Blended Project-based Learning for Building 21st Century Skills in a Bulgarian School

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Abstract

This paper is a case study reflecting on the introduction of project-based learning (PBL) in a Bulgarian class of eighth grade students, studying English language intensively. The case study focuses on the potential of project-based instruction and blended learning, which offer a distinctive cross point in regards to building 21st century skills in the classroom, such as: communication, collaboration, critical thinking and last but not least, creativity. [1] The blended approach that has been utilized is a flipped classroom that was used to supplement, asynchronously, the brick-and-mortar (classroom) instruction, because PBL is not a widespread teaching method in Bulgarian schools. Flipping the classroom was essential in shifting some of the content towards the virtual classroom, and thus freeing more time for in-class learning and building the aforementioned core skills. The pedagogical intervention was complimented by cyber-ethnography, which is a tool to reflect on virtual space – in our case, the flipped classroom built through the online educational platform Edmodo. The case study reveals intriguing findings on how blended project-based learning could not only enhance learning and motivation, but also contribute to improving the psychological climate in class and help cease bullying.

Introduction

With the ever-increasing development of the technological and digital industries, the contemporary educator strives to not lag behind the times. Teachers have to battle with decreasing student's interest and motivation, computerisation of the school environment, the need to incorporate teaching through technology in the curriculum, and so forth. Businesses and parents also have increased demands for skill-based learning and career-oriented education, with a significant emphasis on the praxis, rather than the classical 'learning-for-the-sake-of-learning' education, in which the accent is put on memorizing theory, facts and statistics, with little or no insight on how that knowledge could be implemented in the real life. A study from 2013 of Microsoft Partners in Learning and Peterson Foundation [2] shows 59% of the respondents replied that they have developed essential skills for their job position outside of the school they have graduated. The study further reveals that 86% of the respondents indicated using information and computer technology (ICT) to complete their assignments or projects, but only 14% of them used ICT in a collaborative manner, which suggests that the former would be less equipped with the advanced technology skills that would be later required at work.

The current study examines the introduction of project-based learning conducted partially in physical environment and supplemented with online learning instruction in the virtual classroom provided by Edmodo. This blended learning approach is called the flipped classroom. The flipped classroom shifts part of the subject material that traditionally is taught in whole group instruction (the class in the physical classroom) into an individual learning space (created in the virtual classroom). Through this approach, the teacher has more time for the development of essential skills, critical thinking, personalised and project-based learning, while in class with the students. [3]

Stepping onto the ideas of John Dewey for 'learning by doing,' Blumenfeld and Krajcik developed four pillars, or key 'learning science ideas' for PBL: (1) active construction; (2) situated learning; (3) social interactions; and (4) cognitive tools. [4]

The active construction arises around the idea that the students are actively engaged and participating, rather than sitting and listening to a lecture. This is the so called student-centered approach and involves building effective student ownership of projects, leading to the development of a list of essential skills for 21st century. Situated learning refers to a real-life situation that should be present in order to make better connections between the studied content and the real life that expects the students after graduation. The social interactions are a basic prerequisite for a successful learning to be present, as education itself is a social interaction. The cognitive tools are related to various forms of visual, auditory and technical supportive tools like imagery, video, music, ICT, etc., that could be used not only during the instruction, but most importantly, by the students during the all stages of project creation and implementation.

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The common guideline for project-based and the blended learning is the possibility for students to be active partners in the knowledge acquisition and the development of other important skills like communication, collaboration and critical thinking into near to the reality context. In this line of thought, a suggestion is in order that these aspects of both approaches are overlapping, thus making both of them complementary to each other.

Educational case learning context

The subject of the case study is a class of 26 students (ages 13 to 14) in the eighth grade of the Secondary School 'Sava Savov' in Pirdop, Bulgaria. The class is majoring English and ICT and is formed during the school year 2014/2015. English Language, as a first foreign language, is taught 18 hours a week (each hour of 45 minutes). The students' household financial affordance, due to the metal industry development in the region, allows for the most of the children in this class to have access to the Internet, a personal computer or laptop, tablet and/or a smartphone. Students also have access to three computer labs at the school. The access to Internet provides the basis for introducing instruction via the online platform Edmodo.

The students come from the same school or from surrounding municipalities from the Srednogorie region. The different educational backgrounds of the students pose a challenge for the school administration and the teaching staff, who have to deal with highly negative school culture and bullying during the first year (that sometimes continues to higher grades).

The BPBL Design

The BPBL aimed to take the lesson to a next level and turn the unit into more engaging experience. The topic set is volcanoes. The essential driving question for each PBL was: *"How would you make a volcano erupt in the school yard?"* The students are to work in teams of five to initially research an existing volcano in depths: geographical position of the volcano; history of formation; history of eruptions; explanation of the eruption phase (for a volcano in general and the chemical reaction that is to happen at the school with their model); and, interesting facts, legends, stories; pictures, drawings, visuals. The products to be delivered are a group presentation with posters and a realistic model of the volcano that is to erupt in the school backyard. The scaffolding, the teacher's guidance through written and verbal instructions, was kept at a moderate level in order to give more space and independence for the students to choose their own ways to present the acquired information and create their model of the erupting volcano. All students received, via the online platform Edmodo, a handout with basic instructions and one method of volcano model construction, but the students researched other ways to make the chemical reaction happen as well. An important consideration that the students had to keep in mind was that they are to assess each team and grade their work. They were to carefully review the provided rubric and utilize it while developing their project presentations and models. The rubric also presented a way to give fair and argumentative assessment to their fellow classmates.

Method

To collect data for the case study, the ethnographic method of observation has been utilised in its classical and new manifestation. Ethnography is a method of observation that allows the participant-researcher to observe a group of individuals in their natural environment. "The main task of the observer is to describe what he/she sees, feels and sense". [5] [6] But in the case of the blended space, cyber-ethnography is a more desired approach, where the researcher studies the subjects and the objects of their "life" in a virtual environment, where the subjects of observation are creating their virtual selves through writing, manipulating images, creating avatars, digital video and audio. [7]

Findings and Conclusion

Realizing the freedom granted, partially within the physical environment, but especially in the virtual one, to decide within the team of how to research, to prepare and to present both the presentation and the volcano model, led the students to gain academic ownership of their project. The teams' main internal communication was conducted in a virtual environment; they also demanded a Facebook group was created by the teacher for better communication between them. Each team decided how to distribute the workload. The observation showed that each team member is adequately involved.

An interesting occurrence was to find that the previous negative attitude and bullying channeled towards a girl from a minority group (Roma girl), gradually ceased. From an everyday confrontation, parents' calls and headmaster's office visits, there was a shift towards mutual tolerance and by the end of the project, I have reported to the class teacher and the academic staff that the bullying in this particular case was no longer present.

The students of each team have decided to create a poster and a multimedia presentation (only the poster was formally required). There were enough pictures and text, but video and audio materials were absent from the slides. The volcano models were also present during each team's presentation and the rest of the class was giving grades and feedback. Some of the presentations were visually challenging, where font size was small or there was too much text on a slide. Each team was given an opportunity to report on what they could have done better in their project and presentation and to receive questions from the class.

Project-based learning, complemented with blended learning, could be an effective method to achieve better student engagement, by transferring the focus on students, thus creating student-centered lessons, where core 21st century skills like communication, collaboration, critical thinking and creativity are addressed. The use of virtual platforms allowed for students to strengthen their understanding and practice of digitals skills, by receiving instruction and communicating through the virtual classroom Edmodo. The allowance for more initiative among the students led them to shift part of the communication in Facebook with the teacher creating a group in the social media network to facilitate the day-to-day teams' communication and collaboration in the blended space, while Edmodo was utilized as a more formal tool for communication with the teacher. Another important issue to be mentioned is the peer feedback each team received, which teaches students to be more detail-oriented and responsible, as well as provides understanding in the assessment process and how important it is to follow the expected criteria and guidelines in order to achieve the learning goals. This comes as an evidence of how important both project-based and blended learning are in securing "space" for student-directed, bottom-up approach, where students are more active and engaged. As there is always "room" for improvement, an additional tool that could be used to enhance students driven approach is to use polls (a feature available both in Edmodo and in the Facebook groups) prior to the project in order to reflect their ideas on the topic, content, skills, knowledge, and experiences that could be included in the project.

Another aspect of this particular case revealed the ability of the project-based approach to help in addressing issues related to the psychological climate in the class and some interpersonal conflicts that were stated by the administration as yearly occurring phenomena in the school, when a new class of eighth graders enters the school. Under the supervision of the teacher, both in the physical and the virtual environment, students learn the etiquette and netiquette of communication and working collaboratively in teams; it could be hard, and there are no one-model-fits-all manual, but the active learning and social interactions could lead to better interpersonal relations, mutual understanding and friendships. The blended element of the project-based learning allows for a constant monitoring of student work and communication, especially when students are online, thus bullying and unethical behavior decreases to a minimum. Students could also be introduced to a code of conduct, which they are to follow in order to deal with any issues of verbal aggression, bullying or immoral behavior towards classmates.

The limitations of each case study and each PBL are that each one is unique and the great results of one, cannot guarantee the successful implementation and same results with another class. There is no defined formula, but each such case study provides a basis for the preparation of a meaningful student experience, provided that the teacher takes the time to amend the blended project-based learning activities according to needs of his/her class.

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