



FLIPPED CLASSROOM IN TERTIARY ACCOUNTING EDUCATION

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Abstract:

Accounting education is constantly affected by the developments taking place in the global competitive environment, which is looking for more modern teaching methods. The need to align higher accounting education with business requirements forms a new framework that promotes experiential learning, enhancing the application of theory in practice with realistic scenarios. The flipped classroom approach has been found to contribute to institutional issues in university education with particularly good results. Even today its examination is a significant challenge, especially in accounting courses. The purpose of this paper is to investigate the flipped classroom in order to identify its impact on higher accounting education. The research is a bibliographic article which focuses particularly on its application. The findings show that the flipped classroom with the creation of video-lectures helps to better understand basic accounting concepts, while at the same time providing students with the opportunity to review the video-lectures before the course. The role of accounting professors in this particular teaching approach is encouraging. Also, the professors have the role of the pedagogue who deals with the redesign of the courses, in order to largely cover the modern needs of the students. Interactive e-activities before and after class, for the most part, correlate with Bloom's Taxonomy, aiming to improve the time management, overall educational experience and attitudes of accounting students. The results as a whole recommend the flipped classroom as a modern pedagogical approach that promotes active student participation, high learning outcomes and student satisfaction, even in large audiences.

Keywords: flipped classroom, accounting education, Bloom's taxonomy, university, student

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1. Introduction

The flipped classroom has the concept of inverting the classroom, the educational events that traditionally take place inside the classroom, through this particular method are done outside the classroom and vice versa (Thai *et al.*, 2017).

Specifically, it is defined as an educational method "*which moves the delivery of the lesson outside the classroom (mainly through video), so that the teaching time in the classroom is devoted more to interactive type activities where the learners are actively involved with the content of the lesson*" (Abeysekera and Dawson, 2015).

The methodology of the flipped classroom at the level of pedagogy is associated with the application of student-centered and constructivist approaches to learning, as it allows for more effective management of teaching time in the classroom (Winfield and Whitelaw, 2024).

This has as its ultimate purpose the cultivation of students' cognitive abilities through their active involvement in educational activities of an exploratory, constructive and collaborative nature (Estes *et al.*, 2014). The flipped classroom approach is an innovative method that enhances student engagement in accounting courses. As a pedagogical strategy, it helps students engage with the lecture material prior to classroom instruction by completing short quizzes and video lectures (Nugraheni *et al.*, 2022). The implementation of the flipped classroom helps students to understand accounting concepts, participate in class discussions and form positive attitudes of students about the subject of accounting (Duxbury *et al.*, 2016). The "inverted classroom" as an educational method started in schools about 15 years ago in the USA, while in Greece, with the law 4823 of 2021 and the Ministry's bill for School Upgrading and Professor Empowerment. This fact led the Greek educational system to give greater freedom and autonomy, both to educational units and professors, as well as to the methods of evaluating the performance of students (Kottara *et al.*, 2024a). The flipped classroom is not a theoretical framework or a theory of learning but a way of teaching and learning. To conduct it, an e-learning platform is required, with a repository for videos and educational materials, but also a communication tool (forums and announcements) as well as activities within the classroom, different from those of the traditional classroom (Oluseyi-Sowunmi, 2025).

It is noteworthy that most of this teaching method is based on the use of computers, and mainly, the educational activities and exercises are based on the internet (Morze and Kuzminska, 2017).

This method is often linked to Bloom's Taxonomy, developing skills related to higher levels such as analysis, synthesis and evaluation (Mayer *et al.*, 2023). It emphasizes learning core content before class, allowing for more active, student-centered learning activities during class (Sawan, 2024).

The contribution of the present research lies in all these challenges, which are of intense concern to university institutions, professors and students of accounting.

The research comes to illuminate these aspects through the examination of the impact of the flipped classroom in accounting courses in order to identify the factors that contribute to the improvement of accounting education.

2. Background of the study

2.1 The evolution of the flipped class

Baker is considered the founder of the Flipped Classroom, who presented the scientific paper "The classroom flip: using web course management tools to become the guide by the side" in 2000 (Lage *et al.*, 2000).

However, although Baker is the original professor of the flipped classroom, professors Bergmann and Sams, in 2008, wanting to give their absent students a chance, videotaped the lesson, which they then posted online. It was found that the specific action had a great impact, and this made them revise the approach to the educational process in the classroom. They themselves published their scientific book "Flip Your Classroom: Reach Every Student in Every Class Every Day", which even today is referred to as a basic tool useful for professors who wish to apply this educational method in their course. Pedagogical theories in the contemporary academic community strive to be student-centered through cognitive conflict as there is free expression of opinions and exchange of ideas with a high degree of interaction and collaboration (Johnson and Renner, 2012).

Specifically in the constructivist paradigm, students are viewed as thinkers who develop theories about the real world and examine their correctness (Kottara *et al.*, 2025a). This can be done by studying the educational material based on proper design and according to the needs of the students. Educational materials are shared through various learning platforms such as Moodle, so that students combining the information they take in outside the classroom can interact with them and their fellow students in the classroom (Kottara *et al.*, 2024b).

At the same time, it is important that they assimilate the teaching material and content according to their personal experiences and the interaction through activities (Bergmann and Sams, 2014). The educational material itself does not have as much power as when the professor integrates it into e-learning and gives specific directions depending on the desired goals and the feedback he receives from the climate created in the classroom. However, students need the professor as a guide to solve the questions for the assignments. Students express high levels of satisfaction with the course, while in several cases the teaching process is accompanied by improved learning results and the achievement of higher grades, compared to traditional teaching (Ng, 2014; Butt, 2014; Findlay-Thompson and Mombourquette, 2014; Mardini and Mah'd, 2022).

- The development of a course with the Flipped Classroom approach in a university institution must include at least the following three basic elements:
- The training material should also be provided in electronic form through a Moodle or E-class or some other L.M.S.
- To integrate the principles of adult education in the development of pedagogical approaches to e-learning.

- Promoting active learning and encouraging professors to all their students, with the aim of enhancing interaction and communication, keeping students engaged in the course (Basal, 2015).

2.2 Flipped classroom in accounting

The flipped classroom, in its application, has a direct connection with the theoretical framework of Bloom's theory of teaching objectives, where the objectives with a specific ranking are determined which, the professor sets from the beginning of the semester for the students of specific courses such as accounting (Du and Taylor, 2013). Through Bloom's classification, three domains of learning are clearly separated: a) cognitive, b) emotional and c) psychomotor. Regarding the cognitive domain, there is a thorough presentation of six categories, which start from the simplest and most concrete and go to the most complex and abstract. The presentation in the six categories begins with knowledge, understanding, application, analysis, and synthesis and ends with evaluation. The overarching goal of Bloom's taxonomy is to motivate students to focus on all three areas of learning in a holistic way, pointing out that learning at high levels requires already acquired knowledge and skills at even lower levels. The implementation of the flipped classroom is based on the theories of constructivism, inquiry and cooperative learning. In particular, he has adopted the constructivist theory, which claims that students are thinkers who draw conclusions during the educational process and at the same time develop theories about their daily lives, which they review and seek their correctness (Kottara *et al.*, 2024c).

Zhao, Deng and Zhai (2016) report that the implementation of the flipped classroom requires the cooperation of professors and students in order to enhance active participation in the teaching and learning process. The flipped classroom, using information technology, offers study resources in the form of video tutorials that students can easily download, watch and learn from before the lesson / lecture in the classroom.

During the lecture, the knowledge that the students have already received from home with the video-lecture is externalized with the help of the professor, motivating them to actively participate in the in-class activities (with questions and answers, with case analysis and using brainstorming for greater interaction).

In this way, when they come to class, they can be prepared and express their thoughts by interacting with others, enhancing their understanding of the content of accounting courses (Brown *et al.*, 2016). The flipped classroom is implemented under the umbrella of a blended learning approach: through the blending of face-to-face teaching with technology-based learning, thereby allowing the traditional classroom to be transferred to videos and podcasts for students to view learning material in their own time (O'Connor *et al.*, 2011; James *et al.*, 2014). This results in students having more time in class to apply the teaching material. However, there are limited studies that have examined aspects of the flipped learning approach (Abeysekera and Dawson, 2015). In terms of effectiveness and student perception, findings are mixed. It appeared that a small percentage of students were not in favor of the flipped classroom, while most generally felt that participating in this educational experience had a positive impact on

their learning. However, most researches showed that the students had positive perceptions of the specific teaching approach (Butt, 2014; Brown, 2016; Chiu and Cheng, 2017).

When comparing student learning outcomes in traditional and flipped learning environments, identical findings were found with no statistically significant differences (Findlay-Thompson and Mombourquette, 2014).

Researchers report that students exposed to a flipped learning environment perform better (Du and Taylor, 2013; Kottara *et al.*, 2024d). Additionally, research has found that a flipped learning environment leads to deeper active learning (Butt, 2014; Findlay-Thompson and Mombourquette, 2014; Mardini and Mah'd, 2022).

A survey of first-semester undergraduate students in an accounting course found that 30% of respondents felt that the flipped classroom was only suitable for longer semesters, with only one student feeling that it could be adopted in the early years of study (Van Niekerk and Delpont, 2022).

On the other hand, when applying the flipped classroom to first-year introductory accounting courses, different results were found, as the findings suggested that some students did not respond positively because more effort was required compared to traditional teaching (Du and Taylor, 2013). Students need more time and familiarization for this transition to the new learning environment (Lento, 2017).

At the same time, however, deeper learning is required for the content of accounting courses, and the flipped classroom is able to offer this to students, provided that there is appropriate planning of the course by the professors (Mardini and Mah'd, 2022).

2.3 Application of the flipped class

The implementation of the flipped classroom is based on three stages: a) before the classroom, b) in the classroom and c) after the classroom (Bishop and Verleger, 2013).

Table 1: Indicative stages of implementation of the flipped classroom

Stages	Actions
1o Pre Class	- Posting of educational material. - Study of educational material. - Quiz
2o In Class	- Face-to-face meeting.
3o Post-Class	- Remote feedback from quiz assessment. - Remote activities. - Quiz

The first stage is broken down as follows: students usually receive the educational material through some LMS platform. In particular, they can see the material as many times as they want and focus on any points they wish with flexibility in their own space-time. This creates a unique gradation of student interaction with the learning material, which is not the case when delivering classroom lectures (Kottara *et al.*, 2024e; Kottara and Asonitou, 2025b).

The next stage is in the classroom, through active and participatory teaching techniques, since the student has studied the material "before class" and comes prepared and using the time with activities.

These activities are directed towards solving problems, for example, through group work, which is carried out under the guidance of professors. Students are then asked to combine the information they have acquired outside the classroom and interact with it and their fellow students.

The last stage of application is after the class, where students are asked to evaluate the knowledge, they have acquired after the first two stages. Through the activities of the flipped classroom, students have the opportunity to check their level of knowledge and, according to their performance, identify their possible weaknesses. This can be done while they look back at the digital educational material that they are now watching with a different eye and after they have first understood the content, through videos and exercises such as quizzes, gaining knowledge and developing the corresponding skills.

2.4 Application of the flipped classroom and Bloom's taxonomy of instructional objectives

The application of the flipped classroom is based on both the theory of constructivism and exploratory and cooperative learning. Constructivist theory refers to students acting as thinkers as they draw conclusions and develop theories about the real world. In the flipped classroom, learners process both information and stimuli they acquire outside the classroom and interact by understanding the educational content based on their personal experience and interaction through group activities (Chandio *et al.*, 2021).

In addition, e-learning helps students to get a first contact with the information and data related to the course content. At the same time, lecturers focus on the motivation and active involvement of students to achieve higher grades compared to traditional teaching. A necessary component of the flipped classroom is the preparation before the lesson, with the main goal being the production of knowledge (Zappe *et al.*, 2009). In this particular method, the role of professors is not professor-centered, but encouraging and guiding in order to have a collaborative team (Bishop and Verleger, 2013). In this way, the student body becomes an active member of the educational process. In the flipped classroom model, there is a direct connection with Bloom's teaching objectives through a distinct classification of the objectives that the professor sets for his students. Benjamin Bloom devised a hierarchical classification of educational goals that focuses on three domains of learning (cognitive, affective, and psychomotor). In the present research, a division was made in terms of the cognitive domain into six distinct levels, which start from the simplest and most concrete to the most complex and abstract.

This classification has the following hierarchy: knowledge, understanding, application, analysis, synthesis and evaluation (Kidwell *et al.*, 2013).

Bloom's taxonomy refers to motivating professors to focus on all three areas of learning, creating a holistic form of education, pointing out that learning at higher levels requires already acquired knowledge and skills of lower levels.

In the year 2001, there was the proposal for Bloom's revised taxonomy of learning objectives, with more verbose forms which show the active nature of the educational process (Anderson and Krathwohl, 2001). The revision brought about a change in the levels of the taxonomy, where creativity is ranked higher than assessment (remember, understand, apply, analyze, evaluate, create).

There is a clear differentiation in the first three levels, which refer to low-level mental abilities, while the remaining three are considered higher-level thinking skills and are analyzed as follows.

The first level refers to Remembering, where the learner is able to recall or retrieve relevant information from long-term memory.

The second level concerns Understanding – Here is the ability to determine the meaning of new knowledge.

The third level, Applying, is derived through using knowledge in a new way, where there is the option for the learner to complete and apply a process.

The fourth concerns Analyzing, which is carried out through the comparison and analysis of a concept, not superficially but in its components, in order to determine how these parts are related both to each other and to the whole.

The fifth level refers to Evaluating, where learners are able to evaluate and document their opinions.

The last level, which is very important, concerns Creating, where students are now able to produce, reconstruct and create the "new".

Most students are oriented towards achieving the cognitive goals which focus on the lower levels of Bloom's taxonomy (Remembering, Understanding), because they are used to having a more passive role in their academic course, through the effort to understand the educational content in order to succeed in the course exams (Marshall and DeCapua, 2013).

It is noteworthy that during the application of the flipped classroom, the lowest levels of learning are implemented outside the classroom, with flexibility in the space and time desired by the students. There is also a high level of self-regulated learning as they study at their own pace to memorize and understand concepts (Halili and Zainuddin, 2015). James *et al.* (2014) claim that in classroom lectures, lecturers and students remain alert so that they are able to engage in more interactive and higher-order activities such as problem-solving. Here, the ultimate goal is the higher levels of taxonomy learning (Applying, Analyzing, Evaluating, Creating).

3. Methodology

The Google Scholar and Scopus databases were used to gather our sample research. Keywords like "flipped classroom," "accounting courses", and "tertiary accounting education" were used to compile the works for evaluation following the study topic. To determine whether a paper should be included, the following standards were used: 1) time frame: 2013–2024; 2) topic: social sciences; 3) kind of document: article 4) language: Greek and English. The sample size was reduced to 98 publications based on these

standards. Nine qualifying papers that were most closely connected to the search criteria were left, and they are prepared for evaluation, synthesis, and analysis.

4. Findings

4.1 Presentation of indicative Research on the Flipped Classroom in Accounting Education

Through the investigation of the nine studies presented in table 2 the findings show that the flipped classroom has already been implemented in introductory accounting courses in university institutions. The researchers mention as an important element its further evaluation in order to improve the teaching of accounting courses. In the majority of research, it was found that the design and implementation of the flipped classroom improves academic performance and student engagement.

Of key importance is the focus on the high level of efficiency of the educational process and the improved level of autonomy offered to students. Especially its application in introductory accounting courses contributes to the formation of both a positive image and opinions about the accounting course, despite the fact that it is considered one of the most difficult courses during their studies.

As a teaching approach, it was found to be governed by university pedagogy with a student-centered orientation, while perfectly adapting to the modern needs of students, who are looking to engage with more digital educational tools.

Table 2: Application of the Flipped Classroom in Accounting Education

Paper	Abstract summary	Main findings
Du and Taylor (2013). Flipped classroom in first year management accounting unit—a case study.	The paper describes the implementation and experience of a flipped classroom approach in a first-year management accounting unit.	<ul style="list-style-type: none"> - The flipped classroom model allowed for more productive use of in-class time for discussion and application of the material. - Student preparedness and ability to self-manage their learning were key factors in the success of the flipped classroom approach. - The paper describes the process of redesigning and implementing the flipped classroom approach in a first-year management accounting course, including the development of supporting tools.
Van Niekerk and Delport (2022). Evolving flipped classroom design in a cost/management accounting module in a rural South African context	The flipped classroom design can improve student engagement and academic performance in rural accounting education contexts.	<ul style="list-style-type: none"> - A contextualized flipped classroom design is needed to improve student engagement and academic performance in rural settings. - Many students, particularly in rural areas, lack the contextual knowledge and integration skills required to be successful in accounting courses.

		<ul style="list-style-type: none"> - The flipped classroom approach has been proposed as a potential solution to improve student engagement by optimizing classroom time and providing opportunities for knowledge integration and application.
<p>Zhao and Dawod, (2023). Practical analyses on the flipped classroom approach to management accounting education.</p>	<p>The flipped classroom approach can stimulate students' learning autonomy and improve learning efficiency in management accounting education.</p>	<ul style="list-style-type: none"> - A large number of students recognized and believed the flipped classroom approach improved their learning efficiency and understanding of management accounting knowledge. - The effectiveness of the pre-class rehearsal or preparation is a key factor in the success of the flipped classroom approach, and optimizing the rehearsal content and tools is important to ensure student engagement.
<p>Lento,(2017). Incorporating whiteboard voice-over video technology into the accounting curriculum.</p>	<p>The paper describes a flipped classroom design for introductory financial accounting that promotes active learning.</p>	<ul style="list-style-type: none"> - The flipped classroom approach promoted active learning in the introductory financial accounting course. - There was a significant difference in student performance, as measured by final exams and overall course grades, between the lecture-based and flipped classroom courses.
<p>Williams <i>et al.</i>, (2019). Flipped v's traditional teaching perspectives in a first year accounting unit: An action research study.</p>	<p>The study examines student perspectives on the flipped classroom approach in a first-year accounting unit.</p>	<ul style="list-style-type: none"> - Flexible students were more engaged with and preferred the flipped learning approach compared to face-to-face students. - Flexible students felt they learned more with the flipped approach but enjoyed the class time less. - Face-to-face students were unsure if the flipped approach suited them better and were concerned about its impact on their exam performance.
<p>Duxbury <i>et al.</i>, (2016). Increasing active learning in accounting and finance by flipping the classroom.</p>	<p>The paper describes an experiment to incorporate the active learning pedagogy of "flipping the classroom" in undergraduate accounting and finance courses.</p>	<ul style="list-style-type: none"> - Flipping the classroom allowed professors to use class time for more active learning activities rather than just lecturing. - Perceived benefits of flipping the classroom included increased student-professor interaction, ease for students to make up missed material, and greater opportunity for professor guidance.

		<ul style="list-style-type: none"> - Perceived challenges of flipping the classroom included getting students to consistently watch videos before class and increased preparation time for professors to create the recorded lectures.
<p>Nugraheni <i>et al.</i>, (2022). How can flipped classrooms develop critical thinking skills?</p>	<p>Flipped classroom is a recommended approach for accounting courses in higher education as it has a positive impact on student learning.</p>	<ul style="list-style-type: none"> - The application of the flipped classroom (FC) approach in accounting courses in higher education is motivated by various learning problems, the weaknesses of traditional teaching methods, the desire to improve student learning experiences, and the advantages offered by the FC approach. - The implementation of FC in accounting courses involves various strategies, including pre-class activities (e.g., watching videos, taking quizzes), in-class activities (e.g., problem-solving, case analysis, discussion), and sometimes post-class activities (e.g., completing homework, watching video reviews). - The implementation of FC in accounting courses has been shown to have a positive impact on student learning performance, motivation, participation, interest, autonomous learning ability, communication and critical thinking skills, as well as student satisfaction.
<p>Phillips and Trainor (2014). Millennial students and the flipped classroom.</p>	<p>Millennial accounting students prefer interactive and experiential learning and are open to the flipped classroom approach.</p>	<ul style="list-style-type: none"> - Students are typically exposed to a lecture-based teaching approach but prefer more active and experiential learning methods. - Students who have not experienced the flipped classroom approach are open to it and recognize its potential benefits. - Students are exposed to a variety of teaching technologies in their accounting courses.
<p>Kottara <i>et al.</i>, (2024). The impact of educational technology on the academic performance of accounting students.</p>	<p>The study investigated the learning outcomes/performance, satisfaction, student retention level, and the effectiveness of blended teaching (flipped classroom).</p>	<ul style="list-style-type: none"> - Significant findings include correlations in the individual characteristics of students in the experimental class with their knowledge and skills. - A significant difference was found between the two classes, as students in the blended class (flipped

		classroom) felt greater satisfaction, achieved better learning outcomes, and were retained in the course, having intense engagement in the educational process.
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5. Conclusions

The flipped classroom is an aspect of the blended learning approach and requires lesson planning using educational technology and university pedagogy principles.

Innovative teaching approaches such as blended learning and the flipped classroom stimulate the creativity of both faculty and students as they are exposed to different perspectives while acquiring the skill set necessary for success in the accounting profession.

Face-to-face teaching is a more limited method, as the main sources of information are professors and books, as opposed to the flipped classroom, which relies on the integration of technology. Through this particular method, the learning experience is improved, making the lessons more realistic and experiential. At the same time, there is a greater interest from students in accounting, and this is achieved by stimulating their interest and commitment.

From all the research, it became clear that through the adoption of the flipped classroom, accounting professors become "lesson designers" by creating the appropriate educational material through the application of useful digital tools.

Today, it becomes necessary for accounting education to keep pace with technological innovation. Therefore, in the digital age we live in, it is necessary to improve teaching methods, making technology a dominant tool to support university education. The flipped classroom as a method gives students the opportunity to learn at their own pace (self-regulated learning) by using pause, rewind and stop video tutorials available in the educational process.

Among other things, in this research, it was found that the sharing of good practices in the academic community is very important. Therefore, the contribution of the present research through the presentation of the results of the application of the flipped classroom is important for university institutions and young researchers. It becomes clear that teaching and research are a circular and continuous process which offers, beyond knowledge and experience, a new perspective in accounting education for experiential and effective learning.

Conflict of Interest Statement

The author declares no conflicts of interest.

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