



Original article



## Preferred learning styles of Angolan postgraduate students



**Estilos preferidos de aprendizaje de estudiantes angolanos de postgrado**

**Estilos de aprendizagem preferidos dos estudantes de pós-graduação angolanos**

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### ABSTRACT

In a constantly evolving academic world, understanding students' learning styles is crucial to improving educational quality and maximizing student potential. This article presents the results of an exploratory study conducted on a sample of Angolan graduate students from various disciplines. The primary objective of the research was to identify and analyze the predominant learning styles in this population, using an integrative learning styles approach as a theoretical framework. The research was conducted through the application of a structured self-report questionnaire, which assessed students' preferences across four basic dimensions of learning styles. The sample consisted of 137 students enrolled in Advanced Studies Courses (CEA) at the Gregorio Semedo Polytechnic

Institute. The data were statistically analyzed to identify patterns and trends in learning styles. The study also analyzed the didactic implications of these findings for postgraduate education in Angola and the need to implement more personalized pedagogical strategies that recognize and value the diversity of learning styles, thus promoting a more inclusive and developmental learning environment.

**Keywords:** learning styles; teaching methods; personalization of education.

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## RESUMEN

En un mundo académico en constante evolución, comprender los estilos de aprendizaje de los estudiantes es crucial para mejorar la calidad educativa y maximizar el potencial de los alumnos. El presente artículo presenta los resultados de un estudio exploratorio realizado en una muestra de estudiantes angolanos de posgrado en diversas disciplinas. El objetivo principal de la investigación fue identificar y analizar los estilos de aprendizaje predominantes en esta población, utilizando un enfoque integrador de los estilos de aprendizaje como marco teórico. La investigación se llevó a cabo aplicando un cuestionario de autorreporte estructurado, que evaluó las preferencias de los estudiantes en cuatro dimensiones básicas de los estilos de aprendizaje. La muestra estuvo compuesta por 137 estudiantes de los Cursos de Estudios Avanzados (CEA) del Instituto Superior Politécnico Gregorio Semedo. Los datos fueron analizados estadísticamente para identificar patrones y tendencias en los estilos de aprendizaje. El estudio analizó también las implicaciones didácticas de estos hallazgos para la educación posgraduada en Angola y la necesidad de implementar estrategias pedagógicas más personalizadas que reconozcan y valoren la diversidad de estilos de aprendizaje, promoviendo así un ambiente de aprendizaje más inclusivo y desarrollador.

**Palabras clave:** estilos de aprendizaje; métodos de enseñanza; personalización de la educación.

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## RESUMO

Em um mundo acadêmico em constante evolução, compreender os estilos de aprendizagem dos alunos é crucial para melhorar a qualidade educacional e maximizar o potencial dos alunos. Este artigo apresenta os resultados de um estudo exploratório realizado com uma amostra de estudantes de pós-graduação angolanos de diversas disciplinas. O principal objetivo da pesquisa foi identificar e

analisar os estilos de aprendizagem predominantes nessa população, utilizando uma abordagem integrativa de estilos de aprendizagem como referencial teórico. A pesquisa foi conduzida utilizando um questionário estruturado de autorrelato, que avaliou as preferências dos alunos em quatro dimensões básicas dos estilos de aprendizagem. A amostra foi composta por 137 alunos matriculados nos Cursos de Estudos Avançados (CEA) do Instituto Politécnico Gregório Semedo. Os dados foram analisados estatisticamente para identificar padrões e tendências nos estilos de aprendizagem. O estudo também analisou as implicações didáticas desses resultados para a educação de pós-graduação em Angola e a necessidade de implementar estratégias pedagógicas mais personalizadas que reconheçam e valorizem a diversidade de estilos de aprendizagem, promovendo assim um ambiente de aprendizagem mais inclusivo e acolhedor.

**Palavras-chave:** estilos de aprendizagem; métodos de ensino; personalização da educação.

## INTRODUCTION

The XXI century has become for the education to international level in a period of great challenges, in line with the demands that the school has imposed modern society with its rapid technological development and excessive "globalization" of economic, political and social cultural life.

In the case of Higher Education in many of our countries, including Angola, efforts have been primarily focused on the search for premises that foster the development of active professionals who transform reality. The nature of this demand has consequently required in-depth studies on curricular design and practice, teaching, and an understanding of the training processes associated with the development of professionals' personalities. Within this latter area of research, particular attention has undoubtedly been paid to issues related to the learning process and the set of individual variables that influence university students' academic performance: attitude toward study, intellectual abilities, emotional balance, career guidance, cognitive self-esteem, etc.

A distinctive feature of the professorial maturity achieved as a result of research development in this area is the fact that an increasing number of university professors understand that educational influences do not operate linearly or equally for all subjects and, therefore, cannot be standardized. It is no coincidence, therefore, that the so-called "personalization" of education is already emerging

as one of the major dimensions of the current transformation process experienced by contemporary universities.

Unfortunately, and despite the fact that many today understand that education is a matter of people and that because people are different from each other, educating is a matter of paying attention to diversity, in practice teaching within the university framework remains eminently standardized and it is still difficult for teachers to shake off the egalitarian inertia that has always characterized us (Fariñas, 2019). In this regard, educational psychologists agree in pointing out that people have different learning styles (LS), and these are, ultimately, responsible for the different ways in which students behave when it comes to learning.

The different studies converge in the personological character of the learning styles as an indicator of students' individual differences in the way they appreciate, represent, process and understand the conceptual contents taught by teachers (Mena *et al.*, 2010; For teachers, understanding their students' learning styles can be an important step in designing and directing the teaching-learning process, a way to gain a deeper understanding of their students and better understand the causes of potential learning difficulties, limitations in their academic performance, their motivation, and their level of interest in a subject or teaching task.

From a didactic perspective, however, it is fair to acknowledge that, for many teachers, the concept of learning styles remains confusing and superfluous. This may be due to a lack of theoretical knowledge about the construct in question, nor the practical methodological tools for diagnosing and addressing it pedagogically in the classroom.

This reality, valid for many educational contexts even today, presupposes a change in the way teachers conceive and direct the teaching-learning process. It is not only about knowing the students' learning styles of and try to adjust teaching methods and forms to diversity, but also to teach them to know themselves better, to develop diverse strategies for processing information, for solving problems, communication and time management; in short, to help them develop cognitive and metacognitive skills that enable them to search and discovery of the unknown, the systematization of their learnings (Gomez and Romero, 2019; Quevedo *et al.*, 2016).

The present study aims to characterize the learning styles of a sample of students enrolled in Advanced Studies Courses (CEA) at the Gregório Semedo Polytechnic Institute. This study addresses their learning channels, information processing methods, learning goals, and social orientation in the

learning context. This study is part of a broader educational project focused on a paradigm shift at the institutional level, aimed at improving the educational quality of the professional development process, maximizing students' academic potential, and fostering more effective and meaningful learning.

## Theoretical framework of the research

The notion of learning styles has its etymological origins in the field of psychology. As a concept, it was first used in the 1950s by the so-called "cognitive psychologists", encouraged by the development of linguistics, the emerging technological revolution in computer science, and discoveries in the neurosciences. Since then, the definition of the term, as they rightly stated, has been incomplete. Since then, the definition of the term, as Ortiz and Aguilera (2008, cited by Arenas, 2017) rightly stated, has evolved in its theoretical conception, going through two stages of its development: the first, associated with its primarily cognitive component; the second, which triggered the current variations, recognizes the existence of motivational components that affect learning.

By virtue of the research approach and the theoretical foundation on which this study is based, the conceptual analysis undertaken basically focuses on studies of the subject that promote a conception of learning styles adjusted to the second perspective.

In this sense, the definition of Lozano (2000) stands out, who compares and integrates different conceptions about the term to define it as a "set of preferences, tendencies and dispositions that a person has to do something and that are manifested through a behavioral pattern and different strengths that make him stand out from others" (p. 17). For their part, García *et al.* (2009) assume the EA as the cognitive, affective, physiological traits, preferences for the use of the senses, environment, culture, behavior, comfort, development and personality, which serve as relatively stable indicators of how people perceive, interrelate and respond to their learning environments and their own methods or strategies in their way of learning (p. 5).

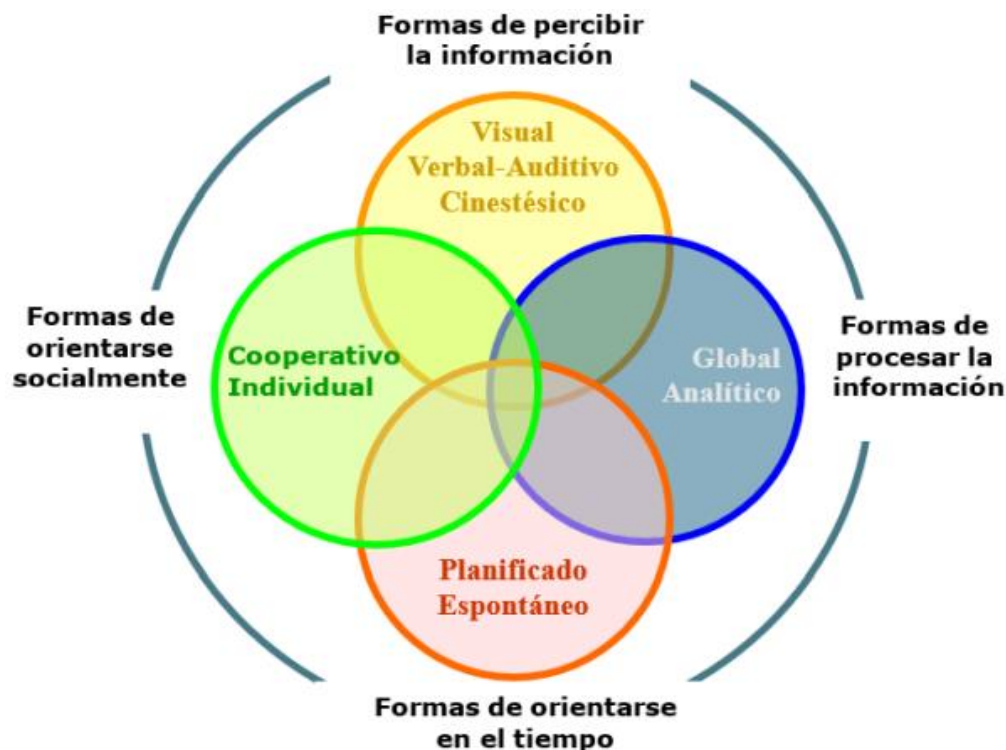
According to Escamilla and González (2012), "learning styles refer to the way of perceiving, processing information and thinking about information in relation to a specific context" (p. 3). In their transcendental study on the subject, Alonso *et al.* (2012) adopted Keefe's (1988) definition, considered by these authors as one of the clearest and most universally disseminated definitions: learning styles constitute "the cognitive, affective and physiological traits that serve as relatively

stable indicators of how students perceive, interact and respond to their learning environments" (p. 48).

Regardless of the high heuristic value that all these learning style theories have for educational research, the present study is based on the holistic Vygotskian vision of learning and personality, systematized by the renowned Cuban psychologist Gloria Fariñas. From this author's perspective (Fariñas 2004, 2019, 2020), learning was rightly valued by Vygotsky as a process that has both a cognitive and socio-affective nature and, therefore, involves the personality as a whole, allowing the subject to appropriate the culture developed by society, through their activity and with the help of others, by means of the instruments and systems of signs historically constructed by humanity. Personality, for its part, is understood as an integrative and self-regulating system or whole of the cognitive and affective elements that operate in the subject as a unique and unrepeatable configuration of the person.

Learning styles, viewed from this holistic perspective, were assumed to be relatively *stable ways in which people learn, through which the unique and unrepeatable character of personality, the unity of the cognitive and affective, and, among other things, their preferences in perceiving and processing information, organizing time, and navigating interpersonal relationships during learning are expressed*. From this perspective, styles are classified according to the following dimensions:

- Learning styles related to students' preferred ways of perceiving information (learning channels): visual style, verbal-auditory style, kinesthetic style.
- Learning styles related to students' preferred ways of processing information: global style, analytical style.
- Learning styles related to students' preferred ways of planning their time to achieve their learning goals: planned style and spontaneous style
- Learning styles related to students' preferred ways of orienting themselves towards communication and their interpersonal relationships in learning: cooperative style and independent style.



**Figure 1.** Learning styles seen in their multidimensional character according to Cabrera (2004)

From a didactic point of view, the dimensions defined in this holistic vision make it possible to appreciate the teaching-learning process, projected not towards the achievement of instructive objectives, focused only in the development of cognitive skills, but rather on basic learning that transcends the student's integral professional training and his personal growth: the statement of objectives, tasks and the temporal organization of their execution through steps or stages, the search for information and its understanding, communication about one's performance and the solution or statement of problems (Figure 1).

## MATERIALS AND METHODS

To explore the learning styles of Angolan graduate students, a mixed methodology based on a qualitative and quantitative approach was adopted. The study followed a primarily descriptive design, seeking to identify the predominant learning styles in the study population. To this end, the self-report questionnaire, part of the Methodology for the Diagnosis of Learning Styles (MEDEA), was used, following the theoretical approach to learning styles founded by these authors.

MEDEA is comprised of several instruments, under a multi-methodological approach, which includes a self-report questionnaire, observation, interviews, composition and sentence completion based on "Guess Who It Is," applying all learning styles, assuming the following basic precepts:

- The diagnosis of learning styles depends on the nature of the tasks and the conditions of the context.
- Styles in each dimension are not mutually exclusive, but can even achieve a certain parity.
- People differ in their stylistic flexibility when faced with a task or learning situation.
- Learning styles are neither good nor bad; they differ from skills.

For this study, the most recent version of the MEDEA Self-Report Questionnaire (SRS) was used in Portuguese. This version, validated by expert criteria, consists of 27 randomly arranged Likert-type items. It seeks to explore the self-perception of graduate students at the Gregório Semedo Polytechnic Institute regarding their ways of perceiving information (learning channels), processing it, planning their time to achieve their learning goals, and focusing on communication and interpersonal relationships in learning.

### **Population and sample**

The study considered a population of 148 graduate students from the Gregório Semedo Higher Polytechnic Institute (Lubango-Namibe), distributed in the three Advanced Study Courses (CEA), which have been running in the institution since April 2024:

- Human Resources Management in Organizations: 40 students from the Namibe Pole, 24 students from Lubango;
- Law in the Legal-Forensic Aspect: 32 students from Polo Namibe, 24 students from Lubango;
- Commercial Management: 28 students from the Namibe Pole.

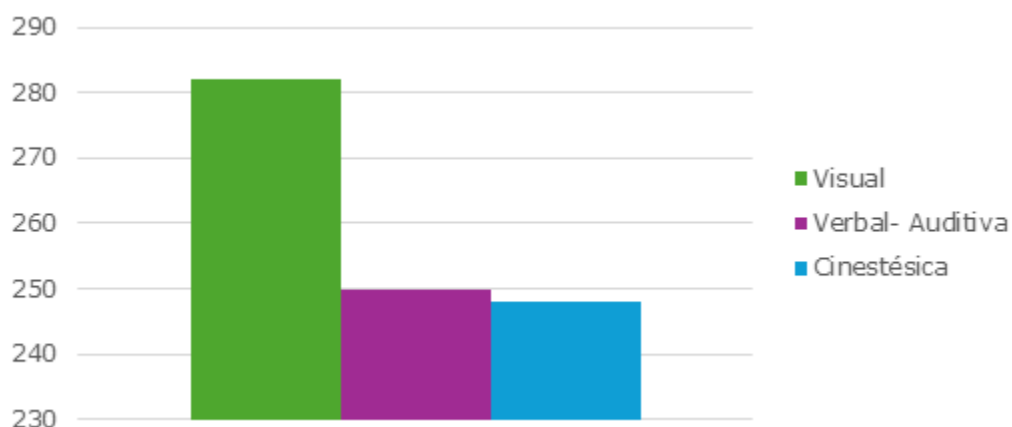
The sample It included 137 students. Of these, 83 were male and 54 were female, with an average age of 41.5 years.

The questionnaire was administered using Google Forms, an online digital tool that, in addition to being a practical, affordable, and efficient way to collect the corresponding data, facilitated access to the instrument for all students and ensured the processing of the collected data.



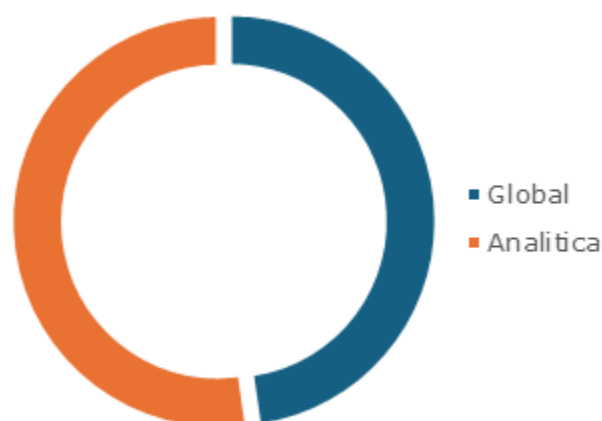
## RESULTS

According to the forms of perceiving information, 53% of CEA students expressed preference for the visual learning channel, compared to 20.4% for the auditory verbal channel and 16.6% for the kinesthetic channel (Figure 2).



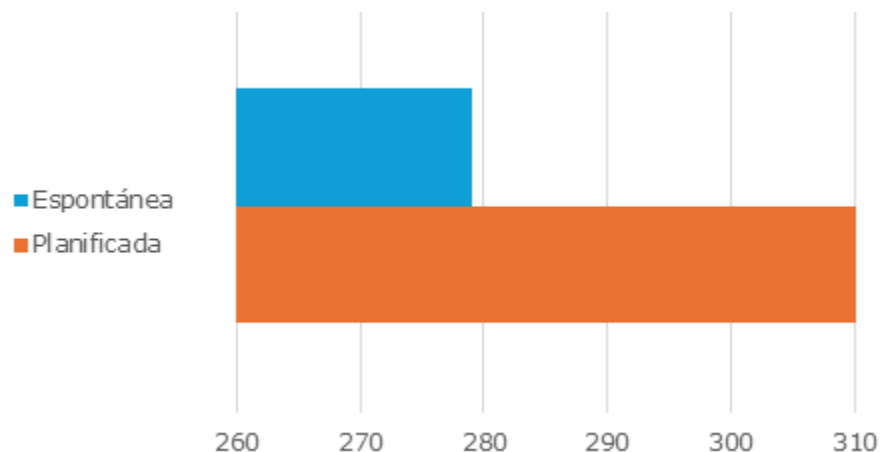
**Figure 2.** Preferred learning styles of CEA students in terms of learning channels

Regarding the forms of processing information, 56% of CEA students prefer the Analytics vs. 28% Global.



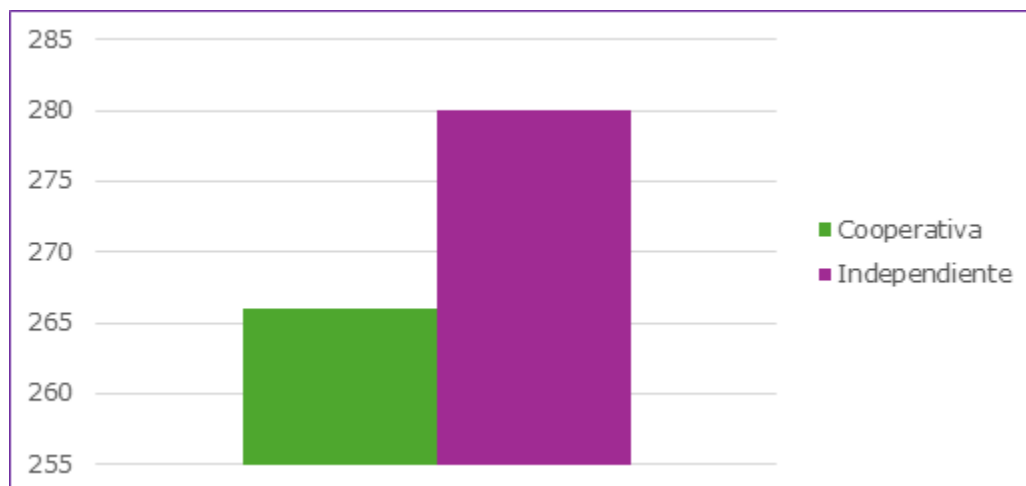
**Figure 3.** Preferred learning styles of CEA students in terms of the ways of processing information

Regarding the ways they plan their time to achieve their goals as learners, 90.6% of CEA students prefer the form Planned, while 6%, Spontaneous (Figure 3).



**Figure 4.** Preferred learning styles of CEA students in terms of the ways of orienting oneself towards the fulfillment of goals as learners

Finally, as for forms of orienting toward the communication and their interpersonal relations, 56% of IGS Advanced Studies Course students prefer the Independent style, while 34% prefer Cooperative (Figure 4).



**Figure 5.** Preferred learning styles of CEA students in terms of the ways of orienting oneself towards the communication and their relations interpersonal

The study carried out on 137 Angolan students of the Advanced Studies Courses (CEA) of the Polytechnic Higher Institute (IGS- Polos Lubango and Namibe), shows, as shown in the following table, the preference of the subjects for the visual, analytical, planned and independent learning styles (Figure 5 and Table 1).

**Table 1.** Predominance of learning styles and indicators of greatest preference among postgraduate students from IGS (Lubango-Namibe)

Dimensions	Styles	Number of subjects with a preference for the style in question	Indicator of greatest preference within the style
Preferred ways of perceiving information	Visual	73 (53%)	I learn more easily when information is presented through graphs, tables, diagrams, etc.
	Verbal-Auditory	28 (20.4%)	I can easily follow my teachers' oral explanations, even when they are not supported by images or written materials.
	Kinesthetic	23 (16.6%)	I prefer classes or teaching tasks that involve movement, object manipulation, dramatization, etc.
Ways of processing information	Global	38 (28%)	In class, I prefer to take brief notes that summarize the most relevant aspects of what is being explained.
	Analytical	77 (56%)	I am attracted to analysis, the logic of procedures, and data processing.
Preferred ways to plan your time	Planned	124 (90.6%)	I like to be organized in my class notes, my study schedule, my daily routines.
	Spontaneous	8 (6%)	I'm uncomfortable with having to follow a pre-established plan of activities; I prefer to be spontaneous and open in my personal and academic life.

Preferred ways of social orientation	Independent	77 (56%)	For practical classes, seminars, and tests, I like to prepare and study alone.
	Cooperative	46 (34%)	I like to study in a team, participate in debates and open discussions.

## DISCUSSION

A study conducted with graduate students in the Advanced Studies Courses (CEA) at the Gregório Semedo Polytechnic Institute has identified consistent patterns of learning style preferences. These findings constitute a valuable basis for reflection on pedagogical practices at this educational level, given their diagnostic relevance and their potential to guide teaching planning toward greater adaptation to the individual characteristics of the learner.

In the perceptual dimension of learning, the results obtained coincide with those reported by Felder and Silverman (1988), who observed a marked inclination toward sensory styles, particularly visual, among students with technical training. Similarly, Alonso, Gallego, and Honey (2012) highlighted that university students tend to prefer modalities that allow them to organize information through diagrams, graphs, or visual resources, which favors structured comprehension and meaningful retention of the content.

Regarding information processing, the predominance of the analytical approach has been widely documented in the specialized literature. Schmeck (1988) identified this style as characteristic of students who prioritize sequential thinking, logic, and rigorous analysis, as opposed to global, more intuitive and holistic processing. Kolb (1984) also noted this preference, associating analytical processing with a convergent approach to learning, oriented toward problem-solving and technical mastery of content. From this perspective, analysis as the predominant form of learning suggests a favorable disposition toward teaching environments that encourage critical reasoning, detailed study, and the practical application of knowledge.

Regarding time planning and self-regulation of study, the data obtained in the present study are consistent with the proposals made by Weinstein and Mayer (1986), who emphasized that successful students tend to display organizational behaviors, stable routines, and metacognitive strategies that allow them to efficiently manage their personal resources. Along these lines, Cassidy (2004) argues that a preference for structured planning is closely associated with higher levels of academic

performance and a greater perception of self-efficacy, especially in adult students who combine education with work or family responsibilities.

In the social dimension of learning, the predominance of the independent style has also been highlighted by various authors. Dunn and Dunn (1992) pointed out that students with high intrinsic motivation and cognitive autonomy tend to prefer individual activities, in which they can control their pace and delve deeper into the content without depending on others. However, studies such as those by Johnson and Johnson (1999) warn of the need to complement independence with cooperative learning spaces, since social interaction and group work favor the development of communication skills, empathy, and the collective construction of knowledge.

From a theoretical perspective, the results obtained reaffirm the multifactorial nature and relative stability of learning styles, as an expression of the student's personality and their unique way of relating to knowledge. This conception is consistent with the authors' holistic and historical-cultural view of learning, which integrates cognitive, affective, temporal, and social dimensions as part of a complex unit that must be addressed through educational practice.

In practical terms, this approach requires a reconsideration of curriculum design and pedagogical strategies in Higher Education. Faculty must diversify teaching resources, combine active methods with structured presentations, and encourage both autonomy and collaborative work. Such methodological flexibility would allow for more effective attention to the diverse forms of learning that coexist in the classroom, a fact that has been clearly demonstrated in the context of CEAs.

Although the study was limited to a specific sample of students and did not address variables such as teachers' professional profiles or teaching styles, it constitutes a valuable starting point for future research. Analyzing the correspondence between learning styles and teaching methodologies could provide crucial information for optimizing pedagogical interaction and promoting more meaningful learning.

Overall, the findings provide a solid empirical basis for reflecting on postgraduate teaching in Angola. The study reveals the pedagogical importance and didactic value of considering learning styles in the context of Advanced Study Courses (ASC) at the Gregório Semedo Polytechnic Institute (IGS). This implies that ASC instructors must select and organize content across disciplines, taking into account not only the relevance of each knowledge system of the field to learning, but also each student's self-awareness of their learning style. While learning styles should not be considered rigid categories,

understanding them constitutes a powerful tool for more inclusive, personalized, and transformative teaching. The study also highlights the need to continually diversify teaching methods, forms, and media, given the variety of students' learning styles.

The results obtained are, undoubtedly, a starting point for analyzing other aspects in future research, such as the differences and similarities in learning styles among students from different professional profiles and the correspondence between preferred learning styles and teachers' teaching methods.

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### **Conflict of interest**

Authors declare no conflict of interests.

### **Authors' contribution**

The authors participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.



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