Organization and implementation of a Flipped Classroom course in the Greek University context

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ABSTRACT

In this article we are going to present the first application of the Flipped Classroom approach in the Greek University system. In particular, we will present the implementation of a flipped classroom in a Department of Education at the University of Patras, a peripheral Greek University. First, we present all the arrangements for the organization of the course giving emphasis on the specifications and principles of the flipped classroom approach as they emerge from the relevant literature review. Then, some crucial elements of the implementation of the course are described, and, finally, some initial findings of the course assessment are elaborated.

KEYWORDS

University Pedagogy, Flipped Classroom, e-learning

RÉSUMÉ

Dans cet article, nous allons présenter la première application de l'approche de classe inversée dans le système universitaire grec, en particulier la mise en œuvre d'une classe inversée dans un département d'éducation à l'université de Patras, une université grecque périphérique. Tout d'abord, nous présentons toutes les arrangements prises pour l'organisation du cours en mettant l'accent sur les spécifications et les principes de l'approche de la classe inversée, tels qu'ils ressortent de la revue de la littérature pertinente. Ensuite, certains éléments cruciaux de la mise en œuvre du cours sont décrits et, enfin, quelques premières données de l'évaluation du cours sont élaborées.

MOTS-CLÉS

Pédagogie Universitaire, Classe Inversée, e-learning

INTRODUCTION

Following the widely known "Dr. Fox Lecture" (Naftulin, Ware & Donelly, 1973), possibly the first publication of a research project for teaching and learning in higher education, University

Pedagogy or Higher Education Pedagogy started to emerge as a new field of research in Educational Science. Nowadays, research in University Pedagogy is irrigated from different areas, such as, inter alia, Adult Education, Information and Communications Technologies (ICT), and Learning Theories. Needless to say that in order to estimate the value and usefulness of the different approaches proposed to enhance teaching and learning in higher education, one has to take into serious account the context in which all those alternative ways and methods of teaching are implemented. University (or Higher Education) Pedagogy is a new and emerging research field in Greece. Almost three years ago less than twenty university professors founded the Network for University Pedagogy (https://panepistimiaki-paidagogiki.gr/), while the first Conference was organized in 2019 by the Laboratory of Teaching and Professional Development of Bioscientists (Department of Molecular Biology and Genetics) of the Democritus University of Thrace. During the past fifteen years, research in University Pedagogy in Greece focused mainly on (a) the institutional factors influencing student's perceptions towards learning (Kamtsios & Karagiannopoulou, 2013; Karagiannopoulou & Christodoulides, 2005; Kedraka & Rotidi, 2017; Raikou & Karalis, 2007; Rekalidou & Panitsides, 2015), (b) the development of critical thinking skills in students using adult education theories, mainly the approach of transformative learning (Karalis, Sotiropoulos & Kampeza, 2007; Liodaki & Karalis, 2013; Raikou, 2016; Raikou & Karalis, 2011), and (c) university professors' teaching perspectives and educational techniques (Kedraka & Kourkoutas, 2018; Rotidi, Collins, Karalis & Lavidas, 2016).

FLIPPED CLASSROOM: WHAT IT IS AND WHAT IT IS NOT

Flipped Classroom, as well as Massive Open Online Courses (MOOCs), are considered as significant innovations in higher education. It is habitual for educational innovations to create expectations, however, some basic criteria for their approval are based on their duration in time, a change in education is not evaluated in terms of promises or expectations but in terms of pedagogical issues. The educational value of an innovation cannot be based on mass-media expectations and contextual factors should not be underestimated (Depover, Karsenti & Komis, 2017).

A first, maybe simple, but functional definition of a flipped (or inverted) classroom is that provided by Lage, Platt & Treglia (2000, p. 32), "inverting the classroom means that events that have traditionally taken place *inside* the classroom, now take place *outside* the classroom and vice versa". Traditionally, events that take place inside the classroom are mainly lectures and discussions, while events that take place outside the classroom are homework and study of material, provided or suggested by the professor. So, inverting or flipping the classroom means that lectures are transferred outside the classroom (home) and homework and applications are the main activities in the classroom. Though, Abeysekera & Dawson (2015, p. 5) suggest that a flipped classroom can take many forms, the main strategy of the instructor is to direct students to a video lecture to teach key concepts as a part of their homework, while "in the actual lecture the instructor acts as a facilitator to students who engage in a range of problem solving activities…., generally done in small groups, ideally resulting in the creation of small communities of peer learners…, and, flipped classroom teachers might also use 'just-in-time teaching' to tailor any direct instruction to areas of student need, often based on web-based questions prior to class". Flipped classroom approaches are characterized "by a change in use of classroom and out-of-class time, doing activities traditionally considered 'homework' in class, doing activities traditionally as in-class out of class, in-class activities that emphasize active learning, problem-

solving, pre-class activities, post-class activities and use of technology, especially video" (o.c., p. 6). It is worthwhile to indicate that flipped classroom is not a theoretical framework or even a learning theory by itself, but rather is an approach for organizing courses. Theoretical underpinnings of the flipped classroom approach include learning styles theories, peer-assisted, collaborative and cooperative learning, problem-based learning and active learning (Bishop & Verleger, 2013). Based on the above definitions we can assume that a typical course based on the flipped classroom approach consists of the following elements: a platform for e-learning, acting as a depository for videos and educational materials, but also as a communication tool (forum and announcements) and in-class activities, different than those of traditional approach of lecturing.

Since a very important part of the flipped classroom approach is the use of computers and mainly of web-based solutions, we have to point out that Information and Communications Technologies could support and, in some cases, alter significantly the educational processes, but they do not by themselves augment creativity and productivity of professors and students if they are not accompanied by innovative pedagogical approaches (Kuzminska, Morze & Smyrnova-Trybulska, 2017). Developing a course with the Flipped Classroom approach one should take into consideration three critical issues. The first relates to the educational material provided in electronic format through the platform (Pavlis-Korres & Barriocanal, 2008; Vorvilas, Karalis, & Ravanis, 2010; 2011), the other is that of integrating adult education principles in developing pedagogical approaches for e-learning systems and the role of professor in promoting active learning (Basal, 2015; Karalis & Koutsonikos, 2003; Pavlis-Korres & Barriocanal, 2008; Pavlis-Korres, Karalis, Leftheriotou & Barriocanal, 2009;), while enhancing and promoting continuous interaction and communication is maybe the most crucial issue for maintaining the online part of the course (Pavlis-Korres, 2012). Lastly, it is worth underlying what does not correspond to the flipped classroom approach. A "conventional" online course with no weekly or periodic in-class activities, a course accompanied with a simple depository of reference educational materials, or a hybrid course (online activities with face-to-face meetings based mainly on lecturing), could not be considered as flipped classroom courses.

DESCRIPTION OF THE COURSE

In this section, we are going to provide a short description of the flipped classroom course implemented in the Department of Educational Science and Early Childhood Education (DESECE) at the University of Patras, Greece. As deriving from the literature review, this is the first attempt to apply the flipped classroom approach in a Greek University. To be precise, another attempt which surfaced during the literature review took place in a *higher education institution*, the Merchant Marine Academy of Chios. Chouli (2015) applied a flipped classroom approach in order to teach, in an innovative way, English for Special Purposes to Marine Engineering Students, reporting changes in learners' attitudes towards English language as well enhancement of vocabulary development and communicate competence.

DESECE is one of the 24 Departments of the University of Patras, the third biggest Greek University, located in the city of Patras (Western Greece). The Department has its main mission to educate student teachers, most of them aiming to work in preschool educational settings, while an important proportion of graduates is oriented to other areas of Education. Almost all students enrolled in the Department, after passing the exams at national level, are women (the same goes for the students that opted for the flipped classroom course). The syllabus and the training provided in the Department is two-fold: all graduates should be competent to act as preschool

teachers, yet they can opt elective courses leading to postgraduate studies and/or employment in almost all fields of Educational Science. One of the latter is the course entitled "Distance Education", offered as an elective in the fourth year of studies, having as a main goal to introduce students to the history of Distance Education, referring to "traditional" applications (for example, correspondence courses), but mainly focusing on current approaches (such as online courses, hybrid forms of learning and MOOCs). The organization and implementation of the course were done by the instructor of the course (second in order author of this article) and a researcher (first in order author of this article). This course has been taught, with the traditional form, for more than ten years by the same instructor and every year 30-35 students opt to attend it. Usually, in the Greek university system, a course lasts for thirteen weeks, followed by the final examination. As this was the first implementation in a Greek university setting it was decided that the flipped classroom approach should last for six weeks (introduction and five meetings), while the other seven meetings would be implemented in the traditional form. The first introductory meeting had as a scope to explain this new form of teaching, so as to enable the fourth-year students to decide if they will choose or not this course. The first, and maybe the most surprising finding of the whole project, was that 105 students opted for this course (almost three times more students than the previous years). When asked why they decided to opt the course, almost all students responded that this new way of teaching was very interesting for them and they all assented to try this new approach and fulfil all activities of the course in and out of the class.

For the out of class part of the course, the Edmodo platform was used, and the course was organized in the platform in five clusters corresponding to the five weeks of the total duration. The material for all of the five weeks consisted of seven videos created by the instructor using the Screencast-O-matic software (with a total duration of 50 minutes), four Powerpoint presentations, a 230 pages handbook accompanied by 50 pages of selected texts, ten videos from the Internet, one movie of two and a half hours duration, and three puzzles. In-class activities for the five weeks included discussion of materials studied by the students, queries about those materials as well as for using the Edmodo platform and about asynchronous communication and, mainly, the implementation of projects and assignments (four assignments in total). For the assignments, students worked in groups of five (21 groups in total), while the results of each group were presented in brief to all students and commented by the instructor during all meetings. The assessment of the intervention was based on both quantitative and qualitative approaches, and the tools used include:

(a) A questionnaire circulated in the second week, aiming at recording students' familiarity with the basic concepts of the course, i.e. distance education and e-learning.
(b) A questionnaire circulated by the end of the intervention (fifth week), aiming at recording students' perceived incentives and barriers in participating in the flipped classroom course as well as their opinions about the course.
(c) Personal and group diaries filled by the participating students (three times during the intervention).
(d) Diaries of the instructors.
(e) Activity reports and log files from the platform.

PRESENTATION OF FINDINGS

In this section we are going to present the first data derived from the questionnaires, mainly the data that refer to the whole experience of the students with a flipped classroom organization of the course. All of the following diagrams are based on the elaboration of data derived from the second questionnaire that was filled by all the participating students the week after the end of the flipped classroom (fifth week of the course). For all the questions a Likert-type five-point scale was used (1=strongly disagree, 2=disagree, 3=neither disagree, nor agree, 4=agree, 5=strongly agree).

The first question aimed to investigate the degree of students' satisfaction, asking them how pleasant was for them the whole learning experience with the use of the flipped classroom approach. As is obvious from Figure 1, a cumulative percentage of 86.6% (agree and strongly agree) of all the 105 participating students declare that it was a pleasant experience. Worth to be mentioned is the fact that both negative answers were not selected by any of the students participating in the course.
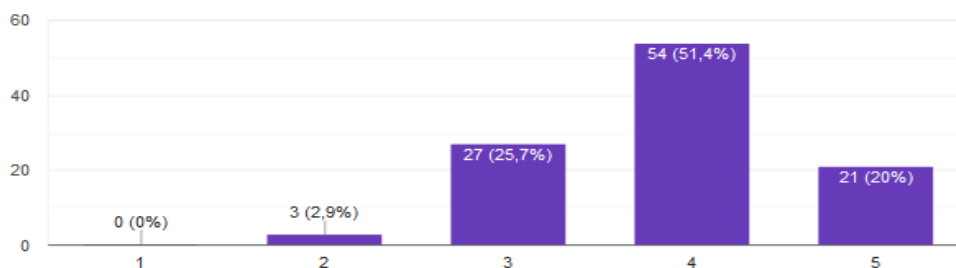
FIGURE 1
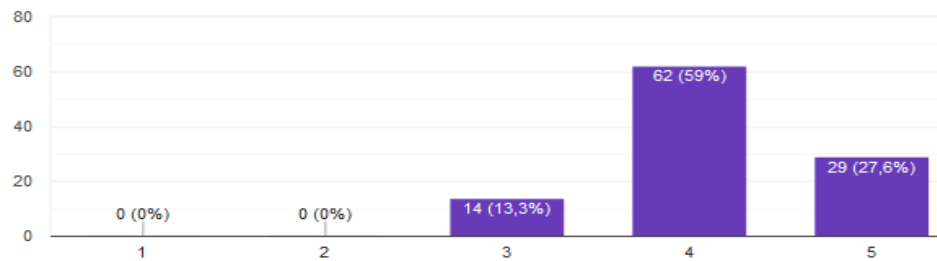
Degree of satisfaction with flipped classroom

The second question aimed to investigate if the variety of educational materials used (handbook, videos of the instructor, videos from the Internet about flipped classroom, assessment tools) stimulated students' interest and concluded to a higher level of engagement in the course. Although positive answers gather a cumulative percentage lower than that of the previous question (71.4%), negative answers were given by just three of the participating students. A significant percentage (25.7%) seems to be undecided.

FIGURE 2

Variety of educational material as stimulus for participation

Pretty much the same picture resulted when students were asked if the flipped classroom approach contributed to a better comprehension of the course content (Figure 3). Three out of four participants agree to some degree while just two of the 105 participating students express negative opinions.
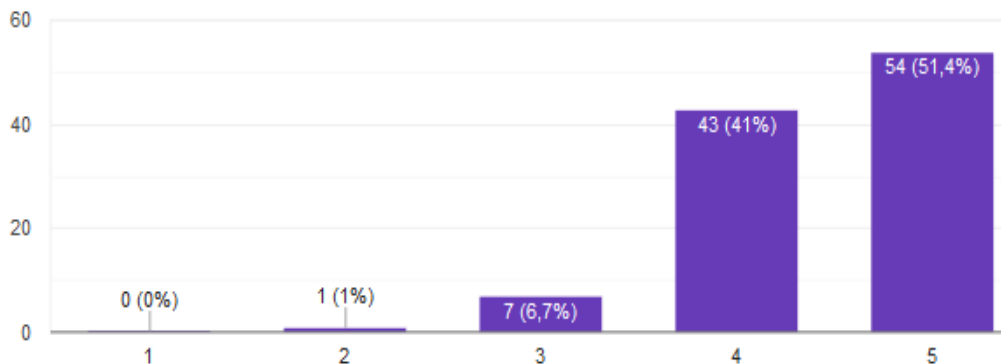
FIGURE 3
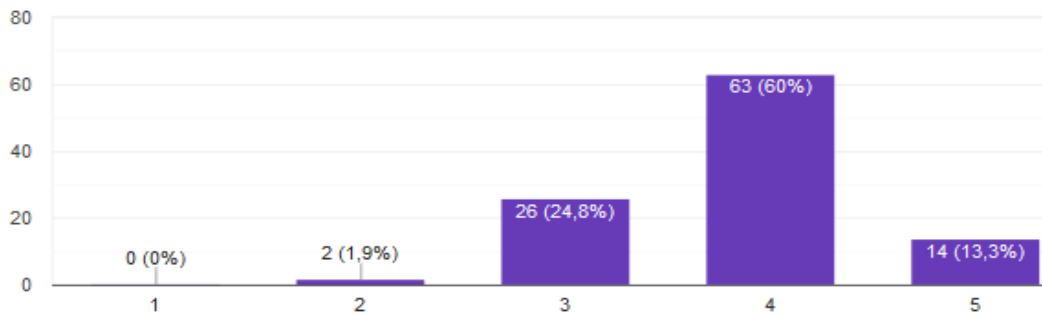
Contribution of the approach to the comprehension of course content

Students believe that the organization of a course based on the flipped classroom approach enhanced their active participation in the whole process. A cumulative percentage of 92.4% have positive opinions, while half of them strongly agree and just two of them express negative opinions (Figure 4).

FIGURE 4

Enhancement of active participation with flipped classroom

When students were asked if the flipped classroom approach resulted in the development of critical thinking and the production of new ideas (Figure 5), positive opinions gather again a very high cumulative percentage (91.4%).

FIGURE 5
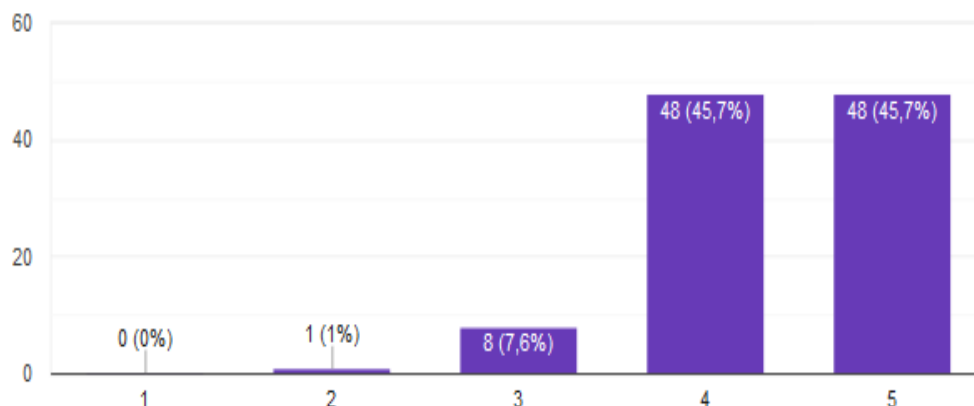
Development of critical thinking

CONCLUDING REMARKS

The aim of this article was to present the organization of and the response to a course following the flipped classroom approach, during its first time application in a Greek University. Serious attention was given so that all requirements and principles set by the literature review for the course to be a flipped classroom one were adhered to. As already analyzed in the theoretical part of the article, a hybrid or an online course could not fall into the flipped classroom category. A crucial factor of a flipped classroom course is that of the sequence of the activities, in other words, study and activities of the online part in a given week should be followed by relevant participatory activities in the classroom during the next in-class meeting. For the course presented, all online activities and materials of every week had a strong connection with the activities performed by the students in groups of five in the classroom.

As it stands for every innovation in teaching, contextual factors are very important for the success and the propagation of a new approach. The Greek University system seems to be teacher-centered at a very high degree (Rotidi et al., 2016), while, in most cases, it is not compulsory for the students to attend the lectures. To our estimation, the most significant finding, resulting for the application of a flipped classroom course, is that the participation rates were three times greater than those observed in the past years when the course was offered in the traditional way. Also, we can conclude that the first findings from the questionnaires filled by the students, record high satisfaction rates. Additionally, students believe that this new approach contributed to a better comprehension of the course content, enhanced their active participation and promoted their critical thinking abilities.

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