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ACADEMIC WRITING AND THE COGNITIVE TASKS PRIOR TO THE CONSTRUCTION OF SCIENTIFIC TEXTS

**LA ESCRITURA ACADÉMICA Y LAS TAREAS
COGNITIVAS PREVIAS A LA ELABORACIÓN DE
TEXTOS CIENTÍFICOS**

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Academic Writing and the Cognitive Tasks Prior to the Construction of Scientific Texts

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ABSTRACT

Academic writing is a fundamental element in the education of university students, as it allows them to communicate knowledge clearly, precisely, and with sound reasoning. Unlike other types of writing, it demands conceptual rigor, logical coherence, and the use of reliable sources to support arguments. Furthermore, it fosters the development of critical thinking, as it involves analyzing information, comparing theoretical positions, synthesizing ideas, and constructing original arguments with ethical and intellectual responsibility. Learning academic writing is a gradual process, since many students have not been previously prepared to generate knowledge through argumentation and analysis. Therefore, it is necessary to train students not only in grammatical correctness but also in the construction of rigorous discourses that meet the standards of the academic community. Among the main characteristics of academic writing is intertextuality, understood as the relationship between different texts. From this perspective, no text is entirely original; rather, it is constructed through dialogue with previous ideas by means of citations and references. Furthermore, academic writing requires coherence, cohesion, and methodological rigor to adequately organize and support arguments. The text also highlights the importance of pre-writing cognitive tasks, which allow for the analysis, comparison, synthesis, and organization of information before drafting. These skills strengthen critical thinking, improve the quality of texts, and facilitate the development of academic research. They also contribute to the development of professional competencies such as decision-making, problem-solving, and argumentation. In conclusion, promoting academic writing in higher education is essential for training professionals capable of generating knowledge and communicating ideas effectively, thereby strengthening meaningful learning and the competencies necessary in both academic and professional settings.

Keywords: academic writing, academic community, training professionals, competencies, writing cognitive

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La Escritura Académica y las Tareas Cognitivas Previas a la Elaboración de Textos Científicos

RESUMEN

La escritura académica es un elemento fundamental en la formación de los estudiantes universitarios, ya que permite comunicar el conocimiento de manera clara, precisa y fundamentada. A diferencia de otros tipos de escritura, exige rigor conceptual, coherencia lógica y el uso de fuentes confiables que respalden los argumentos. Además, favorece el desarrollo del pensamiento crítico, pues implica analizar información, comparar posturas teóricas, sintetizar ideas y construir argumentos propios con responsabilidad ética e intelectual. El aprendizaje de la escritura académica es un proceso gradual, ya que muchos estudiantes no han sido preparados previamente para generar conocimiento mediante la argumentación y el análisis. Por ello, es necesario formar a los estudiantes no solo en la corrección gramatical, sino también en la construcción de discursos rigurosos que cumplan con los estándares de la comunidad académica. Entre las características principales de la escritura académica destaca la intertextualidad, entendida como la relación entre distintos textos. Desde esta perspectiva, ningún texto es completamente original, sino que se construye a partir del diálogo con ideas previas mediante citas y referencias. Asimismo, la escritura académica requiere coherencia, cohesión y rigor metodológico para organizar y sustentar adecuadamente los argumentos. El texto también resalta la importancia de las tareas cognitivas previas a la escritura, que permiten analizar, comparar, sintetizar y organizar la información antes de redactar. Estas habilidades fortalecen el pensamiento crítico, mejoran la calidad de los textos y facilitan el desarrollo de investigaciones académicas. Además, contribuyen al desarrollo de competencias profesionales como la toma de decisiones, la resolución de problemas y la argumentación. En conclusión, fomentar la escritura académica en la educación superior es esencial para formar profesionales capaces de generar conocimiento y comunicar ideas de manera efectiva, fortaleciendo así el aprendizaje significativo y las competencias necesarias en el ámbito académico y profesional.

Palabras claves: escritura académica, comunidad académica, formación de profesionales, competencias, escritura cognitiva

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INTRODUCTION

Academic writing has become an essential element in the training of young university students, as it allows for the clear and objective communication of knowledge. In this sense, academic writing is a fundamental pillar in the construction and dissemination of scientific and humanistic knowledge within the university community. Its importance lies in its ability to communicate ideas clearly, precisely, and with sound reasoning, ensuring that the arguments can be understood, evaluated, and replicated by the community. Unlike other types of writing, academic writing demands conceptual rigor, logical coherence, and support from reliable sources, which strengthens the validity of the arguments presented. Academic writing contributes to the development of critical thinking. That is, when writing an academic text, the author analyzes information, compares theoretical positions, synthesizes ideas, and constructs their own arguments, as well as demonstrating several levels of expression, such as: a. Information analysis, b. Evaluation and comparison of perspectives, c. Construction of original arguments, d. Reflection and metacognition, and e. Ethics and intellectual responsibility. This process not only demonstrates mastery of a subject but also fosters higher-order cognitive skills such as reflection, evaluation, and the development of well-supported arguments.

The discovery of academic writing is a skill that students develop gradually because, often, their prior education did not prepare them to generate knowledge without discussion or argumentation. Therefore, we must prepare them not only to write grammatically correct texts but also to construct rigorous discourses that meet quality standards and can be validated by the academic community. Learning to write depends not only on young people's mental abilities but also on their social context and linguistic experiences.

For this reason, writing texts requires a set of cognitive tasks that must be mastered beforehand, as they allow for the organization and structuring of thought. Thus, this essay aims to identify the characteristics and elements that comprise academic writing, highlighting the cognitive activities required for writing academic or scientific texts.



Development

Among the learning experiences that young people have at the university level is writing academic texts, which represent one of the greatest challenges they face. But what is academic writing? Academic writing is that which is produced in the university and scientific sphere, whose function is to inform, persuade, and argue (Hernández & Bernal, 2025). Molina (2017) argues that writing is a social practice, an activity of social groups situated in social spaces that use writing for specific social purposes. Writing is communicating and relating to others.

Academic writing involves both professors and students. Writing tasks are an integral part of study and research activities and of many of the functions that a university professor must perform to communicate research and pedagogical innovations and to establish relationships with the outside world through specialized correspondence and publications.

Academic writing is distinguished by a series of characteristics that differentiate it from other types of writing. Among the most relevant are: Intertextuality, which is the relationship between texts, according to Kristeva, who argues that no text is entirely original, but rather that every text is constructed from other texts, implying the presence of references and citations (Oropeza, 2024). Meanwhile, for Barthes (2009), a text is a “fabric of quotations,” that is, it is constructed from other previous texts, where ideas, words, and writing styles have already been used. This gives importance to academic writing by providing theoretical support for arguments, demonstrating that the author knows the disciplinary field and helps to construct the author's voice by engaging in dialogue with others, not by repeating them

From Barthes's (2009) perspective, a text is not a closed unit, but rather a network of quotations that engages in dialogue with other discourses; thus, intertextuality becomes a fundamental principle of academic reading and writing. In addition to coherence and cohesion in the writing itself, ideas must be organized using connectors that can articulate the different arguments. The methodological rigor required is also emphasized, based on systematic procedures.

With new technologies (email, social media, messaging), writing is present in almost every aspect of our lives, and very few professionals don't need to write. That's why learning to write well is more important than ever. (Montolío, 2021).



Our writing is not a neutral act, nor is it separate from our identity: it represents how we think, communicate, and present ourselves to the world. Therefore, we must value and cultivate it, as it is a fundamental tool in our personal, educational, and professional lives. (Casanny, 2014)

However, many students begin writing without performing any prior cognitive tasks, since writing is not something they can do immediately. On the contrary, it is the product of various complex cognitive processes that are set in motion before they begin writing. But what are cognitive tasks? According to García & Oropeza (2024), they are the skills that allow our brain to process everything our senses perceive, such as colors, tastes, smells, textures, and sounds, interpreting and integrating the characteristics of these stimuli into our existing knowledge.

But why is it important for university students to develop cognitive tasks? In this sense, it is important for young people to develop cognitive tasks beforehand so they can implement them in academic writing, as they strengthen critical thinking. For example, they allow students to analyze, compare, synthesize, etc.—that is, to debate what information is necessary for their work. They also allow them to activate prior knowledge so they can compare information and generate well-founded opinions.

Another relevant point is that the quality of the writing improves because students can better organize their ideas, resulting in coherent and better-argued writing. With these skills, students can conduct more professional research, and it also facilitates their academic work. The development of their thesis work, such as their dissertation, not only provides them with tools to perform more professionally in the workplace, but also helps them develop skills like argumentation and the ability to communicate ideas easily, among others. Furthermore, cognitive tasks, from my point of view, strengthen other skills that young people can develop and that help them thrive in the professional sphere, such as decision-making, problem-solving, and the analysis of situations to improve their work activities.

But what is the relationship between Cognitive Task Analysis (CTA) and academic writing?

They are related because their purpose is to reveal the mental processes a student uses when writing essays, theses, research papers, etc. It's not just about writing; writing is an activity that involves activating prior knowledge, researching different sources of information, organizing ideas, making decisions, revising, and making corrections, all with the aim of... To have critical, argumentative, and professional writing skills.



CONCLUSION

Academic writing is a skill that should be fostered in higher education institutions in our country so that university students can develop research competencies with the aim of generating knowledge in the different disciplines that comprise their professional training. Of course, this depends on strengthening cognitive tasks, since through these they can organize and structure their thinking to produce high-quality academic and scientific texts.

Strengthening academic writing from a procedural and cognitive perspective is important because it fosters meaningful learning for students, especially in the training of professionals who can argue and communicate effectively—skills so necessary in academic, professional, and social contexts.

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