

Active Teaching Strategies and Their Impact on Academic Motivation in University Students in Hybrid Learning Environments

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Abstract

This study examines the impact of active teaching strategies on the academic motivation of university students engaged in hybrid learning environments. Using a mixed-methods approach, quantitative data were collected through standardized questionnaires, while qualitative data were obtained through semi-structured interviews. The sample included 280 students and 12 faculty members from various Ecuadorian universities. The findings indicate that methodologies such as problem-based learning, flipped classroom, and collaborative learning positively influence intrinsic motivation, self-regulated learning, and student engagement. Additionally, autonomy, meaningful peer interaction, and contextualized content emerged as key factors in fostering more dynamic and stimulating learning environments. The study concludes with practical recommendations for strengthening pedagogical design in hybrid modalities, aiming to enhance the quality and relevance of higher education learning experiences.

Keywords: *active strategies, academic motivation, higher education, hybrid learning, participatory methodologies.*

Introduction

In recent decades, higher education has undergone significant transformations driven by technological advancements, shifts in student profiles, and more recently, the pedagogical demands imposed by the COVID-19 pandemic. One of the most notable effects has been the consolidation of hybrid learning environments, which combine face-to-face and virtual strategies to meet the needs for flexibility, accessibility, and educational continuity (Garrison & Vaughan, 2008).

However, these new scenarios have also revealed tensions related to students' academic motivation, a fundamental component of success in higher education. Recent research (Schunk et al., 2019; Rodríguez & Vega, 2021) warns that traditional methodologies, centered on unidirectional content delivery, are insufficient to stimulate interest and active participation, especially in technology-mediated environments.

In response to this challenge, active teaching strategies such as problem-based learning (PBL), flipped classroom, gamification, and collaborative learning have gained momentum. These methodologies are grounded in constructivist and participatory approaches, positioning students as active agents in their learning process and fostering critical thinking, self-regulation, and intrinsic motivation (Prince, 2004; Bonwell & Eison, 1991).

This study is situated within this context of pedagogical transformation and seeks to answer the following question: How do active teaching strategies influence the academic motivation of university students in hybrid learning environments?

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Using a mixed-methods approach, this research analyzes student and teacher perceptions regarding the use of these strategies and their effect on various motivational dimensions. The study not only contributes empirical evidence to an emerging issue in contemporary higher education but also provides guidance for didactic redesign in hybrid contexts, with the aim of promoting more meaningful, inclusive, and sustainable learning experiences.

Theoretical Framework

Active Teaching Strategies in Higher Education

Active teaching strategies represent a student-centered methodological approach that promotes participation, critical reflection, and meaningful knowledge construction. Unlike the traditional model, these strategies shift the teacher's role from content transmitter to learning facilitator. According to Bonwell and Eison (1991), active methodologies assume that "students must do more than just listen; they must read, write, discuss, or engage in problem-solving activities" (p. 2).

These methodologies are grounded in constructivist principles, which view learning as an active process of meaning-making, mediated by social interaction and context. Prince (2004), in his systematic review of active learning, states that "there is substantial empirical evidence showing that active strategies enhance information retention, academic performance, and student satisfaction" (p. 223).

Among the most widely used strategies are problem-based learning (PBL), flipped classroom, gamification, and collaborative learning. These methodologies foster the development of higher-order cognitive skills and create a dynamic and participatory learning environment. As Díaz Barriga (2022) and Rodríguez & Vega (2021) explain, the systematic use of these strategies in university education provides an effective pedagogical response to the challenges of autonomous learning and student demotivation.

Academic Motivation: Conceptualization and Dimensions

Academic motivation is a complex psychological construct that directly influences a student's willingness to initiate, sustain, and complete learning activities. Deci and Ryan (1985), through Self-Determination Theory, distinguish three types of motivation: **intrinsic**, when the activity is performed for its own sake; **extrinsic**, when it is driven by external rewards or pressures; and **amotivation**, when there is no intention to act at all.

According to these authors:

"When social conditions support autonomy, competence, and relatedness, individuals experience greater intrinsic motivation, psychological well-being, and optimal performance" (Deci & Ryan, 1985, p. 61).

From this perspective, active strategies have the potential to positively influence intrinsic motivation by offering meaningful tasks, fostering autonomy, and enabling enriching social interactions. Pintrich and Schunk (2002) further add:

"Academic motivation does not only refer to the desire to learn, but also to the student's beliefs about their ability to do so and the value they assign to the content" (p. 48).

This integrative view allows for understanding motivation as a **multidimensional phenomenon**, where emotional, cognitive, and contextual factors converge.

To measure this construct, the **Academic Motivation Scale (AMS)** by Vallerand et al. (1992) has been widely used in empirical studies, as it accurately identifies levels of motivation across its various forms.

Hybrid Learning Environments: Challenges and Opportunities

The **hybrid teaching model**, also known as **blended learning**, has gained significant relevance in higher education as a modality that combines face-to-face instruction with virtual experiences, allowing for greater flexibility and personalization of learning. Garrison and Vaughan (2008) conceptualize hybrid learning as

"the intentional integration of face-to-face and online presence, with the aim of enhancing educational quality" (p. 5).

However, the effectiveness of hybrid learning largely depends on **instructional design** and the **appropriate use of technological tools**. Schunk et al. (2019) warn:

“In the absence of clear pedagogical strategies, hybrid environments may increase the risk of isolation, demotivation, and dropout” (p. 119).

Therefore, the incorporation of **active methodologies** in hybrid contexts represents not only an innovation but a **necessity** to maintain student engagement. Zambrano, Molina, and Espinoza (2020) identify that students who participate in active learning activities in hybrid settings experience a greater **sense of belonging and academic engagement**, significantly reducing dropout rates.

In summary, the interrelationship between **active teaching strategies**, **academic motivation**, and **hybrid learning environments** constitutes a priority research field for improving the quality of university education in the 21st century.

Methodology

Research Approach

This study adopts a **mixed-methods approach**, integrating both quantitative and qualitative elements with the aim of achieving a broad and in-depth understanding of the impact of **active teaching strategies** on **academic motivation** in **hybrid university settings**. This approach allows for the triangulation of numerical data with contextual narratives, thus strengthening the **validity and reliability** of the findings (Creswell & Plano Clark, 2018).

Methodological Design

The design follows a non-experimental, cross-sectional exploratory-descriptive study, with a correlational component in the quantitative phase and a phenomenological design in the qualitative phase. The aim is to describe student perceptions and analyze the relationship between the implementation of active strategies and levels of academic motivation in hybrid learning environments.

Participants

The sample consisted of **280 university students** and **12 university professors**, from **Education, Engineering, and Social Sciences** programs at three Ecuadorian universities. A **non-probabilistic convenience sampling** method was used, based on criteria such as: being enrolled in courses delivered in a **hybrid learning modality** and having participated in **at least one active teaching strategy** during the semester.

Table 1. Type of Participant

Type of Participant	N	Percentage
Students	280	95.9%
Teachers	12	4.1%
Total	292	100%

Data Collection Techniques and Instruments

Quantitative Phase

A structured questionnaire adapted from the **Academic Motivation Scale (AMS)** by Vallerand et al. (1992) was administered. This instrument has been previously validated in Latin American contexts. It consists of **28 items** organized into **three dimensions: intrinsic motivation, extrinsic motivation, and amotivation**, using a **5-point Likert scale** (1 = strongly disagree; 5 = strongly agree). The reliability index obtained was $\alpha = 0.89$.

To ensure transparency of the instrument's content, **Table 2** presents representative examples of items for each of the evaluated dimensions.

Table 2. Dimensions and Representative Items from the Applied AMS Questionnaire

Assessed Dimension	Brief Description	Ejemplo de ítem representativo
Intrinsic Motivation	Desire to learn out of interest, pleasure, or personal satisfaction	“Because I enjoy learning new things even if they are not mandatory.”

Assessed Dimension	Brief Description	Ejemplo de ítem representativo
Extrinsic Motivation	Behavior driven by rewards, grades, or external recognition	"Because getting good grades helps me get a good job."
Amotivation	Lack of intention or meaning in completing academic tasks	"I feel that attending classes makes no sense."

Source: Adapted from Vallerand et al. (1992).

Qualitative Phase

Semi-structured interviews were conducted with both teachers and students, focusing on their experiences with active methodologies in hybrid learning environments. The questions revolved around their perceptions of engagement, autonomy, participation, and the influence of these strategies on their interest and academic performance.

Procedure

The research was conducted during the first semester of the 2025 academic year, following institutional ethical protocols. Informed consent was obtained from all participants, and anonymity and data confidentiality were guaranteed.

The questionnaire was administered digitally and self-completed through secure online forms. The interviews were recorded, transcribed, and later coded.

Data Analysis

Quantitative data

SPSS v.26 software was used for statistical analysis. Descriptive statistics (means, standard deviations) and inferential analysis (Pearson correlation and ANOVA) were applied to determine the relationship between active strategies and levels of motivation.

Qualitative data

NVivo 12 software was used for content analysis. Through a process of open and axial coding, emerging categories were identified related to the perception of active strategies and their motivational effect. Triangulation between sources and researchers contributed to the credibility of the analysis.

Results

Quantitative Results

Descriptive statistical analysis showed that students who participated in hybrid environments with active teaching strategies reported significantly higher levels of academic motivation, particularly in the dimension of intrinsic motivation.

- The overall mean for intrinsic motivation was 4.12/5 (SD = 0.64), compared to a mean of 3.24/5 (SD = 0.83) among students who reported having received conventional or lecture-based classes.
- The strategies most strongly associated with high motivation levels were Problem-Based Learning (PBL) (M = 4.31), flipped classroom (M = 4.22), and collaborative learning (M = 4.15).

Intrinsic Motivation by Active Strategy Used

(Note: If you include a table or graph, title it in English as "Figure 1. Intrinsic Motivation by Active Strategy Used").

Let me know if you want help drafting the table or graph that might accompany this section.

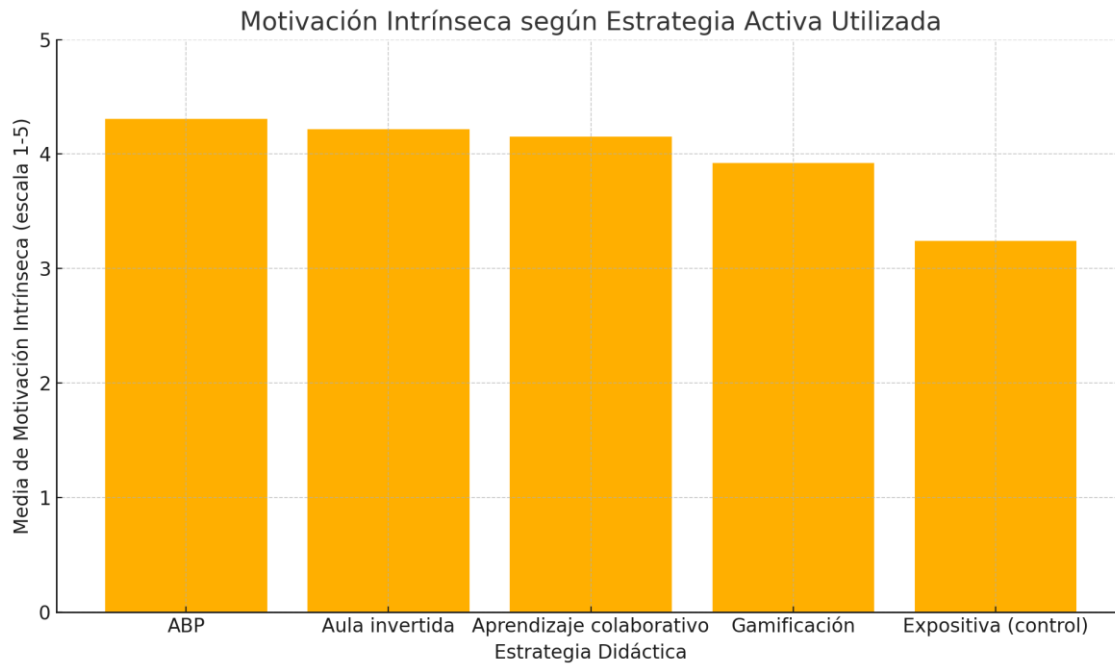


Figure 1. Intrinsic Motivation by Active Strategy Used

Source: Own elaboration based on study data.

The inferential analysis using ANOVA showed statistically significant differences in academic motivation levels according to the implemented strategy ($F = 9.71$, $p < 0.001$). Additionally, a moderate positive correlation was found between the frequency of implementation of active strategies and intrinsic motivation ($r = 0.54$, $p < 0.001$).

Figure 2. Correlation Between Frequency of Use of Active Strategies and Intrinsic Motivation

Source: Own elaboration based on study results.

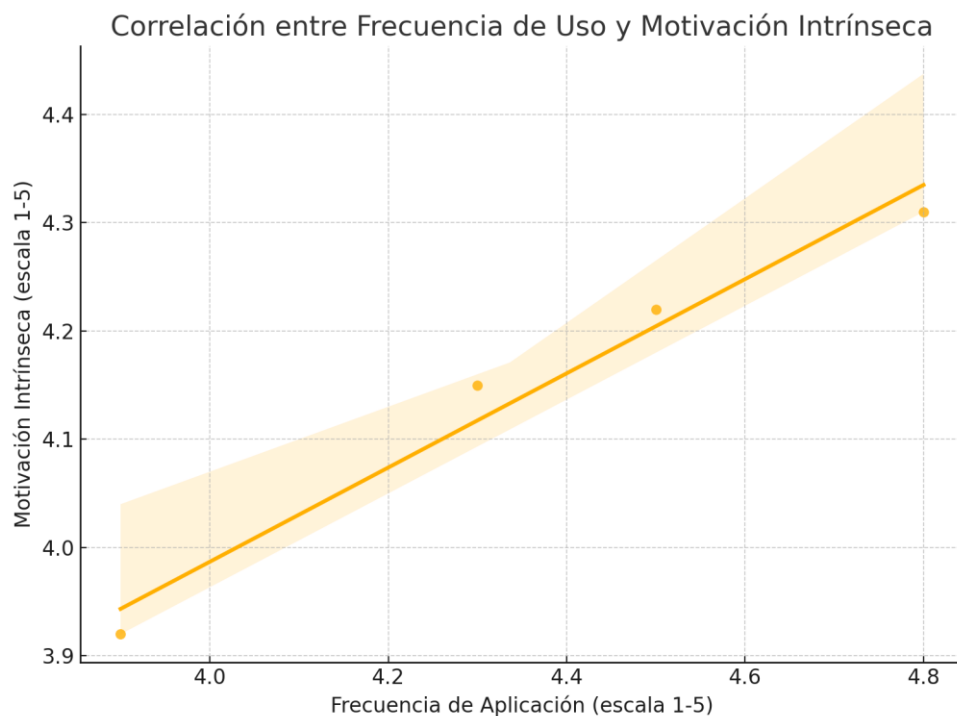


Table 1. Academic Motivation Averages According to Active Strategy Used

Active Strategy	Intrinsic Motivation (Mean)	Extrinsic Motivation (Mean)
Problem-Based Learning (PBL)	4.31	3.89
Flipped Classroom	4.22	3.81
Collaborative Learning	4.15	3.74
Gamification	3.92	4.11
Expository (Control)	3.24	3.33

These results indicate that active strategies particularly foster **intrinsic motivation**, whereas traditional methodologies are more closely linked to **extrinsic motivation** or even **amotivation**.

Qualitative Results

The analysis of the semi-structured interviews allowed for the identification of three emerging categories related to the perception of active strategies and their motivational impact: learning autonomy, sense of belonging, and content relevance.

Autonomy in Learning

Students positively valued the fact of “having a more active role” and being responsible for their own learning process. One student expressed:

“When we do projects or solve real cases, I feel like I truly learn. It motivates me to know that I’m not just listening, but doing.”

Sense of Belonging and Participation

Collaborative activities strengthened the sense of community and reduced the isolation typical of virtual environments:

“I feel more engaged when working in groups. I know my contributions matter, and that makes me want to participate more.” (S3, interview)

Relevance of Content

The use of real or contextualized problems increased students’ interest in academic content:

“It’s not the same to look at theory in slides as it is to analyze a real problem from my community. That connects me and motivates me to keep studying.” (S7, interview)

These perceptions align with the quantitative data and reinforce the idea that the experiential and participatory component of active strategies creates a more meaningful and motivating learning environment.

Triangulation of Results

Methodological triangulation made it possible to contrast the quantitative findings with student narratives. Both data sources agree that the implementation of active strategies in hybrid environments enhances academic motivation, especially when elements of participation, autonomy, and contextual relevance are integrated. This convergence strengthens the validity of the study’s conclusions.

Discusión

The results obtained in this research demonstrate that the implementation of active teaching strategies in hybrid university environments significantly and positively influences students’ academic motivation, particularly in the dimension of intrinsic motivation. This finding supports what was proposed by Deci and Ryan (1985) in their Self-Determination Theory, which states that meaningful learning is enhanced when the basic psychological needs of autonomy, competence, and relatedness are fulfilled.

El rol de la autonomía y la participación activa

Strategies such as problem-based learning and the flipped classroom promote active student participation, which translates into higher levels of engagement and self-regulation, as also identified in recent studies (Díaz Barriga, 2022; Rodríguez & Vega, 2021). In line with these authors, students who take on a leading role in their learning tend to experience greater satisfaction and motivation to face academic challenges.

Qualitative findings revealed that autonomy in learning is perceived as a key motivational factor. This perception aligns with previous research highlighting the value of offering students opportunities to make decisions, explore content flexibly, and assume responsibilities (Schunk et al., 2019).

The Importance of a Sense of Belonging in Hybrid Environments

The qualitative data revealed a recurring theme: the sense of belonging generated through collaborative activities. In hybrid environments, where isolation is a latent threat, this aspect is crucial to sustaining motivation. Garrison and Vaughan (2008) had already pointed out that meaningful interaction in hybrid settings requires pedagogical intentionality and strategies that promote co-construction of knowledge.

Peer interaction and the opportunity to work in teams contribute to the development of affective and cognitive bonds, which act as protective factors against dropout and demotivation (Zambrano et al., 2020).

Contextual Relevance and Meaningful Learning

Another important finding is the perception of content relevance when active strategies are related to real-life problems or those close to the student's context. This reinforces the value of the constructivist approach, where knowledge is built from meaningful and contextualized experiences (Vygotsky, 1978; Jonassen, 1999).

The connection between content and everyday life not only increases motivation but also strengthens knowledge transfer, as proposed by the experiential learning paradigm (Kolb, 1984).

Pedagogical Implications

The findings of this research suggest that the implementation of active methodologies in hybrid environments should not be seen as an optional resource, but rather as an urgent pedagogical necessity to meet the characteristics of new generations of students. This entails challenges for teacher training, curriculum design, and the strategic use of technology.

Furthermore, higher education institutions must promote an academic culture that values didactic innovation and provides structural conditions—such as time, resources, and training—so that faculty can plan, implement, and evaluate active strategies systematically and effectively.

Conclusions

This study demonstrated that the implementation of active teaching strategies in hybrid learning environments has a positive and significant impact on university students' academic motivation. Methodologies such as problem-based learning (PBL), flipped classroom, and collaborative learning particularly contribute to the development of intrinsic motivation, increasing student participation, engagement, and sense of agency in their learning process.

Quantitative results show strong correlations between the frequency of these strategies and motivation levels, while qualitative data highlight the importance of factors such as autonomy, sense of belonging, and contextual relevance of learning. This convergence confirms the need to rethink pedagogical practices in higher education, particularly in hybrid contexts that combine virtual and face-to-face modalities.

Moreover, it is reaffirmed that the hybrid model, far from being a temporary solution, should be strengthened through a transformative pedagogical approach that fosters innovation, inclusion, and meaningful learning.

Recommendations

For university professors

- Design student-centered learning experiences by systematically incorporating active methodologies, rather than as isolated elements.
- Promote peer assessment, collaborative work, and the use of digital resources that enhance participation and autonomy.
- Conduct ongoing assessments of student motivation to adjust teaching strategies according to their needs.

For higher education institutions

- Invest in continuous teacher training focused on active methodologies and their adaptation to hybrid environments.
- Establish institutional policies that encourage pedagogical innovation, recognize good practices, and provide structural conditions for implementation.
- Ensure equitable access to technology and connectivity so that all students can benefit from hybrid learning.

For future research

- Expand the sample to include universities from different regions and disciplines to obtain comparative data.
- Conduct longitudinal studies to analyze the relationship between active strategies, motivation, and academic performance over time.
- Explore the role of emotional intelligence, self-regulation, and teacher support as mediating variables in student motivation.

Limitations of the Study

- Although the findings of this research provide significant evidence on the relationship between active teaching strategies and academic motivation in hybrid learning environments, it is necessary to acknowledge certain limitations that may influence the interpretation and generalization of the results.
- First, the study was based on a non-probabilistic convenience sample, composed of students and professors from three Ecuadorian universities. Therefore, the results are not generalizable to the entire university population of the country or to other regions with different institutional characteristics.
- Second, a self-report instrument was used, which may introduce social desirability bias or subjective perception in the responses. Although methodological triangulation techniques were applied, this remains an inherent limitation of cross-sectional studies with a non-experimental design.
- Finally, as this was a cross-sectional study, perceptions were captured at a specific point in time, making it impossible to establish causal relationships or observe changes in motivation over time. It is recommended that future research adopt longitudinal designs to analyze the evolution of the motivational impact of active strategies.

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