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Shaping the Future Through Business Education: Teaching Business Administration for Sustainable Higher Education

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Abstract

Higher education is increasingly focused on developing competencies beyond traditional academic content. Collaborative learning fosters academic achievement and promotes sustainable educational practices, helping students thrive in a dynamic and interconnected world. Professors now play a key role in creating environments where students actively engage in their own learning and development. This shift is especially evident when collaborative learning is used as a strategy for sustainability, encouraging lifelong learning and responsible citizenship. This study compared two teaching methodologies in a university business administration course. The results show that, in all cases, students in the collaborative group obtained higher averages. They also perceived greater teacher involvement in their learning process. These findings suggest that collaborative learning allows students to better assess the professor's role and engagement. Collaborative learning is not merely a collection of techniques but a pedagogical philosophy that redefines the teacher's role. As such, teacher training and institutional leadership must support long-term, reflective processes that foster student-centered attitudes and cultural change in universities. Faculty mindsets take time to evolve, and institutional culture plays a vital role in enabling or hindering change. Moreover, this study contributes to the literature by showing how collaborative learning, interpreted through the lens of transactional theory, enhances student perception of teacher involvement—highlighting the importance of mutual engagement and co-responsibility in business education settings.

Keywords: sustainable education; business administration; active role; teacher; attitude; higher education

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1. Introduction

In the face of escalating global challenges, the role of higher education has expanded beyond imparting knowledge to equip students with the skills and competencies necessary to address complex, interconnected issues. Among these challenges, the pursuit of sustainability has emerged as a critical objective, requiring innovative educational approaches that transcend traditional learning methods. Collaborative learning, characterized by active student engagement, peer-to-peer interaction, and shared responsibility in knowledge construction, has gained prominence as a strategy for fostering sustainable education (Zubaidah et al., 2023). Grounded in the principles of socio-constructivism, collaborative learning not only enhances academic performance but also prepares students for real-world problem-solving by cultivating interpersonal and systems-thinking skills (Chaudhuri et al.,

2023; Smith et al., 2024). Furthermore, the integration of interdisciplinary collaboration and partnerships between students and societal actors has been shown to amplify the impact of education for sustainable development (Weijzen et al., 2023). This paper explores how collaborative learning contributes to the broader agenda of sustainability in higher education, examining its potential to empower students as agents of change and to instill values aligned with sustainable development. Through an empirical lens, the study investigates students' perceptions of educators' roles in collaborative settings and their satisfaction with these approaches, highlighting the transformative potential of collaborative learning as a cornerstone of sustainability-oriented education (Rodríguez-Zurita et al., 2025).

It is undeniable that every educational innovation, like most innovations, arises from a social demand. In addition, it occurs because of changes in society to which we must adapt. Nowadays, it seems that the traditional teaching we know—where the spotlight falls on the teacher, with students working individually on a day-to-day basis and, in many cases, in a competitive environment, and where interaction between them is largely penalized—is not responding to today's needs of a global, multicultural, and diverse society. In this context, collaborative learning (CL) emerges as a methodology that tries to adapt to the changing needs of today's students. It is an instructional format in which students work together in small, structured, heterogeneous groups to master content (Dyson, 2001).

In the European Higher Education Area (EHEA), special attention is given to educational methodology as a way to achieve the objectives of integral development of students as skilled professionals and responsible citizens, able to meet and interact with the needs of the present and future society and, uniquely, to educational innovation. In parallel, it is important to shift the perspective on educational models, as we can highlight from UNESCO (2005) that higher education must adapt their structures and teaching methods to new needs: "This is a paradigm shift from focusing on teaching and imparting knowledge to one focused on learning and the development of transferable skills to different contexts in time and space." Resolution 74/223 of the United Nations General Assembly encourages and recognizes the importance of adopting science, technology, and innovation strategies as fundamental elements of national sustainable development strategies (UNESCO, 2019). Sustainable Higher Education (SHE) is a comprehensive concept that involves embedding sustainability principles into every dimension of university activities, including teaching, research, campus operations, governance, and community engagement. According to Filho et al. (2019), SHE goes beyond environmental concerns to encompass social equity, economic viability, lifelong learning, and ethical responsibility. For a university to be considered sustainable, it must integrate sustainability into its curricula across disciplines, promote interdisciplinary and socially relevant research (Tilbury, 2011), engage meaningfully with local and global communities (Leal Filho et al., 2020), and implement sustainable practices in campus management (Lozano, 2013). Additionally, SHE requires equitable access to education and a supportive institutional culture that embeds sustainability into governance and leadership (Stephens et al., 2008; Cortese, 2003).

In higher education, the role of the professor extends beyond imparting knowledge to foster environments where students actively engage in their own learning and development. This evolution is particularly evident in the adoption of collaborative learning as a strategy for sustainability. Collaborative learning emphasizes collaborative problem-solving, communication skills, and shared responsibility among students, aligning with the need to cultivate holistic competencies essential for addressing global challenges.

Collaboration plays a vital role in business education, especially within the context of globalization, where organizations increasingly rely on diverse teams to address complex challenges. Business students must be prepared to operate in environments that demand

cooperation across cultural, disciplinary, and geographical boundaries. Collaborative learning not only helps develop essential interpersonal and communication skills but also mirrors real-world business dynamics, where success often depends on the ability to work effectively with others. By fostering mutual understanding, shared problem-solving, and adaptability, collaborative approaches in the classroom prepare students for the realities of global business practices and leadership in multicultural settings.

Central to the success of collaborative learning is the proactive role of the professor. Beyond traditional lecturing, professors serve as facilitators who guide and support students in navigating group dynamics, fostering inclusive participation, and ensuring meaningful learning outcomes. Their engagement in promoting collaborative learning not only enhances academic achievement but also contributes to sustainable educational practices by nurturing a collaborative mindset among students.

This paper sets the stage for exploring how professors in higher education play a critical role in integrating collaborative learning as a sustainable strategy, thereby equipping students with essential skills for future professional and societal success. This requires extra effort and dedication from teachers, motivated by obtaining better returns from students (Gandía & Montagud, 2011) and understanding performance as a broad concept in which importance is not only given to a numerical rating but also to a learning process that allows the student to develop competencies, skills, and attitudes to prepare them for future society.

Contemporary educational practice demands that we seek new strategies in the articulation of lessons and the realization of educational aims. The role of institutions has been revised, as well as the roles of parents, teachers, and students. Nowadays, students' achievements are described and measured according to competencies. Some of these competences stand out as educational ideals: critical thinking, collaborative learning, assuming responsibility, and the ability to act as individuals and members of society (Jurinovic, 2016).

Therefore, collaborative learning breaks with the traditional methodology, in which the spotlight falls on the student, by changing their passive role to active subjects in their own learning. This change of role requires structural changes and a methodology based primarily on interaction with others, emphasizing a peer-to-peer, student-to-student learning process. Collaborative learning serves both as a signal and a strategic approach to achieving SHE. As a signal, the use of collaborative learning reflects a commitment to social sustainability by fostering inclusiveness, participation, and a respectful learning environment that values diverse perspectives (Barkley, 2010). It prepares students to navigate and contribute to a globalized world through teamwork and communication skills, which align with SHE's broader social and ethical goals. Strategically, collaborative learning supports the integration of sustainability into education by encouraging interdisciplinary engagement and problem-solving (Johnson & Johnson, 2013). It also cultivates essential lifelong learning skills such as critical thinking, adaptability, and self-regulation. Through collaborative projects and peer interactions, students develop the competencies necessary for community engagement and collective action, which are central to the mission of sustainable education (Freeman et al., 2014). Moreover, fostering collaboration within the classroom models the kind of cooperative institutional culture that sustains long-term commitments to sustainability (Healey, 2016). Collaborative learning, where students organized into groups join forces to learn, is often viewed as a particularly interesting and productive learning method in line with ESD goals. The atmosphere among pupils who learn through cooperation is characterized by positive interdependence, that is, they are aware of the fact that the only way for them to succeed is by joining forces (Jurinovic, 2016). It is well known that active learning methodologies can be effective strategies to promote such learning environments, hence increasing student engagement and motivation

(Fernández-Sánchez et al., 2014). Students' motivation is influenced by the extent to which their basic psychological needs for autonomy, competence, and relatedness are fulfilled (Cho et al., 2022; Ryan & Deci, 2017; Deci & Ryan, 2002). If students feel responsible for their own actions and behaviors, they feel autonomous. Moreover, if students feel that they are connected to other people, their attachment to others makes them feel related. Empirical research has shown that the satisfaction of these basic needs supports individuals' positive functioning, including self-determined motivation, psychological growth, well-being, subjective vitality, decreased burnout, and prosocial behaviors (González et al., 2017; Martela & Ryan, 2016).

The teacher's role is essential for supporting students' participation to enhance their learning, and it is the teacher's pedagogical practices that foster the development of these collaborative work habits (Ferguson-Patrick, 2018). Cooperative teacher participation in teacher education is of particular significance (Keogh et al., 2006) because, as the role of the teacher changes, so too does the role of students (Lirola, 2017; Olds & Heywood, 2005). Teacher cooperation has been described in a number of ways, three of which have become commonly accepted within the teacher education community: classroom placeholder, supervisor of practice, and teacher educator (Mitchell et al., 2007; Cornbleth & Ellsworth, 1994).

Higher education must encompass the acquisition of various competencies beyond mere content instruction. Certain collaborative activities can aid in developing social skills such as communication and teamwork, emphasizing the holistic education of students and meeting the demands of the labor market. (Lirola, 2017). Furthermore, higher education institutions should play an important role in ESD, fostering the learning of skills and values and preparing students for decision-making aimed at promoting a pluralistic development and sustainable societies (Laurie et al., 2016; Cebrián & Junyent, 2015; Fernández-Sánchez et al., 2014; Delors, 1996). The evolving needs of society necessitate that higher education institutions foster new forms of knowledge, skills, and responsibilities. This involves shifting from teacher-centered to learner-centered curricula, which transforms the roles of both teachers and students, the design of activities, and the implementation of educational approaches (Perkan Zeki & Sonyel, 2014). In some higher education courses that emphasize case studies, teachers can offer situated scenarios and problem-solving discussion tasks to enhance students' cognitive skills (Hou, 2011).

A lack of social skills in some students has been identified as a factor contributing to student misbehavior. Research indicates that collaborative learning promotes the development of social skills in students of all ages (Jordan & LeMetais, 1997). Collaborative learning environments provide a viable alternative for supporting the inclusion of students with lower initial skill levels (Lafont et al., 2017).

When students work together to solve a task, they are encouraged to share ideas, express their thoughts, and engage in discussion. Collaborative groups of students may face problems related to cognitive activities, such as misunderstandings of the task material. If these issues are not promptly addressed and resolved, the collaborative process can be impeded. The teacher plays a crucial role in monitoring and resolving these problems. To provide adaptive support, teachers must continuously stay aware of students' activities to identify relevant events that may require intervention (van Leeuwen et al., 2015).

Additionally, recent research exploring Jung's (1921) theory of personality has examined the relationship between students and teachers. Most studies in this area indicate that the identity of the teacher matters for student outcomes (Lakhal et al., 2012; Higgins & Luqing, 2009; Barr & Carr, 1979). However, other research suggests that students whose personality traits match those of their teachers do not necessarily perform better than those with different personality types (Örtenblad et al., 2017).

This study focuses on the perspective of teachers implementing collaborative learning strategies. While students' experiences and performance are undoubtedly central to understanding the impact of these methodologies, previous research has already addressed the students' side in detail. In two earlier publications (López Fernández-Escandón et al., 2025; Pérez Estébanez, 2017), we analyzed students' academic performance and perceptions in collaborative learning contexts. The present paper, therefore, aims to complement those findings by exploring how teachers experience and interpret collaborative learning in their own practice—an area that remains less frequently examined in the literature. Given these aims, this study draws on Dewey and Bentley's (1949/1991) theory of transaction, which views the organism-in-environment as a whole and enables the researcher to explore how actions within ongoing activities constitute movement culture. Dewey and Bentley's (1949/1991) transactional theory of learning supports analyzing actions within their context. Rather than viewing teacher and student roles as separate or fixed entities, the transactional perspective conceptualizes learning as a continuous process of mutual influence, where meaning is created through active participation and shared inquiry. This theoretical lens is particularly appropriate for exploring collaborative learning, as it frames the classroom not as a space of unidirectional knowledge transfer but as a site of interaction where both teachers and students are engaged in co-constituting the learning experience. The key concepts examined in this study—such as teacher attitude, student–teacher interaction, and collaborative engagement—are derived from this transactional framework, which views these elements as interdependent rather than isolated. For instance, the teacher's belief in collaborative learning does not function in a vacuum; it interacts with classroom practices, student responses, and institutional contexts to shape the overall learning environment. This study extends that body of work by adopting a transactional view that places equal emphasis on the teacher's epistemological stance and its impact on the learning process.

Applying this theory allows researchers to explore actions within ongoing activities and understand how these actions shape the surrounding movement culture (Ward & Quennerstedt, 2015, 2016). This paper provides a detailed analysis of the teacher's role during collaborative learning activities in higher education. Although the significance of the teacher in the success of collaborative learning is often acknowledged in the literature, there is a notable lack of detailed studies describing how teachers intervene in students' collaborative learning activities. This gap may reflect the ambivalent status of teachers in a field that has attempted to shift authority from teachers to students (Greiffenhagen, 2012). The paper focuses on the teacher's role in enhancing students' learning. The role of teachers in developing leadership skills involves delegating responsibility to student groups, adjusting leadership to the maturation levels of students, and creating pullout programs for leadership training (Ross & Smyth, 1995). While studying the impact of the application of collaborative techniques in higher education based on fundamental principles, which will be detailed later, this collaborative approach offers a variety of opportunities to develop skills and encourages a more dynamic environment that enhances students' motivation. These educational techniques are based on the belief that students learn not only because the teacher teaches but also because of the interaction that occurs between them and learning by doing, a direct consequence of the students' active engagement in the classroom.

This paper is also grounded in the socio-constructivist perspective, assuming that the teacher's interpersonal attitudes impact participants' knowledge construction. The goal of classroom intervention is to align both students' and teachers' roles with the constructivist model, placing less emphasis on educational resources based on repetition and instead reinforcing collaborative learning in the classroom (El-Deghaidy & Anastasiades, 2012;

Bermejo, 2008). In order to discuss and illustrate this perspective, the present paper contributes to an empirical evaluation of this view, exploring the differences in students' perception of and satisfaction with the attitudes of educators in two different contexts.

To understand the different variables studied in this research, this article continues in Section 2 with a literature review and theoretical foundation, as well as an overview of the characteristics of the educational models applied. The Section 3 presents the methodology used in this study. The Section 4 presents the results of the assessments of students, while the fifth presents the discussion of the results and, finally, the conclusions.

2. Theoretical Framework

Recent research highlights the growing importance of collaborative learning in higher education as a pivotal strategy for addressing complex global challenges and promoting sustainable education practices. Collaborative learning fosters active student engagement, peer interaction, and shared responsibility, which not only enhances academic achievement but also equips students with interpersonal and problem-solving skills essential for addressing sustainability-related issues. For instance, Zubaidah et al. (2023) found that collaborative learning significantly improves both academic performance and interpersonal skills in higher education environments, as demonstrated in their study at Universitas Ma Chung. Similarly, Chaudhuri et al. (2023) emphasized how social media facilitates collaborative learning, creating a platform for knowledge exchange and interaction that supports sustainable educational practices. Their research highlights the moderating roles of knowledge creators and seekers in leveraging social media for sustainability-focused learning. Collaboration extends beyond peer interactions to interdisciplinary teamwork, which is vital for addressing the multifaceted nature of sustainability. Smith et al. (2024) explored interdisciplinary collaboration in project-based learning within higher education and found that such approaches effectively prepare students to tackle sustainability challenges by fostering systems thinking and cross-disciplinary understanding. Vocational education has also adopted collaborative learning to integrate sustainability. Weijzen et al. (2023) discussed how partnerships between students and societal actors in vocational settings enhance both practical knowledge and a commitment to sustainable practices. Similarly, Rodríguez-Zurita et al. (2025) provided a bibliometric analysis of service learning and community engagement, emphasizing their impact on promoting sustainability in higher education through active collaboration with local communities.

Learning can be treated as a formative change that explores the cognitive, affective, and effective domains in knowing, doing, and being. It is therefore evident that teaching–learning processes are complex, and it is necessary to specify certain elements of this complex context for teacher improvement efforts. One of these elements is to differentiate between two processes that may appear similar but are not: teaching and mediation. However, these concepts do not have to be at odds, since they may be complementary, such that the latter is an extension of the former. Teaching, as Contreras (2003) posed, is a deliberate process of teaching, bringing the student to a purpose of knowledge, which is to be interpreted and understood by him in a meaningful way. However, delving into the concept of education, mediation is understood as the process by which a person is formed or is becoming, through the deliberate organization of social activities. Thus, teachers who assume the role of mediators not only present various knowledge-based cognitive content but also create, develop, and implement strategies that promote the integration and activation processes of student learning, so that they can incorporate and assimilate knowledge while fostering both effective and affective development. Beyond that, Aldrup et al. (2018) found that there is a link between classroom disturbances or disciplinary problems and teacher well-being

if the teacher–student relationship functions as a mediator. Making use of teacher–pupil interaction in a collaborative learning process facilitates learning opportunities (Van Gorp & Van den Branden, 2015). A relationship in which the expert carries all the weight of the performance and, gradually, the learner takes control of the situation is what Kozulin (2002) named self-regulation, defining it as the students' ability to integrate the new knowledge that leads to autonomy and self-regulation of their own behavior. The teacher's role then is to be a mediator and facilitator of learning. Collaborative learning and inquiry-based pedagogies often present a new paradigm for teachers in which their traditional role as expert content givers shifts to one of facilitation and coaching (Warfa et al., 2014).

After looking at the past and understanding how the education system is structured and under what principles the methodology that we all know as traditional learning (TL) was designed, it is time to look ahead and find out that, at present, the needs of today's society are others; citizens demanding modern society should have other skills and abilities to function properly in it, understanding that social interaction is fundamental to human learning. According to Negro et al. (2012), we have to start thinking about a new school where the principles are different and where the objectives, the structure of relations, the concept of the student, and the role of teachers change. Collaborative methodology includes these principles since it involves a method of teaching that welcomes the active participation of students and, hence, the interaction between students by organizing small mixed and heterogeneous groups to work together in a coordinated manner to solve educational activities and thus deepen their own learning.

Many research studies have shown that CL strategic lines and techniques applied in the classroom improve the academic performance of students and the development of skills and abilities (Kwon & Woo, 2018; Pérez Estébanez, 2017; Johnson & Johnson, 2013; Slavin, 1991; S. Sharan, 1990, 2002; Y. Sharan, 2010; Johnson et al., 2000). Moreover, research has proven that active and collaborative learning methodologies are very much appreciated by students, thereby increasing their commitment, involvement, and satisfaction (Murillo-Zamorano et al., 2019). However, there are other studies with antagonistic conclusions where the results do not show conclusive differences between both teaching methods, such as Pérez Estébanez (2017), Hosal-Akman and Simga-Mugan (2010), Lancaster and Strand (2001), Ravenscroft and Buckless (1997), or Marcheggiani et al. (1999). In several significant studies, teachers involved in collaborative learning programs believed that such initiatives enabled students across various ability levels to enhance motor skills, develop social competencies, collaborate effectively as a team, assist others in skill improvement, and take responsibility for their own learning. Moreover, both teachers and students share similar perceptions of collaborative learning programs (Sun & Yuan, 2018; Dyson, 2001; Koutselini, 2008).

Martín-Pérez and Barba (2016) examined an educational experience involving collaborative learning in a rural school setting and assessed its impact on teacher transformation. Their findings underscore that interactions during meetings and among students in the classroom facilitate significant learning of valuable competencies, laying a solid foundation for knowledge, fostering strong motivational connections, and addressing educational challenges. Furthermore, both teachers and students hold similar perceptions of collaborative learning across categories such as student roles, accountability, communication skills, teamwork, and practice time (Dyson, 2001). Reviewing the literature reveals several key themes regarding teachers' experiences with collaborative learning. Casey (2014) identified five major findings: changes experienced by teachers, challenges related to time and difficulty, diversification of teachers' roles, evidence of effectiveness, and collaboration between universities and teachers.

Furthermore, Guskey (2002) suggested that educators' interpersonal attitudes are linked to learners' mental attitudes. Hands-on experiences of teachers in collaborative

learning can be directly applied and transferred to their classrooms. Specifically, a collaborative approach appears conducive to constructing new knowledge (Mate et al., 2011). Frisby and Martin (2010) found that teacher immediacy behaviors directly influence students' perception of class enjoyment. Additionally, research by Fung and Lui (2016) indicated that students experience greater cognitive growth when engaged in collaborative learning activities within Vygotsky's zone of proximal development framework. They highlighted that effective group learning occurs when teachers guide students during the joint construction of conceptual knowledge.

Hypotheses

Therefore, the teacher's attitude is decisive in a learning context, and education can be better performed in a collaborative learning environment than in a traditional learning scenario, so the next hypothesis follows:

Hypothesis 1 (H1) : *The teacher's attitude has a greater positive impact on the development of students' skills and competences in a collaborative learning context than in a traditional learning context.*

This is decomposed into eight hypotheses to better understand the different aspects of the importance of the teacher's attitude in teaching:

H1a: *Students perceive that the teacher explains more clearly in the context of collaborative learning than in a traditional learning environment.*

H1b: *Students perceive that the teacher's assistance is higher in the context of collaborative learning than in a traditional learning environment.*

H1c: *Students perceive that the teacher is more motivated in the context of collaborative learning than in a traditional learning environment.*

H1d: *Students perceive that the teacher's attitude is better in the context of collaborative learning than in a traditional learning environment.*

H1e: *Students perceive that the teacher's engagement is higher in the context of collaborative learning than in a traditional learning environment.*

H1f: *Students perceive that the teacher communicates more efficiently in the context of collaborative learning than in a traditional learning environment.*

H1g: *Students perceive that the teacher has better proactive communication in the context of collaborative learning than in a traditional learning environment.*

H1h: *Students perceive that the teacher is more involved in their learning than at the average university.*

3. Materials and Methods

The aim of this research was to study, from the students' point of view, whether the teacher's attitude is more positive when students are in a collaborative learning environment than in a traditional one. The students' perception of and satisfaction with the teacher's involvement in class is an emerging perspective (Brown, 2019) that can help to understand the role of the teacher, as well as their attitude.

3.1. Research Design

This study followed a quantitative survey research design to examine whether students perceive a more positive teacher attitude in a collaborative learning environment compared to a traditional learning setting. The research focused on students' perception of and satisfaction with teacher involvement, an emerging field that helps to understand the teacher's role and attitude in the classroom (Brown, 2019). The teacher's role, involvement, and attitude are fundamental to any teaching methodology and significantly influence the dynamics of the classroom.

3.2. Participants and Sampling

This study was conducted over one academic quarter (from October 2023 to January 2024) with first-year Financial Accounting students enrolled in a Computer Science degree at the Complutense University of Madrid. One hundred and ten students participated, randomly assigned into two groups: treatment group (47 students), exposed to collaborative learning strategies, and control group (63 students), following a traditional learning approach. The sample can be considered quasi-random, as the students were assigned to two different groups by the university's administrative office during the course registration process. This allocation was entirely independent of the researchers and based solely on scheduling logistics. Importantly, the decision to assign Group A as the control group and Group B as the intervention group was made without any prior knowledge of the students' individual characteristics. As such, the study design minimized the risk of selection bias and ensured that group assignment was free from any form of researcher influence or subjective judgment.

Currently, engineering education is undergoing significant transformations to meet modern professional demands (Meijers & den Brok, 2013; Watts et al., 2013). This shift makes it essential to apply and evaluate new learning methodologies.

3.3. Data Collection

Both groups followed the same course syllabus, using identical textbooks and lecture materials. The instructor provided PowerPoint slides before each lecture via the virtual campus. However, the teaching approach differed between groups:

Control group: The instructor solved the assigned problems while students observed.

Treatment group: Students worked in collaborative groups to solve the same assigned problems.

The problems assigned in both groups were identical, ensuring that the only variable under analysis was the learning methodology. During the final part of the semester, the treatment group used the jigsaw technique to learn the last topic, while the control group received a traditional lecture-based explanation.

3.4. Measures/Instrumentation

To assess students' perceptions of teacher involvement and attitude, a short questionnaire was developed. The survey included 8 items measured on a 5-point Likert scale, ranging from 1 to 5, where 1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = totally agree. These items were designed to capture key teacher characteristics, such as:

Teacher clarity (T_c): The ability to explain content and activities clearly.
Teacher assistance (T_a): The level of support provided in understanding new concepts.
Motivation (T_m): Whether the teacher enjoys lecturing.
Teacher attitude (T_att): The ability to create a comfortable and enjoyable learning environment.
Engagement (T_g): Whether the teacher facilitates student engagement with the subject.

Efficient communication (T_ec): The teacher's ability to encourage a desire for learning and research.
Proactive communication (T_pc): Whether the teacher conveys enthusiasm for the subject to students.
Involvement (T_i): The extent to which the teacher is more engaged in students' learning compared to the average university.

The eight variables tried to explain the different characteristics a teacher has to have, such as the clarity of the teacher in their explanations, the level of assistance, the level of motivation, the positive attitude of the teacher, their level of participation, the level of efficient and proactive communication and, finally, their involvement in the learning context (see Table 1). The variable Teacher clarity (T_c) refers to the capacity to explain the content and development activities clearly; Teacher assistance (T_a) refers to the way the teacher helps to understand new concepts; Motivation (T_m) refers to whether the teacher enjoys lecturing; Attitude of teacher (T_att) refers to the way the teacher creates a comfortable and enjoyable climate during the classes; Engagement (T_e) refers to whether the teacher makes the subject easy; Efficient communication (T_ec) refers to whether the teacher spreads the desire to learn and research; Proactive communication (T_pc) refers to whether the teacher conveys enthusiasm to their students; and, finally, Involvement (T_i) shows if the teacher has been more involved in students' learning than the average university.

Table 1. Description of the variables.

Variables	Code	Description	Values
Teacher clarity	T_c	The teacher explains the content and development activities clearly	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Teacher assistance	T_a	The teacher helps to understand new concepts	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Motivation	T_m	The teacher enjoys lecturing	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Attitude	T_att	The teacher makes the classes more comfortable and enjoyable	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Engagement	T_e	The teacher facilitates student engagement with the subject	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Efficient communication	T_ec	The teacher spreads the desire to learn and research	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Proactive communication	T_ec	The teacher conveys enthusiasm	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.
Involvement	T_i	The teacher is more involved in students' learning than at the average university	1 = totally disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = totally agree.

Source: Authors' own elaboration.

The reliability of the survey was tested using Cronbach's alpha, which resulted in a coefficient of 0.921, exceeding the commonly accepted threshold of 0.7, confirming the internal consistency of the questionnaire.

3.5. Data Analysis

At the end of the semester, one hundred completed surveys were collected: 42 responses from the treatment group and 58 responses from the control group. This represents an overall response rate of 80% (78% for the treatment group and 80% for the control group).

Since the data did not follow a normal distribution, a Mann–Whitney U-test was conducted to assess differences in mean scores between the two groups.

4. Results

The results show that, in all cases, the average was higher in the CL group than in the TL group. The difference was statistically significant in all variables except for the variables Engagement of teacher (T_e) and Efficient communication of teacher (T_ec) (see Table 2). Thus, in this study, the results indicate that students can better assess the degree of involvement of teachers in their learning when collaborative learning techniques are applied.

Table 2. Differences between collaborative and traditional learning regarding the teacher's attitude.

	CL GROUP		TL GROUP					
Variable	Mean	Sum of Ranks	Mean	Sum of Ranks	Mann–Whitney U	Wilcoxon W	Z-value	*p*-value
T_c	58.71	2466	44.55	2584	873	2584	−2.737	0.006
T_a	55.77	2342.5	46.68	2707.5	996.5	2707.5	−1.719	0.086
T_m	57.96	2434.5	45.09	2615.5	904.5	2615.5	−2.28	0.023
T_att	45.09	2615.5	43.47	2521	810	2521	−3.007	0.003
T_e	54.54	2290.5	47.58	2759.5	1048.5	2759.5	−1.259	0.208
T_ec	55.14	2316	47.14	2734	1023	2734	−1.45	0.147
T_pc	57.8	2427.5	45.22	2622.5	911.5	2622.5	−2.276	0.023
T_i	60.75	2551.5	43.08	2498.5	787.5	2498.5	−3.137	0.002

Source: Authors' own elaboration. Grouping variable: CL = 0; TL = 1.

The assessment of the teacher's attitude was consistently higher in the experimental group across all measured variables: T_c (−2.737), T_a (−1.719), T_m (−2.28), T_att (−3.007), T_e (−1.259), T_ec (−1.45), T_pc (−2.276), and T_i (−3.137). These findings suggest that students are better able to perceive the teacher's level of involvement in their learning when collaborative learning (CL) techniques are used.

Specifically, the CL group reported significantly greater teacher clarity (mean = 58.71) compared to the traditional learning (TL) group (mean = 44.55), with a Z-value of −2.737 and $p = 0.006$. Although the difference in teacher assistance was not statistically significant ($p = 0.086$), both groups appeared to receive similar support in understanding new concepts.

Motivation was significantly higher in the CL group ($Z = -2.28$, $p = 0.023$), indicating that students perceived their instructor as more enthusiastic. Similarly, the CL group found classes more enjoyable ($Z = -3.007$, $p = 0.003$).

No significant differences were found in participation levels ($p = 0.208$), suggesting comparable engagement in class discussions and activities across groups. Efficient communication also showed no significant difference ($p = 0.147$), implying similar encouragement for learning and research in both groups.

However, proactive communication was notably higher in the CL group ($Z = -2.276$, $p = 0.023$), reflecting greater perceived enthusiasm and engagement from the instructor. The most pronounced difference was observed in teacher involvement ($Z = -3.137$, $p = 0.002$), with the CL group perceiving their teacher as more actively involved in their learning process.

5. Discussion

The results show that, in all cases, the average was higher in the CL group than in the TL group. The difference was statistically significant in all variables except for the variables Engagement of teacher (T_e) and Efficient communication of teacher (T_ec). Thus, in this

study, the results indicate that students can better assess the degree of involvement of teachers in their learning when collaborative learning techniques are applied.

Various findings in the literature motivated our study. Table 3 summarizes the hypotheses advanced in this study.

Table 3. Summary of the hypotheses.

Hyp.	Description	Results
H1a	Students perceive that the teacher explains more clearly in the context of collaborative learning than in a traditional learning environment.	Supported
H1b	Students perceive that the teacher's assistance is higher in the context of collaborative learning than in a traditional learning environment.	Not Supported
H1c	Students perceive that the teacher is more motivated in the context of collaborative learning than in a traditional learning environment.	Supported
H1d	Students perceive that the teacher's attitude is better in the context of collaborative learning than in a traditional learning environment.	Supported
H1e	Students perceive that the teacher's engagement is higher in the context of collaborative learning than in a traditional learning environment.	Not Supported
H1f	Students perceive that the teacher communicates more efficiently in the context of collaborative learning than in a traditional learning environment.	Not Supported
H1g	Students perceive that the teacher has more proactive communication in the context of collaborative learning than in a traditional learning environment.	Supported
H1h	Students perceive that the teacher is more involved in their learning than at the average university.	Supported

Source: Authors' own elaboration.

Clearly, the assessment of the teacher's attitude was higher in the experimental group. This indicates that students can better assess the degree of involvement of the teacher in their learning when applying CL techniques. This fact encourages a more relaxed, confident, and willing attitude of the students, evidencing that working on and improving their affective aspects also develops the effective and cognitive aspects. The findings suggest that the teacher's participation and role within the virtual community are crucial for enhancing the quality of learning. The interaction between teacher and students facilitates valuable learning opportunities, as emphasized by Van Gorp and Van den Branden (2015), Hertz-Lazarowitz (2007), and Turvey (2006). However, this perspective contrasts with arguments put forth by de Kock et al. (2005). Moreover, factors such as the personality of the teacher can affect their way of teaching, particularly in terms of the level of involvement, in line with theories exposing that it does matter who teaches (Lakhal et al., 2012; Higgins & Luqing, 2009; Barr & Carr, 1979).

Specifically, the collaborative group scored significantly higher than the TL group in teacher clarity. This suggests that students in the CL group perceived their instructor as clearer in explaining content and structuring activities, in line with (Fung & Lui, 2016), who found that instructor clarity enhances student comprehension and engagement in STEM disciplines.

The difference in teacher assistance was not statistically significant, indicating that both groups received similar levels of help in understanding new concepts; however, Chi (2009) emphasized that explicit assistance is critical but must be paired with active learning strategies.

Ryan and Deci (2000) demonstrated that intrinsic motivation in instructors correlates with higher student engagement, as obtained in our study, because Motivation was significantly higher in the CL group, implying that students in this group perceived

their instructor as more enthusiastic. The CL group also scored higher in making classes more enjoyable, highlighting the importance of an engaging and welcoming classroom atmosphere. Frisby and Martin (2010) found that teacher immediacy behaviors directly affect students' perception of class enjoyment. As Kuh (2001) noted, engagement is influenced more by institutional policies than by individual instructors. In our results, there was no significant difference in the engagement levels, suggesting that both groups experienced similar engagement in discussions and activities. There were no significant differences in efficient communication, indicating that both groups received a similar level of encouragement for learning and research. Nevertheless, Mazer et al. (2007) emphasized the role of communication styles in student learning outcomes. In line with Wheeless and Grotz (1977), proactive communication was significantly higher in the CL group, showing that this group perceived their instructor as more enthusiastic and engaged. The most significant difference was in teacher involvement, with the CL group perceiving their instructor as more involved in student learning. This is in line with Tinto (1993), who highlighted the critical role of faculty involvement in student academic success.

According to Casey (2014), engaging in collaborative learning brings about changes in teachers' attitudes, fostering positive feelings, efficacy, enthusiasm, and vigor. However, becoming comfortable with collaborative learning may require considerable effort and time.

Similarly, Jordan and LeMetais (1997) observed that while their study period was relatively short for making broad claims, they found evidence of social growth among students. Social interactions became more varied, and students were willing to collaborate in assigned groups. Previously isolated students showed improved interpersonal relationships with both their peers and the teacher. There were also observable benefits in terms of student behavior, with group roles fostering increased task focus and, in some cases, positively influencing the behavior of challenging students.

Moreover, Fung and Lui (2016) highlighted that group work learning is most effective when teachers guide students in jointly constructing conceptual knowledge. Therefore, evidence shows that in general, students' satisfaction, which is an increasing topic as stated by Brown (2019), is higher in a collaborative context that involves more teachers with their class.

While this study did not focus on fully online teaching environments, it is important to acknowledge that collaborative learning takes on distinct characteristics when mediated entirely through digital platforms. Online contexts often limit the immediacy of interpersonal communication, requiring greater intentionality in designing collaborative tasks and maintaining engagement. Prior research has highlighted both the potential and the challenges of fostering meaningful collaboration in virtual environments. For instance, Harasim (2012) emphasized the need for structured online interaction to support knowledge building, while Ma (2024) pointed out that online collaboration demands a reconfiguration of teacher roles, particularly in guiding group dynamics and promoting active participation. Furthermore, the design of online collaborative activities must be sensitive to issues such as digital access, group cohesion, and asynchronous participation (Martin et al., 2020). Although these considerations fall outside the scope of the present study, future research could build on our findings to examine how teachers adapt collaborative learning strategies in fully online models and whether their perceptions differ in that context.

6. Conclusions

This study highlights the central role of teachers' attitudes, preparations, and sustained commitment in the effective implementation of collaborative learning methodologies in higher education. It contributes to academic discussions by shifting the focus from student

outcomes to the beliefs, practices, and professional dispositions of educators. The findings suggest that teacher buy-in is not only desirable but also essential, as collaborative learning cannot be reduced to isolated techniques; it requires a pedagogical shift supported by a coherent teaching philosophy. The application of collaborative learning methodologies is increasingly seen as an educational innovation, with more schools incorporating it into their teaching practices. However, its implementation in higher education remains limited. According to Quic and Cardona (2020), while collaborative learning has been recognized for its potential to enhance student engagement and foster deeper learning, its widespread adoption in higher education is still in the early stages. Similarly, Barceló et al. (2023) highlighted that, despite growing interest in cooperative learning strategies within universities, the actual application of such methodologies is still relatively rare, particularly in more traditional academic settings. Obviously, it cannot be implemented overnight; it is necessary to have previous training by teachers who give them the necessary tools to develop strategies and properly orient the learning required. Implementing the complete methodology in a group without having a prior basis on group cohesion significantly hinders the achievement of the goals of this methodology. As Dyson (2001) argued, the collaborative learning instructional format holds much promise, but its implementation will likely not be smooth or without trouble. The methodology offers many alternatives and adaptations. It not only consists of a series of activities, techniques, and strategies to use in the classroom aimed at specific results, but its essence lies in a general philosophy: a proactive teacher attitude and the belief that interaction between students and teacher–students allows students to focus on learning through collaborative values. This approach allows students to cognitively process knowledge meaningfully, promoting their holistic development.

Keeping in mind that teamwork, learning to cooperate, and cooperating to learn only provide long-term results, the teacher guides this journey, leaving the students free to individually develop their different skills, encouraging them to share in the pursuit of synergies, create a climate of trust and respect, and systematically seek solutions to conflicts and learn from every mistake. In short, to achieve the aims of collaborative learning, the teacher must believe in it. In the same line as Palmquist and Finley (1997), it is possible to make positive changes in preservice teachers' views in a teaching program in which contemporary teaching strategies such as collaborative learning are taught.

Some may think that only using collaborative techniques in group learning amounts to mere didactic resources. However, there is a difference that distinguishes a habitual didactic resource from a collaborative technique, and this uniqueness is the responsibility of the teacher. The previous work in the design and proposal of each technique is fundamental, since the objectives of each must be defined coherently to correspond to a collaborative session, and the teacher must persevere in the collaborative work—in each activity, in each session, and throughout the whole course. The teacher must bear in mind that working as a team, learning to cooperate, and cooperating to learn will only offer long-term results. Finally, and as it has been underlined at various moments throughout this research, the role, involvement, and attitude of the teacher are crucial elements for achieving the aims pursued with each teaching innovation focused on the effectiveness of student learning and their overall development. Certainly, it is this positive and proactive attitude that creates a climate of classroom determination and, directly or indirectly, influences each student to promote their progress in competencies and values, ultimately increasing students' satisfaction with the teacher, the subject, and their learning. Indeed, this forges sufficiently relevant roots to allow outstanding personal growth. To sum up, it may be time to renew our interest in the work of teachers in the analysis of collaborative learning activities.

Although this study was conducted in a face-to-face (or blended) context, the findings raise important questions about the role of collaborative learning in fully online teaching models. In digital environments, factors such as reduced non-verbal communication, reliance on technology, and asynchronous interactions may influence both how teachers facilitate collaboration and how students experience it. Future research should examine whether the challenges and strategies identified by teachers in this study hold true in fully online settings, and how digital tools can be leveraged to support meaningful collaboration remotely.

This study reinforces the argument that collaborative learning should not be treated merely as a set of didactic techniques, but rather as a comprehensive pedagogical philosophy that redefines the role of both teachers and students. Thus, academic programs that prepare university educators—particularly in preservice and ongoing professional development—must place greater emphasis on reflective practice, belief systems, and the cultivation of proactive, student-centered attitudes. Institutionally, the findings underscore the need for universities to invest in long-term training processes that prepare faculty to engage with collaborative methodologies meaningfully. This involves more than offering isolated workshops; it requires systemic support, including time allocation for course redesign, peer mentoring, and the establishment of communities of practice. University leadership must recognize that teacher attitudes do not shift overnight and that institutional culture plays a key role in either enabling or hindering pedagogical innovation. Policies should therefore prioritize sustained and supported transitions toward collaborative models of instruction, especially in traditionally rigid academic environments. Teacher training must move beyond isolated workshops to include sustained and reflective engagement with collaborative pedagogy. Institutions should recognize the time and effort required for the successful implementation of these methodologies and provide structural conditions that encourage experimentation and pedagogical innovation. Additionally, curriculum designers and academic leaders should consider embedding collaborative learning across disciplines, promoting a more consistent and coherent experience for students. At a broader level, promoting collaborative learning through committed and well-prepared educators contributes to a more democratic and participatory educational culture. When teachers model cooperation, openness, and reflective practice, they foster classrooms grounded in mutual respect and active learning. This not only benefits students' social development but also reshapes the social role of the teacher—from transmitter of knowledge to facilitator of collective inquiry. Ultimately, such pedagogical shifts can ripple outward, influencing how higher education institutions fulfill their civic mission.

Regarding limitations, we can argue that these results are only from the point of view of the students who clearly preferred a collaborative learning context because they participated more. They felt more implicated in their own education and also perceived higher teacher involvement. In addition, the sample was small, which limits the conclusions of the study. Future research should explore in greater depth the formation, evolution, and impact of teachers' attitudes toward collaborative learning in higher education. Longitudinal studies could examine how educators' beliefs and practices change over time, particularly when supported by targeted training or institutional interventions. Comparative studies might analyze differences between faculty members who adopt collaborative methods and those who resist them, identifying underlying factors such as disciplinary culture, teaching experience, or perceived institutional support. Moreover, qualitative approaches such as interviews, teaching diaries, or classroom ethnographies could provide rich insights into the reflective processes through which teachers engage with, adapt, or reject collaborative learning frameworks. Finally, research should address how teachers' attitudes influence not just classroom dynamics

but also broader curricular and institutional transformations toward more inclusive and participatory forms of education.

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Institutional Review Board Statement: This non-interventional study involved fully informing all student participants about its purpose, data collection process, intended data use, and their voluntary, anonymous, and risk-free participation. According to Royal Decree 53/2023 (Spain), ethical approval is not required for

- educational innovation projects within a course;
- opinion surveys that do not collect psychological or health-related data.

This study meets both criteria: It gathered students' opinions without sensitive data and was part of an educational innovation project (PIMCD No. 173), titled "Application of New Cooperative and Competitive Learning Methodologies in Theoretical and Practical Classes of Financial Accounting and Cost Accounting," conducted at Complutense University of Madrid. Additionally, the study adhered to international ethical standards, including

- the Declaration of Helsinki (respect for individuals, integrity, and transparency);
- the Belmont Report (respect, beneficence, and justice);
- best practices such as informed consent, voluntary participation, confidentiality, and responsible data use.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study. Verbal informed consent was obtained from all participants for both participation and publication. All responses were anonymized to ensure privacy.

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