen

El objetivo de nuestra investigación es realizar entrevistas semiestructuradas con estudiantes rusos, así como con los estudiantes que estudian en una de las universidades de Kazajstán para conocer su

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actitud hacia las actividades del proyecto a través de entrevistas semiestructuradas relacionadas con las actividades del proyecto con ruso y estudiantes de Kazajstán. Como resultado, el estudio portugués no se centra en las habilidades que los estudiantes pueden desarrollar al participar en las actividades del proyecto y los participantes no proporcionan su descripción de las actividades del proyecto. Se puede concluir que las actividades del proyecto son una parte integral del proceso educativo.

Palabras clave: Actividad del proyecto, Educación más alta, Desarrollo.

1. INTRODUCTION

The project-based approach has become a promising practice to meet the changing needs and interests of modern students. Although there are several definitions of the project-based approach in education, we define projects as in-depth studies that encourage students to conduct research and finish with a final product or progress review (PINHO-LOPES & MACEDO, 2015).

Considerate and systematic self-reflection is critical for any higher education department that wants to improve the learning process (KUPRINA, BEKETOVA & MINASYAN, 2019). In the modern education system, there are constant reflections on teaching styles, educational strategies and learning outcomes aimed at the development of innovative management methods and removing barriers to student learning. Students come across such difficulties as solving real problems using critical thinking skills, establishing a link

between global problems and textbook concepts, interpreting data, etc. (LEE, NIKOLIC, VIAL, RITZ, LI & GOLDFINCH, 2016).

Students are sometimes disengaged from the learning process due to the lack of motivation and involvement. This can hinder learning if the relevance of the course work is not obvious to students (KRUZHKOVA, VOROBYEVA, POROZOV, & ZARBOVA, 2018). Project-based education is aimed at solving real problems, but the general access to the final product distinguishes it from problem-based learning. Student teams work together to complete projects considering problems and finding solutions. The project-based approach has its advantages: it attracts students; encourages the development of collaborative learning skills; improves academic performance; develops high-order thinking skills.

The transition from teacher-centered learning to student-centered instruction is critical to student success. The ability to independently assess problems and develop solutions is one of the five most important qualities of a successful employee (for example, in financial specialties). In addition, companies look for those who know how to apply an international approach to problem-solving and who have a practical understanding of the future profession (PINHO-LOPES, 2012).

The main goal of the project-based approach is to make students apply their knowledge and skills. Projects should not complement traditional lecture-based learning at its end. This helps students

develop their own questions to stimulate learning, study the concepts and information that answer these questions and apply this knowledge while creating their products. Project-based learning should:

- Include a solution to a problem that may not necessarily be created by the student;
- Involve the student or student team and require a variety of educational activities;
- Finish with a product of the activity (for example, research reports, documentaries, etc.);
- Involve continuous work;
- Transform the role of the teacher to act as an adviser rather than a leader.

The project-based approach implies group work. Students usually work in small groups. This makes them more motivated. The exchange of ideas and getting feedback from peers can help students expand their knowledge and review artifacts. The ability to work as a team to solve problems is a critical factor in the implementation of the project. Therefore, teachers should make efforts to promote appropriate cooperation and teamwork; when working in a team, students are usually asked to make an action plan to develop their products or artifacts (LARKIN & RICHARDSON, 2013), to individually collect and analyze data related to the main topic and

collectively present their work to the class (JOHNSON, RENZULLI, BUNCH & PAINO, 2013).

Educators note that there are benefits of project-based learning that contribute to the improvement of the educational process. Improved learning experience (student-oriented projects aimed at encouraging students to solve real problems and consolidate the results of the course, as well as open projects with no lectures) develops communication, problem-solving and critical thinking skills, as well as information competency skills. In addition, the empirical and pedagogical approaches of project-based teaching methodologies in international education contribute to scientific analysis and transformational learning (DANFORD, 2006).

Project-based learning is a systematic teaching and learning method that involves students in complex true-life tasks that finish with a product or presentation enabling them to acquire useful knowledge and skills (MITCHELL, FOULGER, WETZEL & RATHKEY, 2009). Project activity is associated with constructivism; the central essence of the project involves transformation and construction of new knowledge. The approach is based on the idea that learning is more effective when the student is focused on I need to know rather than because you need to know (LENZ, WELLS & KINGSTON, 2015).

Project activities provide students with practical opportunities to work with the course material concepts, discuss their approaches in

groups and present their work. There are two major project components: a question to organize and conduct training activities; and products that represent student findings from the actions taken to address the core issue (JOHNSON ET AL., 2013).

In general, students work independently and purposefully to complete the project. They solve problems by identifying them, discussing ideas, compiling queries, collecting and analyzing data and sharing their results. When students jointly find solutions to a key problem, they develop an understanding of relevant concepts. Projects have become popular as psychological research has shown that student learning can be limited in the context of traditional teaching methods and it is necessary to be educated to adapt to the changing world in which students are encouraged to use what they know to study, create and design solutions in the learning process (DADO & BODEMER, 2017).

On the other hand, students in traditional classes use only the lowest levels of cognitive processing to do basic work, such as reading and memorizing. As a result, students' knowledge of the subject can be fugitive and superficial. Students cannot put into practice what they have learned and are not encouraged to learn on their own. The difference between projects and homework, when students only apply what they learn in the traditional model, is that students learn the material of the main course after they complete the project. A project-based approach is to create a student-centered learning environment (KOKOTSAKI, MENZIES & WIGGINS, 2016).

Thus, project activities have a number of advantages that allow us to diversify the educational process and improve the performance of children helping them to develop additional skills. In this regard, the purpose of the study is:

- To conduct semi-structured interviews with students from Russian and Kazakhstan universities to identify their attitude to project activities;

- To highlight the advantages and disadvantages of project activities based on the interviews, as well as general information about project-based learning;

- To develop recommendations based on the data obtained.

2. METHODOLOGY

It was decided to divide the study into two stages. At the first stage, we conducted semi-structured interviews related to project activities with Russian and Kazakhstan students.

The second stage was the identification of the advantages and disadvantages of project activities based on general information about this type of educational activity and the student survey that was conducted earlier.

We organized and conducted an empirical study that consisted of a semi-structured interview with Russian and Kazakhstan bachelor students. The survey involved students from five universities. A total of 780 students took part in the survey. The number of men and women surveyed was approximately equal (48% of men and 52% of women). All students were intramural students. The age of the respondents ranged from 18 to 21. The most appropriate sampling method was purposive sampling.

Table 1: Survey participants

Number of students	**Age**	**University**
177	18-21	The Peoples' Friendship University of Russia
198	18-21	Higher School of Economics
125	18-21	Moscow State Institute of International Relations
150	18-21	Moscow State University
130	18-21	University of International Business, Almaty

To expand the scope of the study, first to fourth-year students were selected. This is due to the fact that the attitudes to project activities may vary depending on the level of student learning. In addition, the students surveyed studied in different areas. This sample seems to be the most effective providing data regardless of a particular specialty. The group of respondents included both humanitarian and technical specialists.

3. DATA ANALYSIS

Semi-structured interviews are included in the qualitative research methodology. We recorded and analyzed students' responses to highlight the most common statements. Next, the data were structured. The response categories which required percentage ratio were analyzed in the STATISTICA system. The software was developed on the basis of Microsoft Windows. It allows data visualization in statistical analysis.

4. RESULTS

When analyzing the first question, the most common concepts that students noted were highlighted. For convenience, the data were presented in the diagram with a percentage ratio.

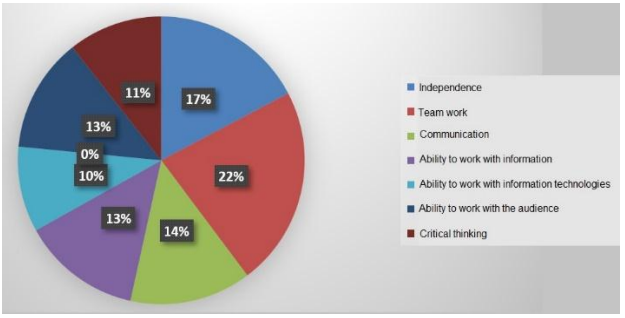

Figure 1: Skills developed through project activities

According to the data analysis, the most popular options were teamwork and independence. It is not surprising as these two skills are an integral part of project activities. The most uncommon option was the ability to work with information technologies. However, this result cannot be considered negative: it is most likely a consequence of the fact that students have become so accustomed to using technology in learning that they may not be aware of its presence.

It is noteworthy to note that the answers of the students from Russia and Kazakhstan were common. This indicates that students expect similar skills to be developed through project activities regardless of their country of residence. The project-based approach can be commonly-used.

When analyzing the answers to the second question, the most common statements were identified and combined into general categories. In addition, a brief explanation was given for a better understanding of each category.

Real-life experience. Project activities provide a real-life experience that helps students to actively develop and apply their skills and knowledge. This increases their interest in training and allows them to develop professional skills that may be useful in future employment.

Challenging. Project-based learning encourages students to solve complex real-life problems. They conduct research, form their

opinion, explain it and synthesize information in different ways. All this makes students think more deeply about their work. In addition, the teacher plays the role of an adviser rather than a leader during the project, which gives students more independence in solving problems.

Motivating. Many students noted that their motivation and the need to be evaluated are increased if they have an understanding of what they learn. The ability to control learning increases its value. The ability to choose and control along with the ability to collaborate with peers also increase learning motivation. Thus, the information that students receive in traditional studies can be put into practice, which motivates them to further develop their skills:

Integrated. Project activities make students use different information to solve problems. In almost every project, they work on assignments that require knowledge of various subjects. In addition, in the implementation of projects, students have to use information technologies.

Authentic. Project activities provide students with the opportunity to analyze information and demonstrate their knowledge at a higher level.

Promoting collaboration. Project activities encourage collaboration between students, as well as between students and teachers; in many cases, cooperation grows into a community. Students should work collaboratively to learn any subject.

Collaboration is a good way to enrich and enhance students' understanding of what they are learning.

Fascinating. Many students reported that despite possible difficulties, they enjoy the project activities, as they get more freedom.

Thus, it can be concluded that the general attitude of Russian and Kazakhstan students towards project activities is positive. The analysis of the semi-structured interviews revealed almost no negative statements indicating that project activities were difficult, boring or pointless. This proves that when working on projects, students have the opportunity to more effectively develop their skills and knowledge.

The next stage of the study was the identification of the advantages and disadvantages of project activities. We managed to highlight the following main advantages:

Development of self-control and self-education skills. As it has already been mentioned, students independently control their workflow and have only some framework when implementing projects. They should regulate the time, choose sources of information and methods of its analysis, etc. This means that in the future, students will be able to independently make complex decisions, manage their attention and correctly allocate time.

Modeling real situations. Setting objectives is the first step to obtaining a result. This is crucial because, at present, the actions of all

top managers and company leaders are aimed at obtaining results. People no longer have to operate machines and design thousands of parts per hour. They have to figure out how to optimize the activities to increase their effectiveness.

Creativity development. Students often have to make innovative decisions when participating in projects. In fact, the same problem can be solved in various ways. Thus, it is the student who chooses the most beneficial way. Self-expression reveals hidden talents: the ability to lead, unite a team, generate unusual ideas, calculate risks and possible benefits. In the future, these skills can help the student become more successful in the labor market.

However, despite the positive aspects, project activities also have disadvantages:

Lack of evaluation criteria. Due to the fact that such tasks have not been not standardized, there are no clear criteria to evaluate the work of the students.

Student overload. Admittedly, research work is hard work. It takes students a lot of time and effort to find the necessary literature, choose the right sources, analyze the information and draw appropriate conclusions. In addition, students often need to present their work in the form of a presentation or report, which can be quite a challenging task. Moreover, the implementation of the project does not reduce the load that students have when studying subjects in the traditional way.

The need to strike a balance between traditional learning and project activities can lead to overload and stress.

Features of group work. Any group work inevitably implies potential conflict situations that may happen due to a conflict of interests, as well as psychological problems of communication. The choice of the group leader may be one of the main problems: there are no people who want to take this role. In addition, there may be students of different levels and temperaments in one group, which may affect their involvement in the work: for example, someone will do more and someone will try to avoid responsibility as much as possible.

Thus, the main recommendations related to the implementation of the project-based approach are the development of clear assessment criteria standardized for all types of educational institutions. At the same time, different stages of education should be taken into account; the evaluation criteria for schools and universities cannot be the same due to various cognitive characteristics of students.

When organizing project activities, the overall study load should be taken into account so that not to overload students. In addition, the proper balance between traditional learning and project activities will contribute to the efficiency of education – students will receive information in sufficient but not excessive quantities.

Psychological characteristics of students along with their academic level should be considered during group formation. Despite

the fact that project activities encourage teamwork, it is necessary to realize that the participants are still students who learn; therefore, unnecessary obstacles should not be created for them. When forming groups, it is important to make sure that they do not include, for example, too many people with leadership qualities or vice versa.

It should be highlighted that these recommendations are common for educational institutions where project activities are implemented. For more specific decisions, it is necessary to consider the situation in a particular university or country. In our case, more specific recommendations for Russia and Kazakhstan may vary in terms of teaching methods, languages, etc. However, this requires further research.

5. CONCLUSION

It can be concluded that project activities are an integral part of the educational process. This is confirmed by the fact that they allow students to develop not only personal but also professional skills.

It was decided to divide the study into two stages. In the first stage, semi-structured interviews related to project activities were conducted with university students. A total of 780 students took part in the survey. The number of men and women surveyed was approximately equal. All students were intramural students. The age of the respondents ranged from 18 to 21. In the second stage, the

advantages and disadvantages of project activities were identified based on the general information about this type of educational activity, as well as on the student survey conducted earlier.

At the first stage, students highlighted different characteristics of project activities and a number of competencies that are developed when participating in a project. The recommendations that have been developed include the development of clear assessment criteria standardized for all types of educational institutions. When organizing project activities, it is necessary to take into account the course load that students have so that not to overload them. When forming groups, it is advisable to take into account the psychological characteristics of students along with their academic level.

A similar study can be conducted in other countries involving schools and colleges. Further research on project activities can also be based on the developments and results of our research.

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