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*Scientific articles*

## **Escritura colaborativa: una práctica social mediada por las tecnologías**

***Collaborative writing: A social practice mediated by technologies***

***Escrita colaborativa: una práctica social mediada por tecnologías***

**Crisanto Salazar González**

Universidad Autónoma de Sinaloa, México

[crisantosalazar@uas.edu.mx](mailto:crisantosalazar@uas.edu.mx)

<http://orcid.org/0000-0002-8784-346X>

### **Resumen**

Este estudio, presentado inicialmente como ponencia y ahora como artículo de investigación, examina cómo la incorporación de las tecnologías educativas (TE) está transformando la enseñanza y el aprendizaje de la escritura en la universidad. Por eso, a través de un estudio de caso en la Universidad Autónoma de Sinaloa, se analizaron las prácticas de cultura escrita en un entorno universitario dominado por la tecnología. Los resultados revelan una paradoja: a pesar del predominio tecnológico, tanto estudiantes como docentes utilizan de manera limitada las TE en los procesos de enseñanza-aprendizaje de la escritura. Sin embargo, los alumnos reconocen beneficios significativos en el uso de herramientas digitales para sus tareas de escritura, como una mayor interacción y motivación en el aprendizaje, una comunicación más efectiva con los profesores y el acceso a una amplia gama de recursos educativos digitales. La investigación concluye que la escritura colaborativa mediada por tecnologías puede ser una herramienta valiosa para mejorar la calidad de la educación universitaria, ya que promueve el aprendizaje colaborativo y la creatividad entre los estudiantes. Además, subraya la importancia de incorporar las TE de manera efectiva en los programas de formación profesional y de reconocer su papel en los procesos de enseñanza-aprendizaje en la universidad.

**Palabras claves:** aprendizaje en línea, enseñanza de la escritura, escritura, estudio de caso, formación profesional, tecnología educacional.



## Abstract

This study, initially presented as a paper and now as a research article, examines how the incorporation of educational technologies (ET) is transforming the teaching and learning of writing at the university. Through a case study at the Universidad Autónoma de Sinaloa, the practices of writing culture in a university training environment dominated by technology were analyzed. The results reveal a paradox: despite the technological predominance, both students and teachers make limited use of ET in the teaching-learning processes of writing. However, students recognize significant benefits in the use of digital tools for their writing assignments, such as increased interaction and motivation in learning, more effective communication with teachers, and access to a wide range of digital educational resources. The research concludes that technology-mediated collaborative writing can be a valuable tool for improving the quality of university education, promoting collaborative learning and creativity among students. In addition, it emphasizes the importance of incorporating ET, in an effective way, in professional training programs, recognizing their status and mediation in the teaching and learning processes at the university.

**Keywords:** Online learning, Teaching writing, Writing, Writing, Case study, Professional development, Educational technology.

## Resumo

Este estudo, inicialmente apresentado como artigo e agora como artigo de pesquisa, examina como a incorporação de tecnologias educacionais (TE) está transformando o ensino e a aprendizagem da escrita nas universidades. Portanto, através de um estudo de caso na Universidade Autónoma de Sinaloa, foram analisadas as práticas da cultura escrita em um ambiente universitário dominado pela tecnologia. Os resultados revelam um paradoxo: apesar do predomínio tecnológico, tanto alunos quanto professores utilizam de forma limitada a ET nos processos de ensino-aprendizagem da escrita. No entanto, os alunos reconhecem benefícios significativos na utilização de ferramentas digitais para as suas tarefas de escrita, tais como maior interação e motivação na aprendizagem, comunicação mais eficaz com os professores e acesso a uma vasta gama de recursos educativos digitais. A pesquisa conclui que a escrita colaborativa mediada por tecnologias pode ser uma ferramenta valiosa para melhorar a qualidade do ensino universitário, uma vez que promove a aprendizagem colaborativa e a criatividade entre os alunos. Além disso, destaca a importância de incorporar

efetivamente a ET nos programas de formação profissional e reconhecer o seu papel nos processos de ensino-aprendizagem na universidade.

**Palavras-chave:** aprendizagem online, ensino de redação, redação, estudo de caso, formação profissional, tecnologia educacional.

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## Introduction

In the university environment, academic writing is an aspect of research that must be explored in light of the challenges that characterize the current educational system, among which the impact of covid-19 can be mentioned. Indeed, this health emergency affected the forms of social interaction both in the world of work and in academic and research environments, hence educational technologies (ET) acquire a leading role in the different disciplines of professional training. On this matter, Area and Adell (2021) point out that “confinement generated the immediate disappearance of face-to-face teaching to be replaced abruptly and hastily by educational mediation through technologies” (p. 86).

Faced with these challenges, the various professional disciplines have experimented with new forms of teaching and learning mediated by TE, where knowledge and mastery of written culture becomes decisive for the training of future professionals. Within this culture, we find new theories, strategies, word processors, bibliographic managers, digital reading, databases, *e-learning platforms*, writing centers and programs, video tutorials, videoconferences, webinars, conversations and artificial intelligence, among other resources and programs that shape a new paradigm of academic writing in universities.

## Academic writing

Academic writing plays a leading role in the learning of young people in the various areas and disciplines of university training. This is because, through academic writing and collaborative work, various research has shown that young people not only acquire knowledge, but also the competencies and cultural practices that characterize a discursive community, understood as the set of individuals who They share specific forms of language use within a discipline, such as architects, doctors, communicators, educators, chemists, biologists, historians, among others. In this case writing, these forms of language use are determined by a set of skills, techniques, strategies, methodologies, theoretical references and technological resources present in the day-to-day life of any area.



However, the teaching of academic writing continues to be a pending subject in some degree programs, and in others the space it occupies in the curricular framework is insufficient. In one way or another, the teaching of writing has been postponed and avoided, which gives the impression that it has no relevance for the university education of young people.

For this reason, researchers insist on highlighting the teaching and learning of academic writing “as a social practice in which subjects appropriate material and symbolic resources to carry out certain activities within the framework of a community of practice, in which they acquire skills and knowledge” (Godoy, 2019, p. 228).

In addition to this, it cannot be denied that difficulties in academic writing are common in university classrooms, and diagnoses made fifteen or more years ago are still valid, as some research shows. For example, Carlino (2004) maintains that young people, when writing, do not take the reader into account, do not take advantage of the epistemic potential of writing, correct only superficially and, generally, leave the task of writing for the last one. moment.

García (2004), for his part, states that the student has “little command of the written code and erroneous conceptions about the process itself” (p. 11) of what he writes during his university education. Padilla *et al.* (2010) also indicates that young people lack “the specific modes of construction, circulation and legitimation of scientific knowledge in the academic field of their profession” (p. 2). These investigations demonstrate that, although young people have knowledge and skills in reading and writing, they lack the written culture practices that predominate in a discourse community in their professional area of study.

Given these difficulties, various works (García, 2004; Padilla *et al.* , 2010; Roa Rodríguez, 2013; Verástica and Salazar, 2021) propose new models, approaches and dimensions of study, and suggest specific strategies and programs for teaching and learning. of writing at the university. Other research (Salazar, 2020; Rey-Castillo and Gómez-Zermeño, 2021) offers new perspectives, not only from linguistics and cognitive psychology, but also from sociocultural studies of writing, such as literacy and academic literacy. In this regard, Bombini (2019) summarizes this problem by stating the following:

In recent decades, the field of academic literacy has demonstrated its possibilities for the installation of a problem perhaps invisible for a long time as a pedagogical-didactic problem (teaching what is finally evaluated), which

is that of reading and writing in the classroom. university and higher level in general (p. 2).

In accordance with the above, Rey-Castillo and Gómez (2021) explain that, given the difficulties in academic writing, educational institutions have chosen to integrate various strategies aimed at developing students' written production skills. Thus, in professional training, writing workshops, writing centers and programs, remedial courses for academic writing and *bestsellers* on the subject predominate as solutions to these difficulties. However, as Giraldo (2020) assures, “writing has not been considered—and it does not seem that it was going to be—a transversal activity, since it has been relegated to a first semester subject that often reviews only updates on grammatical matters.” (p. 188).

In view of the significant effect that academic writing has on the learning process, the didactic strategies used to comply with the assigned writing instructions are also evident, as is the case of collaborative writing. Some researchers affirm that, through collaborative writing, “dialogical processes emerge that accompany the writing experience” (Bonilla and De Castro, 2021, p. 200), which encourages participation among students and improves the dynamics and effectiveness of learning. Regarding this, González (2020) adds that “students appreciate collaborative work as a way that allows them to learn more. Specifically, there are many benefits at a cognitive level because it invites reflection and discussion among group members” (p. 348).

From this perspective, Lowry *et al.* (2004) explain that collaborative writing implies that several students, in their role as writers, participate interactively and collectively in writing a document. During this process, students negotiate, coordinate and communicate with each other throughout the preparation of the academic text. Furthermore, collaborative writing encompasses various pre- and post-task activities such as team formation, activity planning, reference selection, resource management, control approaches, role assignment, work modes. and the determination of deadlines. For this reason, Ranz López (2018) finds in collaborative writing a valuable tool that can enhance learning, since it favors the development of skills, attitudes and the acquisition of new knowledge with the aim that these learnings are reflected in the lives of a professional future.

## Technologies for learning

Returning to Bombini's (2019) assertion, academic writing must resize its presence and action in each of the professional training disciplines, not as a fashion or response to an educational policy, but as an indispensable competence that young people must develop to get along in a literate world mediated by technologies.

In this aspect of academic complexities and difficulties, and in the face of the risk of contagion by covid-19, educational technologies (ET) acquired greater visibility in the teaching and learning processes of the various vocational training disciplines. However, as Castells (2014) anticipated, the emergence of technologies in various fields created speculation, phobias and fears, since they were used before scientists could evaluate their effects and implications, which caused a gap between social change and its understanding. For this reason, academic writing is configured as a new dimension of study that acquires relevance, as a social practice of reading and writing through various technological means predominates.

In this context, shaped by covid-19 and the emergence of educational technologies (ET), academic writing is situated in a digitalized classroom environment where students and teachers interact from home, in class sessions through Zoom video calls. . In this environment, the student is expected to pay attention to the class on the screen, take notes in a notebook, search for information on the Internet, read chapters of books or articles in digitalized magazines, underline and shade data using Word or PDF tools, make annotations in the margins of the text, transcribe (copy and paste) into a Word document, prepare the first draft, consult the dictionary of the Royal Spanish Academy, confirm data, make and remake versions of the same text, design the presentation and, finally , send the final writing by email or through a platform to your group teacher and then wait for correction or comments on your work.

Therefore, Jaramillo *et al.* (2009) warned that the reality of academic writing was being surpassed by the use and application of TE in teaching and learning processes . In other words, perhaps they were already present, but they were not as evident as after the pandemic. Therefore, the need to identify and analyze online writing practices as an alternative for teaching-learning in professional training, which has not been sufficiently taken advantage of in university classrooms.

From this perspective, and taking as reference Jaramillo *et al.* (2009), technologies, in the educational context, are defined as follows:



Those tools based on digital technology that involve the computer and the Internet, and allow storing, processing, retrieving, transmitting and presenting massive amounts of information. They include the applications used by computers to provide and manage information (software, databases, multimedia, etc.), as well as new technologies around the Internet (forums, chat, distribution lists and platforms for e-learning) (p . 177).

Roschelle *et al.* (2000) and Jaramillo *et al.* (2009), in their theoretical reviews, highlight the advantages of TE in university training processes. According to these researchers, these technologies allow the implementation and development of a variety of learning activities that involve greater interaction between students and teachers, while generating greater availability and motivation for learning. Furthermore, the authors emphasize that technologies have a positive effect on topics that are commonly considered difficult to present in a conventional classroom.

In this regard, Álvarez (2017) observes that rapid technological development has made the teaching and learning of academic writing increasingly complex. According to this author, “based on the important changes produced in writing technologies, the modalities of group and collaborative writing have increased and diversified” (p. 168), which has given rise to new lines of research in academic writing mediated by technologies.

Along these lines, other researchers have shown that the conventional classroom and the resources available in it tend to provide “quite poor support for learning, while technology, when used effectively, can allow for forms of teaching that are much better adapted.” to how young people learn” (Roschelle *et al.* , 2000, p. 79) at university. Similarly, Jaramillo *et al.* (2009) highlight that “moderated discussion forums with clear learning objectives [...] and blogs focused on reflection on learning experiences are alternatives that facilitate interaction , dialogue and construction ” (p. 177) of online learning. Torres and Cobos (2017) also recognize that “these new alternatives in communications are increasingly presented with greater possibilities of access for a broader and more diverse public, which enhances their employability in the educational field” (p. 33).

Given this, it is observed that the advantages of incorporating TE in university training processes outweigh the disadvantages, since they are based on the easy access that young people have to these technological resources as part of their social interaction. Therefore, some researchers insist that “writing has a fundamental place in learning different

areas of knowledge; In this sense, it is important to articulate the work with studies in the field of ICT and mobile devices in education” (Bonilla and Castro, 2021, p. 215).

Now, with this new social dynamic of educational systems, Area (2009) warned that technological literacy would be an essential condition for young people to access and behave responsibly across diverse cultures and in a digitalized world. Therefore, the need is highlighted not only to promote, but also to incorporate digital literacy in higher level educational programs with the purpose of students acquiring the competencies and skills to interact in a hyperconnected society and face the opportunities and challenges of the world. progress. However, Galván *et al.* (2020) recognize that “technological literacy implies effective, ethical and timely performance based on the appropriation of digital tools [...] and the use of communication channels to improve and enrich teaching practice” (pp. 14, 17).

Therefore, more than teaching them to write, university students need to be enabled to interact as active subjects in a literate culture. That is, they require experience in the use of written language and the technological tools specific to their professional area. This involves knowing and mastering the discursive genres, the educational technologies available, and the design of strategies that allow them to think, speak, read, write and act as active members of their training community. In this sense, Godoy (2019) argues, based on his literature review, that “the learning of academic literacy is a process that involves participating in the literate sociocultural practices that define a school and/or academic community and gradually appropriating of certain knowledge about the disciplines” (p. 215).

In this context, where the difficulties of academic writing continue to be valid in university classrooms, where the consequences of the covid-19 pandemic have not yet healed and where the topic of TE stands out in the emerging academic discourse, but not in reality. that is experienced in university classrooms, the following question arises: how is academic writing developed in an online university school group? To address this, the objective is to identify and analyze the written culture practices that are generated in a training environment where the use of technologies predominates, through an *online course* .

## Materials and method

As a methodological framework, this research is qualitative and is based on the case study method, observing for a period of six months a group of twelve students who are studying the fourth semester of the degree in Secondary Education in Spanish at the Faculty of Educational Sciences of the Autonomous University of Sinaloa.





The case study method, according to Martínez (2006), is a research tool that not only focuses on the data obtained through questionnaires, but also relies on the actions and behaviors of the subjects involved in the research. For this reason, observation records and interviews were used, and the condition of the facilities and technological means (such as audio and video recorders) were evaluated to capture the object of study more richly.

In accordance with the stated purpose, this study is descriptive because it identifies and describes the written culture practices that are developed in a university-level online learning classroom, and it is exploratory because it contrasts these practices with existing theories, presented in the theoretical framework. , and with the *in situ* reality of the object studied.

Regarding the sample, paraphrasing Eisenhardt (1989, cited by Martínez 2006), this is not a representative sample of a population of students from a faculty, but rather a theoretical one with the purpose of replicating or extending an emerging theory. Consequently, it was made up of a group of twelve students from the third semester of the Bachelor's degree in Secondary Education, who already have experiences from previous courses and are studying a subject related to writing academic texts.

Spanish Teaching Strategies course , corresponding to the months of February to June 2021. The average age of the young people was between 19 and 21 years old, with a composition of seven women and five men. . The course was carried out completely online, through the NEO LMS platform, video conferencing on Zoom and text messaging on WhatsApp, during twelve sessions of two hours each, from 8:00 to 10:00, on Tuesdays of each week.

For each class session, the following didactic sequence was carried out: assignment of a reading prior to the session, questions about the reading, presentation of a teaching strategy, and presentation, by the students, of the design of a strategy to teaching Spanish. Finally, the strategy was presented individually through the NEO LMS platform, with colleagues, for feedback and correction in the discussion forum.

In short, this research can be categorized as an explanatory descriptive study, which is based on a questionnaire applied to the twelve students through Google Forms , a semi-structured interview and an online focus group interview (via Zoom).

## Techniques and instruments

Regarding the techniques and instruments, the case study method requires greater rigor and description of the procedure to provide greater support for the findings found. Therefore, the procedure followed is described below :

1. In each class session, field notes were taken, the profiles displayed on the screen were recorded (in audio and video), with the consent of the students, and the writings displayed in the forums were safeguarded.
2. A questionnaire was applied through Google Forms with the purpose of knowing the technological resources that young people have or have available, as well as their knowledge and mastery of the use of technologies and their feasibility for learning academic writing. This questionnaire consists of twenty multiple choice questions, of which the twelve most relevant to the case of this research were taken (table 1).

**Table 1.** Multiple choice questionnaire on the availability, knowledge and mastery of technological resources for learning at the university

Questions P	Answers R
P1. Through what technological means do you take your online classes?	A1: a). Desktop computer, b). Laptop, c). Cellular, d). Cyber.
P2. Typically, the internet service you have to connect in class is	A2: a). Home contracting service, b). Cell phone package, c). Public network, d). Cyber.
P3. Advantages of taking online classes from home	A3: a). Greater motivation for learning, b). Greater interest in learning, c). Greater group interaction, d). All of the above
Q4. Disadvantages of taking class online	A4: a). Not having internet and online connection, b). It does not allow me to live with my group mates, c). Not having online connection means, d). Not knowing how to use technological means.
Q5. What are the learning activities or assignments that your teachers request online?	A5: a). Very well explained, b). Difficult to understand, c). Regular (More or less).
Q6. The reading material is usually	A6: a). Accessible and interesting, b). Complex and difficult to read, c). More or less
Q7. When writing a text do you use the word processor tools?	A7: a). All, b). Just the basics, c). None.
Q8. The level of mastery of using Word to prepare academic texts is	A8: a). Significant enough (A lot), b). Moderately significant (More or less), c). Significant (Nothing), c). Other.
Q9. When you write a text, you surf the Internet to	A9: a). Consult pages on the subject, b). Consult dictionaries, c). Consult magazines, d). Consult databases
Q10. Learning academic writing is more motivating when done	A10: a). As a team, with other classmates, b). As a couple, with a classmate, c). Individual, d). In a group, with all classmates.
Q11. Before carrying out a writing task I like to make a writing plan (outline).	A11: a). Yes, b). No, c). From time to time.
Q12. When I do a writing task I prefer to have observations and/or corrections	A12: a). My classmates, b). From my parents and siblings, c). From my teachers, d). From a special friend, e). From no one in particular.

Source: Own elaboration

3. From the tenth session onwards, each student was interviewed individually, in an assigned time via Zoom, to learn about their experiences with writing in digital media, as well as the advantages and disadvantages of writing through the NEO LMS platform. To do so, three thematic axes were proposed: teamwork, writing instructions and role assignment. From these thematic axes, the following questions were derived that served as an interview guide: a) What were the difficulties you had in preparing the final course work?, b) Who do you usually go to when you have a writing problem to solve it?, c) How did the team members contribute to the preparation of the final class work?, d) What value do you assign to the work you did with your group mates?
4. Then, the interviews were transcribed, taking into account the field notes and mental notes, to later carry out their analysis.
5. To close the course, a focus group interview was organized with the participation of five students who managed to connect via Zoom with the purpose of confirming or verifying some findings. For this interview, the following questions were asked: what does it mean to work as a team? How were you organized to work as a team on the final work? What role does each one play in the preparation of the final work? And what characteristics did you define that the final work should contain? (see table 2 of the annexes section).

### **Analysis procedure**

For the analysis and interpretation of the data, it was considered “organizing, grouping and explaining the information collected, which turns into tangled, confusing processes that require too much time, but that at the same time are pleasant and ingenious” (Avolio , 2015, cited by Canta and Quesada, 2021, p. 777). In this sense, we proceeded with the inductive analysis method of qualitative data (Martínez, 2006), as follows:

1. The results of the questionnaire were studied and graphed. Then, the transcriptions and field notes were read and reread with the purpose of identifying the most relevant data to organize or classify them using codes.
2. With the data obtained, possible questions/topics were formulated that would be part of the interviews, both semi-structured and focus group, to then verify and code again.

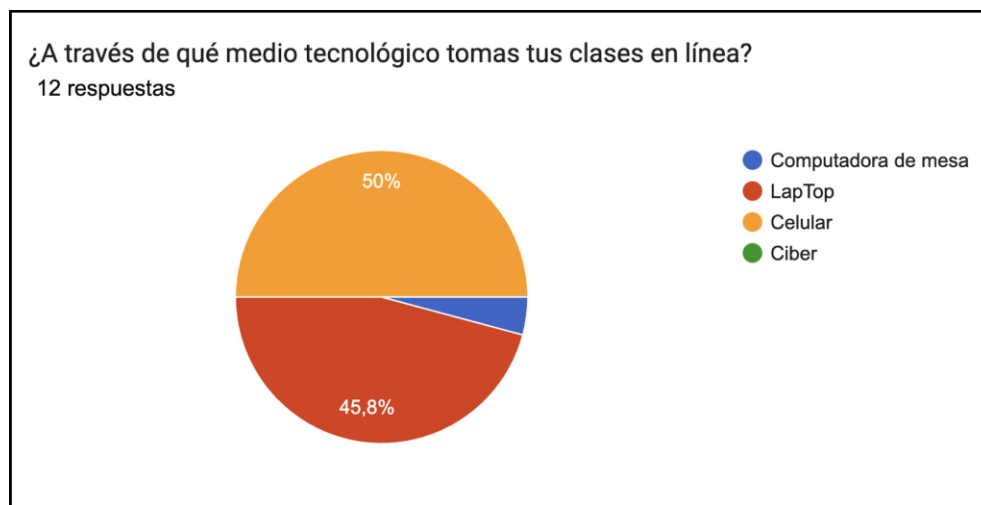
3. Some codes were compared with others to obtain and construct the analysis categories.
4. Each category was analyzed in light of the background of other research.
5. Possible relationships between the categories were identified to reach conclusions.

## Results

Below are the findings that directly respond to the research objective, both from the Google form questionnaire and from the interview conducted via Zoom. First, the results of the questionnaire are presented and, secondly, the results of the interview.

The technological means that young people use most to take their online classes is the cell phone (50%), followed by the *laptop* (45.8%), and the rest use a desktop computer (4.2%). Internet connection by contracting service at home predominates (figure 1).

Figure 1: Technological means that students use to take online classes.



Source: Own elaboration

In relation to the online class, young people claim that they have greater interaction and motivation for learning, but they regret not being able to interact directly with their group mates (figure 2).

Likewise, students report that the learning activities are more explicit and the support material is more accessible and varied for their learning. Young people recognize a low level of mastery in the use of Word for writing, since they only use the basics of the word processor (figure 3).

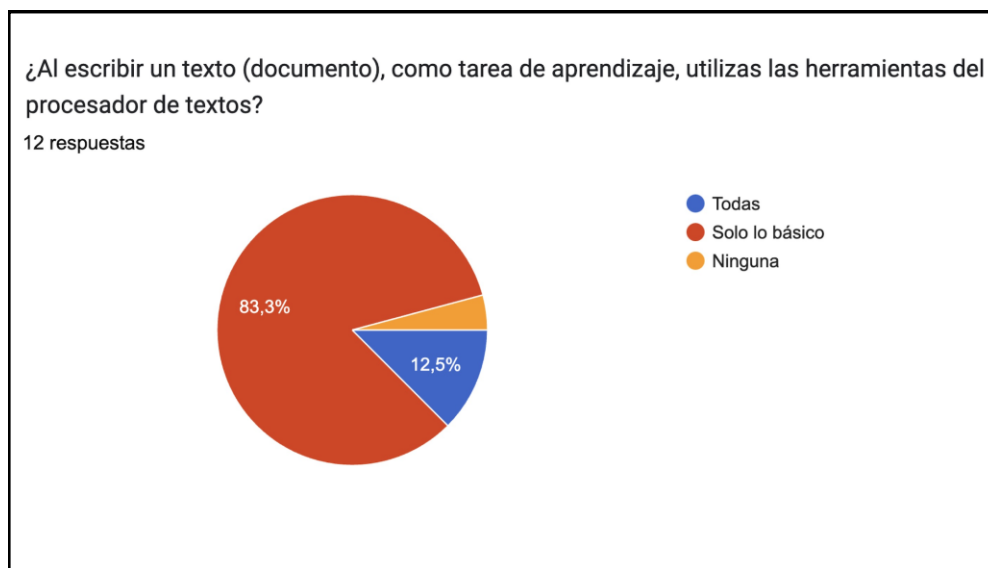
On the other hand, they mention that they only use the Internet to consult the topic about which their teacher is asking them to write.

Figure 2: Advantages for students of taking classes online



Source: Own elaboration

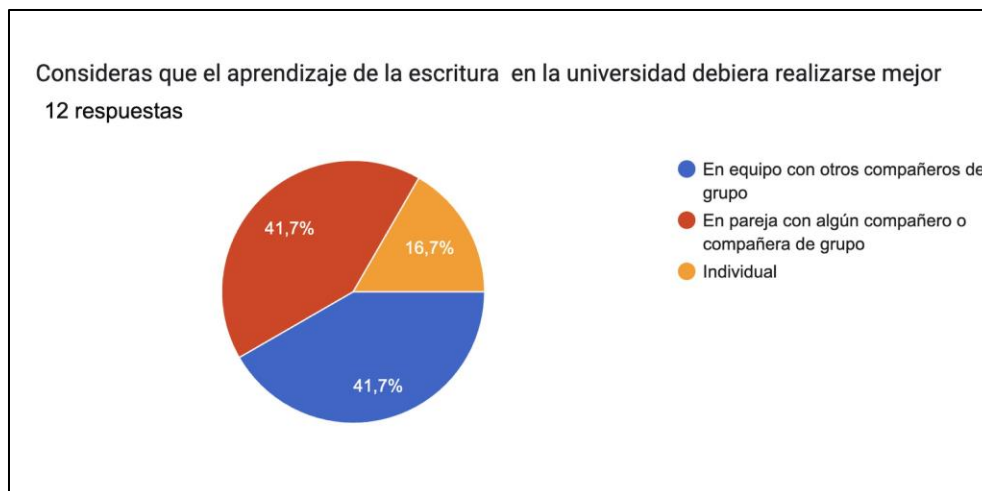
Figure 3: Using Word's word processor tools when writing



Source: Own elaboration

In relation to teamwork, students mostly prefer learning to write in a team with other classmates (41.7 %) and in pairs with a groupmate (41.7%). A smaller percentage prefers to work individually (16.7 %) (figure 4). In this same area, they point out that they rarely prepare a writing plan and that they only sometimes prepare a draft. Regarding correction, they mention that they read and correct up to two times before uploading the text to the online platform. Finally, students claim that they expect observations or corrections to the reported writing, both from the teacher and, if possible, from a classmate.

Figure 4: Learning to write at university



Source: Own elaboration

Regarding the results of the semi-structured interview and the focus group, the conception that young people have regarding teamwork stands out, understanding that it means collaborating with everyone through communication and the exchange of ideas around a common purpose. This is how they express it in this conversation:

Have good communication to have a common job, finished ( *John* ).

Working as a team means working together. It's just...I don't know how to say it. It seems more dynamic to me and we can share our thoughts, our ideas and all that ( *Rosy* ).

Likewise, regarding the academic writing assignment assigned by the teacher, the students explain that this consists of integrating, in a collective book format, the writings prepared during the Spanish Teaching Strategies course , where each chapter corresponds to the written production of each team member. This is how they explain it here:

Well, we were all going to make a book, with all our writings: stories, summaries, essays and biographies that we did during class. We already said that it was in each chapter, the name of ourselves and then a short introduction that explains what we are presenting for others to read ( *John* ).

Regarding the assignment of roles in teamwork, students discuss, connected through ZOOM in class, about the writings that will make up the chapter, the order and content, while assigning responsibilities. This is seen in this conversation:

Well, first let's agree. Assign what is assigned to each one, let each one send their part. To unite everything and reach the goal of forming the final book ( *Samy* ).

I did my work (written) and John He was in charge of decorating it with images, cover and the whole thing ( *Ali* ).

Finally, in the interview, the students stated that some teachers prohibit the use of cell phones and other mobile devices during class. Furthermore, they stated that Internet use is limited at school and that technologies in the classroom are reduced to a projector (cannon) and a computer on a desk, as part of the classroom furniture.

## Discussion

This section presents the data obtained through the instruments used and is analyzed in response to the stated objective and in relation to recent research on each of the thematic axes.

The results indicate that 50% of the students of the Bachelor's Degree in Secondary Education use mobile devices (cell phones), while 45.8% use *laptops* and only 4.2% rely on desktop computers, connecting to the Internet service in their homes. . This finding is consistent with the conclusion of Mortis *et al.* (2021), who found that university students prefer to use their cell phones to connect to the Internet, followed by the home Internet and the school Internet to search for information, communicate, and carry out entertainment activities.

However, Gamboa (2020) highlights an important concern by recognizing that “large segments of the population do not have access to the internet and the technology that supports remote education” (p. 128), which generates significant inequity in this crucial aspect for the human development. This inequity affects the quality of student training and highlights the need for policies that ensure equitable access to technological resources and adequate connectivity for all students at the university.

Through online classes, according to the responses of young people, greater interaction and motivation for learning academic writing is observed, given that the activities are more explicit and the support material is more accessible and varied. In accordance with this data, Salazar (2019) concludes that “the incorporation of ICT in the teaching and learning



of reading and writing at the university has a favorable impact on the student's motivation and their willingness to approach reading.” and the writing of texts” (p. 174).

Furthermore, some research indicates that, with the integration of TEs in the teaching-learning processes, “students are able to learn interactively, access countless contents and are provided with feedback, thus building meaningful learning” (Comboza *et al.* , 2021, p. 9-11). Therefore, the implementation of online classes has had a positive impact on student interaction and motivation for learning academic writing, by providing greater accessibility and variety of support materials, along with more explicit activities that facilitate more independent learning.

In the opinion of young people, online classes have resulted in clearer tasks and more accessible and diverse lessons, making their learning easier. This finding is supported by Galván *et al.* (2020), who argue that technological literacy not only refers to the application of technology in educational processes, but also to the use of the various available resources and the improvement of communication channels between students and teachers.

In a complementary way, Arteaga *et al.* (2022) conclude that TEs generate positive results when they are used in accordance with available resources, clear learning objectives are established, and they are appropriately incorporated into student training processes. For this reason, the implementation of TE in training processes not only involves equipping classroom spaces, but also planning and its strategic use with the purpose of maximizing the benefits in student learning.

The data also indicate that, in the traditional classroom context, students face significant restrictions in their use of TE. Many teachers prohibit the use of mobile devices in the classroom, there is limited internet access in schools and a lack of computer equipment available. This scenario coincides with the findings of Camacho *et al.* (2020), who show that in several Latin American countries teachers show resistance to training in the use of educational technologies. According to their research, few teachers are willing to participate in courses or training programs for the use of computers and the Internet, which is crucial to implement strategies and tools in the teaching-learning processes.

In this regard, Hernández (2017) had already warned, prior to the covid-19 pandemic, that the adoption of ICT in education requires overcoming existing digital gaps, since these prevent society from dynamically adapting to new technologies, which which is essential for modern university education. Therefore, the lack of access to technologies and resistance to

their adoption by university teachers are significant in counteracting inequality and guaranteeing access to quality university education.

The data analyzed reveal a clear student preference for learning writing as a team or in pairs, which demonstrates a conception of collaborative work as a process of communication and sharing of ideas towards a common purpose. This preference aligns with current trends in education that emphasize the importance of collaborative learning. Niño Carrasco and Castellanos (2020) support this perspective by highlighting the multidimensional nature of online collaborative writing. According to their findings, this process involves not only the composition of the text, but also the metacognitive mastery and the creation of a space where group members formulate strategies and establish consensus on the academic writing task entrusted by the teacher. This multidimensional vision of collaborative writing highlights the complexity and richness of the process of writing academic texts at the university.

For his part, Granado Peinado (2019) emphasizes the need for teaching to go beyond just instruction on how to perform the task of academic writing. In fact, their research suggests that specific supports should be offered to enhance collaboration and maximize the benefits of shared meaning-building strategies among teammates. From this approach, the need to develop collaboration skills among young people is highlighted as an integral part of the writing learning process.

Finally, Pinque (2020) warns that collaborative writing mediated by technologies is not a process that occurs spontaneously. On the contrary, it requires specific teaching and guidance from the teacher. This observation is relevant in the current context, where the implementation of TE in educational processes is a requirement in the new dynamics of social development.

Likewise, the data indicate that, in online classes, students collectively discuss and organize the content and structure of the chapters of their final works, assuming specific roles and responsibilities for written production. This collaborative approach coincides with the research of Ranz López (2018), who concludes that collaborative writing is characterized by the assignment of roles within the team, the implementation of specific strategies, the joint development of ideas, the exchange of knowledge and interactions discursive during the planning, writing and revision of the academic text.

Regarding this idea, Godoy (2020) highlights that collaborative writing through digital media facilitates the creation of virtual communities, overlaps the roles of readers and

writers, and increases the possibilities of synchronous participation in the writing of an academic text. From this perspective, the importance of real-time interaction and collaboration is highlighted, which enriches the writing process and encourages greater participation from all team members. Hence, the teaching-learning of academic writing converges, in a new post-pandemic scenario, where collaborative writing and TE must go hand in hand in the different professional training processes.

## Conclusion

In conclusion, this research has shown that, despite the predominance of technology in everyday life, both students and teachers make limited use of it in university training processes. However, the data show that the integration of educational technologies (ET) in teaching processes significantly benefits by generating greater interaction and motivation for academic writing, more effective communication with the teacher and broader access to various educational resources available online.

On the other hand, the study also highlights that students prefer collaborative learning, which reflects a tendency towards communication and the exchange of ideas in a teamwork environment. Thus, collaborative writing mediated by technologies not only facilitates the creation of virtual learning communities, but also enriches the educational process by allowing synchronous participation and constant feedback between the different actors in the educational process.

For this reason, it is imperative that higher education institutions recognize the importance of TE and incorporate them effectively into vocational training programs. This, of course, not only implies equipping educational spaces with the necessary technology, but also strategically planning and using these tools to maximize their impact on the learning of young university students.

Finally, the implementation of TEs must be accompanied by policies that ensure equitable access to these resources to overcome digital divides and guarantee quality training. In this sense, collaborative writing mediated by technologies emerges as a valuable tool to contribute to learning in different disciplines and promote collaborative learning and creativity among university students and teachers.

Finally, the limitations of this research are framed in four key aspects that could have further enriched and clarified the findings. Firstly, although a theoretical sample was used, it

would have been more appropriate to have a larger number of students. Secondly, the teachers' opinion on the use of TE in their teaching practice nor their perception of it in university education was not considered. Third, the characteristics of the writing products presented by the students at the end of the course were not studied. Finally, as a fourth limitation, the discussions generated among students in the platform forums were not analyzed.

### Future lines of research

Our object of study resembles a Pandora's box, always open to new questions and possibilities. As evidenced in the databases, recent research on academic writing focuses on the mediation of educational technologies (ET) in university training processes. Therefore, the following questions arise: what digital tools do students use when writing an academic text? How do university instructors incorporate TEs into the teaching and learning of academic writing? What TE do university teachers integrate from their professional study discipline? How do university teachers promote the responsible use of TE in their discipline of study?

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## Annexes

**Table 2.** Online focus group interview on collaborative writing work

Guiding questions	Answers
<p>What does it mean to work as a team?</p>	<p>John. Maintain good communication to have a common job completed.</p> <p>Rosy. Working as a team means working together. I just don't know how to say it. It seems more dynamic to me and we can share our thoughts, our ideas and all that.</p> <p>Naty. Put all the writings together to make a book. Put them together so that the book can be formed, with all the work done in class.</p>
<p>How were the final evaluation work organized to work as a team?</p>	<p>Ali. In the WhatsApp group I asked everyone to send me all their work. I made a file in Word and from there I divided them, I put together all of each person's work and divided them into chapters.</p> <p>John. So we were looking at how the structure was going to be organized, what was going to come first and what was going to come after. And we already said that it was in each chapter, our name and then a short introduction of who we are and that we are inviting you to read what we did during class. Whatever each person wants to put, in the introduction, but in itself, how to invite the reader to read us.</p>
<p>What role does each one play in the preparation of the final work?</p>	<p>Fendi. Well, I think that almost all of us had to do the same thing, which was to send our work. But Ali had to do a little more, he had to put them together.</p> <p>Ali. My role was to organize everyone's work.</p> <p>Naty. It was my turn to complete and send the work to Ali, that is, to the group.</p> <p>Rosy. It's my turn to do the same, send the poems and stories I wrote, my introduction. And yes, the one who had a little more work was Ali because he organized everything.</p> <p>Rosy. I sent my poems, my story and the introduction. In the introduction, more or less, saying that they read my poems. A little more or less of what the content is, my name, my age and where I studied and what I study. In total work I sent 8 and the introduction.</p> <p>John. It was to send all the literary works that I developed</p>



	<p>during the course. Just like my colleagues and partner Ali, he was going to unify everything to form a joint book. Likewise, it was also going to integrate their respective jobs.</p> <p>John. You can say that my role was to organize everything. I was the one who spoke, which was what we had to do. There it emerged that Ali was the one who was going to put things right. I told him that we were going to send him to the group. It was like he organized the whole thing and Ali was in charge of organizing it already in the file.</p>
<p>What characteristics did you define that the final work should contain?</p>	<p>Naty. What features? As they said, manage to form a book with all the poems and make that the final work for everyone. Which must be good because that's where the rating goes.</p> <p>John. That it was well ordered, well structured, the elements that were going to be included: Chapter, name, the short introduction, our poems and that each page was numbered and that it had a good cover in the form of a book.</p> <p>Ali. I think it's also a good decoration. A cover, some images that accompany the texts.</p> <p>Rosy. Just as they have a good order and that each of the jobs. About the works, just like they said it should be like a book, with a nice design and all that.</p>

Source: Own elaboration