

Multiple perspectives on learning styles based on a systematic review

Perspectivas múltiples sobre los estilos de aprendizaje a partir de una revisión sistemática

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Abstract

The purpose of this article is to analyze the multiple perspectives on learning styles in basic education, based on a systematic review using the PRISMA methodology. Within this framework, a search range was established between the years 2020 and 2025, which was the main inclusion criterion for the search in the SciELO and Google Scholar databases. The advanced search was performed using the Boolean operator AND, excluding all information that did not meet the defined criteria, focusing the analysis on the terms "learning styles" and "learning theories." An effort was made to identify approaches with diverse perspectives within the education sector, without considering the country or context of the studies as an exclusion criterion. Only articles written in languages other than Spanish were discarded, in order to facilitate a better understanding and approach to the content. The final selection included a total of 23 papers, which propose a worldview on different ways of learning. The findings reveal that teachers can adapt their methodologies to enhance student academic performance, considering their individual needs, as well as the affective and cognitive components involved in the learning process.

Keywords: learning, educational context, approaches.

Resumen

El presente artículo tiene como objetivo analizar las múltiples perspectivas sobre los estilos de aprendizaje en el ciclo de educación básica, a partir de una revisión sistemática empleando la metodología PRISMA. En este marco, se estableció un rango de búsqueda comprendido entre los años 2020 y 2025, constituyendo este el principal criterio de inclusión para la indagación en las bases de datos SciELO y Google Académico. La búsqueda avanzada se realizó mediante el uso del operador booleano AND, excluyendo toda información que no respondiera a los criterios definidos, centrando el análisis en los términos "estilos de aprendizaje" y "teorías de aprendizaje". Se procuró identificar enfoques con diversas perspectivas dentro del sector educativo, sin que el país o contexto de desarrollo de los estudios fuera considerado un criterio de exclusión. Únicamente se descartaron artículos escritos en idiomas distintos al español, con el fin de facilitar una mejor comprensión y abordaje del contenido. La selección final incluyó un total de 23 trabajos, en los cuales se propone una cosmovisión sobre las distintas formas de aprender. Los hallazgos revelan que el profesorado puede adaptar sus metodologías para potenciar el rendimiento académico del estudiantado, considerando sus necesidades individuales, así como los componentes afectivos y cognitivos involucrados en el proceso de aprendizaje.

Palabras clave: aprendizaje, contexto educativo, enfoques.

Introduction

The learning styles adopted by students can significantly determine their academic performance. This premise has motivated multiple studies aimed at identifying the ways in which young people learn, with the goal of generating guidelines to enhance educational processes. David Kolb (1984) and Howard Gardner (1983) have been pioneers in this field with their theories of experiential learning and multiple intelligences, respectively. Kolb proposes that learning is a cyclical process involving four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Gardner, on the other hand, identifies various intelligences, each representing a distinct way of processing information. These theories have been widely adopted and adapted in different educational contexts worldwide, providing a framework for understanding variations in students' learning preferences (Kolb, 1984; Gardner, 1983).

Kolb (1984) emphasizes learning as a dynamic process that allows educators to address the different stages—experiencing, reflecting, conceptualizing, and applying—to meet students' needs according to their learning styles. For example, some students excel in the active experimentation phase by preferring hands-on work and empirical learning, while others are distinguished by their analytical abilities during reflective observation. Adopting this perspective fosters a more dynamic and adaptive educational environment.

Regarding the theory of multiple intelligences, Gardner (1983) revolutionized the traditional view of intelligence as a singular, linear concept. By recognizing multiple ways of processing information, his approach enables educators to enhance the individual strengths of each student. This not only facilitates the design of more inclusive teaching strategies but also strengthens students' self-esteem and self-efficacy by allowing them to learn according to their natural talents.

Regionally, Latin America has shown a growing interest in learning styles. Recent research in countries such as Mexico (Pérez, 2021), Brazil (Silva, 2020), and Colombia (Gómez, 2019) has analyzed how socioeconomic and cultural factors influence learning preferences. Pérez (2021) demonstrated that socioeconomic differences significantly affect students' preferences in Mexico. Silva (2020) highlighted the influence of cultural diversity in Brazil, while Gómez (2019) in Colombia emphasized the importance of adapting pedagogical strategies to the specific needs of students to improve their academic performance. These studies are particularly relevant for Ecuador, as they share similar sociocultural contexts, offering valuable insights for addressing differences in learning styles.

An additional study conducted by Villacís et al. (2020) evaluated 130 students in the city of Manta, Ecuador. The results indicated that 45.0% of the students were at a moderate level for the theoretical style, 49.2% utilized the reflective style at a high level, 46.2% preferred the pragmatic style at a high level, and 45.4% applied the active style moderately.

Learning styles are understood as cognitive and physiological traits used to facilitate learning. Their relevance in the educational field lies in their ability to adapt teaching methodologies to student well-being. These styles can be classified based on personal traits, environmental preferences, and social interactions (Barria et al., 2022). The pedagogical task consists of understanding these styles and adjusting them to different educational contexts.

The reflective style involves evaluating and analyzing content to generate a deep understanding. It is associated with the ability to establish conceptual relationships and apply one's own criteria, integrating factors such as reasoning, reflection, and students' emotions (Peña et al., 2023). The pragmatic style characterizes students who prefer to test new theories and techniques through practice. These students tend to avoid lengthy discussions and focus on decision-making and problem-solving efficiently (Fernández, 2020).

The active style promotes the use of prior knowledge, skills, and positive attitudes. Students who adopt this style tend to engage actively in the learning process, participating in tasks such as analyzing information, evaluating results, and synthesizing knowledge (Albornoz et al., 2022). Based on the aforementioned, the primary objective of this research is to identify the learning styles utilized by basic education students according to the scientific literature published in the last five years.

Methodology

This systematic review aimed to synthesize and analyze the existing literature on learning styles in basic education in Ecuador. To ensure a rigorous and transparent approach, the guidelines of the PRISMA Declaration (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Moher et al., 2009) were followed. The methodology is outlined in the following sections: inclusion and exclusion criteria, literature search, study selection, data extraction, data analysis, and synthesis of results.

The bibliographic search was conducted in the academic database SciELO, using the advanced search option. The temporal criterion was set for the range between 2013 and 2023, with a specific focus on learning styles within the educational field. For this, combinations of keywords directly related to the topic were employed: "learning styles" and "learning theories," excluding studies outside the established period, as well as publications in languages other than Spanish or those that did not present relevant results for the educational context at the basic education level.

Additionally, the Boolean operator AND was used to refine the search strategy according to the established criteria in this research. The final combination applied was: "learning styles AND learning theories," which allowed narrowing the results to studies addressing the object of study from multiple perspectives relevant for analysis.

Figure 1
PRISMA flow diagram

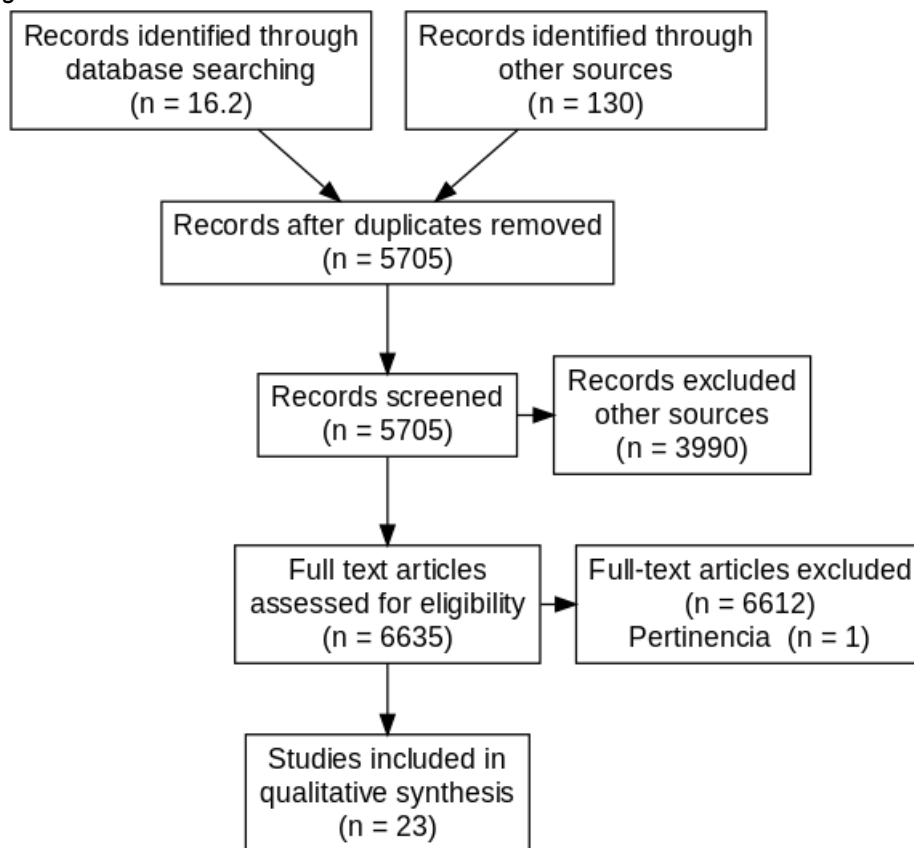


Table 1
Classification of documents

No.	Author	Title	Contribution
1	(Navarrete, 2020)	Conceptual model for designing a sustainable curricular aid plan during emergencies for public higher education institutions	
2	(Álvarez, Cuatindioy, González, Luna, & González, 2021)	Backgrounds of Learning Styles for Virtual Environments	
3	(Herrera, Tenelanda, Basantes, & Erazo, 2023)	Theories and Models on Learning Styles	
4	Alanya Beltran, J. E., Padilla Caballero, J. E. A., & Panduro Ramirez, J. G. .(2021).	Approaches to Learning Styles: Systematic Review	Identifies actions in institutions based on each student's learning style, with varying impacts depending on the action used.
5	Mendoza Yépez, M. M., León Quinapallo,	Management of the Teaching-Learning Process:	The theoretical learning style is the most prevalent among

	X. P., Gilar Corbi, R., y Vizcaino Mendoza, F. M. (2022).	Learning Styles and Academic Performance	students and can positively influence academic performance.
6	Kathiusca Loor, K., & Alarcón Barcia, L. (2021)	Creative Methodological Strategies to Enhance Learning Styles	Students learn in various ways, utilizing their skills to acquire knowledge, thus educators must design and incorporate methodological strategies for this purpose.
7	Gallego, D. J., Alonso, C., & Melare Vieira Barros, D. (2022).	Learning Styles and Teaching Styles: Pedagogical Proposals for Transforming Education	The methodology on Learning Styles helps overcome discrimination, promotes inclusion, and adapts to the teachings and characteristics of students.
8	Yumán Ramírez, I. M. (2020).	Relationship Between Academic Performance and Learning Styles	It can be identified that learning styles do not always impact students' academic performance.
9	Roque Herrera, Yosbanys, Tenelanda Lopez, Dennys Vladimir, Basantes Moscoso, Deysi Rosario, & Erazo Parra, Jose Luis. (2023).	Theories and Models on Learning Styles	Integrating Kolb's and Honey and Mumford's models provides a reliable diagnostic option in the instructional process of teaching and learning.
10	Polo Escobar, B. R., Hinojosa Salazar, C. A., Weepiu Samekash, M. L., & Rodríguez Medina, J. L. (2022).	Learning Styles and Academic Performance in the Area of Communication with a Systems Approach	It is essential to identify learning styles, the ability to utilize various perspectives, and engage in different learning experiences.
11	Esteves Fajardo, Z.; Chenet Zuta, M.; Pibaque Ponce, M.; Chávez Rocha, M. (2020)	Learning Styles for Giftedness in University Students	Learning styles should apply reasoning and pragmatism processes in teaching.
12	Cira Thania, P. M., Quispe-Paiva, M., Carhuas-Arzapalo, I. A., & Ríos-Cataño, C. (2021).	Learning Styles in University Students: A Descriptive Review of the Literature	It is advised not to generalize learning styles by career or gender, as sociocultural characteristics influence each student's type.

13	Díaz-Serrano, J., Alfageme-González, M. B., & Cutanda-López, M. T. (2022)	Interaction of Academic Performance with Learning and Teaching Styles	Better grades can be obtained in geographic content with Reflective and Theoretical learning styles.
14	Hernández García, Sandra Meilen, & Cabrera Albert, Juan Silvio. (2021).	Learning Styles from the Teaching-Learning Process of Language	Systematizing learning styles from the language teaching process improves knowledge acquisition.
15	Quintanal Pérez, F. (2022).	Learning Styles and the Study of a Breakout in High School Physics and Chemistry	Learning styles provide a suitable framework for using breakout activities, as they enhance participation and assist in managing learning.
16	Rodríguez Arias, L. G. (2020).	Learning Styles Based on Kolb's Theory Predominant in University Students	The most significant finding is that nearly half of the students reflect an assimilator learning style.
17	Caicedo-Quinteros, Sara Ingrid. (2023).	Learning Styles to Improve English Language Skills	Pedagogical approaches, resources, and teaching techniques, as well as mastery of learning styles, show a significant correlation with progress in English language acquisition.
18	Olivo García, Edith, Moreno Beltrán, Reyna, & Mondragón Huerta, Raquel. (2023).	Gamification and Ubiquitous Learning in Higher Education: Applying Learning Styles	The effectiveness of gamification and ubiquitous learning in university students is due to a predominant learning style, which are strategies to improve academic performance.
19	Olmedo-Plata, J. M. . (2020).	Learning Styles and Academic Performance from Cognitive, Procedural, and Attitudinal Dimensions	Learning styles and academic performance in the subjects studied provide input for designing teaching strategies that consider learning styles and their benefits.
20	Acevedo Mena, K. M. (2020).	State of the Art of Learning Styles Study in Universities in Latin America and Spain	It was found that the most used models are those of Felder and Silverman, Kolb, and Honey and Mumford regarding learning styles.
21	Prado-Bailón, Martha Cristina; Corral-Joza, Karen (2021).	Didactic Strategies in Virtual Education and Learning Styles in High School Students	Students possess varied learning styles, such as divergent, convergent, and assimilative.

22	Diago Egaña, M. L., Martínez Abad, F., & Perochena González, P. (2022).	Preferences for Learning Styles in Spanish Students Aged 11 to 15	Knowledge of learning styles is useful for designing and adapting training processes to differences in the classroom.
23	Castellanos, R. (2020).	Corner Method of Learning Styles: REAPSES	Pragmatic, reflective, and active styles predominate, with an increase in the average course grade.

Results and discussion

Learning achievements directly influence the way thoughts are structured, which is particularly relevant among teachers within the same department. This aspect is especially useful in situations where a teacher is unavailable, allowing their replacement to meet objectives without disrupting the curriculum. In this context, assessing students' emotions when interacting with virtual learning environments becomes important, as these can be observed, recorded, and analyzed alongside other patterns, such as behavior and performance, facilitating the automatic detection of learning styles and their subsequent study.

A practical approach has been determined that educators, responsible for leading courses and programs, can employ to plan institutional activities, allocating time for teaching psychomotor skills to students. It is essential to recognize that pedagogical concepts generate new connections and developments in the present, responding to historical traditions of thought that are constantly transforming. This transformation reflects the specific temporality of pedagogical discourse and its crises, enabling new ways to interpret concepts and define the criteria that determine which are validated and which are discarded (Álvarez et al., 2021).

Currently, despite the incorporation of new technologies, social interaction through digital platforms has negatively impacted the most vulnerable sectors. The digital divide has only widened, affecting the entire educational system and society as a whole. This phenomenon could affect meaningful learning at all educational levels, especially when combined with the lack of training for developing digital competencies among both teachers and students (Navarrete, 2020).

Adapting education to individual needs represents a challenge in the context of the massive expansion of the educational system. When administrative and political principles are governed by economic factors such as efficiency and profitability, the idea of personalizing learning through the identification of styles becomes increasingly difficult to achieve. In this sense, the challenge remains one of the most relevant pending tasks for researchers and higher education institutions (Álvarez et al., 2021).

The diversity of approaches, models, and theories on learning styles has generated a wide range of interpretations that, while enriching conceptually, can also hinder their practical implementation in the classroom. Identifying and adapting diverse styles not only improves academic performance but also fosters inclusive and personalized teaching (Herrera et al., 2023). In this regard, it has been noted that actions taken by institutions, based on each student's learning style, have different impacts depending on the strategy used (Alanya et al., 2021).

Moreover, it has been evidenced that the theoretical learning style significantly and positively influences academic performance. This implies that informed decisions must be made regarding teaching methods that favor the development of knowledge and the academic improvement of future educational professionals (Mendoza et al., 2022). However, when researching teachers about creative methodological strategies, there remains a certain lack of knowledge and limited application of these to enhance learning styles, despite students learning in various ways and utilizing their own skills to acquire knowledge (Kathiusca & Alarcón, 2021).

It is important to note that pedagogical approaches, resources, and teaching techniques related to mastery of learning styles present a significant correlation, for example, in English language teaching. This is complemented by the benefits of diverse styles in their learning (Caisedo, 2023), as well as the effectiveness of gamification and ubiquitous learning in higher education to improve both academic performance and student motivation (Olivo, Moreno & Mondragón, 2023). These observations are also valid in the school context, where the relationship between learning styles and academic performance can serve as a basis for designing and developing teaching strategies that respond to these characteristics (Olmedo, 2020).

Other studies have found that pragmatic, reflective, and active styles predominate, which are associated with an increase in students' average grades (Castellanos, 2022). There is a consensus that methodology based on learning styles offers concrete proposals to overcome discrimination, promote inclusion, and adapt teaching to

the individual characteristics of students (Gallego et al., 2022). For example, while visual learning may predominate, it does not always directly correlate with academic performance (Yumán, 2020).

Addressing different approaches to learning styles provides an evolutionary perspective on this phenomenon (Roque et al., 2023), in which students may have divergent, convergent, or assimilative styles, which are sometimes unknown to teachers (Prado & Corral, 2021). Therefore, school systems need to incorporate pedagogical arguments that begin with the identification of these styles and promote the ability to observe content from multiple perspectives (Polo et al., 2022).

In this sense, processes involving reasoning and pragmatism in teaching must be applied (Esteves et al., 2020), with the most used models being those of Felder and Silverman, Kolb, and Honey and Mumford (Acevedo, 2020). However, it is not easy to generalize a specific learning style for each career or gender (Cira et al., 2021).

It is clearly demonstrated that better grades are obtained when a student's learning profile aligns with reflective and theoretical styles (Díaz et al., 2022). Additionally, systematizing learning styles from the language teaching process enhances knowledge acquisition (Hernández et al., 2021), promoting student participation and strengthening their autonomous management of learning (Quintanal, 2022; Rodríguez, 2020).

Conclusions

The relevance of learning styles in students' academic performance is highlighted, evidenced by the diversity of existing approaches in the educational field. Each style presents specific characteristics that influence the way students process and apply knowledge. The reviewed studies demonstrate that socioeconomic and cultural factors impact learning preferences, reinforcing the constant need to adapt pedagogical strategies to each student's particular context.

It is essential to recognize the four styles with the greatest impact and presence in academic environments: reflective, pragmatic, active, and theoretical, each offering unique benefits in cognitive, emotional, and practical learning development. The reflective style promotes analytical capacity and criterion formation; the pragmatic style drives problem-solving through practical application of knowledge; the active style is characterized by combining skills, attitudes, and experiences to achieve meaningful learning; and the theoretical style emphasizes deep and structured understanding of content.

Teacher preparation and the proper application of learning styles are essential pillars for optimizing academic performance in various contexts. Having a well-founded methodological approach allows both teachers and students to adapt to teaching and learning processes, enhancing outcomes based on individual and social needs. All of this reinforces the importance of consolidating a flexible, contextualized educational system oriented toward the comprehensive development of the student.

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