

Improving the Teaching of Mathematics at University Using the Inverted Classroom Model: A Case in Greece

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Abstract : Teaching practices at the university level have changed and developed during the last decade. Implementation of inverted classroom method in secondary education consists of a well-formed basis for academic teachers. On the other hand, distance learning is a well-known field in education research and widespread as a method of teaching. Nonetheless, the new pandemic found many Universities all over the world unprepared, which made adaptations to new methods of teaching a necessity. In this paper, we analyze a model of an inverted university classroom in a distance learning context. Thus, the main purpose of our research is to investigate students' difficulties as they transit to a new style of teaching and explore their learning development during a semester totally different from others. Our teaching experiment took place at the Business Administration department of the University of Patras, in the context of two courses: Calculus, a course aimed at first-year students, and Statistics, a course aimed at second-year students. Second-year students had the opportunity to attend courses in the university classroom. First-year students started their semester with distance learning. Using a comparative study of these two groups, we explored significant differences in students' learning procedures. Focused group interviews, written tests, analyses of students' dialogues were used in a mixed quantity and quality research. Our analysis reveals students' skills, capabilities but also a difficulty in following, non-traditional style of teaching. The inverted classroom model, according to our findings, offers benefits in the educational procedure, even in a distance learning environment.

Keywords : distance learning, higher education, inverted classroom, mathematics teaching

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