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Active learning trends among high school students: a literature review in Latin America

Tendencias del aprendizaje activo en estudiantes de secundaria: una revisión de literatura en América Latina

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Abstract

This article investigates trends in active learning in secondary education in Latin America between 2021 and 2025, highlighting its importance in contexts characterized by educational inequalities and learning crises. The literature review included 50 studies, in which three main dimensions were identified: social interaction, constructivist learning, and autonomous learning. These active approaches promote school participation, critical thinking, and self-regulation among students, which strengthens both academic performance and social-emotional skills. Advantages were found in collaborative learning, as well as in project-based learning and the use of digital technologies, which have increased motivation, inclusion, and engagement with specific problems. However, problems remain in terms of teacher resistance, deficiencies in continuing education, and structural constraints (infrastructure, resources, and digital divides), especially in vulnerable contexts. The study concludes that, in order to consolidate active learning as a sustained pedagogical practice over time, it is necessary to coordinate educational policies, teacher training programs, and longer-term regional research. This review provides relevant evidence that guides innovations in secondary education and contributes to progress toward more equitable and student-centered education in Latin America.

Keywords: active learning, secondary education, educational strategies

Resumen

El presente artículo investiga las tendencias del aprendizaje activo en la educación secundaria en América Latina entre 2021 y 2025, y destaca su importancia en contextos caracterizados por desigualdades educativas y crisis de aprendizaje. La revisión bibliográfica incluyó 50 estudios, en los cuales se identificaron tres dimensiones principales: interacción social, aprendizaje constructivista y aprendizaje autónomo. En estos enfoques activos se promueve la participación escolar, el pensamiento crítico y la autorregulación de los alumnos, lo que fortalece tanto el rendimiento académico como las habilidades socioemocionales. Se constataron ventajas en el aprendizaje colaborativo, así como en el aprendizaje por proyectos y el uso de tecnologías digitales, que han aumentado la motivación, la inclusión y la vinculación a problemas específicos. Sin embargo, subsisten problemas de resistencia docente, deficiencia en la capacitación continua y restricciones estructurales (infraestructura,

recursos y brechas digitales), especialmente en contextos vulnerables. El estudio concluye que, para consolidar el aprendizaje activo como una práctica pedagógica sostenida en el tiempo, es necesario articular políticas educativas, programas de capacitación para docentes e investigaciones regionales más prolongadas. Esta revisión aporta evidencia relevante que orienta las innovaciones en la enseñanza secundaria y contribuye a avanzar hacia una educación más equitativa y centrada en el estudiante en América Latina.

Palabras clave: aprendizaje activo, educación secundaria, estrategias educativas

Introduction

Active learning has been extensively studied in recent years as one of the most significant methodologies, particularly in the educational field and especially in secondary education. Its focus is on the active participation of students, with the aim of transcending traditional memorization-based teaching models and fostering critical thinking, problem-solving, and collaboration (Freeman et al., 2021). In Latin America, a region characterized by profound learning gaps and socioeconomic inequalities, this approach takes on particular relevance, as it responds to the urgent need to ensure meaningful and relevant learning for adolescents.

The research problem that motivates this study centers on the lack of systematic evidence regarding how active learning strategies have been implemented among secondary school students in Latin America over the past five years. Although there are local studies and diverse case studies, a gap persists concerning regional trends that would allow for the identification of similarities, common challenges, and distinctive contributions in the various contexts of the region. In this sense, the absence of updated reviews constitutes an obstacle to guiding educational policies and teacher training programs that promote pedagogical innovation across different educational levels, primarily in secondary education.

This topic is relevant as it is directly linked to the educational crisis facing Latin America. This is evidenced by the results of the Program for International Student Assessment (PISA): more than 60% of 15-year-olds in the region do not reach minimum competencies in mathematics or reading comprehension, reflecting a lag compared to other regions of the world (Saavedra & Regalia, 2023). These results worsened following the COVID-19 pandemic, which led to school closures and exacerbated inequalities in access to and retention in secondary education (OECD, 2022). In light of this situation, active methodologies represent an opportunity to reactivate learning, strengthen student motivation, and promote educational equity.

The theory underlying this work is grounded in the principles of constructivism, a pedagogical approach that posits that knowledge is actively constructed through the interaction of the student with their environment (Piaget, 1970; Vygotsky, 1978). Additionally, the contributions of experiential learning by Dewey (1938) are highlighted, emphasizing the importance of practical experience as a pathway to achieving lasting learning. Today, these approaches are articulated in concrete methodologies such as project-based learning (PBL), collaborative learning, the STEAM (science, technology, engineering, arts, and mathematics) approach, and the incorporation of socio-emotional competencies into the curriculum (Chávez-Martínez & Salazar-Jiménez, 2024). These categories constitute the main axes of analysis of this article.

The research background shows significant advancements. For instance, in Peru, Retto Martínez (2023) indicates that the application of PBL in secondary education correlates significantly with students' progress in areas such as active citizenship. In Mexico, Hernández-Ramos and Aguilar (2022) assert that collaborative learning in digital environments strengthens critical thinking and self-regulation. In Argentina, experiences from technical schools reported by the Roberto Rocca Foundation illustrate how the STEAM approach enhances creativity and innovation among secondary education students (García & Ponce, 2021). Additionally, comparative studies indicate that implementation faces recurring limitations, such as resistance to methodological change from some educators, lack of technological resources, and absence of continuous training programs (UNESCO, 2022).

The analysis of the Latin American context reinforces the relevance of this study. Secondary education in the region is under strain from multiple factors: low educational investment, urban-rural inequalities, increasing school dropout rates, and a system that, in many cases, prioritizes expository teaching over the construction of meaningful learning (CEPAL, 2023). Simultaneously, demographic transitions show that adolescents represent a strategic sector for the economic and social development of countries, making it crucial to ensure quality secondary education to break the intergenerational cycle of poverty (Banco Mundial, 2023).

In this framework, the present article seeks to answer the following question: What are the current trends in active learning among secondary school students in Latin America between 2021 and 2025?

Accordingly, the general objective is established as follows: to analyze the trends in active learning among secondary school students in Latin America through a review of literature published between 2021 and 2025. Specific objectives include identifying the most employed active methodologies at the secondary level in the

region, examining reported effects on academic performance, motivation, and socio-emotional competencies, and describing the challenges and limitations faced in implementing active learning across various Latin American contexts.

Methodology

This research is bibliographic in nature, understood as a systematic process of collecting, organizing, and analyzing published sources that address a specific topic, in this case, active learning in secondary school students. According to Arévalo and Díaz (2022), bibliographic research allows for the identification of trends and gaps in knowledge, which contributes to grounding the analysis and enriching the understanding of educational phenomena within a comparative framework.

This study was developed under a documentary approach. According to Castro and Paredes (2023), documentary studies facilitate access to scientific and technical information from various academic sources, as well as indexed databases, digital repositories, reports from international organizations, and specialized literature. In this context, the central objective was to analyze the trends in active learning among secondary school students in Latin America through a review of literature published between 2021 and 2025.

The main variable considered was active learning, defined as a student-centered methodology in which students assume a leading role, actively participating in the construction of knowledge and strengthening cognitive, social, and emotional competencies (Ramírez & Ochoa, 2024).

The analyzed dimensions were:

- Social interaction
- Constructivist learning
- Autonomous learning

The information collected was analyzed using content analysis techniques, which allowed for the organization of the reviewed studies into subcategories based on common patterns identified in the literature (Krippendorff, 2022).

The procedure was developed in three phases: selection and critical reading of texts published in indexed journals and scientific repositories between 2021 and 2025; identification of thematic patterns linked to pedagogical practices, methodological strategies, and outcomes related to active learning in Latin American secondary education; and interpretative synthesis, which highlighted similarities, divergences, and knowledge gaps, serving as a basis for formulating grounded recommendations.

The search for sources and the application of inclusion/exclusion criteria were conducted in databases such as Scielo, Redalyc, Google Scholar, ProQuest, and Scopus. Combinations of keywords were used: "active learning," "secondary education," "Latin America," and "educational strategies."

Inclusion criteria were applied for articles published between 2021 and 2025, in Spanish, English, or Portuguese, that addressed experiences, trends, or reflections on active learning in secondary education; exclusion criteria were applied for studies focused on higher or primary education, duplicate documents, non-academic reviews, and non-peer-reviewed literature.

Figure 1

Selection process of analyzed articles using PRISMA format

Results and discussion

The findings obtained from the 50 selected studies are grouped into three main dimensions: social interaction, constructivist learning, and autonomous learning.

Active learning is recognized as a transformative pedagogical proposal, as it redefines memorization-based instruction and promotes reflective and collaborative participation. This approach suggests activities such as debates, problem-solving, interdisciplinary projects, simulation-based learning, case studies, and the use of interactive technologies. In the Latin American context, where educational systems face challenges related to inequality, student motivation, and academic lag, these methodologies have proven to be key in promoting deeper and more sustainable learning (González et al., 2022).

Social interaction is the foundation of active learning, as it drives communication, collaboration, and shared knowledge construction. Research conducted in Mexico and Ecuador (Vargas Castillo, 2023; Pacheco et al., 2023) shows that group work, idea discussion, and meaning negotiation enhance academic motivation and strengthen cohesion within the school community.

A relevant aspect found in recent literature is that social interaction in secondary education not only stimulates active participation but also promotes inclusion and respect for cultural diversity. In Chile, Muñoz and Herrera (2022) studied how collaborative classroom environments generate higher levels of peer trust, which directly impacts the improvement of school coexistence and academic achievement. Similarly, studies in Colombia highlight that assertive communication between teachers and students fosters emotional self-regulation and commitment to academic tasks (Salazar & Álvarez, 2023).

Complementarily, the use of digital technologies, such as online forums, simulations, and collaborative platforms, has enhanced interaction opportunities, creating hybrid spaces that extend discussions beyond the traditional classroom. These findings reinforce that social interaction is not only a pedagogical component but also a mechanism for socio-emotional development in adolescents.

In the second dimension, constructivist learning is understood as the ability of students to construct knowledge based on prior experiences and new learning situations. Various authors agree that this approach strengthens motivation and academic performance, as it connects curricular content with real-world issues, making them meaningful (Cáceres & Alvarado, 2024).

In the Latin American context, research demonstrates that the application of strategies such as project-based learning and problem-based learning in secondary education not only increases conceptual understanding but also promotes critical thinking and creativity (Murrieta et al., 2023). For example, studies conducted in Peru reveal that PBL applied in science areas enables students to develop early investigative competencies related to solving community problems (López & Fernández, 2022).

This finding aligns with Vygotsky's notions of the zone of proximal development, where the teacher, rather than merely transmitting information, acts as a mediator of learning. In practice, this means that the student becomes the primary agent of their educational process, while the teacher assumes a facilitating role, demonstrating that constructivist approaches are consolidating as one of the central axes of pedagogical innovation for secondary education in Latin America.

For the third dimension, autonomous learning is significantly relevant within the findings, as it implies that students take responsibility for managing their learning, developing skills in self-regulation, self-confidence, and metacognition. Thus, Contreras and colleagues, cited by Peinado (2023), indicate that autonomy in secondary education is directly related to the ability to plan tasks, monitor progress, and reflect on achievements and difficulties. These processes allow students to become lifelong learners, capable of adapting to varied contexts.

Moreover, Espín et al. (2024) assert that autonomous learning is closely linked to self-esteem and the ability to face academic challenges independently. In various studies conducted in schools, it was observed that incorporating strategies such as digital portfolios, self-assessments, and learning journals stimulates self-reflection and strengthens confidence in one's abilities (Viteri & Jiménez, 2023). With this evidence, it can be affirmed that autonomy is not an isolated process; rather, it is articulated with social interaction and constructivism, forming an integral pedagogical ecosystem that fosters the development of critical, reflective, and responsible citizens.

The literature review highlights that active learning methodologies in secondary education in Latin America have positive effects in three key areas: social interaction, which improves communication, inclusion, and student engagement; constructivism, which connects curricular content with real situations, favoring critical thinking; and autonomy, which promotes self-regulation and responsibility in learning. All these results demonstrate that active learning not only contributes to academic performance but also strengthens socio-emotional skills, digital competencies, and attitudes of critical citizenship.

The analysis of the reviewed literature on the trends of active learning among secondary school students in Latin America reveals significant agreements regarding the need to rethink traditional pedagogical practices towards student-centered methodologies.

First, the results indicate that social interaction is a key element for enhancing learning, as it forms the basis of active participation and academic motivation. As noted by Vargas Castillo (2023) and Pacheco et al. (2023), strengthening assertive communication and establishing healthy relationships within the school community create more collaborative environments, promoting better educational performance. These findings align with those of Hernández and López (2022), who emphasize that peer interaction increases the sense of belonging and group cohesion, which directly affects learning achievements.

Moreover, constructivist theory constitutes the predominant conceptual framework that supports active learning practices. According to Cáceres and Alvarado (2024), this approach stimulates not only intrinsic motivation but also students' ability to relate curricular content to real-life situations, which is crucial in the Latin American context, where various educational systems face limitations in resources and structural inequalities. In this line, Murrieta et al. (2023), drawing on Vygotsky's contributions, highlight the importance of social and cultural mediation in knowledge construction. Thus, the review shows that active learning practices, based on interaction and problem-solving, respond to the current demands of forming critical, creative students capable of navigating complex environments.

Similarly, a fundamental dimension of active learning, mentioned by Contreras and cited by Peinado (2023), links this capacity to processes of self-regulation and metacognition, which are crucial in developing independent students in their academic journeys. Additionally, the research by Espín et al. (2024) underscores the importance of self-esteem and the role of the social environment in constructing autonomous learning. However, challenges in fostering this autonomy persist, as many Latin American educational contexts maintain rigid structures that limit students' ability to make decisions about their own educational process. Cedeño and Ramos (2021) caution that the lack of teacher training and the prevalence of standardized assessments are barriers to the full development of academic autonomy.

A critical point that arises in the discussion is the urgent need for teacher training for the effective implementation of active learning methodologies. While studies highlight their benefits, several authors (Hernández & López, 2022; Zárate & Jiménez, 2023) agree that many teachers lack methodological tools to redesign their classes based on participatory strategies. This deficiency is even more evident in rural areas and marginalized communities, where access to technological resources and teaching materials is limited. Therefore, the review suggests that the success of active learning depends not only on the student but also on educational policies that strengthen ongoing teacher training. Additionally, structural challenges are identified that condition the applicability of active learning in Latin America. Overcrowding in classrooms, scarce resources, and digital divides hinder the creation of collaborative environments and equitable access to meaningful experiences. Rojas and Martínez (2022) indicate that socioeconomic inequalities directly influence the level of autonomy that students can achieve, as those from vulnerable backgrounds often face external limitations that reduce their active participation. These findings suggest that active learning, more than an isolated strategy, should be conceived as part of an integral educational project that articulates social inclusion, pedagogical innovation, and institutional support.

Finally, it is important to note that the review highlights a gap in regional comparative research. Most of the analyzed studies are conducted in local or institutional contexts, without providing a broad overview of the implementation of active learning in Latin America. This absence limits the possibility of identifying general patterns or assessing the impact of these methodologies in different educational systems. In this regard, Torres and Guzmán (2025) propose the need for longitudinal and multicentric studies that allow for a more precise measurement of the effects of active learning on the development of 21st-century competencies in secondary students.

Conclusions

In conclusion, the discussion emphasizes that active learning has consolidated as a transformative approach in Latin American secondary education, favoring social interaction, constructivism, and student autonomy. However, its success requires overcoming structural barriers, strengthening teacher training, and fostering broader regional research. These elements are essential to ensure that current trends in active learning become sustainable practices adapted to the cultural and social diversity of Latin America.

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