



# Scientific writing at educational levels: Undergraduate and postgraduate



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## Abstract

The research aims to determine the degree of scientific writing at the educational levels: undergraduate and postgraduate of the Universidad Laica "Eloy Alfaro de Manabí", Chone Extension. Scientific writing is not always an easy practice to handle, a bibliographical study was carried out with a review of different scientific articles that show results related to scientific writing, with a qualitative design; A non-probabilistic convenience sampling was used in a sample of 66 participants who were given a diagnostic evaluation survey. The result was that the most common scientific writing problems presented by undergraduate and graduate students are associated with scientific reading, difficulty in preparing scientific articles, use of grammatical rules, use of bibliographic citations and training in scientific writing.

## Keywords

educational levels;  
scientific;  
undergraduate;  
writing;

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## 1 Introduction

The research focuses on determining the degree of scientific writing at the educational levels: undergraduate and graduate of the Universidad Laica "Eloy Alfaro de Manabí", Chone Extension. Scientific writing is not always an easy practice to handle, students and professionals who start in the world of research generally have little previous experience in the field of writing, which leads to difficulties in writing the results of research. an investigation.

Scientific writing difficulties are associated with poor reading habits and scientific publications (Caron et al, 2020), Carrera & Corral (2018) in a study of scientific writing in undergraduates detected difficulties in the presentation of scientific texts, such as errors of coherence and agreement with the logic of the research and the informal language used by the author, little time to write, basic concepts of research methodology, little knowledge of grammar rules; In the university environment, one of the most required skills, along with reading, is academic writing due to its importance in the construction of knowledge (Fabián & Clemente, 2017). Scientific writing is the formal language for disseminating scientific knowledge generated from research, confirmed by Serrano et al. (2018). on scientific writing, based on elements of the questionnaire on academic writing by Gutiérrez & Flórez (2011).

The history of scientific writing in higher education shows some dates that marked its beginnings, and it was in 1980 when the National University of La Plata in Argentina organized the scientific forum intending to disseminate regional research. In 1987 the University of Buenos Aires in the Department of Semiology began to develop reading and writing workshops in the common cycle to increase the number of students entering higher education; In addition, between 1994 and 1996, UNESCO created the chair for the improvement of the quality and equity of education in Latin America based on reading and writing with programs and the opening of offices and sub-offices until it had a decisive impact on the discipline (Avendaño, 2005).

In 2003, to strengthen writing through academic literacy, the International Symposium on Textuais Gender Studies (SIGET) was created at the State University of Londrina (Brazil). Shortly after, the reading and writing network in higher education (REDLEES) was born in Colombia and in 2014 the Latin American network of writing centres and programs was founded in the same country, and 2016 the Latin American association for writing studies in higher education and professional contexts (ALES) was created in Chile (Navarro, 2017).

These reading-writing programs and networks aim to develop and strengthen research and dissemination of results. In addition, the skills and abilities of students and professionals for scientific writing in higher education centres (Alava et al., 2021). Currently in Ecuador, quality standards require higher education institutions to consider scientific research as a necessary element in the curriculum; however, in the country's state and private universities there are difficulties in the preparation of scientific articles, and this corresponds to a certain extent to writing problems and the lack of reading culture of the students (Petrakis & Stamatakis, 2002; Gudanescu, 2010).

Studies such as that of Solórzano Quiñonez (2016), applied at the University of Guayaquil in the Faculty of Philosophy where he evidenced through diagnosis some difficulties in scientific writing such as: structuring scientific articles, use of grammatical norms with emphasis on accentuation, concordance of ideas and word redundancies. In the educational field, teachers, students and researchers strive to carry out research in different fields; however, some of these results cannot be disclosed to a certain extent due to the difficulty of writing scientific texts, which is reflected in the little scientific production; In a study carried out at the Universidad Laica Eloy Alfaro de Manabí on scientific production at the university during the period 2011-2017, it showed a progressive behaviour in terms of publications of scientific articles in journals, however, it is still in lower ranks to other Universities (Montilla & Guzmán, 2018).

The Constitution of the Republic of Ecuador (National Assembly, 2008), in its article 387 paragraph two promotes "the generation and production of knowledge, encourage scientific and technological research and ensures the dissemination and access to scientific and technological knowledge" (page 174). The University has the power to promote and generate science through its teachers and foster its student's interest in scientific production through works such as essays, theses, or articles (Elias et al., 2011; Chao et al., 2021; Sani et al., 2020). Therefore, in this context professionals and students must acquire knowledge and develop skills to write texts scientifically.

In the Ecuadorian sphere, from the validity of the Organic Law of Higher Education in 2010, questions arose related to effective scientific writing in universities It is a question that until now reveals errors and

shortcomings that occur in the production of scientific and promptly in the writing of scientific texts, perhaps the little teaching of writing in school and secondary school is one of the answers to this problem that hinders quality scientific production in Ecuador, or perhaps, the educational model does not it is responding to the demands of training academics with skills to investigate and communicate the results of their research (Pinto, 2016).

Despite having an increase in Ecuadorian scientific production in recent years, this has not been represented in countries such as Brazil, Argentina, or Chile itself; perhaps it is due to the economic factor and very little budget is being allocated for scientific research, or perhaps it responds to a cultural situation where we always expect great scientific and technological advances to come from developed countries. And why not generate such advances in our midst. But, for this, we must work in coordination and give adequate training in scientific communication and create reading and writing habits that allow students to arouse their research interests (Bitchener et al., 2005; Green et al., 2006; Lewis & Gratson, 2004).

The academy as a professional training engine should investigate and know the reasons why research is not being produced and published. One of the answers lies in the difficulty of writing research papers. This is shown by research such as that of Albarrán (2015), who specified that one of the reasons why university students find it difficult to write is due to the little teaching of textual linguistics, that is, how texts are structured following a grammatical order.

Writing scientific texts today has become a challenge for professionals and researchers due to the difficulties that arise when starting a piece of writing. Under this approach, it will be necessary to show that authors such as Sánchez in the year (2005) highlighted some of the difficulties presented by a group of university students from Costa Rica when writing a document to call the attention of the authorities. Universities to rethink the teaching process in text writing.

Also, authors such as Pérez et al. (2016), indicated that to develop specific skills in writing texts, the tutor or teacher is the one who must have the theoretical and practical preparation to transmit the necessary knowledge to the student and he/she achieved success in his/her writings, adhering to these recommendations in the Ecuadorian educational field, teachers should be trained in scientific research and scientific writing so that they develop the necessary capacity and experience to guide their students. Similarly, Menéndez et al. (2016), consider that every scientist must know to successfully develop and publish the results of their studies.

Scientific writing has been the basic element through which knowledge resulting from research is transmitted, as indicated by Serrano et al. (2018), based on this orientation, greater importance must be given to scientific writing in the pedagogical field by creating writing programs. that involve teachers and students since we have low rates of reading comprehension, which is essential for the development of reflection and critical thinking.

Based on the above, authors such as Caron et al. (2020), have already indicated that among the difficulties of scientific writing, it is associated with poor reading habits and scientific publications without neglecting the application of grammatical rules as contrasted by Herrera et al. (2020). In the territorial context, mainly in universities, emphasis should be placed on developing and perfecting reading comprehension skills and writing scientific texts and these are part of the teaching and learning process.

Writing does not mean an instantaneous act that is achieved from one day to the next, this requires constant training and that must be included in each of the disciplines that professionals are trained Jiménez (2020), Direct teaching on writing must continue science to develop skills and abilities in professionals and thus increase scientific production in Ecuadorian Universities and with greater emphasis in those of Manabí.

This article will serve as a theoretical instrument in which the experiences of several authors who have given their scientific contributions regarding the study variables have been captured; In addition to contributing with statistical data about the degree of scientific writing presented by the students of the Universidad Laica Eloy Alfaro de Manabí, Chone extension at the educational levels: undergraduate and postgraduate, to show aspects of scientific writing in students and professionals; In addition, this study aims to contribute with the results obtained so that they serve as a basis for future research (Shapiro & Caramazza, 2003; Mintz, 2003).

## 2 Materials and Methods

A bibliographical study was carried out with a review of information sources of scientific articles and books from various theoretical references, which express their theories about scientific writing in the field of higher education; a qualitative design was used where statistical data was obtained represented in percentages that measure the degree of scientific writing presented by the selected educational levels.

## 3 Results and Discussions

To carry out the research, a non-probabilistic convenience sampling was used, in a sample of 66 participants from the Universidad Laica Eloy Alfaro de Manabí, Chone extension distributed to 30 undergraduate students of the Basic Education career of the faculty. of Education Sciences, 36 students of the teaching master's program in higher education mention: teaching and research in higher education, parallel "A" and "B", using google forms, the scientific writing survey was applied to them based on elements of the questionnaire on academic writing by [Gutiérrez & Flórez \(2011\)](#). The results obtained related to the liking for reading are shown in Figure 1.

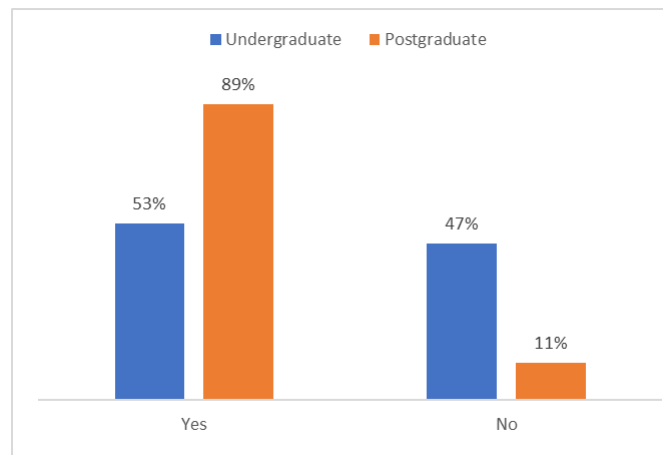


Figure 1. Liking for reading

The results show that at the undergraduate level, 53% of students show a liking for reading and that only 47% partly show love for reading. At the postgraduate level, 89% like reading and 11% show a partial liking for reading. This evidence is in greater proportion to the taste for reading, being this important in writing since it enriches the vocabulary and allows it to be more reflective and critical. It was also possible to consult the types of reading that they liked to read; these results are shown in figure 2.

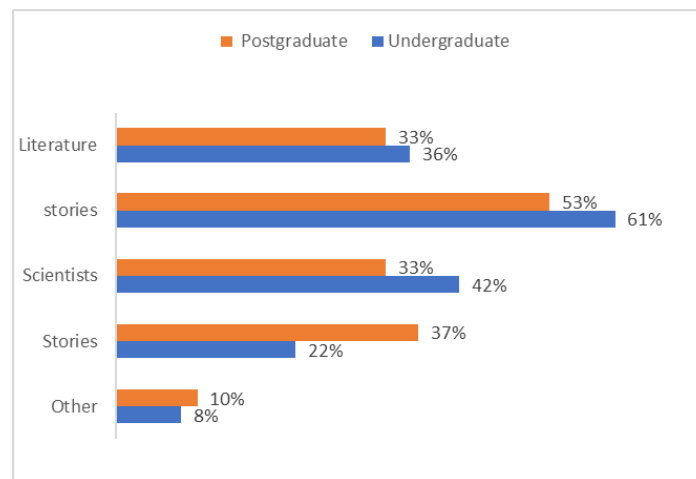


Figure 2 Types of reading that they have done

At the undergraduate level, the type of reading that they like to read is literary with 33%, stories with 53%, scientific with 33%, stories with 37% and others such as fiction and romance with 8%. In literary graduate with 36%, stories 61%, scientific 41%, stories 22%, and in the category of others are administrative, variety of reading, informative news of great global impact with 10%. The results show the taste for varied reading; however, in the university setting, greater emphasis should be given to reading scientific texts.

The reading levels that apply were consulted, obtaining that they use more the literary and critical level, in the undergraduate the inferential and critical. In postgraduate studies, the literal and inferential levels are less than the critical level. The results denote in a greater proportion the reading of texts at a literal level; however, in the university environment and with more emphasis in a master's program, it must be read in an inferential and critical manner that allows a text to be understood and can be explained and questioned on the subject.

The taste for writing was investigated, showing at both levels that, if they like to read, although there is a group that has not yet internalized the subject and does not have the experience of writing, although at postgraduate levels they have a greater interest in the subject. The taste for writing was investigated, showing at both levels that, if they like to write, although there is a group that has not yet internalized the subject and does not have the experience of writing, although at postgraduate levels they have a greater interest in the subject. Figure 3 shows the types of writing that undergraduate and postgraduate teachers have done.

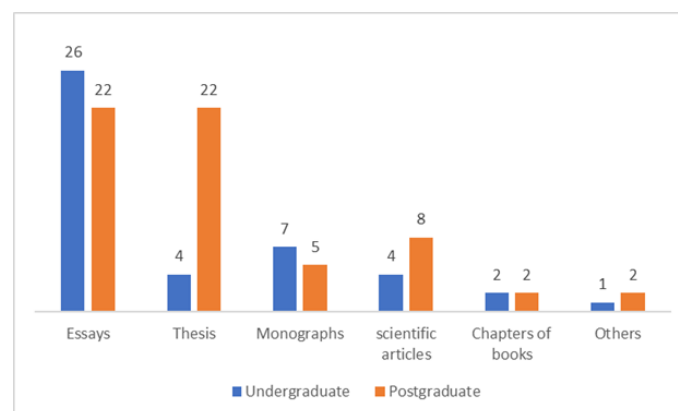


Figure 3. Types of writing they have done

As you can see, the texts that are written at the undergraduate level are essays, theses, monographs, scientific articles, book chapters and others such as reports. At the postgraduate level, it is also reflected that they have

contributed to writing, essays and theses being significant. The results show a greater proportion of essay writing since in the academic field they are the most requested. However, emphasis should be placed on mastering the structures of scientific texts and promoting the writing of scientific articles to share the results of research with the scientific community.

The forms of scientific writing were inquired about, noting that in most cases they have responded in the third person, although it is evident that in postgraduate studies, they write more in the first person. Although most of the respondents recognize the use of the third person in the writings, a big difference does not. Therefore, one of the aspects that should be considered when writing the results of an investigation is the use of language that alludes to the content style of the text.

Regarding the grammatical rules in the academic field, it is necessary to know the punctuation marks to construct a text in a way that it can be interpreted and facilitates its reading; being able to point out that these parameters are still not clear at both levels, so work must be done to improve grammatical norms, as well as the identification of the type of citation if it is narrative or parenthetical.

The APA standards are the most used in academic writings, identifying their use to reference information and data that are not the authors own is important when writing academic texts. The results at the undergraduate level show that 57% know the use of a parenthetical citation and the difference does not identify how to structure the parenthetical citation in a text. At the postgraduate level, 50% identify its use in the text and the difference does not identify it. The results show an important lack when identifying the use of a parenthetical citation in a written text, particularly at the postgraduate level.

One of the most significant questions was related to the structure of the scientific article in figure 4, the results obtained are observed.

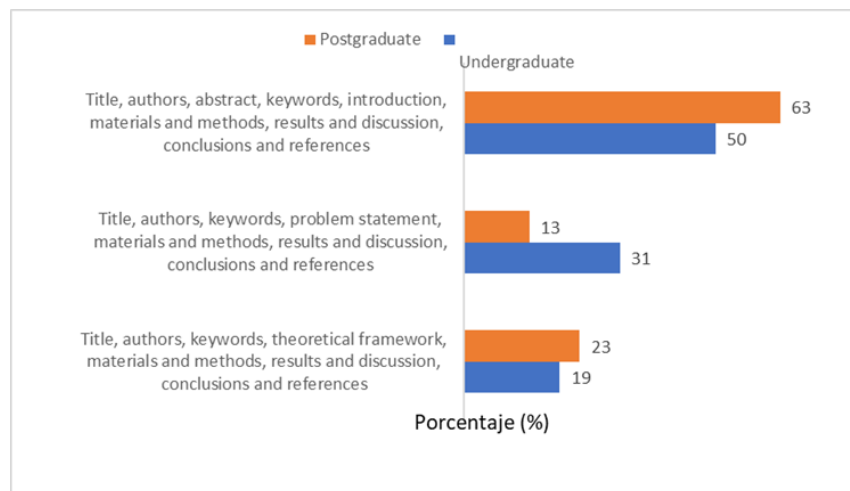


Figure 4. Generally, the structure of a scientific article consists

Identifying the parts that a scientific article contains and how to respond to each of them is important to develop a structured and orderly writing of the results of an investigation. The results at the undergraduate level show that 63% know the structure of a scientific article while 37% do not. At the postgraduate level, 50% identify the elements that structure a scientific article while the difference does not. The results show that a considerable number have not written scientific articles.

In the investigation, results related to the reference authors were found; taking into account [Caron et al. \(2020\)](#), in a study carried out with 148 postgraduate students in health, they identified that among the main shortcomings in the preparation of scientific articles has been insufficient reading habit related to scientific publications, in contrast to The results of this study at the undergraduate and postgraduate level show a greater proportion for liking reading, which is important to enrich the vocabulary and have a critical and reflective posture in a text. However, students at the undergraduate and graduate levels tend to have mixed reading backgrounds, so emphasis should be placed on reading scientific texts.

In related matters, [Pérez et al. \(2016\)](#), propose, where they mention that learning to develop correct skills for writing scientific texts is a process that must be directed and taught, and that our teachers do not always

have theoretical and practical preparation. to help you successfully reach your goal. Following this study, it can be mentioned that at the undergraduate and postgraduate levels, a greater proportion like to write. However, they do not do it scientifically, as evidenced in the texts that the students write, therefore, pedagogical preparation for scientific writing should be provided at the University.

In the study by [Herrera et al. \(2020\)](#), they show that the most frequent difficulties that arise when writing texts have been the adequate use of grammatical norms, an aspect that is related to the results of this research where it is evidenced the difficulty of identifying the use of commas in the construction of texts by undergraduate and postgraduate students.

Finally, [Solórzano Quiñonez \(2016\)](#), in his applied study at the University of Guayaquil in the Faculty of Philosophy were evidenced by diagnosis some difficulties in scientific writing such as: structuring scientific articles, use of grammatical rules with emphasis on accentuation, concordance of ideas and redundancies of words. In this context, it is related to the results of this study in the aspect of structuring scientific texts where a considerable proportion of the students surveyed do not know the structure of a scientific article with its elements that are: Title, authors, abstract, keywords, introduction, materials and methods, results and conclusion and references. This study shows results about the use of citations in APA standards, where an important lack is evident when identifying the use of a parenthetical citation in a written text, particularly at the postgraduate level, results that are not related to bibliographic references. mentioned in the text.

## 4 Conclusion

The undergraduate and postgraduate levels show a greater degree of pleasure in reading; however, the content is very varied, which can limit reflection and critical posture in the development of research and writing of scientific articles. It is contacted that the undergraduate and graduate students in this study like writing, although the writings they write are not scientific, so a pedagogical preparation of scientific writing should be provided at the university. The most common scientific writing problems presented by undergraduate and graduate students are associated with scientific reading, difficulty in preparing scientific articles, use of grammatical rules, use of bibliographic citations, and training in scientific writing.

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