Evaluation of an Educational Methodology for the Pre-Sciences Preparatory Course at the Technological University of Uruguay in 2023

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Abstract. This paper presents an evaluation of the educational methodology used in the Pre-Sciences preparatory course at the Technological University (UTEC) of Uruguay in 2023. The main objective of the methodology was to enhance students' autonomous learning prior to classes, allowing for more fluid interaction between students and teachers. This was promoted through the use of technological tools such as various virtual platforms and mobile applications to simplify the process of disseminating instructional materials to students and facilitate their direct communication with peers and teachers. To evaluate this approach, participants' opinions were collected through satisfaction questionnaires at the end of the course, with the aim of identifying strengths and weaknesses and enabling a process of improvement for future editions of the activity. The results presented indicated an improvement in the clarity of the content and greater efficiency in the use of time in synchronous classes. In the end, the limitations of the study are discussed and future research is proposed.

Keywords: Educational Methods, Virtual Classrooms, Teacher-Student Relationship, Higher Education, University Preparation.

1 Introduction

Education has evolved in recent years due to the impact of technology on the teaching and learning process (UNESCO, 2023). Educational institutions have become spaces of constant innovation and, consequently, have also generated the need to evaluate these new practices that are being produced (Area & Adell, 2021). Societies evolve and educational systems need to be structured according to the transformations that have occurred in these societies (Zufiaurre et al., 2015). These evolutions are essentially linked to new technologies and different means of communication and information that have been incorporated into today's society (UNESCO, 2023).

In 2023, the Technological University of Uruguay (UTEC) implemented new educational methodologies with the aim of improving the learning process and enriching the experience of students in their courses. The purpose of this paper is to evaluate the effectiveness of the methodological proposal used in the "Pre-sciences" preparatory course at this institution.

2. Theoretical Framework

Traditional educational methodologies are based on a unidirectional teaching model, in which the teacher transmits knowledge and the student passively receives it. These conservative pedagogical approaches do not encourage active participation by students, which can lead to a decrease in interest and motivation towards the learning process (Dominguez et al, 2020).

In contrast, other authors highlight the role of Information and Communication Technologies (ICT) as factors that can positively impact academic performance. These technologies facilitate better interaction by providing communication and operationalization tools that favor knowledge construction. Likewise, it is pointed out that the advancement of technology in the development of mobile devices has generated new possibilities and has turned the mobile phone into an important support tool for teaching and learning mathematics (Morales et al, 2021).

In line with this vision, the educational methodology used in the Pre-Sciences course at UTEC sought to increase interaction between students, content, and course teachers. This pedagogical model was based on a contemporary approach that privileges the use of ICT tools for students' prior preparation through the use of virtual platforms, allowing for better use of time in synchronous classes. Likewise, direct communication between teachers and students through mobile applications promotes closer and more collaborative interaction.

3. Method

The educational methodology applied to the Pre-Sciences course at UTEC during the 2023 academic year is similar to the methodology used by Fúneme-Mateus (Fúneme, 2019), where the method consisted of providing instructional materials to students in advance through ICT tools, such as educational platforms and mobile applications.

The objective of this methodology was to enhance autonomous learning prior to classes, seeking better use of time in synchronous instances. This is highlighted by Dominguez (Dominguez et al., 2020), who reports that the results obtained in his classes were satisfactory in various aspects, both in the learning process and in acceptance by students.

To evaluate the effectiveness of the methodology applied in the Pre-Sciences course at UTEC, a satisfaction survey was conducted at the end of the course to gather students' opinions on it.

4. Results

The results obtained from the satisfaction survey of the Pre-Sciences 2023 course showed positive indicators in relation to its acceptance by students. Regarding synchronous activities, 90% of students rated the clarity of content with a score of 4 or higher on a scale of 1 to 6, and 83% rated the duration of classes as adequate.

As for asynchronous activities, 87% of students rated positively the prior use of educational platforms and considered it useful for preparing for synchronous classes. In addition, 91% of students rated the quality of asynchronous content with a score of 4 or higher.

Regarding the methodology used, 93% of students rated positively the interaction between students and teachers, and 89% considered that the methodology was adequate for learning the content.

5. Discussion

The results obtained in this study suggest that the educational methodology applied in the Pre-Sciences course at UTEC in 2023 was effective in terms of student satisfaction and perception of content quality. The combination of asynchronous and synchronous activities allowed students to better prepare for live sessions, which in turn facilitated greater depth in topics and greater dedication to solving practical problems.

In addition, fluid communication between teachers and students was a key factor in achieving high levels of satisfaction, as it allowed students to clarify doubts and receive quick and efficient feedback.

However, it is important to note the inherent limitations of the satisfaction survey used in this study, as it does not allow for a comprehensive evaluation of the real impact of the course on student learning. Therefore, it is recommended to carry out more in-depth evaluations in the future to more accurately measure course outcomes (Surdez-Pérez et al., 2018).

6. Conclusions

In summary, the results of this study suggest that the educational methodology implemented in the Pre-Sciences course at UTEC in 2023 was effective in terms of student satisfaction and perception of content quality. The combination of asynchronous and synchronous activities allowed for better preparation by students for live sessions and greater depth in topics. In addition, fluid communication between teachers and students was a key factor in achieving high levels of satisfaction by fostering a participatory and safe environment for students.

7. Limitations and Future Research

Limitations and Future Research It is important to note that the satisfaction survey used has some limitations, as it does not allow for a comprehensive evaluation of the real impact of the course on student learning. It would be advisable to carry out more in-depth evaluations in the future to more accurately measure the acceptance of the methodology, course outcomes, and their impact on student learning. It would also be interesting to explore other methodologies that can continue to improve students' learning experience and academic performance.

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