



# Intersections between digital technologies and social agency in the teaching of reading in English

## Interseções entre tecnologias digitais e agência social no ensino de leitura em inglês

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**ABSTRACT:** The concept of technology encompasses techniques, knowledge, and tools developed to solve or mitigate human problems (Silva *et al.*, 2013). From ancient inventions like the wheel to contemporary software, all technological advancements stem from a common source, human intelligence. These creations shape everyday life and contribute to the reconfiguration of social practices. In the present context, a specific form of digital technology has sparked significant debates across various domains of human activity, particularly in the academic/school sphere: the Generative Artificial Intelligence (GAI). This article focuses on the teaching of reading in English as a foreign language in higher education, drawing from a qualitative master's research conducted by Albuquerque (2024) at the School of Science and Technology of the Federal University of Rio Grande do Norte (in Portuguese, ECT/UFRN). The study aims to analyze how the collaborative production of Digital Educational Resources (DER) using GAI (ChatGPT) can foster the development of social agency among individuals engaged in such practices. The research was carried out in the course “Reading Practice in English” (in Portuguese, PLI), offered at ECT/UFRN, and involved seven participants — one professor and six undergraduate student monitors from different engineering fields. Over the course of three multiliteracies workshops, the participants explored the use of ChatGPT in conjunction with other digital platforms (Quizizz, Plickers, and Flippity) to create DER for teaching reading in English, aligned with the pedagogical objectives of the PLI course. For data analysis, a theoretical framework was adopted to integrate studies on technology, Artificial Intelligence, social agency, and multiliteracies. The findings indicate that the critical and creative use of GAI in pedagogical practices can enhance the development of learners’ social agency, contributing to the reconfiguration of ways of acting, teaching, and constructing meaning in the academic/school sphere.

**KEYWORDS:** Digital technology. Social agency. Generative Artificial Intelligence. Digital Educational Resource. English reading teaching.

**RESUMO:** O conceito de tecnologia engloba técnicas, conhecimentos e ferramentas criadas para resolver ou mitigar problemas humanos (Silva *et al.*, 2013). Desde invenções antigas como a roda até softwares modernos, todas resultam de uma mesma fonte, a inteligência humana. Essas criações transformam a vida cotidiana e impulsionam o redesenho de práticas sociais. Na contemporaneidade, uma tecnologia digital tem provocado debates relevantes em diversas esferas da atividade humana, especialmente na esfera acadêmica/escolar: a Inteligência Artificial Generativa (IAG). Neste artigo, focamos no ensino de leitura em inglês como língua estrangeira no ensino superior, a partir de um recorte da pesquisa de mestrado de abordagem qualitativa realizada por Albuquerque (2024), desenvolvida na Escola de Ciências e Tecnologia

da Universidade Federal do Rio Grande do Norte (ECT/UFRN). Nosso objetivo é analisar como a produção colaborativa de Recursos Educacionais Digitais (RED) com IAG (ChatGPT) pode viabilizar o desenvolvimento da agência social de indivíduos envolvidos nessa produção. A investigação foi conduzida no componente curricular "Prática de Leitura em Inglês" (PLI), ofertado na ECT/UFRN, com a participação de sete colaboradores/as de pesquisa — uma docente e seis monitores/as que também são graduandos/as da instituição, oriundos/as de diferentes ênfases e áreas da engenharia. Ao longo de três oficinas de multiletramentos, esses/as participantes exploraram o uso do ChatGPT em articulação com outras plataformas digitais (Quizizz, Plickers e Flippity), com o objetivo de criar RED voltados ao ensino de leitura em inglês, alinhados aos objetivos pedagógicos do componente de PLI. Para a análise dos dados, adotamos um referencial teórico que integra estudos sobre tecnologia, Inteligência Artificial, agência social e multiletramentos. Os resultados apontam que o uso crítico e criativo da IAG em práticas pedagógicas pode ampliar as possibilidades de desenvolvimento da agência social dos sujeitos, contribuindo para o redesenho dos modos de agir, ensinar e construir significados na esfera acadêmica/escolar.

**PALAVRAS-CHAVE:** Tecnologia digital. Agência social. Recurso Educacional Digital. Inteligência Artificial Generativa. Ensino de leitura em inglês.

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## 1 Introduction

From the invention of the wheel to digital devices, human beings have created and appropriated artifacts, products, and technological processes to interact with the world and transform it. However, this process is not a unidirectional one: as technologies emerge in society, they reshape social practices and reconfigure ways of life, subjectivities, and forms of collective organization.

For example, the abandonment of nomadism with the invention of the plow illustrates how technical innovations can trigger structural changes in human life. Therefore, when reflecting on technologies such as Generative Artificial Intelligence (GAI), it is essential to recognize that this dynamic movement, composed of multiple forces and diverse impacts, permeates individuals and their practices.

In the academic/school sphere, this specific technology has sparked relevant debates about its role in education. Could GAI be primarily associated with risks of academic dishonesty and the loss of student authorship and agency? Or, on the contrary, could it be understood as an opportunity to redefine pedagogical practices,

as in expanding the possibilities of teaching and learning through the critical and creative incorporation of this technology into different curricular components?

Although we recognize — and take into account — the risks and challenges raised by the first question, it is the latter that forms the basis of this study, which is based on an excerpt from Albuquerque's master's dissertation (2024)<sup>1</sup>. This research was conducted within the scope of the School of Science and Technology at the Federal University of Rio Grande do Norte (ECT/UFRN) and involved the collaborative production of Digital Educational Resources (DER) with GAI. From this specific focus, we aim to analyze how the collaborative production of DER with GAI for teaching reading in English can enable the development of social agency among individuals involved in this production.

To sustain this analysis, we rely on a theoretical framework that brings together different studies. In terms of understanding technology from a cultural and social perspective, we refer to Flusser (2007) and Silva et al. (2013). To reflect on GAI and its ethical, epistemological, and pedagogical implications, we draw on the contributions of Cockelbergh (2020) and Lima-Lopes (2025). In addition, we discussed studies related to social agency and multiliteracy, such as Kleiman (2005), Kalantzis, Cope, and Pinheiro (2020), and Azevedo (2025), that offers insights into how individuals appropriate technologies (specifically digital technologies) in the educational context in order to act and transform the world.

Based on the above, in addition to this Introduction, we have structured this article into four sections: (i) "Production of DER with GAI for teaching reading in English," in which we present some of the methodological aspects of data generation; (ii) "Digital technology and social agency", where we connect studies that support the

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<sup>1</sup> This research was approved by the Ethics and Research Committee (CEP) under No. 73112023.5.0000.5537 on October 10, 2023, and was conducted with the support of the Coordination for the Improvement of Higher Education Personnel (CAPES). In accordance with the research approved by the CEP, it should be noted that the names of the collaborators mentioned in this article are pseudonyms, and therefore it is not possible to identify them since they are not their real names.

analysis; (iii) “Social agency in the production of DER with GAI”, in which we develop the analysis of our subset of data; (iv) and, finally, in the concluding remarks, we draw our conclusions in light of the objective of this article and the questions presented in this section.

## 2 Production of DER with GAI for teaching reading in English

The curriculum component of the Reading Practice in English course, offered at ECT/UFRN, aims to develop English reading skills, focusing on academic texts and scientific dissemination in the field of Science and Technology (S&T). In this component, for the production of DER using GAI, we had the participation of a university professor, responsible for the course, and six undergraduate students from the Bachelor of Science and Technology (BCT)<sup>2</sup> program who acted as student assistants and came from different emphases and engineering backgrounds.

With them, we developed three multiliteracies workshops with a view to investigating, through a collaborative approach, the use of ChatGPT<sup>3</sup> (selected GAI) in the creation of DER<sup>4</sup> aligned with the PLI objective. The purpose of these workshops was to produce three DERs (one per workshop) that would later be used in PLI classes, with the aim of diversifying the teaching resources available and improving reading practices in the target language among BCT undergraduates enrolled in the component. Figure 1 presents an overview of the dynamics developed throughout these workshops.

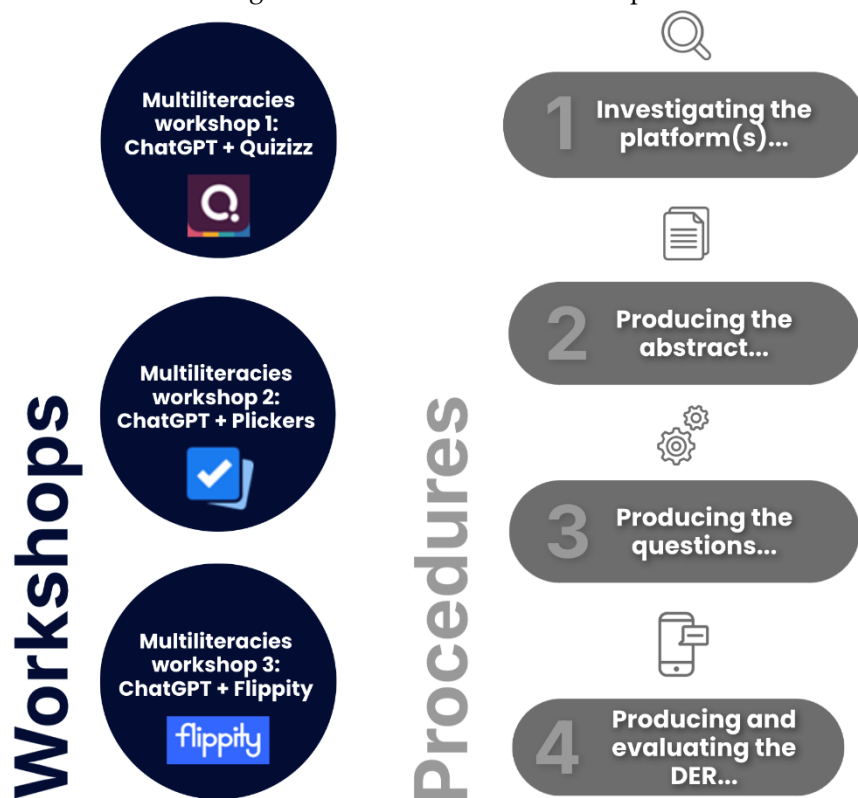
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<sup>2</sup> To learn more about ECT/UFRN's BCT and its different emphases and engineering programs, visit: <https://www.ect.ufrn.br/graduacao/apresentacao/>. Accessed on: April 18, 2025.

<sup>3</sup> The ChatGPT version used for this test is the free version (3.5). Please note that other versions may produce different results. ChatGPT is available at: <https://chatgpt.com/>. Accessed on: April 23, 2025.

<sup>4</sup> The three DERs produced, as well as the workshop scripts, are available in the “Appendix” section of Albuquerque’s dissertation (2024).

Figure 1 – Multiliteracies workshops



Source: Albuquerque (2024, p. 33)

As illustrated on the left side of Figure 1, the three workshops were organized based on the combined use of ChatGPT with different digital platforms for the questionnaires gamification, namely: (i) Quizizz<sup>5</sup>, in Workshop 1; (ii) Plickers<sup>6</sup>, in Workshop 2; (iii) and Flippity<sup>7</sup>, in Workshop 3.

Meanwhile, the right side of Figure 1 shows the four methodological procedures that constituted each workshop: (a) “Investigating the platform(s),” a procedure dedicated to familiarizing participants with the selected platform(s) through the application of an example of a DER developed by the researcher; (b) “Producing the abstract,” in which the base texts were produced, with the support of ChatGPT, from scientific dissemination articles in the field of S&T, for the production of DER questions; (c) “Producing the questions,” focused on the elaboration of

<sup>5</sup> Quizizz is available at: <https://quizizz.com>. Accessed on: May 8, 2025.

<sup>6</sup> Plickers is available at: <https://get.plickers.com>. Accessed on: May 8, 2025.

<sup>7</sup> Flippity is available at: <https://www.flippity.net>. Accessed on: May 8, 2025.

questions with ChatGPT based on the abstract produced; (d) “Producing and evaluating the DER,” the final procedure in which the questions were included into the digital platform corresponding to the workshop, followed by a beta application, that is, a test application of the resource, among the workshop participants for testing and evaluation of the Digital Educational Resources.

Given the scope of this article, the data segment we selected covers two practices developed during the DER production workshops. The first practice refers to Workshop 2 and was developed in the procedure “Producing the questions.” The second practice, on other hand, was developed in Workshop 3, during the procedure entitled “Producing the abstract.” Furthermore, we triangulated the data from these practices with excerpts from interviews conducted after the workshops. Lastly, bearing this in mind, we will explain in the next section the theoretical basis that supports the analysis of this section.

### 3 Digital technology and social agency

To initiate the discussion proposed in this article, it is essential to begin by defining what we mean by “technology”. Technology,

[...] (from the Greek τεχνη — “technique, art, craft” and λογια — “study”) is any technique, knowledge, or tool used by humans to solve (or facilitate the solving of) problems. Software, chips, and robots are technology; so are the wheel, the plow, and the seatbelt, as they were also designed through human intelligence. These and other inventions have not only changed human life but also motivated the development of new activities (Silva et al., 2013, p. 12, our translation<sup>8</sup>).

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<sup>8</sup> In the original: [...] (do grego τεχνη — “técnica, arte, ofício” e λογια — “estudo”) é toda e qualquer técnica, conhecimento, ferramenta utilizados pelo homem para resolver (ou facilitar a resolução de) problemas. Softwares, chips e robôs são tecnologia; a roda, o arado e o cinto de segurança também, pois foram igualmente concebidos graças à inteligência humana. Essas e outras invenções não só modificaram a vida do ser humano, como também motivaram o desenvolvimento de novas atividades.

To complement the above concept, we also draw on Flusser (2007), whose approach, like that of Silva et al. (2013), seeks to go beyond reductionist views that understand technology merely as a set of tools at the service of human beings.

Whether it is from the invention of the plow, writing, or Artificial Intelligence (AI) software, we recognize that all technology is the result of Human Intelligence (hereafter HI) directed toward problem solving. In this regard, Flusser (2007) proposes a specific distinction as he refers, above all, to automated technologies, those that originated in the Industrial Revolution and were intensified by programming logic. According to the author, these technologies relieve individuals from repetitive work, while also establishing a new logic of meaning production, since the devices themselves actively interfere with ways of thinking, acting, and relating to the world. This interference, however, is neither unidirectional nor neutral: humans also (re)signify the use of technologies, creating complex cycles of mutual influence between the technical and the social. Therefore, technology is understood as a system of codification that shapes and is shaped, simultaneously, by historical individuals and their sociocultural contexts.

In this regard, Flusser (2007) draws attention to the importance of understanding the codes and programs that operate such systems, highlighting the urgency of a critical stance toward the structures that configure them. The central question of who programs—and who can reprogram—systems suggests that digital technologies are more than a set of tools, but rather a complex apparatus whose conscious and critical appropriation can expand the individuals' social agency and transform their ways of inhabiting and interpreting the world.

This understanding becomes even more relevant in light of advances in AI, especially in its generative aspect. In this evolving context, GAI not only automates tasks, but actively participates in cognitive and symbolic practices previously exclusive to humans, challenging the boundaries between technology and individuals. On this matter, Lima-Lopes (2025) proposes a critical reading by emphasizing that

Large Language Models (LLMs) are products of human choices and operate on data loaded with subjectivities, ideological biases, and economic interests. For this author, uncritical enthusiasm for GAI in education can deepen inequalities, compromise the autonomy of the teacher, and reproduce patterns of knowledge standardization. In this sense, it is necessary to recognize the limits and possibilities of these systems, considering their ethical, pedagogical, and social implications.

Conscious of this fact, we advocate for the critical and reflective integration of GAI in the construction of more democratic, emancipatory, and creative educational practices that encourage the development of social agency among individuals. This advocacy is supported by the concept of agency in relation to technologies proposed by Coeckelbergh (2020).

This author refers to a “relational turn” in the ethics of technology. That is, Coeckelbergh (2020) understands that acting with technologies always means acting with others—both human and non-human—since technical systems actively participate in shaping possibilities for action, decision-making, and responsibility. Therefore, agency is not an exclusively human trait, but rather something distributed across socio-technical networks, constituted collaboratively and situated. This concept shifts the focus from individual autonomy to the relationships and mediations that structure everyday actions with technologies that are increasingly integrated into social life.

This view of agency aligns with sociocultural literacy studies, which also conceive language as a situated social practice, interactional and mediated by artifacts, products, and technological processes. From these studies, we emphasize the conception of language based on Bakhtin's Circle and the concept of *literacies*<sup>9</sup>, in the plural form.

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<sup>9</sup> Semiotic resource used to highlight the plurality of the concept.



To assume that language is always permeated by multiple voices, discourses, and points of view is to recognize, within the Bakhtin's Circle perspective, the dialogical principle, that is, the constitutively responsive character of every utterance, which is always produced in relation to previous utterances and in anticipation of possible replies (Bakhtin, 2016; Voloshinov, 2017). In this context, responsiveness is not limited to an immediate response, but refers to the active orientation of the individual in relation to the words of the Other, whether to agree, disagree, deepen, or shift meanings (Bakhtin, 2016). In addition to this dimension is the notion of responsive listening, understood as an attitude of attention and involvement that allows the individual not only to understand, but also to update and recreate the statement received (Bakhtin, 2003). By articulating these concepts with the field of literacy studies, we can understand that reading and writing are not merely technical operations, but social practices permeated by participation, negotiation, and the joint construction of meaning (Kleiman, 2005; Street, 2014).

From this perspective, considering the use of GAI in reading instruction implies viewing technological mediation as part of a broader dialogical process, as the words of the Other (human or artificial) always elicit a responsive position from the individual. In this process, we highlight a key element presented in the objective of this article: social agency. Based on Azevedo's (2025) writings, we understand "social agency" as the ability of individuals to come together to reflect on problematic situations and make collaborative decisions aimed at transforming those situations, even if only partially. In this sense, social agency is conceived as a dialogical and situated practice, emerging from the interaction among individuals, institutions, and technologies, as well as mediated by the ways that these individuals can critically appropriate the digital technologies that they interact.

This position converges with the multiliteracies approach advocated by Kalantzis, Cope, and Pinheiro (2020), that encompasses the multiplicity of language modalities and cultures that make up the contemporary communicative landscape. In

this proposal, agents are understood as designers of meanings — active individuals in the construction and reconstruction of knowledge. Thus, learning involves the critical and creative appropriation of different modes of language, mediated by diverse social practices and technologies.

In accordance with Kleiman's (2005) perspective, we also understand these designers as literacy agents who mobilize such knowledges to critically intervene in reading and writing practices. Kalantzis, Cope, and Pinheiro (2020) supplement this conception by positing that, when interacting with symbolic systems mediated by digital technologies such as AI, individuals are constantly engaged in processes of (re)signification. Multiliteracies, in this sense, align with the concept of social agency as a relational, situated, multimodal, and multicultural practice that articulates individuals, knowledge, and technologies (digital or otherwise) in the collaborative production of meaning.

To articulate these conceptual axes in the practices analyzed in this article, we chose to develop multiliteracies workshops, as proposed by Silva (2023). These workshops are based on the literacy workshops proposed by Santos-Marques and Kleiman (2019) and are characteristic for incorporating the complexity and semiotic diversity of the contemporary world. Their goal is to develop participant's ability to interpret and produce meaning in multiple modalities, cultures, and media, promoting critical thinking in the face of the multiplicity of information and discourses that circulate in algorithm-mediated digital environments.

This objective becomes even more relevant in light of the incorporation of GAI technologies in the academic/school sphere. Kalantzis and Cope (2024) argue that, unlike previous technologies, GAI represents a significant shift, as this technology is capable of creating texts that are often cohesive and coherent, and therefore similar to those produced by humans. This capacity requires expanding the concept of literacy to include the multiple social uses of language mediated by different modalities, cultures, media, as well as human and non-human producers of text. Recent research

in Applied Linguistics has already investigated this expansion, addressing the integration of GAI in teaching of/with language practices (Montenegro; Azevedo; Vieira, 2025; Praxedes; Azevedo; Albuquerque, 2024).

Based on the above, drawing from Kleiman (2005), becoming a literacy agent in contemporary times seems to involve different actions: (i) critically appropriating different forms of language; (ii) understanding how the digital technologies one interacts with operate; (iii) negotiating the limits and potentialities of these digital technologies; (iv) and constantly (and critically) reappropriating the meanings produced in digital environments. All of these remakes will be discussed in the following analysis section.

4 Social agency in the production of DER with GAI

As presented in the second section of this article, for the analysis of the data excerpt, we selected two procedures from the DER production workshops: the “Producing the questions” procedure from the second Workshop and the “Producing the abstract” procedure from the third Workshop. In addition, we triangulated excerpts from the interviews conducted after the workshops in the analysis.

During the second Workshop, the procedure “Producing the questions” required research collaborators to develop questions with ChatGPT, based on the abstract previously generated with GAI, on the contents of the second unit of the course Reading Practices in English (PLI), during the procedure “Producing the abstract.” Among these contents, we highlight the generation of questions about “nominal groups.” To support the creation of these questions, some prompts were suggested, as shown in Chart 1.

Chart 1 – Suggested prompts for generating questions with ChatGPT

<b>Suggested prompts</b>
Based on the content of the following text, create five multiple-choice questions with five alternatives each in English, exploring reading strategies for an audience with varying levels of proficiency: [paste the text here]

<p>#Based on the content of the text below, create 5 multiple-choice questions, with 5 alternatives each, in English, on the following topics: [write the topics here]. [paste the text here]</p> <p>#Submit the answer key.</p> <p>#Are you sure about this answer key?</p> <p>#You haven't made any questions about [write the topic here]; create two.</p> <p>#Create two questions, using words from the text, about [write the topics here].</p>
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Source: Albuquerque, 2024, p. 129.

The prompt suggestions listed in Chart 1 reflect a strategy oriented toward human mediation in the use of ChatGPT, with the objective of guiding the generation of multiple-choice questions in line with the English language reading teaching content in the PLI component. The proposed commands include different levels of detail and control: from broad instructions, which demand the creation of questions based on a text and aimed at an audience of varying proficiency, to more specific commands, that delimit the topics to be addressed and request corrections or additions.

The presence of instructions such as “Submit the answer key” and “Are you sure about this answer key?” signals a concern with verifying the reliability of the responses generated by the GAI, while corrective commands such as “You did not ask questions about [topic]. Create two.” suggests a critical review stage by the collaborators. In this way, the commands guide ChatGPT's output and stimulate a dialogical process between the user and the technology.

The manifestation of social agency became evident in the practice of two research collaborators (Maria Ferreira and Júlia Bezerra) who, despite the six commands provided by the researcher, were initially unable to generate questions about “nominal groups” compatible with the objectives of PLI course. Given this limitation of GAI, the students took the initiative to find ways to overcome the problem. We shall focus on two of these means: (i) web research; (ii) formulation of a new command.

Having identified that ChatGPT was not generating questions relevant to the required content, as PLI monitors, they decided to “teach” the digital technology what

“nominal groups” are. To accomplish this, they searched the web for definitions and examples. Based on what they found, they formulated a new command: “make 20 questions using head noun followed by modifiers (adjectives, numerals, articles, adverbs, and nouns) to form an entity.” In this command, the description of the grammatical structure concept is explicit, and this enabled ChatGPT to produce questions more aligned with the component's objectives.

This practice can be analyzed according to Bakhtin's conception of language (Bakhtin, 2016), as it indicates that the construction of meaning emerged from the dialogue among different voices—those of the students, the AI, the reference materials, and the researcher himself—in a process of continuous negotiation. The dialogical aspect, in this context, is not restricted to direct exchange among individuals, but also involves the way in which these voices are appropriated, recontextualized, and transformed by the collaborators in a situated practice of production of knowledge.

The rephrasing of the command, for example, translates into a responsive listening to the initial limitation of AI and as an active mobilization of available knowledge, configuring a situated pedagogical action. Therefore, we understand that, as participants interact with AI, they construct meanings and positions that are technically and socially mediated, revealing an agency that occurs through dialogue—with other humans, with the machine, and with the discourses that circulate among them.

Furthermore, the process demonstrates a strategic use of the digital technologies available in the environment, linked to an understanding of how GAI works, resulting in the activation of skills to search for, select, and apply relevant information to specific pedagogical objectives. The formulation of a new prompt, with greater technical precision, served as a demonstration of authorial practices, materialized in the integration of linguistic knowledge, search resources, and GAI functionalities. This integration points to a cycle of experimentation and technological adaptation, characterized by the conscious mobilization of multiple skills in order to

build meaningful educational products, that can also be seen in Maria Ferreira's statement during the interview phase of the research:

When we did the workshops, I think Chat[GPT] was about a year old [...] and no one ever taught us how to prompt it, how to talk to the chat, how to ask for things. [...] Many people here in the University (UFRN) use Chat[GPT] to proofread text, to ask for answers, but we never use it to ask questions. It was a very different view for our perspective. Then we started interacting more [...] and we understood how it really works [...] and it became much easier. So much so that, in the last workshops, [production] became faster” — collaborator Maria Ferreira in the interview. (Albuquerque, 2024, p. 96, our translation<sup>10</sup>).

Based on Maria Ferreira's statement, we observed that collaborators had not received formal guidance on how to interact with ChatGPT, and that the predominant use of this technology, according to Maria, was limited to requesting answers, corrections and proofreading. However, the collaborator offers an interesting reflection on her understanding of the technology when she began to use it as a support in formulating questions. This movement indicates an important shift: technology is now becoming a means of mediation in the process of developing social agency. In this context, the use of ChatGPT mobilizes practices that favor a more critical, creative, and meaningful appropriation of GAI.

Reflecting on her learning journey with technology, Maria presents us with a process of progressive appropriation of digital practices, combined to the reconfiguration of modes of interaction with AI. This epistemological turn—from content receiver to process co-author—implies the emergence of a technological consciousness, as proposed by Lima-Lopes (2025): it involves breaking away from the

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<sup>10</sup> In Portuguese: Quando a gente fez as oficinas, eu acho que o Chat[GPT] tinha mais ou menos um ano e pouquinho [...] e ninguém nunca ensinou para a gente como fazer prompt, como falar com o chat, como pedir as coisas. [...] Muita gente na UF[RN] usa o Chat[GPT] para corrigir texto, para pedir respostas, mas nunca usamos ele para fazer as perguntas. Foi uma visão muito diferente para a gente ter. Depois que a gente começou a interagir mais [...] a gente entendeu como ele realmente funciona [...] já ficou muito mais fácil. Tanto que, nas últimas oficinas, [a produção] ficou mais rápida” — colaboradora Maria Ferreira na entrevista.

automated use of technology and, instead, building more conscious, critical, and inventive practices.

Still, the learning journey described by Maria as a process of “understanding how it really works” reveals the internalization of prompt engineering practices and the strengthening of skills that make the use of the technology in question more strategic and efficient.<sup>11</sup> Therefore, the acceleration and improvement of production in subsequent workshops, as indicated in the statement, are not only indicative of technical familiarity, but milestones of a consolidating agency, forged by experimentation, collaboration, and the active search for creative solutions.

Thus, this change in perspective—from passive user to active user in the process of interaction with the GAI—is reflected in the practice analyzed above and is consistent with the statement presented. In other words, faced with the difficulty of generating questions about specific content, she and another monitor collaboratively resorted to strategies such as web research and (re)writing more specific prompts in order to solve the problem at hand.

Another practice that indicates the development of social agency is text analysis with ChatGPT. During the third workshop, in the “Producing the abstract” procedure, two collaborators (João Macedo and Laura Meireles) also decided to change one of the suggested commands.

Chart 2 – Suggested prompt and prompt used to analyze a text with ChatGPT

**Suggested prompt**

#Analyze whether the text below meets the following criteria: 1) text's theme (whether it is in the field of science and technology); 2) linguistic English level (whether it is at B2 or C1 level of reading comprehension complexity according to the CEFR); 3) text length (if it has between 700 and 1,100 words): [paste the text here]

<sup>11</sup> Prompt engineering refers to the process of strategically and carefully crafting commands for GAI systems, such as ChatGPT, with the aim of obtaining more accurate and relevant responses that are aligned with the user's interests. This and other information about prompt engineering can be found at: <https://help.openai.com/en/articles/10032626-prompt-engineering-best-practices-for-chatgpt>. Accessed on: May 26, 2025.

**Prompt used**

#What is the theme of the text? Is it related to science and technology? What is the linguistic level in the English language (B1, B2, C1, C2, etc.)? How long is the text in terms of word count?

Source: Albuquerque, 2024, p. 127.

Both commands in Chart 2 show significant differences in linguistic formulation and communicative intent, that can directly impact how the GAI processes and responds to requests. The first command, suggested by the researcher, is structured as a direct and analytical instruction: “Analyze whether the text below meets the following criteria...”. This phrasing guides ChatGPT to adopt an evaluative stance in relation to three clearly defined parameters — theme, linguistic level according to the CEFR, and word count — establishing a precise verification script. The use of the verb “analyze” and the criteria enumeration suggests a more critical and progressive type of response, consistent with the intention of assessing the text's suitability for the PLI course pedagogical objectives.

In contrast, the prompt used by the collaborators takes on a more conversational and direct form: “What is the theme of the text?” Is it related to science and technology? What is the linguistic level in the English language (B1, B2, C1, C2, etc.)? How long is the text in terms of word count?”. Here, the fragmentation of questions and the interrogative structure signal a more dialogical interaction with ChatGPT, approaching a more spontaneous and ordinary use of technology. Although less technical, this format demonstrates the autonomy and authorship of participants in adapting commands based on their own strategies for understanding and interacting with AI, taking into consideration their previous experiences and practices with this technology.

The difference between the two commands illustrates the displacement from a vertical relationship—based on closed and specialized instructions—to a more dialogical and horizontal relationship, one that language is used as an active mediator of meaning. As Coeckelbergh (2020) argues, acting with technology always means acting with others—human or non-human—and this co-presence seems to shape the



possibilities for action. As such, the choice of the interrogative format in this case not only fulfills an informative function, but also expresses a situated way of acting, based on the accumulated experience in previous workshops or even in experiences beyond the workshops.

With that said, we can see different degrees of formalization and sophistication in the use of language with GAI, with both fulfilling the function of guiding textual analysis.<sup>12</sup> The decision to use the second prompt, although seemingly less technical, represents an advance in the field of technology, as it was effective in obtaining the desired information<sup>13</sup> and reflects an active learning process. Thus, the creative and functional use of language in commands influences the quality of the responses generated and indicates the articulation of skills associated with technological mediation and problem solving in collaborative contexts.

Furthermore, the social agency developed seems to us to not only permeate the practices analyzed in this data excerpt, but also others practices developed during the workshops and other possible spaces. This can be illustrated by João Macedo's statement during the interviews:

I had a moment with the teachers from a school, the school where I work, where I was able to show the teachers how they could use ChatGPT as a tool in the classroom, encouraging students to take a more critical look at the answers ChatGPT gives, and not just use it as a “shortcut” for activities. [...] So [the workshops] were very useful to me because I was able to understand a little more about how ChatGPT works pedagogically. I was able to take this knowledge to other people

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<sup>12</sup> The text analyzed is from Science Daily and is titled “Why some people are mosquito magnets.” It is available at: <https://www.sciencedaily.com/releases/2022/10/221027124001.htm>. Accessed on: April 24, 2025.

<sup>13</sup> The response generated by ChatGPT after the command was “The theme of the text is about the attraction of mosquitoes to certain people, exploring the reasons behind this attraction and investigating the possible causes, especially those related to individual odor variations connected to skin microbiota. It belongs to the field of science and technology, more specifically biology and entomology. The linguistic level in English would be approximately B2-C1, as it contains specific scientific terminology, but it is also accessible to readers with an intermediate level of English. As for the length of the text in terms of number of words, it has about 800 words.

in education — collaborator João Macedo in an interview (Albuquerque, 2024, p. 109, our translation<sup>14</sup>).

Based on João's statement, it is possible to observe an expansion of social agency developed at the university, that overflows into other educational spaces through pedagogical practices mediated by technology. Joao's activities are not restricted to the instrumental use of GAI; on the contrary, he reshapes his teaching practice by promoting, with formative intent, critical and reflective interactions with artificial intelligence among colleagues and students. By questioning the use of GAI as a mere “shortcut” for tasks and encouraging analysis of the responses generated by these systems, João adopts an ethical stance that reshapes the role of technology in the teaching-learning process. In this movement, GAI is no longer understood solely as a tool (despite being named as such) and becomes part of discursive practices of critical, collaborative, and conscious training, taking on the character of technology.

This teaching approach is in line with the perspective of multiliteracies (Kalantzis; Cope; Pinheiro, 2020) as well as the sociocultural aspect of literacy studies (Kleiman, 2005; Azevedo, 2025), understanding social agency as a dialogical and situated practice, constituted in the relationships among individuals, artifacts, and contexts for the solution of collective problems. The sharing of knowledge and the mediation of digital technologies thus become spaces for the production of meaning and pedagogical transformation.

Whether in the rewriting of commands or the transposition of practices to other educational environments, we observe a way of acting that mobilizes critical thinking, (co)authorship, and collaboration—central elements for the construction of social

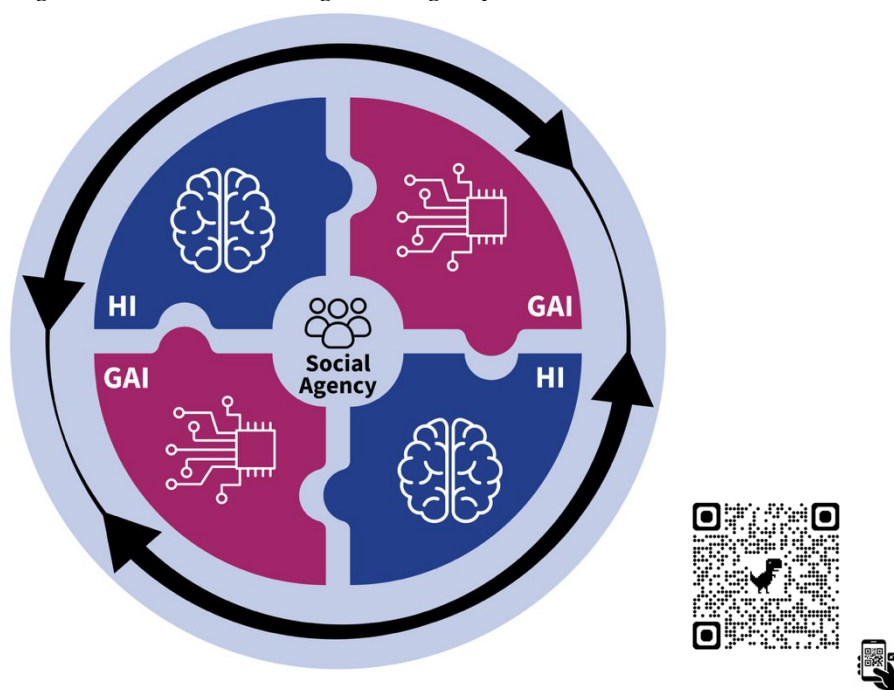
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<sup>14</sup> In Portuguese: Eu tive um momento com os professores de uma escola, da escola que eu trabalho, onde eu pude mostrar para os professores como eles poderiam utilizar o ChatGPT como ferramenta dentro de sala de aula, fazendo com que os alunos tivessem um olhar mais crítico para as respostas que o ChatGPT dá, e não só utilizar ele como “encurtamento” de atividades. [...] Então [as oficinas] me foram muito úteis porque eu pude entender um pouco mais como o ChatGPT funciona pedagogicamente. Eu pude levar esse conhecimento para outras pessoas da educação — colaborador João Macedo na entrevista.

agency in digital culture. It is, therefore, an action that responds to technological demands and reinterprets them, producing teaching and learning possibilities that transcend the traditional and align with contemporary demands.

This being said, based on the discussion in this section, let us return to the questions presented in the Introduction of this article: “Could GAI be primarily associated with risks of academic dishonesty and the loss of student authorship and agency? Or, on the contrary, could it be understood as an opportunity to redefine pedagogical practices, as in expanding the possibilities of teaching and learning through the critical and creative incorporation of this technology into different curricular components? Our answer to these questions can be developed based on Figure 2.

Figure 2 – Relations among social agency, HI, and GAI.



Source: elaborated by the author.

The Figure 2 represents a dynamic circuit<sup>15</sup> of co-production of meanings, in which Human Intelligence (HI) and Generative Artificial Intelligence (GAI) are articulated in a continuum mediated by social agency. Based on a dialogical and relational perspective, the circular elements and arrows surrounding the image suggest the idea of constant, bidirectional flow, that the HI (symbolized by the darker blue brain icon) originates and transforms technologies, while AI (represented by the chip icon with different connections in purple) retroactively influences human practices, reshaping and being reshaped by them, culminating in new actions by HI.

The alternation between IH and IAG, as well as the repeated presence of their respective icons in symmetrical positions connected like a puzzle, reinforce the idea of complementarity. Remarkably, the background that regulates this bilateral relationship, represented by a lighter shade of blue (derived from HI, a darker blue), suggests that this relationship is derived, modulated, and conditioned by human choices, or rather, agentive human choices: (i) creation of technology; (ii) incorporation of technology into society; (iii) reshaping of collective social practices because of/with technology; (iv) refinement of the created technology (a return to its creation).

Therefore, the center of the figure highlights social agency as the structuring instance of this process. It starts from the effects of the interaction between HI and GAI and acts on both, rewriting meanings, practices, and values. This centrality of social agency reveals that there is no neutrality in technologies and reinforces the active and irreplaceable role of (human) individuals in the mediation (direct and indirect) of the use of GAI.

Understood in this way, the figure allows us to affirm that GAI technologies should not be seen only as sources of risk, associated with loss of authorship or academic dishonesty, even though they can be used for/as such. We argue that these

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<sup>15</sup> To display Figure 2 in motion, access the QR code available in Figure 2 or the access *link*: <https://drive.google.com/file/d/1LJ02Z1cxlkfmbelaPaIAjf8JyY-DjUCH/view?usp=sharing>. Accessed on: July 24, 2025.

technologies can indeed be appropriated by humans in a critical and emancipatory way, promoting new forms of authorship, research, and creation in the educational context.

In this way, rather than a breaking point, GAI can be understood as part of an expanded circuit of formative pedagogical action, in which social agency is assumed as the central and guiding axis. It is, therefore, a field fraught with possibilities and challenges, that the role of social agency is to constantly redefine the meanings of teaching, authorship, and the very idea of intelligence — whether human or artificial.

## 5 Concluding remarks

The analysis conducted in this article allows us to affirm that GAI, when mobilized in a critical, creative, collaborative, and situated manner, enhances the development of social agency in educational contexts, especially in university training focused on teaching reading in English.

This becomes clear in actions such as the reformulation of commands and the articulation among different languages and platforms — as in the case of Maria Ferreira and Júlia Bezerra, who developed a new prompt based on a definition constructed with the support of other digital technologies; and João Macedo and Laura Meireles, who restructured commands in the form of questions. Similarly, the knowledge acquired in the workshops being transferred to other educational settings, as reported by João Macedo, further reinforces the expansive and transformative nature of this appropriation.

These practices indicate an approach that goes beyond the instrumental use of GAI, which converges with the assumptions of multiliteracies (Kalantzis; Cope; Pinheiro, 2020) and with sociocultural literacy studies (Kleiman, 2005; Bakhtin, 2010; Azevedo, 2025), by highlighting agentive individuals who appropriate technology as a mediator of meaning, mobilizing knowledge and resources to create, solve problems,

and transform their practices in a situated way, dialoguing directly with the concept of social agency (Azevedo, 2025).

This study therefore argues that GAI should not be viewed solely as an automation technology, but can become an ally in the formation of engaged individuals in social transformation in an authorial and critical manner. This appropriation, however, does not occur spontaneously: it depends on intentional pedagogical mediations, the cultivation of spaces for collaborative experimentation, and an ethical commitment to the use of these technologies. In this process, social agency is not seen as a starting point or a destination, but rather as a collective, relational, and continuous path that requires attention to its limits and possibilities.

Given these limitations, like any empirical research, this study has important limitations. The conclusions discussed here are based on specific practices observed in the multiliteracies workshops developed in the Reading Practice in English course curriculum component at ECT/UFRN, focusing on the procedures “Producing the questions” and “Producing the abstract.” It was in this environment that collaborative actions by monitors were observed in the production of Digital Electronic Resources (DER) using Generative Artificial Intelligence (GAI), in other words, in this specific context.

For this reason, it is necessary to recognize that such experiences did not develop uniformly among all participants, nor can they be understood as guarantees of transformation in any other educational contexts. Additionally, the analysis focused on a partial section of the workshops and did not follow the systematic implementation of DER with undergraduate students, which also constitutes a limitation.

However, these limitations do not invalidate the discussion presented in this article, but reinforce the urgency of critical and continuous observation of the use of GAI in education (in different contexts), especially in the face of discourses that characterize it as enabling dependence, a reproducer of standardized responses, and

responsible for undermining student authorship, as discussed in our Introduction and revisited at the end of the analysis section. Based on Lima-Lopes (2025) and Coeckelbergh (2020), we understand that the incorporation of these technologies must be accompanied by ethical, epistemological, and pedagogical engagement that addresses the socio-technical systems that GAI operates. Therefore, the examples discussed in this article should be understood as promising indicators and not as replicable models without the necessary adaptations to different educational contexts.

The critical (re)appropriation of IAG in educational practices indicates a significant change in contemporary multiliteracies training. In this scenario, learning can be configured, as we have seen, as a critical, creative, multimedia, and multicultural social practice (given that the experiences of the research collaborators were fundamental to the practices developed).

Lastly, returning to the questions raised in the Introduction and the analysis in Figure 2, we conclude that student authorship, far from being suppressed by the presence of GAI, is redefined: it is displaced toward agentive actions that dialogue with technical systems, interpret human and non-human languages, and intervene in them in an ethical, situated, and meaningful way.

Translated into English by Gabriel Caetano Moreira<sup>16</sup>.

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