

Using Project-Based Learning in Online University Seminars

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Abstract. *Project-based learning encourages students to interact, to communicate and collaborate while actively solving problems. Students can manage their work, share information and present their results to colleagues as a base for further discussions within the context of online teaching and learning. The teacher's role in this context is more advisory than authoritative, having the responsibility to establish the inquiry-based assignments for his students and to offer them significant feed-back. The present paper focuses on the use of teaching and learning strategies based on the project method within online seminars in the subject of Fundamentals of Pedagogy. The students involved in the present research were in the first university year, studying this subject during the second semester within the module for teacher training. This module is not mandatory for all students, being optional for those students, who take into consideration a possible teaching career. The project-based learning was used in the online seminars in order to help students deepen, clarify and complete the knowledge acquired during the online courses at the same subject and also in order to facilitate the creation of an interactive online learning environment and increase students' satisfaction and motivation in the context of conducting online activities at this subject.*

Keywords: *project-based learning, online seminars, interactive, online education, learning.*

Introduction

The academic year 2020/2021 was marked in Romania by a series of particular changes as a result of the pandemic context. The main feature of the teaching and learning activities in the university education was the one regarding the environment in which these took place, namely the exclusive online context. If in the pre-university educational system the pupils and teachers returned to school for a short period at the end of the 2020/2021 school-year, in the university, the face-to-face meeting of students and academic staff did not take place yet. The pandemic period was challenging both for students and teachers, since exclusive e-learning determined the need to adjust rapid and unpredicted to a new educational reality. Although organizations like UNESCO¹ or UNICEF² mitigate for a safe return to school for all students, we have to take into consideration the fact that due to the contagion of the Covid-19 infection this situation may be indefinitely prolonged, especially for the university educational

¹ <https://en.unesco.org/safe-return-to-school-in-the-caribbean> , accessed 20.07.2021

² <https://www.unicef.org/eca/stories/use-summer-prepare-safe-return-school>, accessed 15. 07. 2021. Cf. Flavius-Cristian Mărcău, „Analysis of Democratic States on the Reduction of Human Rights During the Sars-Cov-2 Pandemics,” *Astra Salvensis*, VIII (2020), no. 15, p. 87.

system, and may lead to main changes in the subsequent conduct of educational activities at all levels. Given this situation, it is necessary to reconsider the efficacy of different teaching and learning strategies within the context of online learning situations.

Theoretical foundation

Project-based learning represents a student-centred approach that has systematically proven its efficacy over time. This form of instruction enables the active involvement of students in the learning process and promotes collaborative learning by sharing knowledge and insights. The specific character of the project-based learning is represented by the “construction of an end product, which represents students’ new understandings, knowledge and attitudes regarding the issue under investigation often presented using videos, photographs, sketches, reports, models and other collected artefacts”³. Using the project-based learning within online seminars in higher education enables students to search information and to create their end product in digital format. Alongside adequate guidance offered by the teacher, the use of technology in the project-based learning can help in gaining knowledge and skills, both for weakly and strongly performing students⁴.

It has been proofed that the achievement of educational objectives is enabled by the interactive character of the teaching and learning activities and thus it is recommended to organize courses and seminars within the online context without to much use of expository teaching methods, which turned out to be less effective⁵.

The seminar is a main, specific didactic activity in higher education, and its importance is related to the fact that it is being centered on the students’ learning activity. The seminar helps students to in-depthly process the content which was taught at the same subject at the course, passing over the first, superficial stage of processing it, and allows

³ R. Holubova, “Effective teaching methods - project-based learning in physics”, in *US-China Education Review*, 12(5), (2008), 27-35.

⁴ O.Erstad, “Norwegian students using digital artifacts in project-based learning”, in *Journal of Computer Assisted Learning*, 18(4), (2002), p.427.

⁵ D. C. Marin, M. Bocos, “Characteristics of Online Learning in Higher Education During the Covid-19 Pandemic”, in *Studia Universitatis Babeş-Bolyai, Psychologia-Paedagogia*, LXVI, no. 1, (2021), p. 135. Cf. Inocent-Maria Vladimir Szaniszló, ”How much justice are we able to do in our political society? Social ethical and theological reflections on the virtue of justice and its implementation for a development of our post-communist countries also in the period of COVID-19 pandemic ,” in *Astra Salvensis*, IX (2021), no. 17, p. 95.

them to develop learning skills, the communicative competence⁶ as a result of the use of the techniques for stimulating their intellectual activity⁷.

From the teachers' point of view, the seminar represents an opportunity to offer students significant feed-back and to stimulate them to develop own investigations and a positive attitude towards a specific subject, since it is an activity based on dialogue and debate⁸.

The structure of the seminar is usually determined by answering the traditional questions used for planning any didactic activity⁹:

- Which are our main goals/objectives?
- Through which content will we be able to achieve these goals?
- How will we proceed? (didactic strategy)
- How will we know that our goals were achieved? (assessment strategy).

In the field of educational sciences most of the seminars are theoretical, but this does not mean that during this activity students must only listen and memorize. The theoretical seminar can include practical activities, which involve problem solving, discussions, debates, expressing different insights regarding the approached themes. Also, not only verbal communication methods can be used within the seminar, but also modern, active ones, like group working, role play, case studies or project-based learning. By using these modern, action methods the seminars become interactive¹⁰. Ensuring the interactive character of the seminar in the virtual environment can be achieved by adjusting the way in which these methods are used.

Within the current study we aimed to investigate how project-based learning contributes to the active attendance of students within the context of online seminars. Previous studies¹¹ showed that conducting online group projects turned out to enhance student learning.

⁶ D. Muste, „The Role of Communication Skills in Teaching Process”, in *The European Proceedings of Social & Behavioural Sciences EpSBS*, XVIII (2016), p. 430.

⁷ D Jucan, “Effective Strategies for Teaching and Learning in University Seminar”, in *Studia Universitatis Babeş-Bolyai, Psychologia-Paedagogia*, LIX (2014), no.1, p.75.

⁸ C. Onu, *Elemente de pedagogie universitară (Elements of university pedagogy)*, Iași, Editura Universității Al. I. Cuza, 2017

⁹ M. Bocoș, D. Jucan, *Teoria și metodologia instruirii. Teoria și metodologia evaluării (Theory and methodology of instruction. Theory and methodology of assessment)*, Ediția a III-a, revizuita, Pitești, Editura Paralela 45, 2017, p. 111

¹⁰ http://calitateid.uab.ro/imagini/Modul2_Herman.pdf , accessed 10. 07. 2021.

¹¹ K. Williams, C. Bruce, K. Morgan, “Supporting online group projects”, in *North American Colleges and Teachers of Agriculture Journal*, 56 (2012), p. 15.

Methodology

Research question

The research aimed to find the answer to the following research question: Can the use of project-based learning within online seminars conducted in higher education determine the active attendance of students?

Research methods

In order to answer the above mentioned research question the following research methods were used:

- direct observation of the participation of students in seminars – students attendance and activity during online seminars in the subject entitled Fundamentals of Pedagogy was monitored weekly for 12 weeks using the following indicators: very active, active, rather passive, uninvolved;
- documents analysis – in order to give us the conceptual delimitation of project-based learning as a pedagogical approach within online seminars and the measures taken by European, national and local decision makers regarding online education in universities;
- product analysis – used for analysing students’ projects according to the following indicators: project accomplishing, compatibility between the project theme and its content, presenting relevant points of view according to the approached subject, involving interactive methods during project presentation, demonstrating the acquisition of new knowledge, especially conceptual and procedural knowledge, by involving metacognitive mechanisms in learning.

Participants

Our research involved a group of 38 students from the Faculty of European Studies and the Faculty of Law, studying in their first year for obtaining their bachelor degree at Babes-Bolyai University, Cluj-Napoca, Romania. These students find themselves in a special situation. They conducted the activities during this academic year exclusively online, so they didn’t get to know their colleagues and teachers in person so far. So, they are only partially familiar to the specific of studying in the university. Also, these students chose to go through the courses of the pedagogical

module, which is optional, but gives students the opportunity of a teaching career in addition to their main specialization.

Procedure

The research was conducted in the second semester of the academic year 2020/2021 (February 2021-June 2021). During the seminars included in the pedagogical training of the students, which took place online, via Microsoft Teams, for the subject entitled Fundamentals of Pedagogy, the students received the assignment to create and to present projects. The teacher proposed a series of themes, established according to the subject syllabus, from which the students had to choose one. Also, the teacher gave students some specific instructions regarding the realization and presentation of the project. The project could be realized individually or in teams of maximum 4 students and had to contain a personal presentation of the topic and some interactive exercises for the rest of the students. The interactive requirement of the presentation aimed to overtake the limits of the online seminars and the ones of the situation in which the participants haven't meet in person so far and the group cohesion is not enough realised as in the situation of face-to-face activities.

The subjects proposed by the seminar holder were general, in order to give students the freedom to adjust their presentation according to their perspective of the approached topic. Also, the themes gave students the opportunity to deepen the information transmitted during the courses at this subject. The themes from which the students could choose are presented in the table below (Table 1).

No.	Subjects of seminar projects
1.	Education in the contemporary society
2.	Lifelong learning
3.	Self-education
4.	Family as educational factor
5.	School as educational factor
6.	Media and its educational role
7.	Evolution of educational ideals
8.	Types of educational goals
9.	General structures of educational systems
10.	New perspectives in the conception and realization of education
11.	Analysis of main curricular products for the specialty subject
12.	Analysis of different curricula for optional subjects

Table 1. Subject proposed for seminar projects

After choosing one of this themes, the students received specific guidance from the seminar holder in order to find valid information sources and to present valuable findings in the seminar.

Results

After the first seminar in which students received their assignment and the aspects regarding the presentation of the projects were clarified together with them, we were glad to observe that all subjects proposed by the teacher were selected by students to be studied. Each subject was approached in one meeting, so that students had enough time to share their projects and to discuss different points of view according to the approached subject.

From the total of 38 students, a number of 26 students chose to make their projects in groups of 3 or 4 students, and the rest of 12 students chose to prepare their projects individually. The students who chose subjects approached in multiple presentations had to communicate with each other, so that each presentation reveals different aspects of the same topic (Table 2). Only the presentation of the projects took place during the online seminars, the preparation for it was conducted asynchronously.

Subject	Number of presented projects
Education in the contemporary society	1 individual project
Lifelong learning	1 individual project and 1 team project
Self-education	1 individual project
Family as educational factor	1 individual project and 1 team project
School as educational factor	1 individual project and 2 team projects
Media and its educational role	1 individual project and 1 team project
Evolution of educational ideals	1 individual project
Types of educational goals	1 individual project
General structures of educational systems	1 individual project and 1 team project
New perspectives in the conception and realization of education	1 individual project and 1 team project
Analysis of main curricular products for the specialty subject	1 individual project
Analysis of different curricula for optional subjects	1 individual project

Table 2. Number of presented projects for each subject

Regarding the indicators taken into consideration for analysing students' projects the results are the following:

- Project accomplishing was completed 100%. All students participating at the seminar presented a project.
- Compatibility between the project theme and its content – from the total of 19 projects, a number of 16 projects accomplished this criterion. The rest of 3 projects accomplished only partially this indicator. In these 3 projects, we could find information regarding the chosen topic, but the students couldn't prove that they acquired conceptual and procedural knowledge, not being able to answer different questions regarding their project, demonstrating a superficial processing of the studied contents and not being able to demonstrate the use of reflection strategies. Thus they presented only general information regarding their topic and their projects didn't contain critical analysis or in-depth aspects of the approached subjects.
- Interactive character of the project presentation. Each project had to contain tasks, questions or exercises for the auditory, composed for the other students, so that the presentations were not monotonous and all students were challenged to become active listeners and participants to the presentations. These tasks for the auditory could be conducted orally, directly during the presentation or by using different online applications or programs to which students have free access. We took into consideration the proper use of technology for each project, the efficient use of the internet and the identification of relevant web sites. From the total of 19 project presentations a number of 17 projects completed this criterion. The rest of 2 projects didn't contain these tasks and the teacher came with certain questions for the auditory in order to cover this limit. During each seminar, for each presentation, the teacher monitored the activity of students using the following indicators: very active, active, rather passive, uninvolved. We observed that during the first 3 seminars, the number of active and very active students registered a lower score, compared to the one in the next seminar sessions (Figure 1). The students got used to the way the presentations were structured and within the next sessions, the number of active students increased, while the number of rather passive or uninvolved students

decreased. We considered that the students were active during the seminar when they expressed their point of view regarding the topics discussed during the meeting, when they were able to give valid arguments for their answers and when they offered correct answers to the exercises and questions proposed by the students who presented their projects.

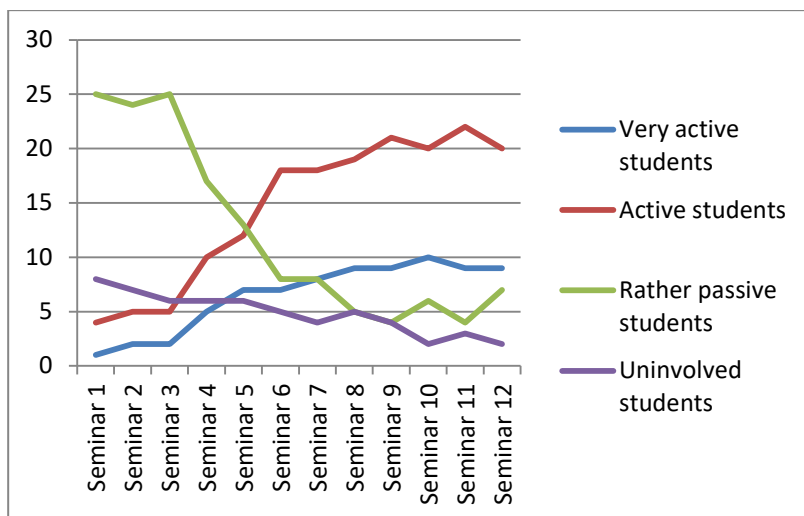


Figure 1. Student activity during seminar

Discussions

The online seminars mentioned above included activities regarding project planning and implementation in order to support students to complete and deepen the knowledge gained during the courses at the subject Fundamentals of Pedagogy. Given the fact that during the whole semester the activities took place online, we tried to get the most out of the technological resources in order to develop students' critical and communication skills. We benefited from the fact that during the pandemic times many companies such as Microsoft, Google, or Zoom have expanded their services and enabled free access for conducting online educational activities or for using different functions of some applications¹². Another advantage was represented by the fact that

¹²https://www.researchgate.net/publication/340560537_Transition_to_Online_Education_in_Schools_during_a_SARS-CoV-2_Coronavirus_COVID-19_Pandemic_in_Georgia, accessed 19. 07. 2021.

students gained and developed their digital skills, so this was not a problem in accomplishing their assignment.

At the beginning of the semester, the teacher took care to offer students clear explanations, relevant for being able to carry out the project. After that, the teacher maintained constant contact with students monitoring their activity and giving them specific advice when they requested it. But the use of the project method was intended also to shift the responsibility from the teacher to students so that they became able to make decisions regarding their project design. Supporting students' independence and autonomy during the project-based learning within online seminars contributed to the development of a sense of control of their own learning process¹³. Thus we took into consideration the limitation regarding the teacher's low control over students' activity in online activities.

Conclusions

Taking into consideration the results presented above, we can conclude that project-based as a teaching and learning strategy can be used in online educational activities in order to enhance students learning.

Within the current study, we observed that students became able to express their point of view according to the chosen subject using valid arguments and previous knowledge gained during the courses. Another benefit of this approach was that it stimulated the communication between students so that they got to know their colleagues better during the discussions held during the seminars based on their projects. So, they acquired knowledge in an online environment, through their own effort, individual study, but also through interaction with their colleagues.

Further studies that approach students' opinions regarding the use of project-based learning within online seminars are necessary in order to obtain an overview of this topic. Also, the use of this method in online seminars at different subjects studied at the level of higher education can be explored.

¹³ D. Kokotsaki, V. Menzies, A. Wiggins, "Project-based learning: a review of the literature.", in *Improving schools*, 19 (2016), no. 3, p. 267.

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IX (2021), no. 18, p. 69-77.