

FLIPPED CLASSROOM MEDIATED BY ARTIFICIAL INTELLIGENCE IN INITIAL TRAINING OF ENGLISH TEACHERS: BETWEEN ETHICS, PRACTICES, CHALLENGES, LIMITS AND MEDIATIONS

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Abstract: This paper presents an experience report on flipped classroom practices ethically mediated by artificial intelligence (AI) in the initial training of English teachers, developed in the subject Intermediate English I with twelve pre-service English teachers on the English Language and Literature degree programme from a university in Bahia, Brazil. Grounded in the postmethod approach and active methodologies, the study examined how AI can support communicative, intercultural, critical and ethical practices in teacher training. This is an interpretative qualitative study, analysing responses from self-assessment forms administered at the end of each of three learning cycles, organised into thematic frameworks. The results revealed intentional and mediated uses of AI, evidence of contextualised linguistic development, and recognition by the pre-service teachers of technical limitations and necessary ethical considerations, such as fact-checking, data protection and the preservation of the teacher's role. The conclusion is that the ethical and critical integration of AI can support autonomous, critical and reflective initial teacher training, without replacing human mediation, indicating the need for ongoing professional development on this topic.

Keywords: Flipped classroom; AI; Postmethod condition; Initial teacher training; English Language and Literature.

SALA DE AULA INVERTIDA MEDIADA POR INTELIGÊNCIA ARTIFICIAL NA FORMAÇÃO INICIAL DE PROFESSORES DE INGLÊS: ENTRE ÉTICA, PRÁTICAS, DESAFIOS, LIMITES E MEDIAÇÕES

Resumo: Este trabalho apresenta um relato de experiência sobre práticas de sala de aula invertida mediadas eticamente pela inteligência artificial (IA) na formação inicial de professores/as de inglês, desenvolvidas na disciplina Inglês Intermediário I, com doze licenciandos/as, do curso de Letras-Inglês, de uma universidade da Bahia, Brasil. Fundamentado na condição pós-método e em metodologias ativas, o estudo problematizou como a IA pode apoiar práticas comunicativas, interculturais, críticas e éticas na formação docente. Trata-se de uma pesquisa qualitativa interpretativista, analisando respostas de formulários de autoavaliação aplicados ao final de cada um de três ciclos de aprendizagem, organizados em quadros temáticos. Os resultados mostraram usos intencionais e mediados da IA, evidências de desenvolvimento linguístico contextualizado e reconhecimento, pelos/as licenciandos/as, de limites técnicos e cuidados éticos necessários, como checagem de fatos, proteção de dados e preservação do papel docente. A conclusão é que a integração ética e crítica da IA pode favorecer a formação inicial autônoma, crítica e reflexiva, sem substituir a mediação humana, indicando a necessidade de continuidade formativa sobre o tema.

Palavras-chave: Sala de aula invertida; IA; Condição pós-método; Formação inicial; Letras-Inglês.

Introduction

This paper emerges from English language teaching and learning processes situated in the current context, viewed from a critical and reflective perspective. This is an experience report based on the offer of the subject Intermediate English I, taught in the first semester of 2026 to 12 pre-service English teachers, as part of a Bachelor's degree programme in English Language and Literature from a university in the State of Bahia, Brazil.

The proposal adopted by this professor/researcher is inspired by a communicative and intercultural approach and the adoption of the postmethod framework (Kumaravadivelu, 1994), the flipped classroom (Suhr, 2016) and active methodologies mediated by artificial intelligence (AI) as a central training axis. It is worth noting that the course of these experiences is underpinned by a focus on linguistic development and on critical, autonomous and reflective initial teacher training, in light of the contemporary educational reality that compels us to discuss technological advances without losing sight of knowledge production, grounded essentially in human reflections.

Thus, this study is justified by its relevance in developing ethically oriented practices for the use of AI in language education, whilst avoiding technodeterministic situations (Russo et al., 2026) and uncritical dependence (Guimarães et al., 2026). This scenario therefore presents an opportunity to integrate teaching, learning and research, generating context-specific data and reflections on teacher agency, authorship, formative assessment and equitable access.

To this end, the general objective was to critically examine the empirical experiences of implementing the course's teaching plan, analysing how AI can support (without replacing) communicative, intercultural, critical and ethical practices in the initial training of English teachers. The specific objectives were: a) to analyse the uses of AI in the development of pedagogical designs involving teaching and learning methodologies during classroom activities; b) to analyse evidence of learning (the four language skills) and teacher development (planning, mediation, assessment, reflexivity) generated throughout the process; and c) to discuss challenges and ethical implications (transparency, authorship, biases, accessibility) regarding practical guidelines for the responsible use of AI in language teaching.

To guide the reader, the text will proceed with the theoretical framework, addressing some principles of the postmethod condition, the flipped classroom and AI in education; the methodological section, detailing the type of study, context, participants, data sources and ethical procedures; the results and discussion of the data based on the proposed objectives; the concluding remarks, starting from the study's contributions and implications; and the references.

Theoretical framework

The postmethod condition, proposed by Kumaravadivelu (1994), is still an appropriate possibility for potentially reconfiguring the relationship between theorists and equipping teachers with knowledge, skills and autonomy. This encourages the pursuit of an open and coherent framework, based on current theoretical, empirical and pedagogical insights, which enables teachers to theorise from practice and to put into practice what they theorise. According to the author, there is a shift in pedagogy from the conventional method towards the postmethod condition, which recognises teachers' potential not only to know how to teach, but also to act autonomously within the academic and administrative constraints imposed by institutions, curricula and textbooks. It also fosters teachers' ability to develop a reflective approach to their own teaching; to analyse and evaluate their own teaching practice; to initiate change in their classroom; and to monitor the effects of such changes.

Similarly, from the perspective of active methodologies, agreeing with Berbel's (2011) view that these have the potential to promote students' intrinsic motivation, as they help to strengthen students' perception of themselves as protagonists in their own learning process. This occurs when students are given opportunities to examine issues related to the school context, select aspects of the content to be explored, define different pathways for developing answers or solutions, and devise creative alternatives for completing studies and research, amongst other possibilities that support student autonomy. Furthermore, Lacerda and Acco (2020) state that such methodologies go beyond the adoption of innovative didactic and pedagogical strategies, as they are grounded in epistemological assumptions that redefine the roles traditionally attributed to the teacher and the student in teaching and learning processes. However, according to Suhr (2016, p. 12, my translation), "it is also necessary to provide academic support for students who may have learning difficulties, regardless of the

methodology adopted”¹, then, as the author asserts, in the context of the flipped classroom, it is essential that teaching practices prioritise the development of independent study habits and strategies, given that such skills, in many cases, have not been sufficiently consolidated throughout students’ trajectory in basic education.

Still on the subject of the flipped classroom, it is important to highlight that it is characterized by a reorganization of teaching and learning activities, shifting part of the instruction outside the school setting and expanding opportunities for interaction in the face-to-face environment. In this process, Bergmann and Sams (2014) emphasize the increased responsibility of students and the shift in the teacher’s role, who now assumes a guiding function, fostering interaction, personalized instruction, and student autonomy. From a convergent perspective, Bishop and Verleger (2013) understand the model as arising from the integration of individual instruction mediated by digital resources outside the classroom and interactive activities conducted in person. Meanwhile, Ozdamli and Asiksoy (2016) underscore its student-centered nature and emphasize that its implementation requires meticulous planning and integration between digital technologies and in-person activities. Thus, the authors agree in understanding the flipped classroom as more than just the use of videos or technologies, emphasizing the intentional reorganization of pedagogical practices. Bearing in mind this critical and reflective autonomy expected of trainee language teachers, and the significant advances in artificial intelligence – with its potential to accomplish academic activities (supposedly) **quickly** and **easily** – it is necessary to reflect on the uses of these technologies; not in the sense of treating them merely as tools, nor by relinquishing the process of knowledge production based on human reflection. Monteiro *et al* (2025, p. 380, my translation) warn about the risk of a new generation of researchers emerging “with atrophied cognition, cognitively lazy, yet technically efficient”², precisely because of the ease with which essentially mechanical tasks can be accomplished.

For Aruda (2024), generative AI is regarded as an innovative tool due to its ability to create new content. Conversely, the author raises concerns about the potential replacement of teaching work, whilst arguing that the human educational bond is irreplaceable for maintaining students’ interest and that education should not offer blind resistance, but rather promote the critical use of these tools.

Thus, as argued by Ng, Chan, and Lo (2025, p. 3), it is essential to “promoting continuous improvement and transformative practices to enhance both teachers’ and students’ AI literacy”. Furthermore, it is also important to emphasise that, in publishing its first global guidance on the use of Generative Artificial Intelligence (GenAI) in education, UNESCO (2024) proposes a framework designed to support countries in implementing short-term actions, developing sustainable strategies and public policies, and promoting human development, ethics and the quality of educational processes.

Methodological approach

This study follows the principles of interpretative qualitative research (Paiva, 2019) and employs the experience report method (Mussi, Flores and Almeida, 2021). The study was planned in conjunction with the Intermediate English I, subject within the Bachelor’s Degree in English Language and Literature, involving 12 pre-service teachers and comprising 90 hours of teaching time. The course syllabus for the subject was divided into learning cycles, and as instruments for teaching, learning, and assessment, the pre-service teachers’ reflective journals (guided weekly entries) were used; learning artefacts (emails, biographies, opinion pieces, scripts and workshop materials); oral evidence from recordings of role-plays and short presentations; assessments (completed rubrics and feedback); and documents such as lesson plans, mini-projects and station guides ³. To compile the corpus for analysis, responses from three self-assessment forms were used, administered at the end of each cycle’s presentation. These forms came from the following proposed activities, in accordance with the course syllabus and from the perspective of the flipped classroom: Module 1 – Body, health and experiences ⁴; Module 2 – The web, friends and life paths ⁵; Module 3 – Society, transport and justice ⁶.

From the perspectives of ethics and reliability, it should be noted that the data were analysed based on this professor/researcher’s interpretation, through summaries, thereby ruling out the possibility of using the raw data verbatim, given that the study was not submitted to an ethics committee; however, it is supported by CNS Resolution 510/2016, as it stems from professional practice and the data do not identify the participants.

Results and Discussion

As mentioned previously, three self-assessment forms, administered at the end of each cycle, were used as the data source. Thus, the discussions presented here are based on syntheses of the responses provided by the pre-service teachers after completing each of the aforementioned stages. The categories of analysis were based on the specific objectives and divided into three sections: 1) the uses of AI in the development of pedagogical designs; 2) evidence of learning; and 3) challenges and implications regarding ethical guidelines for the responsible use of AI in language teaching and learning.

The uses of AI in the development of pedagogical designs

Given the current context, in which AI is still viewed as a villain in the educational sphere, empirical studies such as this one are becoming increasingly necessary, bearing in mind that throughout humanity's technological history there have always been innovations, and these have always had to undergo periods of testing before reaching the standardisation process, as Bax (2003) asserts when describing the development of computer-assisted language learning. The standardisation of AI seems self-evident; however, it is worth noting that there are many gaps to be addressed in this process. Furthermore, the focus of this paper is not to defend or criticise AI, but to take a critical and reflective look at its uses based on pedagogical practices in teacher training. For this reason, it is up to the academic community to engage with these changes in a critical, reflective and ethical manner. The table below presents some categories and uses by pre-service teachers.

Table 1: Uses of AI in the development of pedagogical designs

Category	Use of AI
Generation of images, videos and audio.	Creation of images, videos and audio based on prompts.
Creation of text/scripts (comic strips, presentations).	Organisation of the presentation and the creative process for the subject matter; production of content based on direct and simple prompts. Review and new prompts to ensure alignment with the requested activity. Sometimes the requested images did not meet the criteria proposed when interacting with the AI's.

Providing context and support for writing activities.	Providing context and background for the writing of proposed activities; assistance with the preparation of the work. Peer interactions aimed at analysing similarities and differences in the responses provided by the AI.
AI as a guide to the process (without generating a final product).	Acting as a guide, supporting the group's reasoning.
Drafting and proofreading of emails.	Composition and general correction of informal emails; use of a second AI to correct the previously generated email.

Source: Created by the author, 2026.

As can be seen in Table 1, in all cases where AI was used, there was a specific purpose. The pre-service teachers were instructed by this professor/researcher to use any available artificial intelligence tool. To this end, they were required to describe the interactions step by step, so that human intervention was clear. This can be seen in the data in instances where responses were reviewed and amended when they did not meet the requirements; in the generation of reference images to ensure the same character appeared in subsequent scenes; and in the selection and combination of parts from different prompts (their own and those of their peers) to compose the final result. It is also evident in the creative process during the drafting of the characters' dialogue in the production of the comic strip.

In the same way, in the processing of information obtained by the AI from prior knowledge, something new is constructed in a critical manner through the use of the generated content as a basis for writing the final product. A similar process occurs with the drafting of prompts by the groups and in the production of texts (outputs) by the participants themselves, based on the group's creativity. Another example of critical and reflective engagement is when pre-service teachers modify the prompt to achieve a better and higher-quality result. Furthermore, the drafting of prompts is informed by an assessment of the pros and cons of each AI. This aligns with Monteiro et al (2025), who state that in interactions with artificial intelligence, the human being must be the central figure, and this relationship must be established through critical reflection.

Evidence of learning

Table 2 does not illustrate specific situations for the flipped classroom, precisely because it concerns the learning process itself (Suhr, 2016). In other words, the autonomy of pre-service teachers in carrying out the activities is intrinsic to this process. Consequently, the focus was on identifying evidence of learning based on the assumptions of the postmethod approach and active methodologies.

It is important to note that Kumaravadivelu (1994) proposes moving away from the idea that there is a single, rigid **ideal** teaching method. Instead, the author recommends that teaching should be based on context, intentionality and real communication. In this way, in the table below, the pre-service teachers' perceptions are related to the concepts and macro-strategies proposed by Kumaravadivelu (1994).

The perception of the situational use of grammar, rather than its application as an abstract and isolated rule, demonstrates the development of an awareness of how language functions, even if proficiency in spoken and written production is still developing. The postmethod does not require immediate structural perfection, but rather an understanding of the logic of the system. Learning through the postmethod, according to Kumaravadivelu (1994), means experiencing grammar in authentic interactions where the focus is on the message and the joint construction of meaning.

With regard to the sensitivity and specificity of the context in which language is used, Kumaravadivelu (1994) states that the teaching of vocabulary and syntax should not take place in isolation, as they are directly linked to pragmatics. Recognising the difference in usage between synonymous words based on the situation demonstrates that the learner is absorbing the language through properly contextualised input, rather than via decontextualised vocabulary lists. Furthermore, there is a recognition of the shift from isolated rules to situated usage, in line with the rejection of fixed methodological prescriptions. That is, in this context, traditional teaching (which essentially focuses on grammatical and decontextualised aspects) is replaced by a form of teaching in which grammar acts as a dynamic support, highlighting linguistic form, organically integrated with speaking skills, expressing intent, and serving communication rather than the other way round. Also, it highlights grammar as a resource for communication, rather than as a set of isolated rules.

Table 2: Summaries of the reports organised according to theoretical assumptions

Summary of the reports	
An understanding of where and how structures fit together, despite the difficulty in formulating sentences.	Postmethod condition
Realisation that, in an informal conversation between friends, structures are used naturally, and not merely as a rule or grammatical function.	
Understanding of the meaning of words according to context (e.g. enough vs sufficient).	
Realisation that the use of should depends on context, moving from I knew to I know how and when to use it .	
Realisation that grammatical structures have made conversations more fluent.	
Realisation of the natural use of structures and expressions in scenarios close to real life, using too/enough to indicate intentionality; conclusion that grammar is not limited to isolated forms, but acts as a living resource in real contexts.	
Contribution to contextual understanding in real-world textual media (posts, forums, FAQs) and assistance in correcting AI-generated texts.	Active methodologies
Real-life situations introduced through the activity, facilitating easier and more natural comprehension.	
Insights gained during the text translation process.	
Sharing of structured information and observation of details to obtain satisfactory answers.	
Construction and guidance by the AI based on the <i>prompt</i> , facilitating an understanding of the structure as a whole.	
Consolidation of understanding of grammatical structure in writing, with AI support for corrections, suggestions and contextualised explanations.	

Source: Created by the author, 2026.

Regarding the insights that emerge from the data and relate to active methodologies, it can be inferred that learning took place through application in authentic contexts of reading and revision, and not merely through theoretical exposition. This is evident in the syntheses in the table above, where it is observed that the facilitation of comprehension is attributed to experiences of practical situations rather than to the direct teaching of rules. Furthermore, these insights stem from the completion of tasks (such as translation) rather than from prior theoretical instruction. This methodological experience is viewed by Berbel (2011) as an opportunity for knowledge construction.

Beyond that, the pre-service teachers themselves recognise that learning occurred through performing tasks using AI, even though this required them to pay attention to various variables during the process. Autonomy and critical thinking are demonstrated when grammatical understanding emerges from interaction with the tool whilst doing the activity, rather than from direct instruction. According to Lacerda and Acco (2020), it is essential to provide students with real-life learning situations capable of bringing about change. It is noteworthy that learning occurred through writing practice mediated by feedback rather than through the memorisation of rules, thereby changing the perceptions of the pre-service teachers involved.

Challenges and ethical implications regarding practical guidelines for the responsible use of AI in language teaching

In relation to the challenges faced during the implementation of the activities, two tables are presented below: Table 3, establishing some limitations on the use of AI described by the pre-service teachers at the end of each cycle; and the following table, detailing the ethical considerations reported. This demonstrates maturity and critical thinking throughout the process and points towards the normalisation of these tools, as something that seems inevitable, much like so many other technologies that have already become part of everyday life in society. However, it is important to highlight the warning issued by UNESCO (2024) that artificial intelligence must be carefully monitored and validated with regard to ethical risks, pedagogical suitability and its impacts on students, teachers and the school environment.

When the pre-service teachers were asked to reflect on the uses and limitations of artificial intelligence, they recognised that it is not as **perfect** as it might seem, nor as highly intelligent as many people claim. Besides that, as shown in Table 3, interactions require prior knowledge and skills to obtain the best responses. The pre-service teachers also realised that these responses differ in terms of quality and robustness between free and paid versions. This is because, in the free versions, as interactions progress, the quality of the responses deteriorates. Another aspect highlighted is that the tools do not provide guidance on copyright, nor do they offer age ratings. They also observed, in practice, the artificial nature of these tools, evidenced by their inability to reproduce interactions compatible with real-life contexts of human communication, particularly with regard to emotional dimensions.

Table 3: Perceived limitations in the use of AI for formulating questions, revising texts or planning writing

Limitations identified	Syntheses of the reports
Need for revision due to errors, generic responses or incorrect data.	AI can make errors, provide generic responses and fail to fully grasp the context or emotions; it can also generate texts with greater apparent efficiency based on false data, requiring the response to be reviewed from start to finish.
Difficulty on the part of the AI in understanding or adequately responding to what was requested in the prompt.	The AI did not always fully understand what was requested in the prompts; in one instance, it generated examples based on previous usage history, requiring a new prompt to better specify the topic; in another, it did not carry out the requested task on the first attempt, merely providing guidance on how to do it.
The need for detailed and specific instructions in the prompts.	It was observed that extremely detailed guidance was required, with tasks carried out one at a time and the requested objective clearly specified.
Differences in the quality of responses depending on the subscription plan (free or paid).	Paid plans resulted in more comprehensive and objective responses compared to free ones.
Deterioration in responses with prolonged use of the same chatbot.	Prolonged use of the same chat resulted in incoherent responses lacking concrete explanation, making it necessary to switch AI, chat or prompt to obtain responses that met expectations.
Lack of explicit restrictions regarding copyright and content involving minors.	In most of the tools used, there was never a point at which the AI addressed issues of copyright, content involving minors or other restrictions.
Standardisation of responses and a loss of subjectivity and human tone.	The tools tend to standardise and strip away the distinctive character of the data provided, suggesting generic or formal terms that did not convey the emotion or specific slang present in the original audio recordings, despite being exceptional at suggesting complex grammatical structures and organising the narrative flow.
Difficulty in adapting to the actual context of the proposed activity.	When asked to draft interview questions, there were difficulties in fitting the questions into the raw , contextual realities of the interviewees' lives, requiring minor adjustments; generally speaking, the limitations identified were related to adapting to the actual context of what was being requested.

Source: Created by the author, 2026.

From an ethical perspective, considering the context of initial teacher training and taking into account contemporary realities and their demands, it is possible to view the data in Table 4 with some optimism. It is clear that there is much to be organised, particularly referring to the continuing professional development of teachers in the use of artificial intelligence in the classroom context. And, as Guimarães et al. (2026) highlight, teacher training is being repositioned by a transformation involving a large system, ranging from planning criteria to the very essence of teaching methods. Thus, analysing the content of this study, the experiences revealed that, in fact, with planning aligned with pupils' expectations and realities, and with appropriate teaching support (even taking into account all the pedagogical, structural, social, economic and cultural challenges facing the Brazilian education system), the objectives become at least minimally attainable. Furthermore, certain ethical considerations can be observed in the data presented below.

Table 4: Ethical considerations when working on sensitive social issues with AI support in language teaching

Ethical considerations identified	Syntheses of the reports
Fact-checking and verifying the accuracy of the information generated.	Fact-checking is essential, as AI can collect and presents data posted on the internet without verifying its accuracy, which may contain prejudicial or erroneous content; it is important to review and filter what the AI has presented, check the facts to avoid spreading misinformation, verify the information to prevent suspicious or disrespectful statements, and examine the wording of the response, as it may contain something offensive.
Be aware of biases and the reproduction of prejudices in AI responses.	AI may fabricate data or reproduce prejudices and biases found on the internet, so it is important to be cautious about the responses.
Personal data protection and privacy.	You should avoid sharing data in prompts and citing cases that are too specific and could affect someone; you should take care when entering personal or sensitive data, as all information and data are collected; you should be aware that anything sent to the AI, particularly where people and documents are involved, is never kept private.

Respect for students' diversity and privacy.	It is important to respect students' privacy and adapt content to the context of the class; it is essential to respect students' cultural, social and linguistic diversity; it is important to ensure respect for diversity of opinions and experiences.
Transparency regarding the use of AI.	It is important to include a note explaining the use of artificial intelligence, indicating how and where it was used.
Maintaining critical thinking and the teacher's/pupil's role as a facilitator.	AI should be used to support the teacher, encouraging critical thinking and respectful dialogue, without replacing reflection and dialogue in the classroom; AI should be used solely as an aid for grammar or vocabulary, whilst keeping critical and human thinking in control, with empathy, fact-checking and a critical reading of reality remaining the responsibility of pupils and teachers.

Source: Created by the author, 2026.

The concern expressed by the pre-service teachers regarding the accuracy of the information provided by AI during the activities is noteworthy. Situations are reported involving the reproduction of prejudicial biases, as well as respect for people's privacy and diversity. This is in line with the Guide to Generative AI in Education and Research, published by UNESCO (2024), which presents a humanistic perspective on education, based on the promotion of human agency, inclusion, equity, gender equality and the valuing of cultural and linguistic diversity and different forms of expression. More than that, it was possible to observe the adoption of a critical and reflective stance by the pre-service teachers involved in this study regarding the use of the available tools, the conscious and intentional use of which facilitated knowledge construction.

Concluding remarks

The experience reported in this study demonstrated that the use of artificial intelligence, when guided by ethical principles and a critical and reflective approach, can support the initial training of English teachers in the communicative, intercultural and pedagogical dimensions. The analysed data, organised according to the three specific objectives proposed, revealed that the use of AI by the pre-service teachers was always linked to a defined purpose and explicit human intervention, in line with the assumptions of the

postmethod approach aligning itself autonomy, critical thinking and contextualisation in language teaching.

At the same time, the challenges and ethical considerations identified by the participants themselves — such as the need for fact-checking, attention to biases and the protection of personal data, and the preservation of the teacher's mediating role — reinforce the view that the normalisation of AI use in educational contexts must not be achieved without ongoing professional development and constant critical scrutiny. This aspect is directly in line with recent international guidelines on the ethical use of generative AI in education, situating the reported experience within a broader debate on teacher agency, authorship and equity of access.

It should be acknowledged, however, that this study is limited to the analysis of a single class, with a small number of participants, and to an interpretative analysis conducted by the professor/researcher responsible for the course, without formal submission to an ethics committee — which points to the need for future studies with greater data triangulation and external validation. Nevertheless, the experience systematised here offers a relevant starting point for the development of practical guidelines on the responsible use of AI in the initial training of language teachers, reaffirming that pedagogical planning aligned with students' realities, combined with critical teacher mediation, is what makes training objectives effectively achievable. However, even though countries are putting legislation in place to regulate the uses of artificial intelligence, there is still much to be debated on this issue, particularly with regard to the production of knowledge.

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Notes

¹ “é preciso também prever ações de apoio acadêmico aos estudantes que porventura apresentem dificuldades de aprendizagem, indiferente da metodologia adotada” (Suhr, 2016, p. 12).

² “com a cognição atrofiada, cognitivamente preguiçoso, mas tecnicamente eficiente” (Monteiro et al, 2025, p. 380)

³ It is worth noting that, throughout the semester, the pre-service teachers used various artificial intelligence platforms; however, although these were directly linked to the topic discussed in this study, a description of these resources was not part of the study’s objectives.

⁴ Grammar: present perfect (ever); adverbs/expressions of frequency; too/enough; should. Vocabulary/topics: habits, exercise, the body, health. Production: informal email (report on changes in habits). Key tasks: consultation role-plays; error diagnosis using AI; mini-debates on recommendations (should/shouldn’t). Output: revised email showing evidence of the revision cycle (initial draft, prompts used, final draft and reflection).

⁵ Grammar: complex questions (How + adj/adv; What + noun); past continuous. Vocabulary/topics: websites, social media, reunions, life stories. Production: short biography (compiled via interview). Tasks: peer interviews; generating/checking questions using AI; recorded narration of the biography. Output: biography (text + audio) and authorship/ethics statement (what was/was not delegated to AI and why).

⁶ Grammar: passive voice; will/might (predictions, possibilities). Vocabulary/topics: traffic, safety, social justice. Critical reading: simplified news articles (checking for bias and accuracy). Tasks: active-passive rewriting; debate on ‘Accidents are caused by...’; predicting the impacts of urban policies. Output: short opinion piece (200–250 words) + lightning presentation (2–3 mins).