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Learning based on the *peer instruction* methodology applied to dissertative-argumentative textual production (ENEM)

Learning based on peer instruction methodology applied to dissertation-argumentative text production (ENEM)

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SUMMARY

The low performance of Brazilian students on the ENEM essay, evidenced by recent results, highlights the need to improve teaching strategies for argumentative-discursive writing. Given this scenario, the question arises of how to make the learning process more effective and engaging. Therefore, this study aims to investigate the impact of integrating the *Peer Instruction methodology,* mediated by Letrus digital technology, in teaching writing for the ENEM. The research seeks to determine whether this approach can improve students' understanding of argumentative structure, increase their engagement, and, consequently, improve their writing skills. Therefore, this study aims to fill an important gap in the literature by exploring how this intersection can improve students' understanding of the fundamental concepts of argumentative-discursive writing and increase their engagement in the learning process. The methodology adopted consists of a bibliographical search on *Peer Instruction,* digital educational technologies, and writing teaching. Scientific articles, books, theses, and dissertations published in national and international academic databases were collected. The conclusion of this study shows that the development of innovative pedagogical strategies, such as *Peer Instruction* combined with digital technologies, contributes significantly to preparing students for the ENEM essay and, more broadly, for the writing skills required in higher education and professional life.

Keywords: Peer Instruction. Educational Technology. Letrus. Textual Production. ENEM.

ABSTRACT

The low performance of Brazilian students in the Enem essay, as evidenced by recent results, points to the need to improve teaching strategies for argumentative-discursive writing. Given this scenario, the problem arises of how to make the learning process more effective and engaging. Therefore, this study proposes to investigate the impact of integrating the Peer Instruction methodology, mediated by Letrus digital technology, in teaching writing for the Enem. The research seeks to verify whether this approach can improve students' understanding of argumentative structure, increase their engagement and, consequently, improve their writing skills. In this sense, this study aims to fill an important gap in the literature, exploring how this intersection can improve students' understanding of the fundamental concepts of argumentative-discursive writing and increase their involvement in the learning process. The methodology adopted consists of bibliographical research on Peer Instruction, digital educational technologies and teaching of textual production. Scientific articles, books, theses and dissertations published in national and international academic databases were collected.

The conclusion of this study shows that the development of innovative pedagogical strategies, such as Peer Instruction combined with digital technologies, contributes significantly to preparing students for the ENEM essay and, more broadly, for the writing skills required in higher education and professional life.

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1. INTRODUCTION

The current educational landscape faces unprecedented challenges and unique opportunities, resulting from the rapid technological, cultural and socioeconomic changes that characterize the 21st century. In this context, there is an urgent need to reevaluate and innovate teaching methodologies, seeking not only to transmit knowledge, but also to promote critical thinking, problem solving, collaboration and continuous learning.

In this direction, *Peer Instruction* (PI) is an active methodology that promotes collaborative learning, stimulating critical thinking and allowing students teach each other, stands out as an alternative to the traditional, focus-on- expository classes. The integration of this methodology with innovative practices has the potential to enrich the construction of knowledge and the development of skills in students, making the teaching process more dynamic and participatory.

Thus, digitalization in the current educational scenario reveals that approaches traditional, centered on the teacher as the main source of knowledge, do not meet the needs demands of generation Z1 . In this context, dissertative-argumentative textual production, a essential skill in ENEM, can be favored with the integration of active methodologies, along with the use of digital technologies, such as the Letrus2 platform. In view of this, the question arises: What is the impact of integrating the *Peer Instruction methodology,* mediated by technologies? digital, in learning and student engagement in teaching textual production dissertative-argumentative, aiming at preparing for the ENEM essay? This choice is

[1] Generation Z is made up of people born in the first decade of the 21st century, immersed in digital technology and with new habits compared to previous generations.
[2] Letrus is a digital platform that supports the teaching and learning of reading and writing. It offers interactive tools for students, teachers, and schools, promoting the development of skills related to argumentative writing. Its purpose is to facilitate teaching by allowing students to practice dynamically. The platform also allows teachers to monitor student progress and customize activities according to their needs.

justified by the growing demand from both the market and business institutions for autonomous, critical and innovative professionals.

With the increased use of active methodologies, *Peer Instruction* research combined with digital technology, Letrus emerges as an essential opportunity to rethink the way for teaching writing. Letrus, focused on improving writing skills, and *Peer Instruction,* that promotes active learning, have the potential to significantly transform the education. However, there are gaps in understanding how this integration can be effectively implemented and what its real impacts are on student learning.

Therefore, this study has the general objective of analyzing the impact of the *Peer* methodology *Instruction,* mediated by Letrus, in student learning and engagement in teaching dissertative-argumentative textual production, aiming at preparation for ENEM.

Specific objectives include:

To investigate how the integration of *Peer Instruction* mediated by Letrus influences the understanding of the basic concepts of dissertative-argumentative textual production.

Analyze the effects of the *Peer Instruction* methodology on student engagement during the writing classes.

Propose practices and strategies for applying *Peer Instruction* mediated by Letrus in teaching textual production for ENEM.

By adopting this active methodology, students experience a rich and meaningful, encouraging dynamic participation and the practical application of knowledge acquired. This focus on reflection and application of basic concepts is often neglected in traditional classes, where students just listen and take notes, which can hinder the learning process.

To this end, a qualitative approach will be adopted, based on a survey bibliographical, addressing the integration of *Peer Instruction* mediated by digital technology

Letrus, focusing on preparing students for textual production and consequently for the Enem. This approach allows us to gather, examine, and synthesize theoretical and empirical information. available on the topic, providing a comprehensive understanding of the practices and impacts related to peer learning.

This work is structured in five chapters:

In Chapter 2, the methodological choices related to bibliographic research are presented as an essential component for the theoretical foundation of the study.

In Chapter 3, the fundamental concepts of *Peer Instruction* (PI) will be presented and its relevance in teaching textual production, exploring how this active methodology can transform the teaching-learning process.

In Chapter 4, the impacts of this methodology on employee engagement will be analyzed. students during writing classes, with practical examples that show the increase in active participation and motivation of students.

In Chapter 5, an investigation will be made of the practices and strategies mediated by Letrus platform, showing how technology can enhance *Peer* 's results *Instruction* and contribute to students' preparation for the ENEM.

Finally, the final considerations of the study will be presented, discussing the main conclusions and leaving suggestions for future research on the use of methodologies active and technologies in teaching writing.

2. THEORETICAL FRAMEWORK

Contemporary educational development has highlighted the need for methodologies that promote the active participation of students in the learning process, breaking with traditional teacher-centered approaches. *Peer Instruction* (PI), designed by Mazur (2015), emerges as an active methodology that stimulates learning

collaborative through interaction between peers, favoring the joint construction of knowledge and the development of critical thinking. Unlike classes casual expository sessions, the PI provides an environment in which students discuss concepts, argue their ideas and correct their own understandings, promoting engagement deeper and more meaningful (Hilborn & Mazur, 1996).

Furthermore, the integration of digital technologies in the educational context has expanded the practical and personalized teaching possibilities. Digital platforms like Letrus have demonstrated effectiveness in teaching dissertation-argumentative textual production through interactive resources that assist both students and teachers in the development and monitoring of activities (Silva & Souza, 2020). The use of Letrus allows not only not only access to diverse material, but also encouragement of autonomy and learning continuous, aligning with the demands of generation Z, characterized by mastery of technologies digital and by a more dynamic and participatory learning logic (Prensky, 2001; Tapscott, 2009).

The use of *Peer Instruction,* mediated by digital technologies such as Letrus, configures therefore, as an innovative approach to teaching writing, especially in what regarding dissertation-argumentative production. Studies indicate that active methodologies combined with digital tools, they enhance student engagement, increase quality of critical thinking and promote the improvement of textual skills (Freeman et al., 2014; Domingos, 2018). The collaborative environment and the exchange of knowledge between peers broaden understanding of essential concepts, while technology supports and immediate feedback, essential for the training process.

Thus, the theoretical framework that underpins this study is related to convergence between active methodologies, especially Peer Instruction, and potential of digital technologies applied to the teaching of textual production. This

perspective considers the student not only as a receiver of information, but as an active agent in their learning, able to argue, reflect and collaborate, increasingly more skills valued in the educational and professional scenario of the 21st century.

3. MATERIAL AND METHOD

The chapter in question describes the methodological procedures used in the research bibliographical, with a focus on active learning and, in particular, on Peer *Instruction Instruction)* and its relationship with digital technologies in the teaching of dissertative textual production-argumentative for Enem. Considering the bibliographical nature of the study, the following are addressed: methodological strategies employed for the selection, analysis and synthesis of data collected in relevant sources. The aim is to identify the evidence available in the literature on practices of active learning in writing instruction, especially those that combine technologies digital platforms, such as the Letrus Platform, aiming for a more detailed understanding of the effectiveness and potential of Peer Instruction in this context.

The methodology of this research is based on a bibliographical survey, since this approach allows gathering, examining and synthesizing theoretical and empirical information available on the topic, providing a comprehensive understanding of the practices and impacts related. According to Moreira & Caleffe (2011, p. 248), "...research is a process through which we systematically seek to obtain, with the support of data, the answer to a question, the resolution of a problem or a greater understanding of a particular phenomenon".

Severino (2007) presents the following concept for bibliographic research:

> Bibliographic research is that which is carried out based on the available records, resulting from previous research in printed documents such as books, articles,

> theses, etc. It uses data or theoretical categories already worked on by others researchers and duly registered. The texts become sources of the themes to be researched (Severino, 2007, p. 122).

This time, bibliographical research proved to be more appropriate for this work, since the study does not aim to analyze specific practices or cases. The main intention was to use research already carried out and published to understand and apply certain concepts, especially those related to active methodologies and educational technologies – within the limits established by research – and examine how Letrus' technological resource can be used in the educational context. Based on this study, it was also possible to propose some alternatives for pedagogical practices that incorporate new technologies.

Initially, a detailed search was carried out in academic databases, such as *Google Scholar, Scopus, Web of Science* and other digital libraries, using keywords related to *"Peer Instruction",* "Letrus", "Textual Production" and "Enem". The selection of some articles, books, dissertations, theses and other relevant documents had as criteria of inclusion of thematic relevance, prioritizing texts that directly address the topic of interest. Furthermore, more recent publications were chosen, generally from the last 5 to 10 years, thus ensuring that the information and analysis reflected the most recent trends and findings current in the study area. In this regard, Gil (2002, p. 68) states that "due to the broad dissemination of bibliographic materials in electronic format, assumes great importance research carried out through databases and search systems".

The data were critically organized and synthesized to provide *insights* into the effective practices and strategies in the application of *Peer Instruction* mediated by Letrus. Also the main effects on student engagement and performance were highlighted, as well as the necessary conditions for the successful implementation of these methodologies.

In the next step, the results of the analysis in relation to the current educational context emphasize the relevance and potential impact of combining *Peer Instruction* with Letrus in improving the quality of education and preparing students for the ENEM. Furthermore, guidelines are proposed for the implementation of these methodologies and suggestions for studies futures that can fill the identified gaps. This methodological approach allows a detailed and critical understanding of the transformative potential of mediated *Peer Instruction* by Letrus in education, providing a solid foundation for the development of strategies innovative and effective educational practices.

4. RESULTS AND DISCUSSION

CONCEPTS OF *PEER INSTRUCTION* AND THEIR RELEVANCE FOR TEACHING TEXTUAL PRODUCTION

Textual production, especially in the dissertative-argumentative modality, is a essential skill for the academic and professional development of students. Once that Polari et al. (2024, p. 5) consider that *Peer Instruction* "presents itself as a promising methodology to improve the educational process", this also has a great potential to improve the teaching of writing.

PI was originally applied in the teaching of exact sciences, but its methodology is highly relevant to textual production. Developed by Eric Mazur, the PI proposes a collaborative teaching model in which students become active participants in the learning process learning, facilitating the exchange of ideas and the joint construction of knowledge, given that "the growing demand for skills such as critical thinking, problem-solving and ability to collaborate in the modern workplace requires an educational model that promote these skills effectively" (Polari et al., 2024, p. 3).

RCMOS – Multidisciplinary Scientific Journal of Knowledge.
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In the context of textual production, *Peer Instruction* promotes active collaboration between students, allowing them to explore and develop fundamental writing skills. This interaction not only stimulates understanding of concepts, but also allows students refine their ideas through explanation and collaboration, a fundamental process in development of good argumentative writing. Therefore, peer instruction consists of an active methodology increasingly used in the educational environment, bringing excellent contributions to the teaching and learning process. According to Mazur:

> Engage students during class through activities that require each student to application of the main concepts being presented as well as explaining these concepts to their fellow students. Contrary to the common practice of doing the question during an informal talk, which typically involves only a few highly motivated students, the more structured questioning process involves all students in the class (Mazur, 2015, p. 5).

In principle, it is necessary to emphasize that *Peer Instruction* is a methodology that promotes active and collaborative learning, based on three fundamental pillars: formulation of conceptual questions, discussion among students and individual reassessment. The process begins with the presentation of a key concept or a challenging question related to the topic studied. Students then respond individually to this question, providing the teacher with an initial insight into the class's general understanding. After discuss in groups, students have the opportunity to review their answers, adjusting their insights from peer *feedback* .

Thus, collaborative active learning ensures student engagement throughout throughout the educational process, encouraging them to pay attention, stay focused and collaborate with teachers and peers. This active approach directly contributes to the development of the skills necessary for dissertative-argumentative textual production, such as

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ability to argue and critical thinking. In addition to promoting greater understanding the concepts of textual cohesion and coherence, the IP also stimulates metacognition - fundamental concept in cognitive psychology and education, which refers to the ability of individual to reflect on their own mental processes. This phenomenon, often described as "thinking about thinking", encompasses awareness and control of mechanisms personal cognitive skills. In this sense, students could reflect on their own learning process writing, as illustrated in Figure 1.

Figure 1 – Learning Pyramid

Source: https://institutoclq.org.br/noticia/conheca-a-teoria-da-piramide-de-aprendizagem-de-william-glasser/

It can be seen, therefore, that active learning methodologies present great similarities with the concept of the learning pyramid. Both concepts are complementary and mutually reinforcing, since these methodologies place the student

as the protagonist of your learning, encouraging you to explore new ways of absorbing knowledge during classes. This way, students learn more because they participate actively participate in the process, activating the deeper layers of the learning pyramid.

In view of this, it is essential that we take into account, in the current context in which we find ourselves, we find active methodologies, as we live in an educational paradigm in which the student is not limited to being a passive receiver of the content taught by the teacher, but assumes an active role in the teaching and learning process. This implies that he learns in a more autonomous, practical, collaborative and interactive, both with the teacher and with colleagues, according to Bacich & Moran (2017).

In this sense, since textual production requires critical thinking skills, organization of ideas and ability to argue, such practice can be significantly enhanced with the application of *Peer Instruction.* The first step to implementing this methodology in the context of writing is the formulation of questions that challenge students to reflect on fundamental aspects of textual production, such as cohesion, coherence and strategies argumentative. For example, when introducing a new concept about textual structure, the The teacher may propose a conceptual question such as: "Which of the following structures is most suitable for an argumentative text and why?" Students respond individually, enabling the teacher to obtain an initial insight into the understandings and difficulties of class.

In the discussion phase, students are organized into small groups where share their answers and explain their reasoning. This moment is crucial, as it allows that students compare their ideas with those of their peers, identify possible gaps in understanding and adjust their perceptions on the topic discussed. For example, if a student argued that the introduction should always include a thesis, while another believes that the

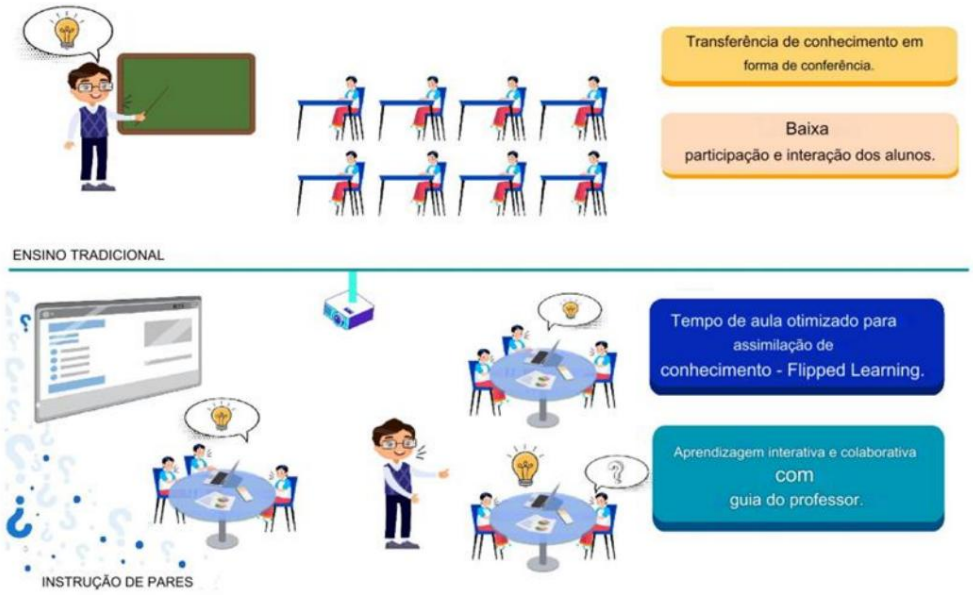
introduction should be more flexible, the discussion between them can lead to a better understanding in-depth analysis of the function of the introduction in different types of texts.

After the discussion, a new round of individual responses allows students to consolidate the knowledge acquired and review their answers in light of new perspectives obtained during interaction with colleagues. This process of reflection and reevaluation strengthens the learning and enhances students' ability to apply concepts effectively in their texts.

According to Marquesi & Aguiar (2021), the application of *Peer Instruction* in teaching textual production allows us to consider various possibilities. Firstly, it promotes student engagement, making learning more dynamic and participatory, since the exchange of ideas and immediate *feedback* provided by colleagues allows for an understanding deeper understanding of the concepts and practices related to writing.

In this sense, Ferreira & Moreira (2017) point out that Peer Instruction, known in English as *Peer Instruction,* contributes significantly to active methodologies by promote more dynamic learning by reversing traditional roles between teacher and student. Unlike the traditional model, in which the teacher is considered the only holder of knowledge and the main agent of the educational process, Peer Instruction positions the student as an active and engaged participant in the teaching process. learning. This reinforces the student's role as protagonist in their own learning, as can be seen in figure 2.

Figure 2 - Peer instruction as an innovation in traditional teaching



Source: Education Sciences

Furthermore, this active methodology stimulates metacognitive skills, as explained by Mazur & Hilborn (1996), *Peer Instruction* challenges students to explain and justify your choices and reasoning, encouraging the development of skills essential metacognitive skills. This contributes to a greater awareness of one's own learning process, a particularly important aspect in textual production, in which the ability for self-evaluation and critical reflection is essential for the continuous improvement of writing skills.

Another significant benefit is the development of the ability to argue and critical thinking. By discussing and debating aspects of textual production, students learn to articulate your ideas more clearly and convincingly, skills transferable to a variety of academic and professional contexts. If we consider the development of communication skills, writing and textual review from the point of view of collaborative learning, as occurs in *Peer Instruction,* especially during the review and rewriting of texts, we evoke the concept of interaction. According to Marquesi & Aguiar (2021, p. 11), “in this methodology, we have a activity in which two subjects are involved who share the same space and time,

as well as knowledge and skills mobilized to achieve an objective: the improvement of text through revision".

In this sense, the *Peer Instruction* approach offers a rich opportunity for improve textual production, as it promotes a collaborative environment in which students actively engage in the learning process. When working in pairs or small groups, students not only discuss ideas and concepts related to writing, but also offer and receive immediate *feedback* on their texts. This interaction not only enriches understanding of textual elements, such as structure, style and argumentation, but also encourages reflection critical, fundamental to the development of effective writing skills.

Furthermore, the practice of teaching and explaining concepts to colleagues strengthens autonomy of students, allowing them to become active agents in their learning. By getting involved in collaborative discussions and reviews, they learn to value different perspectives and develop a more comprehensive view of the writing process. Thus, for Marquesi & Aguiar (2021), the integration of Peer Instruction in text production classes not only improves specific writing skills, but also creates a learning environment dynamic and participatory, where theory and practice intertwine in a meaningful way.

However, while *Peer Instruction* offers many benefits, its implementation in teaching textual production is not without challenges, such as the need for a careful planning of questions and activities to ensure they are truly challenging and relevant to the development of writing skills. Furthermore, it is It is important that the teacher acts as a mediator during discussions, guiding and intervening when necessary to ensure that interaction between students is productive and constructive, because "this methodology is considered active because it leads the student to assume the role of instructor or as a teacher of their colleagues, encouraging learning from each other." (Filatro & Cavalcanti, 2018, p. 67 as cited in Marquesi & Aguiar, 2021, p. 10).

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Another challenge concerns time management, since the methodology requires periods dedicated to discussion and reassessment. Therefore, it is essential to integrate these activities in a balanced with the rest of the curriculum, ensuring that all aspects of production teaching textual are addressed appropriately. It is from this perspective that we enter the next chapter, in which we will examine how this methodology can transform the dynamics of classes of textual production.

EFFECTS OF PEER INSTRUCTION ON STUDENT ENGAGEMENT IN WRITING CLASSES

The search for teaching methods that promote more active and engaging has been a constant in the field of education. In this context, *Peer Instruction* (PI) has emerged as a promising approach, especially in science education and mathematics. However, its application in the development of writing skills, particularly in dissertative-argumentative writing, it is an area that is still little explored and full of potential.

The dissertative-argumentative essay, essential for academic training and professional, faces challenges, especially related to student engagement. Position Therefore, this chapter aims to examine the effects of *Peer Instruction* on writing practice dissertative-argumentative, exploring how this methodology can influence the development of students' writing skills, critical thinking, and ability to construct solid arguments.

In writing classes, for example, *Peer Instruction* can be implemented in different moments. The teacher begins by presenting the topic and provides an example of text. Students then discuss potential approaches to writing in pairs or groups

small, and produce drafts based on the discussions. This approach promotes active learning and increases students' confidence in their writing skills.

Among the main effects of Peer Instruction is the increase in active participation of students, who feel more comfortable sharing ideas in an environment collaborative. Creating this safe space for the exchange of ideas is essential to increasing motivation and engagement in writing. In addition, peer discussion encourages students to articulate their ideas, defend their points of view and consider perspectives different.

The practice of *Peer Instruction* promotes the development of critical skills as students are challenged to evaluate arguments and writing strategies in a deeper. Therefore, it is worth highlighting that:

> It is necessary that books and lectures play different roles than that they usually perform in a conventional discipline. First, the reading tasks from the book, held before classes, introduce the material. Following this, the lectures elaborate on what has been read, clarify potential difficulties, deepen the understanding, build trust, and provide additional examples (Mazur, 2015, p.10).

Therefore, *Peer Instruction* "has the potential to significantly transform the educational landscape, making it more dynamic and adapted to the needs of students 21st century" (Polari et al., 2024, p. 6). As educators explore methodologies that encourage active participation, IP stands out as a valuable strategy to promote improving students' writing skills and critical thinking. The future of classrooms writing teams can benefit immensely from integrating collaborative practices, preparing students not only to master writing but also to communicate effectively in different contexts.

Furthermore, the process of peer instruction in writing can also contribute to the development of students' proofreading and editing skills. By analyzing and discussing the texts from their colleagues, students can develop a critical eye that they can apply to their own productions.

Flower and Hayes (1981), in their cognitive model of the writing process, emphasize the importance of review as a continuous and recursive process. Peer learning provides multiple opportunities for this review, both of the text itself and of the texts of colleagues.

However, implementing *Peer Instruction* can face challenges, such as students' resistance to active participation and inequalities in group dynamics. Others points to consider include: the need for training in giving *feedback* constructive and adequate time management for discussions. These challenges, however, can be overcome with careful planning and gradual adaptation of the methodology. To maximize the positive effects of IP, it is essential that educators are prepared to facilitate interactions and ensure that all students have the opportunity to contribute.

Therefore, *Peer Instruction* can be a powerful tool to increase student engagement in writing classes in various ways. The methodology promotes active learning, placing the student at the center of the learning process, in contrast with traditional methods, in which the student is a passive receiver of information. Furthermore, it allows interaction and collaboration between students, providing *feedback* immediate, building critical skills and creating a supportive environment. This approach personalizes learning and, according to Marquesi & Aguiar (2021), develops skills social and increases intrinsic motivation, transforming the learning experience into something more interactive and meaningful. Implementing IP in writing classes not only increases student engagement, but also enhances their writing and collaboration skills.

For Marquesi & Aguiar (2021), when working together, students have the opportunity to exchange ideas, which can facilitate the development of essential skills for the creation of more coherent and well-structured texts. Through this practical example of implementation, we see the relevance of the various stages that constitute the act of writing, because according to Pinto (2017) the writing process is not simple or direct, but it is It is essential that the student actively participates in their learning, especially when reviewing and rewrite your own texts.

4.1. Practical examples of peer instruction in text production contexts

Implementation of the *Peer Instruction* methodology in textual production activities reveals promising results. This section presents some examples of procedures adopted and the results obtained, demonstrating the potential of this approach for the improving students' writing skills. For example, Marquesi & Aguiar (2021) showed that those who participated in the peer learning methodology in an academic text review activity, they were able to significantly improve their textual production.

In the first section, the authors present a brief overview of active methodologies. Next, they explain some of these methodologies in more detail, with a special focus in the context of peer learning. In a specific section, they address the notion of interaction, writing and review, exemplifying the application of the bibliographic methodology raised in texts academics.

In the study we present here, we propose the use of a variation of the peer learning, resulting from the adaptation of this methodology to the context of textual review activity. This methodology involves two main steps:

> brief, dialogic presentation of the theoretical content and discussion in small groups. In stage 2, students, guided by the theoretical content, discuss the adjustments to be made made in the summary and carry out its review (Marquesi & Aguiar, 2021, p. 11).

To the two aforementioned stages, other fundamental ones were added within the scope of learning how to review academic texts: (3) presentation and discussion of versions reviewed by the groups, (4) rewriting of the texts by the groups and (5) presentation of the versions finals of the groups in the class. According to the authors, the peer review methodology effectively increased student engagement in activities, as "through it, the students are encouraged to exchange knowledge, share perspectives on composition textual and develop writing skills as a process, which includes the writing stage review" (Marquesi & Aguiar, 2021, p. 12).

It is important to emphasize that the success of the methodology is intrinsically linked to its careful adaptation to the context of textual production and the specific needs of students high school. The combination of conceptual discussions with effective writing practice and peer review has proven particularly effective in consolidating knowledge and development of skills necessary for the production of quality texts.

Furthermore, the constant practice of writing in groups helps to demystify the writing process. textual production. When students realize that other colleagues face similar challenges, understand that difficulty is part of the learning process. This awareness can reduce writing-related anxiety by allowing students to experiment with different approaches without the fear of failure. In this context, IP is essential to transform the writing process into a cooperative and less intimidating experience.

Corroborating this collaborative perspective, another study conducted by Santos et al. (2020) demonstrates the effectiveness of *Peer Instruction* in an equally relevant context. The researchers applied the method in writing classes for the 2nd year of high school, in

a state school in Paraná. In this study, the authors observed that the implementation of *Peer instruction* methodology in the first class of the teaching sequence on ENEM writing has proven to be highly effective in understanding basic text concepts and introduction. Starting with a discussion of the textual nature, based on the students' prior knowledge, the approach evolved into a rapid mapping and the topic through a form. This instrument allowed not only the detection general knowledge about text, but also the specific assessment of understanding of the dissertative-argumentative genre.

The application of this methodology resulted in significant student engagement, facilitating the immediate identification of knowledge gaps and promoting an environment collaborative learning. It was observed that *Peer Instruction* provided a transition smooth transition from prior knowledge to new concepts, optimizing the teaching process. learning and establishing a solid foundation for skill development necessary for textual production in the context of ENEM. In this sense, according to Santos et al. (2020, p. 2), “it became possible for students to get closer to the content, applying the dynamics of exposition and questions to clarify the theoretical components that make up the universe of the textual genre, and, by analogy, of the universe of reading and writing.”

The study of the structure of the ENEM essay proved to be fundamental for the improving students' writing skills. The analysis covered everything from the elements crucial from the introduction, such as the presentation of the thesis and contextualization, to the understanding of the text as a cohesive unit of meaning. The specificities of the genre were explored dissertative-argumentative in the evaluative context, emphasizing the importance of interpretation adequate proposal. Research into recurring themes in the exam between 2009 and 2020 provided valuable *insights* into the political-social spectrum addressed. This approach multifaceted highlighted the relevance not only of the content but also of the form in

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textual construction, highlighting the linguistic challenges frequently faced at this stage of writing development. This methodology has proven effective in holistic preparation of students for the specific demands of the ENEM essay.

Thus, Chapter 5 will explore effective *Peer Instruction* practices and strategies. mediated by Letrus, highlighting the contribution of this combination to collaborative teaching and effective. By adopting these approaches, we can enhance the writing experience of students, transforming challenges into opportunities for learning and creativity.

EFFECTIVE PEER-MEDIATED INSTRUCTION PRACTICES AND STRATEGIES BY LETRUS IN TEXTUAL PRODUCTION TEACHING FOR ENEM

Developing writing skills is essential for success of students in the National High School Exam (ENEM). Among the active methodologies effective in education, *Peer Instruction* stands out for promoting collaboration and learning between peers. In this context, the Letrus platform offers a virtual environment that enhances these practices, as the teacher enables interaction and *feedback* between students. In view of this, this chapter discusses effective Peer Instruction practices and strategies. mediated by Letrus, aiming to improve students' textual production in preparation for the ENEM.

The methodology of peer learning, based on educational technology in study, may involve the presentation of challenging questions followed by discussions in small groups, in which students share ideas and reasoning. The theory that underpins this approach and suggests that mutual explanation strengthens understanding of content, helping students articulate and solidify their knowledge. Scholars claim that

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> In addition to teaching text production, the current context requires that teachers of all areas begin to use digital technological tools that assist in the process of teaching and learning, which has motivated the emergence and development of numerous research and pedagogical proposals in this regard. Thinking about the different teaching situations and contexts, as well as in the reality of education students basic, makes us select and insert digital tools in this process, since the technology is present in the daily lives of our young people in infinite ways (Campos & Cassiano, 2023, p. 14).

In this scenario, it is interesting to highlight Letrus, an educational platform that offers a variety of resources aimed at teaching textual production. Among its features include the virtual learning environment, which allows the creation of spaces in which students can interact and share texts; immediate *feedback* , essential for the construction of refined writing; and the inclusion of multimedia resources, such as videos and tutorials, which enrich learning and provide different perspectives on the textual production.

According to Pécora (2020), the Letrus program uses artificial intelligence to improve students' writing and was recognized by UNESCO as the first Brazilian initiative to receive the King Hamad Bin Isa-Al Khalifa Award, an honor bestowed since 2005. platform, created by a *startup* of the same name, offers *software* that allows students write essays on various topics, receiving immediate corrections and guidance. During its implementation in public schools in Espírito Santo, in 2019, 12 thousand students and 400 teachers participated in the project, resulting in a 90% increase in grades. essays, says Pécora (2020). Within the Platform, the student finds various themes and motivating texts according to each cycle, as we can see in Figures 3 and 4.

Figure 3 – Proposal with current ENEM themes

Source: Letrus Manual

Figures 3 and 4 illustrate essential components of the text production process for the ENEM, as presented in the Letrus Manual. Figure 3, for example, highlights the importance of current affairs in the writing test, showing a selection of contemporary themes that may be charged on the exam. This approach reflects ENEM's philosophy of evaluating not only students' writing skills, but also their awareness and understanding of relevant social issues in the current Brazilian context.

The presentation of current issues serves as a prime reminder for students to respect for the need to stay informed about ongoing events and debates in society. This not only prepares them for the writing test, but also fosters development of more aware and engaged citizens. The diversity of themes shown the platform covers areas such as environment, technology, public health, education and human rights, reflecting the breadth of knowledge that ENEM seeks to assess.

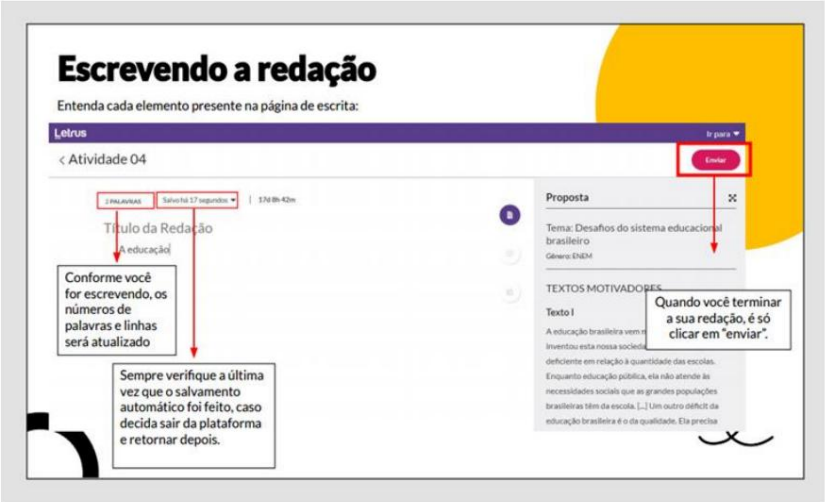
In turn, Figure 4 presents the digital environment where students can practice writing your dissertative-argumentative texts. This typing space simulates the format

of the official test, allowing students to become familiar with the composition process in a digital environment, similar to that used in ENEM.

The transition to a digital writing format reflects technological changes in education and assessment, preparing students for contemporary demands of textual production. Furthermore, this digital environment offers additional tools, such as word count and basic formatting features that help students manage technical aspects of writing, allowing them to focus on content and structure argumentative of their texts.

Together, these figures demonstrate Letrus' commitment to providing a comprehensive and updated for the ENEM writing test, combining awareness about relevant topics with practice in an environment that simulates real exam conditions.

Figure 4 – Space to type the argumentative-discursive text



Source: Letrus Manual

Luís Junqueira (founding partner of Letrus), cited in Pécora (2020), highlights that platform not only optimizes teachers' correction time, but also strengthens their role in education. Using data generated by Letrus, educators can take more strategic decisions and better engage their classes. The program also offers

training and ongoing support for teachers, aiming at a deeper diagnosis of the student learning. For Moran (2000, p. 245-253), “it is of utmost importance to rethink the teaching and the effective insertion of technology in the educational process, especially considering the school as a privileged space for critical training”.

However, to ensure the effectiveness of the use of *Peer Instruction,* based on the activities of the Letrus Platform requires careful planning, as its limitations become evident when we analyze the dynamics proposed by this approach. Firstly, the platform may not offer an adequate space for in-depth and collaborative discussion that *Peer Instruction* requires. Since interaction between students is essential for the exchange of knowledge, ideas and for the clarification of concepts, can be compromised by an interface that prioritizes content over communication. Therefore, it is essential that the teacher plan activities whose questions proposed for discussion are aligned with the themes recurring in ENEM, such as argumentation, cohesion and coherence.

Furthermore, the lack of tools that encourage real-time collaboration, such as forums or *chats* specifically for discussing questions, limits the effectiveness of using *Peer Instruction* in Letrus activities, proving the need to develop activities by the teacher, which include critical analysis of texts, in spaces where students are grouped to identify strengths and weaknesses in textual productions, rewriting the essay in trios or pairs, when students co-create texts, alternating between the roles of author and critical, which favors the development of argumentative skills.

The focus of the program is to improve students' dissertations, preparing them for the ENEM and, to this end, the *software* analyzes writing patterns, identifying errors spelling, grammar, and formality of the text. This allows educators to access data on class and individual student performance, facilitating personalization of teaching. The immediate correction promoted by Letrus encourages students to reflect on

their texts, integrating reading and writing dynamically, as shown in Figures 5 and 6.

Figure 5 – Platform *Feedback* for Students

Source: Letrus Manual

Figures 5 and 6 illustrate the advanced feedback and analysis features. offered by Letrus, demonstrating its commitment to the continuous improvement of writing skills of students preparing for the ENEM. In Figure 5, it can be seen observe the platform's automated *feedback* system . This feature provides students an immediate evaluation of your texts, highlighting strengths and areas that need improvement improvement. Rapid feedback is crucial in the learning process as it allows students to identify and correct errors while the writing process remains fresh in their minds.

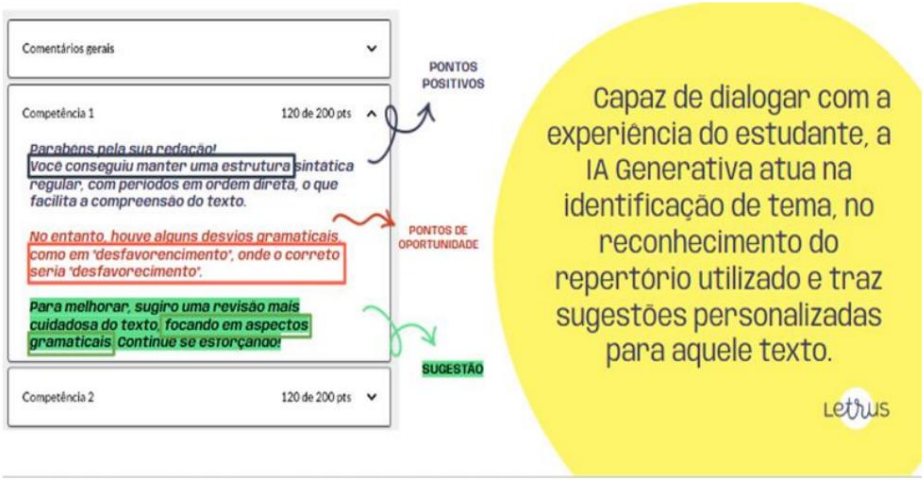
This *feedback* system covers various aspects of writing, such as structure argumentative, cohesion, coherence, adequacy to the standard norm and relevance to the proposed topic. When provide specific and personalized guidance, the platform simulates the role of a teacher, offering valuable guidance that students can immediately apply in their next textual productions.

Figure 6 expands on the concept of *feedback,* presenting a more detailed analysis and personalized for each text produced by the student. This functionality represents a significant advance in preparation for ENEM, as it offers an in-depth view of the individual student performance. Includes specific grades related to the five competencies evaluated in the exam essay, involving graphs that show the student's performance in each skill, allowing a clear visualization of their potential and difficulties. Furthermore, the platform offers concrete suggestions for improvement in each area, including examples of how the text could be improved.

This level of detail in the analysis allows students to develop a deeper understanding of their own writing process. They can identify patterns in your mistakes, recognize your stylistic tendencies and work more efficiently to improve your writing skills. At this stage, the teacher can propose discussions in pairs, guiding each pair or group of students to compare the opinions received, identifying common patterns of errors or areas of excellence. This encourages learning collaborative and metacognition, central elements of *Peer Instruction.*

Together, these figures demonstrate how the Letrus platform utilizes advanced technology to provide a personalized and effective learning experience. By combining immediate *feedback* with detailed analysis, the platform not only prepares students for the ENEM, but also helps them develop writing skills that will be valuable in their future academic and professional life.

Figure 6 – Personalized analysis of each text produced



Source: Letrus Manual

All the features illustrated in the figures above are also found in the Letrus app. Students can write argumentative essays directly on your mobile devices, as the application has editing and correction tools automatic and intelligent *feedback* that assist students during the writing process. They can view guidelines on the structure and elements of the essay, receive suggestions for real-time improvement and track your progress throughout the activities. This integration between *mobile* and the practice of textual production makes learning more dynamic and adapted to the lifestyle of Generation Z students. Below, figures 7, 8 and 9 illustrate the interface of the application.

Figure 7 – Writing proposal found in the Letrus app

Source: Letrus Manual

The mobile app offers an optimized user experience by adapting the essential features of the mobile platform. In Figure 7, you can observe the writing proposal screen of the Letrus application. This interface presents key elements such as: a) a clear and concise command for the essay topic; b) texts compact but informative motivators, adapted for reading on a smaller screen; c) instructions objective information about the writing task; d) indication of time and word limit; e) buttons intuitive navigation to access additional features or start writing.

Presenting the proposal in *mobile* format allows students to access the writing topics at any time, encouraging constant practice and taking advantage of free moments to reflect on the proposed themes. As shown in figure 8, the The Letrus application's writing environment is designed to facilitate textual production in

mobile devices, by prioritizing simplicity and efficiency, removing distractions and focusing in the main writing task. This allows students to practice writing in different contexts, whether on the way to school, between classes or in any other appropriate time.

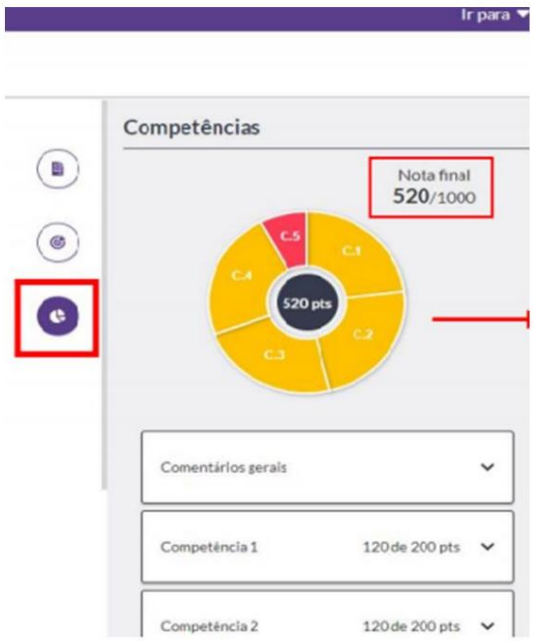
By offering a consistent mobile experience, Letrus not only expands access to its platform, but also aligns with mobile learning trends, recognizing the central role that *smartphones* play in the lives of modern students. This *mobile-friendly* approach3 enhances the continuous development of skills writing, transforming idle moments into valuable opportunities for practice and learning.

Figure 8 – Space for writing text in the Letrus app

Source: Letrus Manual

Figure 9 – Personalized feedback in the Letrus app

[3] *Mobile-friendly* is an English term that refers to something that is user-friendly or well-adapted for use on mobile devices, such as *smartphones* and *tablets.* In Portuguese, we could translate it as "adapted for mobile devices" or "optimized for cell phones."



Source: Letrus Manual

The personalized feedback offered by the Letrus app represents a step forward significant in the way students receive *feedback* on their ENEM essays. This functionality goes beyond simply providing a grade, offering an analysis detailed covering the five competencies, each with individual scoring; specific qualitative comments on each aspect of the text, with concrete suggestions for improvement; and a marking system that highlights specific examples within the text itself student. This comprehensive approach not only allows students to identify their strengths and weaknesses, but also provides a solid starting point for an analysis deeper and more targeted, which can be mediated by the teacher during classes.

When integrated with the *Peer Instruction* (PI) method, this personalized feedback can create a highly effective and collaborative learning environment, while grades and detailed analyses are used as a basis for pair discussions, allowing students share and compare their feedback. This would facilitate the identification of key concepts

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that need more attention, promoting self-assessment and peer review, and enabling the personalization of learning according to the specific needs of each student. In addition, feedback with progress monitoring over time, can provide opportunities for developing collective strategies and developing skills argumentation. By combining the detailed and personalized *feedback* from the Letrus app with PI's collaborative discussions, students would not only receive valuable information about their performance, but they would also have the opportunity to analyze and apply this *feedback* in an interactive context. This can result in a deeper understanding of the criteria evaluation, stimulating critical thinking and contributing to the process of improvement in writing essays for ENEM.

Recognized as one of the best educational technologies in the world, Letrus was awarded by UNESCO after rigorous evaluations. The teacher, when accessing their portal, can view student essays, receive feedback from experts, and access reports detailed information about the class's performance, as well as teaching materials that help in lesson planning. Marcuschi (2010) states quite objectively that the new Technologies don't change objects, but our relationship with them. This is a proven fact, since different people can make different uses of the same object, as is the case, for for example, from a computer or a cell phone. Therefore, as teachers, it is necessary redefine the practice and make the most of existing resources and technologies.

With objective reports, educators can intervene in real time in student productions, even if they are unfinished. Reports of completed activities highlight student progress and suggest pedagogical interventions. The platform also offers ongoing support through service and advice, ensuring training and quality monitoring in the correction of essays. In Figure 10, one can observe the interface of the page where the teacher receives class reports.

Figure 10 – Teacher Monitoring Page

Source: Letrus Manual

When searching for educational technologies, it is essential to choose tools that truly improve student learning and enhance the work of educators. Technologies that integrate active methodologies, such as paired activities, are essential for a more dynamic and interactive education. In addition, tools that provide data and reports on student performance are crucial to promoting personalized learning and engaging, reducing school dropouts:

> Technologies and the rapid expansion of the use of digital equipment require that teacher takes ownership of this new knowledge by exploring the potential of technology for the benefit of more creative, autonomous, collaborative and interactive. Embracing technological knowledge will allow the educator to the advantages and disadvantages, risks and possibilities in the use of technologies information and communication aiming to transform them into a useful tool (Garcia, 2015, p. 5).

In this context, Letrus not only facilitates students' writing, but also improves interaction between educators and students, allowing teachers to better understand their classes. In an increasingly digital world, investing in effective educational technologies is essential for advancing learning. Choose technologies that are proven bring positive results is essential to ensure that education continues to evolve and meet the needs of students and educational institutions. In the meantime, Coscarelli (2016) highlights the omnipresence of various media in students' daily lives, encompassing activities such as entertainment, information sharing, social interaction, research and games. The author argues that it would be unfair to exclude these technologies from environments educational, a position that is quite pertinent considering the current context.

In this way, the teacher becomes a facilitator, guiding students in the construction of your writing skills based on the information collected by the platform. Garcia (2015) argues that the mere presence of technological resources in schools is insufficient to promote meaningful learning. The author emphasizes the importance of training contextualized knowledge of teachers, highlighting that this is essential for educators to be able to effectively use new technologies as tools to support learning, thus facing the challenges associated with its implementation in the school environment.

Therefore, Letrus should be used not only as a repository, but as an active space for interaction. Strategies such as guided discussions, in which the teacher initiates a forum with provocative questions on ENEM topics and production challenges, in which students produce texts based on given topics, followed by *feedback sessions,* are fundamental to this integration. Assessment must be continuous and formative, considering the students' learning process by establishing clear criteria for production textual, enabling students to understand their weaknesses and strengths, as well as encourage self-assessment and peer review, promoting a collaborative environment.

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It is expected that the implementation of these Peer Instruction practices mediated by Letrus leads to an improvement in the quality of textual production, with students demonstrating greater understanding of the technical and creative aspects of writing, in addition to the development of social skills such as teamwork, empathy, and communication. Furthermore, familiarity with the structure and themes of the ENEM should facilitate better performance in writing tests.

In this way, Peer Instruction practices and strategies , integrated into the platform Letrus, may offer a promising way to improve the teaching of textual production focused on ENEM, not only strengthening students' writing skills, but also preparing them more effectively for the challenges of the exam. The success of this active methodology will depend on the continuity of research and practices that explore new forms of interaction and learning among students. Peer interaction can foster a supportive environment in which students feel more comfortable sharing their difficulties and achievements.

In practice, when using Letrus, students write their essays and then have the opportunity to exchange texts with a colleague. This exchange should be mediated by clear guidelines, that encourage constructive *feedback* . Students learn to identify strengths and areas that need improvement, developing critical analysis skills which are essential not only for writing, but also for communication in general.

FINAL CONSIDERATIONS

This study explored the effectiveness of the *Peer Instruction* methodology in teaching textual production, demonstrating how interaction between peers enriches the process of learning and enhances students' writing skills. By combining this approach collaborative with technological tools, such as the Letrus platform, it was observed not only

an increase in student engagement, but also a significant advance in their textual skills. This research therefore reveals the importance of active methods in educational environment, highlighting the need for training that prepares students for contemporary academic and professional demands.

Although there are challenges in its implementation, the benefits provided by active and participatory approach justify its consideration and application in the context educational. The use of Letrus, for example, combined with peer instruction, can be effective in preparation for ENEM, as it offers students the opportunity to practice writing dissertative-argumentative in a dynamic and interactive way, which can have a positive impact your performance on tests. In addition, familiarization with different types of texts and building solid arguments are essential skills not only for the exam, but also for academic and professional contexts.

The Letrus platform offers an automated correction system that complements the *feedback* from colleagues, allowing for a comprehensive view of performance. The combination of Human and technological *feedback* is powerful - students are led to reflect on their choices linguistic and structural, promoting deeper and more meaningful learning. This process reflects a more complete pedagogical approach, which combines collaboration with personalization of teaching.

Another important aspect of using Letrus-mediated peer instruction is the development of empathy and teamwork. When evaluating colleagues' texts, Students can learn to value different writing styles and recognize the diversity of perspectives, promoting a more inclusive environment. This exchange of experiences contributes for a more collaborative classroom climate, where everyone feels part of the learning process learning. Thus, education becomes more than a simple transmission of knowledge, transforming itself into a space for collective construction and mutual growth.

Therefore, it is suggested that future studies explore the application of this methodology.
in different educational contexts and levels of education, as well as investigate their effects on
long-term impact on student performance in other external assessments, such as the ENEM (National High School Exam). In addition,
Furthermore, the integration of technological tools such as Letrus can facilitate the process of
feedback and peer review, presenting itself as a rich area for future research.

An important *insight* that this study leaves is the relevance of integrating technology and
collaboration in teaching complex skills, such as textual production, which demands
continuous reflection and structured *feedback* .

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