REMEDIATION AS A PEDAGOGICAL STRATEGY FOR THE DEVELOPMENT OF THE PORTUGUESE LANGUAGE AND COMPUTATIONAL THINKING

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ABSTRACT

In this article, we propose remediation as a pedagogical strategy that integrates the teaching of the standard norm of the Portuguese language with the development of computational thinking, respecting linguistic variation and its role in students' communicative competence. Based on studies on remediation (Bolter and Grusin, 1999), on language development (Vygotsky, 2001; Faraco, 2015) and in the conceptualization and problematization of computational thinking (Wing, 2006; Grover and Pea, 2018; Foohs et alii, 2025), the article also incorporates the theory of writing as a recursive process (Flower and Hayes, 1981), highlighting the relationship between planning, revision and textual adaptation in the teaching of writing and programming. The proposal presents a didactic sequence structured in three phases: textual authorship, remediation for digital narratives and construction of algorithms in the computational environment. The aim is to develop skills such as cohesion, coherence, abstraction and algorithmisation, while encouraging creativity and reflection on the adequacy of linguistic registers in different contexts. Inspired by the vision of Flower and Hayes (1981), we argue that writing should be understood as a dynamic and interactive process, in which students improve their productions as they restructure their narratives in the digital environment. We consider, however, that the integration of computational thinking to writing should occur in a balanced way, avoiding reductionist approaches that subordinate the complexity of language to computational logic. Although its implementation requires adaptations to the specific conditions of each school, the methodology is especially suitable for after-school hours focused on creative writing and digital narratives. Remediation enhances interdisciplinary learning, creating opportunities for meaningful and contextualized education that values both linguistic and computational skills. Finally, we suggest that future research explore the practical application of the proposal in different educational contexts, analyzing its impact on learning and the challenges faced by teachers.

Keywords: Remediation. Computational thinking. Standard norm. Linguistic variation. Digital narratives. Writing as a recursive process.

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INTRODUCTION

The evolution of digital technologies has profoundly transformed the way we interact with information, impacting areas such as communication, knowledge production, and education. One of the relevant concepts to understand this transformation is that of remediation, developed by Bolter and Grusin (1999), which describes the reappropriation of existing media in new formats. Traditionally, studies on remediation have focused on the analysis of digital media and the way in which different forms of communication and expression reorganize themselves as they are transposed into new media. However, despite its relevance to digital culture, remediation has not yet been sufficiently explored as a pedagogical tool.

In the field of education, the learning of the Portuguese language faces significant challenges, especially with regard to mastering the standard norm and becoming aware of the use of linguistic diversity. Many students have difficulties in structuring cohesive and coherent texts within the norms of formal written language and the pedagogy of linguistic variation with its sociocultural implications is still little implemented in the school environment. In addition, the growing demand for computational thinking skills, driven by the digitalization of the world of work and the insertion of computing concepts in basic education, requires methodologies that integrate different forms of reasoning.

This article proposes a conceptual look at remediation from the perspective of a didactic strategy for the teaching of the standard norm of the Portuguese language, in dialogue with linguistic variation and integrated with the development of computational thinking. We believe that remediation can play a catalytic role in improving writing, not only by connecting traditional textual production with interactive digital narratives, but also by encouraging reflection on the adequacy of linguistic registers to different communicative contexts. Through the transposition of texts to a computational environment, students revisit and improve their written productions, experiment with different uses of language, and develop cognitive skills, such as the decomposition of problems, the sequential organization of information, and the construction of algorithms, all elements that make up computational thinking (Wing, 2006; Grover and Pea, 2018).

The relevance of this approach lies in the fact that remediation, when used deliberately as a pedagogical strategy, can create a dynamic and meaningful learning environment. The process of converting a written authorial text into an interactive digital narrative requires students to reflect on textual structure, cohesion, coherence, and communicative context. At the same time, this experience leads them to understand fundamental principles of computing, such as programming logic and the structured

organization of information. Thus, remediation can contribute to the development of strategies related to computational thinking, to the consolidation of the standard norm and to the awareness of linguistic diversity, exploring different language registers within the narrative construction.

The structure of this text follows an organization that allows the progressive understanding of the concepts and applications of remediation. Initially, we present a theoretical foundation that details the concept of remediation and its implications for education. Next, we discuss the intersection between computational thinking and Portuguese language learning, demonstrating how remediation can act as a bridge between these two domains. Subsequently, we explore the conceptual construction of remediation in learning, proposing a structured methodology for its application. Finally, we highlight the possibilities for implementation in future work and reflect on the challenges and opportunities of this strategy.

By proposing remediation as the structuring axis of a didactic sequence, this article seeks to broaden discussions on the learning of the Portuguese language and computational thinking, encouraging new research and pedagogical experimentation.

THEORETICAL FOUNDATION

The theoretical foundation of this article is based on three major pillars: studies on remediation, the theory of language development, considering the pedagogy of linguistic variation together with the standard norm, and computational thinking in the context of education. By integrating these areas, we seek to understand how remediation can act as a mediating axis in the learning of the standard norm of the Portuguese language, in the appropriate use of its varieties and in the promotion of computational skills.

Language plays a central role in cognitive and cultural development. As defended by Vygotsky (2001), thought and language are intrinsically linked, and their interaction constitutes the basis of intellectual development. In addition, authors such as Faraco (2015) argue that the pedagogy of linguistic variation is essential to expand students' communicative competence, promoting a conscious transit between different linguistic registers and communicative contexts. In the teaching of the Portuguese language, this implies both the mastery of the standard norm and the valorization of the other linguistic varieties, recognizing their legitimacy and social importance.

The integration of these perspectives into computational thinking reveals a transformative potential, but it also requires a critical analysis of their limits and pedagogical applications. Computational thinking, as proposed by Wing (2006) and expanded by Grover

and Pea (2018), emphasizes skills such as decomposition, abstraction, and algorithmization, establishing a connection between textual organization and narrative planning, which allows bringing natural language structures closer to the logical processes necessary for programming. However, according to Foohs et al. (2025), the insertion of computational thinking in education needs to be accompanied by a reflection on its pitfalls, avoiding a conception that intends to frame all human cognition within its limits. Thus, remediation emerges as a pedagogical process that, by transposing written texts into interactive digital narratives, can promote the simultaneous development of linguistic and computational skills without disregarding the complexity of human thought and the diversity of learning processes. This section is organized into three parts:

1. The Concept of Remediation – Its origin, definitions and implications for education.
2. Language Development and Pedagogy of Linguistic Variation – The role of language in cognitive formation and the importance of teaching the standard norm in dialogue with linguistic varieties.
3. Computational Thinking and Portuguese Language Teaching – The complementarity between computational skills and the teaching of writing.

By detailing the concept of remediation, its relationship with standard norm learning, linguistic variation, and computational thinking, we aim to demonstrate how this process can be intentionally incorporated into this type of interdisciplinary pedagogical practice. In addition, we seek to ensure that the development of strategies related to computational thinking respects the diversity of cognitive processes, recognizing that human thinking is much more complex than formal strategies of computational thinking. Human thought, and consequently written language, involves creativity, subjectivity, emotion, contextual inferences, and individual experiences, aspects that cannot be completely codified.

THE CONCEPT OF REMEDIATION

The concept of remediation was introduced by Bolter and Grusin in their seminal work *Remediation: Understanding New Media* (1999). The authors define remediation as the process by which a media adapts and transforms elements of other media, either by incorporating content, by remaking formats, or by fully absorbing the previous medium. This phenomenon reflects the continuous dynamics of adaptation and innovation in media production, evidencing the interdependence between traditional and digital media (BOLTER and GRUSIN, 1999; OMAR, 2012).

Logics of Immediacy and Hypermediaticity

Bolter and Grusin identify two central principles that structure remediation: immediacy and hypermediaticity. Immediacy seeks to erase the marks of mediation, creating a transparent experience for the user, while hypermediaticity emphasizes the multiple acts of mediation, using resources such as hyperlinks, multiple windows, and interactive elements. These contradictory, but complementary, logics are evident in digital media, such as online news portals, where interactivity and user control are emphasized (BOLTER and GRUSIN, 1999; OMAR, 2017; ARRIVÉ, 2019).

For example, in digital journalism, remediation allows content originally produced for print media to be adapted for the digital environment, incorporating new multimodal elements, such as videos and interactive graphics. In this context, immediacy seeks to offer a continuous and intuitive reading experience, while hypermediaticity promotes the exploration of related and interconnected content, enriching the reader's understanding (OMAR, 2017).

Remediation in Education

Although widely studied in media and communication contexts, remediation also has significant potential in the educational field. According to Foohs and Giraffa (2022), remediation can be conceived as a cognitive process, in which learners reinterpret and adapt information by transposing content from one medium to another. In teaching, this process can be applied to transform written authorial texts into interactive digital narratives, requiring students to reorganize ideas, adapt languages, and plan structures (FOOHS and GIRAFFA, 2022).

This approach goes beyond a simple transposition of supports. It involves the active reconstruction of content, allowing learners to reflect on textual cohesion and coherence (KOCH, 2020), while also exploring computational tools. Remediation, in this sense, encourages the development of abstraction and algorithmization skills, essential for computational thinking (GROVER and PEA, 2018). In addition, it promotes the appreciation of linguistic diversity, by allowing students to experiment with different linguistic registers in the process of narrative construction (FARACO, 2015).

Criticisms and Expanded Perspectives

Despite its influence, the concept of remediation is not without criticism. Arrivé (2019) argues that Bolter and Grusin took an overly technology-centric approach, neglecting broader cultural and anthropological aspects of the phenomenon. Moreover, the broad

definition of remediation raises questions about its theoretical limits: how far does remediation go? Does it apply to all mediation processes? These issues open space for more complex interpretations, such as their relationship with cultural and educational practices (ARRIVÉ, 2019).

On the other hand, authors such as Dobson (2006) and Omar (2017) highlight the applicability of the concept of remediation in specific contexts, such as the consumption of digital news and the use of interactive narratives to promote engagement and active participation. These studies show that remediation is not only a technical process, but also a social and cognitive phenomenon, which can be exploited to create dynamic and interactive learning experiences (OMAR, 2017; DOBSON, 2006).

In the educational context, remediation presents itself as a process that can integrate linguistic and computational skills. It can encourage the mastery of the standard norm and promote a reflection on linguistic variation and the adequacy of records to the communicative context (FARACO, 2015). By requiring students to transpose authorial texts into digital narratives, remediation stimulates the development of textual skills while connecting language and computational logic.

In addition, this approach favors interdisciplinary practices, in which students have the opportunity to develop skills such as creativity, critical thinking, and reflective use of digital technologies. By uniting language and technology, remediation encourages collaboration and autonomy, presenting itself as a relevant pedagogical practice for contemporary teaching.

In the next section, we will explore how computational thinking complements and expands this perspective in Portuguese language teaching, highlighting its role in the construction of interactive digital narratives.

LANGUAGE DEVELOPMENT AND THE PEDAGOGY OF LINGUISTIC VARIATION

Language plays a central role in cognitive and cultural development. As defended by Vygotsky (2001), thought and language are intrinsically linked, with language being the main mediating instrument of intellectual development. This perspective highlights that language is not only a means of communication, but also a structuring element of cognition. As the author states:

> The development of thought is determined by language, that is, by the linguistic instruments of thought and by the sociocultural experience of the child. Fundamentally, the development of logic in the child, as Piaget's studies have shown, is a direct function of his socialized discourse. The intellectual growth of the child depends on his mastery of the social means of thought, that is, of language. (VYGOTSKY, 2001, p. 47).

In Portuguese language teaching, the focus on the standard norm often obscures the linguistic richness and diversity of Brazilian society. Faraco (2015) argues that the teaching of the standard norm should occur in a balanced way, without devaluing the linguistic varieties that are part of the students' repertoire:

> One of the indispensable pedagogical practices for the teaching/learning of cultured expression is precisely to awaken students' awareness of linguistic variation, so that they perceive the critical points that distance the variety they learned at home from the more prestigious and institutionalized varieties systematically throughout basic schooling. (FARACO, 2015, p. 27).

This excerpt suggests that the cultured norm and the standard norm are not necessarily distinct and exclusive concepts. The cultured norm, despite varying socially, converges to the standard norm in the educational and institutional context, functioning as a reference for formal writing. Thus, the teaching of the standard norm should not be seen as a rigid imposition, but rather as a process of awareness that allows students to understand both linguistic variation and the normative demands of academic and professional spaces.

Although the cultured norm is plural, the elimination of the standard norm could bring undesirable consequences for education and academic communication. The absence of a clear normative axis could fragment formal communication and hinder students' access to academic and professional opportunities that require a structured command of the written language. The challenge, therefore, is not to abandon the standard norm, but to balance the need for a stable framework with the appreciation of linguistic diversity. The most productive path seems to be a critical approach to the standard norm, allowing students to move between different linguistic registers in a conscious way, understanding when and why each variety should be used.

In this sense, remediation emerges as a pedagogical tool that enables this transit between different linguistic registers. By allowing students to transpose authorial texts into digital narratives, remediation encourages reflection on the adequacy of language to different communicative contexts. In addition, throughout the remediation process, students are challenged to review and reorganize their productions, strengthening their capacity for linguistic adaptation and consolidating the standard norm as a reference axis for formal communication without discarding the richness of linguistic variation.

Cohesion, Coherence, Intentionality and Textual Situationality

Textual production is one of the main challenges in the teaching of the Portuguese language, especially with regard to the construction of cohesive and coherent texts. According to Koch (2020), textual cohesion refers to the connection between the linguistic

elements of a text, while coherence is related to the logical organization of ideas and the maintenance of a clear communicative intentionality. In addition, situationality, as Koch points out, refers to the relevance of the text in relation to the context in which it is produced and interpreted, considering factors such as the target audience, the communicative objectives and the means of circulation.

These elements, cohesion, coherence, intentionality, and situationality, are fundamental to the development of writing, but they can also be applied to the analysis and adaptation of authorial texts in multimodal contexts, such as interactive digital narratives. Remediation offers a unique opportunity to reinforce these aspects by requiring students to transpose an authorial text into an interactive digital format. In this process, they need to revise and reorganize their productions, ensuring that cohesion and coherence are maintained or improved, while adapting the language and content to the situational requirements of the new medium. This practice encourages critical reflection on the textual structure, contributing to the improvement of students' skills by adjusting linguistic registers to meet the demands of the narrative context and the target audience.

Linguistic Variation in the Educational Context

Linguistic variation, often seen as a "problem" in the classroom, must be re-signified as a pedagogical opportunity. As Faraco (2015) points out, the teaching of the standard norm should not imply the devaluation of non-standard varieties, but rather the expansion of students' communicative competence. This includes the ability to recognize when and why to use a certain linguistic variety, considering situational and communicative demands.

Remediation enhances this procedure by allowing students to experiment with different linguistic registers in the process of narrative construction. For example, when creating dialogues for characters in a digital narrative, students can explore the appropriateness of language varieties, combining formal and informal language as per the needs of the plot. This process reinforces the mastery of the standard norm and promotes the appreciation of linguistic and cultural diversity.

Connection with Computational Thinking

The process of remediation, by requiring textual reorganization and linguistic adaptation, is directly connected to the competencies of computational thinking, such as problem decomposition and abstraction. These skills will be discussed in the next section, which explores how computational thinking can complement Portuguese language teaching by creating an interdisciplinary learning environment.

COMPUTATIONAL THINKING AND PORTUGUESE LANGUAGE TEACHING

The concept of computational thinking has gained prominence in recent decades, driven by the need to prepare students for a world increasingly mediated by technology and by the integration of programming concepts into the school curriculum. According to Wing (2006), computational thinking is a problem-solving process that involves skills such as abstraction, decomposition, pattern recognition, and algorithmization. This definition was later expanded by authors such as Grover and Pea (2018), who highlight computational thinking as an essential skill for the twenty-first century, with applications that go beyond computing, covering areas such as science, mathematics, and human languages.

However, as Foohs et al. (2025) point out, the adoption of computational thinking in education requires a critical analysis, as there are risks that this concept will be applied in a reductionist way, framing all human cognition within the limits of computational logic. The authors argue that computational thinking should not be seen as a universal solution for the development of cognitive skills, but rather as a specific subset of human thinking, which needs to be contextualized within pedagogical practices to avoid conceptual distortions.

In the context of the Portuguese language, computational thinking has a natural connection with textual structuring. In both writing and programming, it is necessary to organize ideas in a logical way, establish sequences and relationships between elements, and adapt the language to the target audience and context. Flower and Hayes (1981) point out that writing is a recursive and strategic process, in which writers continuously formulate, test, and adjust their ideas. "Experienced writers not only follow a rigid plan, but constantly reevaluate their choices and reorganize their ideas as new needs emerge" (FLOWER; HAYES, 1981, p. 371). This perspective reinforces the idea that textual structuring in writing is close to the logical organization present in computational thinking.

Remediation, in this sense, emerges as a mediating process that allows connecting these competencies, enabling students to apply computational strategies to the creation of interactive digital narratives without reducing writing to a mere exercise in programmable logic. The planning of a digital narrative follows the same principles of structuring, revision and adaptation used in traditional writing, but incorporating interactive elements that increase its complexity.

Elements of Computational Thinking in the Teaching of Writing

The teaching of writing can directly benefit from the skills promoted by computational thinking, as long as its application is contextualized and balanced within pedagogical practices. Some of these skills include:

1. **Decomposition:** In writing, decomposition occurs when students break down the text into smaller parts, such as introduction, development, and conclusion. In remediation, this is amplified by the need to fragment the text into scenes or stages of an interactive narrative.

2. **Pattern Recognition:** Creating digital narratives requires students to identify patterns in their stories, such as dialogue structures, conflicts, and resolutions, which can be reused in different parts of the storyline.

3. **Abstraction:** When transposing a text to a digital environment, students need to abstract essential elements of the narrative, eliminating unnecessary details and highlighting the main points that should be kept in the new version.

4. **Algorithmization:** Digital storytelling programming requires students to create logical sequences of events, utilizing commands and conditions to determine how characters interact and how the plot progresses.

These elements of computational thinking can contribute to textual organization and planning, but they should not be treated as the only mechanisms for writing development. In addition to logical reasoning and sequential structuring, the development of writing also involves skills such as argumentative construction, semantic inference, creative imagination, and stylistic sensitivity. Natural language involves subjectivity, creativity, and contextual variation, aspects that cannot be entirely captured by a strictly logical approach. Thus, the application of computational thinking to the teaching of writing should be conducted in a complementary way, respecting the complexity of textual production and the different learning processes involved.

Digital Narratives as a Convergence between Language and Computation

The creation of digital narratives is a practical application that directly connects the teaching of the Portuguese language to computational thinking. When transforming a written text into an interactive narrative, students should:

1. Plan the plot and characters, ensuring cohesion and textual coherence.

2. Define interactions and conditions that influence the course of the narrative by applying computational logic.

3. Adapt language to the digital environment, exploring different linguistic registers and maintaining communicative intentionality.

This practice values the standard norm and other varieties of the language, while encouraging creativity, collaboration, and the critical use of technologies. As highlighted in the ISTE/CSTA report (2011), computational thinking is both a technical skill and a mental attitude that promotes confidence in solving complex problems and the ability to deal with uncertainties and ambiguities, fundamental skills for the academic and personal development of students.

However, the integration between computational thinking and writing teaching must occur in a balanced way, ensuring that the logical structuring of the digital narrative does not limit the expressive richness of students. The remediation process must preserve subjectivity and creativity, encouraging students to explore different narrative and discursive possibilities, without restricting their productions to an excessively rigid model. In this way, the use of technology in writing can work as a catalyst for new forms of expression, expanding the students' repertoire and favoring a more dynamic and contextualized approach to teaching the Portuguese language.

Contributions to Interdisciplinary Education

The integration of computational thinking into Portuguese language teaching through remediation opens up new possibilities for the development of both linguistic and technological skills, allowing for a broader approach to learning. This articulation should not be seen only as a means of improving writing or introducing computational concepts, but rather as a strategy to stimulate a critical look at textual production and the adaptation of language to different media and audiences.

When transposing authorial texts into interactive digital narratives, students are challenged to reflect on structure, organization, and textual coherence, but also to consider elements such as interactivity, multimodality, and user experience. This process promotes learning that goes beyond the traditional linearity of writing, encouraging the formulation of non-linear narrative paths and experimentation with different discursive strategies. In this way, interdisciplinarity is not restricted to a dialogue between language and computing, but expands to other areas of knowledge, such as digital design, visual communication, and even the critical analysis of digital media.

In addition, remediation can contribute to the reflection on the role of language in contemporary society. In a world where communication is increasingly taking place through digital and interactive formats, it is essential that students develop the ability to structure texts according to the norms of formal written language and to understand how language adapts to different supports and purposes. This process expands the notion of literacy,

connecting traditional writing to emerging discursive practices and preparing students to act in a dynamic and constantly changing communicative scenario.

Finally, instead of reducing writing to an exercise in logical structuring, the integration between computational thinking and Portuguese language teaching expands the expressive and interpretative possibilities of students. In this way, the use of remediation strengthens the capacity for argumentation and textual cohesion and opens space for experimentation with new forms of narrative and interaction. Writing, therefore, comes to be seen both as a technical process and as a field of creativity, reflection and innovation.

REMEDIATION AS A STRUCTURING AXIS OF A DIDACTIC SEQUENCE

Remediation, as discussed in the previous sections, presents itself as an opportunity to integrate writing in Portuguese with the development of computational thinking. To consolidate its application in the educational context, this article proposes a structured didactic sequence that uses remediation as a central axis, connecting traditional textual production to the creation of interactive digital narratives.

This didactic sequence, inspired by Foohs and Giraffa (2022), is conceived as a process in three main phases: textual authorship, remediation for digital narratives, and construction of algorithms in the computational environment. Each phase aims to develop specific competencies related to language, computational thinking and creativity, while promoting a critical reflection on the use of language in different communicative contexts.

STRUCTURE OF THE DIDACTIC SEQUENCE
Phase 1: Text Production in the Standard Norm

The first stage of the didactic sequence focuses on the writing of a text, such as a fable, respecting the rules of the standard norm. The goal is for students to develop cohesion, coherence and intentionality in their written productions (KOCH, 2020). This text will be revised in cycles, allowing students to refine their writing based on feedback from the teacher and peers.

Writing, as discussed by Flower and Hayes (1981), is a recursive and problem-solving process. The authors argue that "writing is not just putting words on paper, but a process of problem-solving, where the writer continuously formulates, refines and reorganizes his ideas" (FLOWER; HAYES, 1981, p. 366). In this way, initial writing is not a linear act, but a continuous cycle of planning, textualization, and revision.

In the context of remediation, this approach intensifies, as students in addition to writing also restructure their texts by transposing their narratives to digital format. This

process reinforces the idea that writing should be understood as a dynamic flow, in which the writer adapts his speech according to the context and the communicative purpose. Thus, remediation acts as a catalyst for students to realize the importance of rewriting and textual adaptation.

Skills Developed:

1. Textual organization (introduction, development, conclusion);
2. Use of the standard norm, reflection on textual cohesion and coherence, and understanding the functionality of language in different contexts;
3. Revision and restructuring of the text according to feedback, promoting metacognitive awareness of the writing process;
4. Reflection on the role of intentionality and situationality in the text, reinforcing the discursive adaptation to the target audience.

Phase 2: Digital Narrative Planning and Appropriation of Tools

In the second stage, students prepare the interactive digital narrative script, planning the transposition of the authorial text to the digital environment. This planning involves the fragmentation of the plot into scenes, the definition of possible interactions, and the adaptation of language to different narrative contexts. For the script to be viable within the chosen platform, students also need to take ownership of the digital tools that will be used in the next phase. Thus, in this phase, they explore the functionalities of the digital environment, understanding its possibilities and limitations for the construction of the interactive narrative.

Familiarization with the tools may include the use of digital narrative creation platforms, multimodal text editors, and visual programming software. This process ensures that students create scripts compatible with the available resources, optimizing the implementation stage in the next phase. In this way, at the end of this phase, students will have a well-structured script and prior knowledge of the digital tools necessary for its interactive transposition.

Skills Developed:

1. Structured planning of the digital narrative, considering interactivity and narrative logic.
2. Fragmentation of the plot into scenes and definition of interactive paths.
3. Adaptation of the text to different linguistic registers, exploring variations appropriate to the digital context (FARACO, 2015).

4. Appropriation of the digital tools necessary for the creation of the interactive narrative.

Phase 3: Construction of Algorithms in the Computational Environment

The last step involves implementing the script planned in the previous phase, using a platform such as Scratch[5] to program the interactive narrative. Students apply computational thinking concepts, such as logical sequencing, conditions, and interactivity, to bring stories to life. As they have already explored the platform's functionalities in the previous phase, they can now focus on creating algorithms that materialize the planned script, structuring interactions and narrative elements with greater autonomy.

Skills Developed:

1. Creation of algorithms that reflect the logic of the narrative.
2. Use of conditional commands and events to create interactivity.
3. Integration of visual, sound and textual elements to enrich the narrative experience.
4. Application of visual programming concepts with autonomy and creativity.

CONCLUSION

This article presented remediation as an interdisciplinary pedagogical strategy that integrates the teaching of the standard norm of the Portuguese language and the valorization of linguistic variation with the development of computational thinking. Based on the transposition of written authorial texts into interactive digital narratives, remediation is an approach that allows the simultaneous development of linguistic and computational skills, connecting textual organization to logical planning through the creation of algorithms and interactive narrative structures.

Throughout the article, we discuss the fundamentals of remediation, its relationship with language development and the pedagogy of linguistic variation, and its connection with computational thinking. We emphasize that this process can strengthen the teaching of writing by encouraging reflection on cohesion, coherence, situationality and linguistic adequacy, while stimulating students' creativity and autonomy. However, as Foohs et al. (2025) point out, the adoption of computational thinking in education requires a critical look to prevent language and writing from being reduced to a strictly computational logic. If, on

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[5] Scratch is a visual programming platform developed by the MIT Media Lab, aimed at teaching programming logic and computational thinking. It uses a system of graphic blocks that allows the creation of animations, interactive stories and games without the need for prior knowledge in traditional code languages. Its intuitive and accessible interface is widely used in elementary education to introduce children and young people to the world of programming.

the one hand, decomposition, abstraction, and algorithmization can help in textual organization and in the construction of interactive narratives, on the other hand, it is necessary to ensure that these processes do not suppress the subjectivity, expressiveness, and semantic richness of the language.

In addition, we address the concepts of cultured norm, standard norm and linguistic varieties in the school environment, according to Faraco (2015), highlighting that the pedagogy of linguistic variation should be incorporated into the teaching of writing without this meaning disregarding the need for a common normative axis. We argue that remediation enables a productive path for a critical approach to the standard norm, allowing students to move between different linguistic registers and understand their contextual adequacies, without renouncing the construction of a reference model that guarantees the linguistic unity essential for formal and academic communication.

Although this methodology presents challenges in its implementation, such as the need for teacher training and adaptation to different school contexts, we highlight its applicability in after-hours focused on creative writing and the construction of digital narratives. In addition, the students' appropriation of the functionalities of the digital environment chosen for the transposition of the authorial narrative is a determining factor for the success of the proposal. This implies the need for teachers to be properly trained to use these tools, ensuring that they can guide students effectively during the process of remediation and programming of interactive narratives.

The impact of this proposal can be relevant both for the teaching of the Portuguese language and for the insertion of computational practices in the school environment. By promoting the transit between different linguistic registers and connecting language and technology, remediation proves to be a strategy capable of preparing students for the challenges of an increasingly digital and interconnected world.

Finally, we suggest that future research explore the implementation of this methodology in different educational contexts, analyzing its possibilities and challenges from the perspective of teachers and students. Studies of a qualitative nature, focused on the students' experience, teacher adaptation and institutional conditions for the application of remediation, can contribute to a deeper understanding of its pedagogical potential. In addition, investigations on the impacts of remediation on students' motivation and the development of authorial skills can reinforce its relevance for the teaching of writing and computational thinking in basic education.

REFERENCES

1.   Arrivé, M. (2019). Remedying remediation.

2.   Bolter, J. D., & Grusin, R. (1999). Remediation: Understanding new media. MIT Press.

3.   Dolz, J., Noverraz, M., & Schneuwly, B. (2004). Sequências didáticas para o oral e a escrita: Apresentação de uma metodologia para o desenvolvimento de competências (R. Rojo & G. S. Cordeiro, Trans.). Mercado de Letras. (Original work published in French)

4.   Faraco, C. A. (2015a). Por uma pedagogia da variação linguística. Universidade Estadual de Ponta Grossa.

5.   Faraco, C. A. (2015b). Norma culta brasileira: Construção e ensino. In A. M. S. Zilles & C. A. Faraco (Eds.), Pedagogia da variação linguística: Língua, diversidade e ensino (pp. 19-30). Parábola Editorial.

6.   Flower, L., & Hayes, J. R. (1981). A cognitive process theory of writing. College Composition and Communication, 32(4), 365-387. https://doi.org/10.2307/356600 (Retrieved February 2, 2025)

7.   Foohs, M. M., Neta, A. J. P., Krüger, J. A. P. dos S., & Rebouças, R. O. M. (2025). Armadilhas do pensamento computacional: Análise crítica. Aracê, 7(1), 2002-2026. https://doi.org/10.56238/arev7n1-121 Available at: https://periodicos.newsciencepubl.com/arace/article/view/2831 (Retrieved February 2, 2025)

8.   Foohs, M., & Giraffa, L. (2022). Remidiação e educação: Uma análise teórica e metodológica. [Publisher not identified].

9.   Grover, S., & Pea, R. (2018). Computational thinking: A competency whose time has come. In J. Lockwood (Ed.), Computer science education: Perspectives and practices (pp. 19-38). Bloomsbury Academic.

10.   ISTE, & CSTA. (2011). Operational definition of computational thinking for K–12 education. International Society for Technology in Education and Computer Science Teachers Association.

11.   Koch, I. G. V. (2020). Linguística textual: Introdução e proposição. Contexto.

12.   Omar, B. (2017). Understanding the relationship between print and online news media. [Publisher not identified].

13.   Vygotsky, L. S. (2001). Pensamento e linguagem (M. da P. Villalobos, Trans.; 3rd ed.). Martins Fontes. (Original work published 1934)

14.   Wing, J. M. (2006). Computational thinking. Communications of the ACM, 49(3), 33-35.