pratica. Revista Multimédia de Investigação em Inovação Pedagógica e Práticas de e-LEARNING

**PRATICA**, VOL. 7 (2)
ABRIL 2023

# STUDENTS' PERCEPTIONS OF THE USE OF ARTIFICIAL INTELLIGENCE IN TRANSLATION PRACTICES CLASSES

## AS PERCEPÇÕES DOS ALUNOS SOBRE A UTILIZAÇÃO DA INTELIGÊNCIA ARTIFICIAL NAS AULAS DE PRÁTICAS DE TRADUÇÃO

## PERCEPCIÓN DE LOS ESTUDIANTES SOBRE EL USO DE LA INTELIGENCIA ARTIFICIAL EN LAS CLASES DE PRÁCTICAS DE TRADUCCIÓN

**Albina Silva Loureiro**[1] **[ORCID 0000-0003-0840-43]**

**Patrícia Ferreira**[2] **[ORCID 0000-0001-7112-2126]**

[1]*Escola Superior de Educação do Instituto Politécnico do Porto, Portugal, albinasilva@ese.ipp.pt*

[2]*Escola Superior de Educação do Instituto Politécnico do Porto, Portugal, patriciaferreira@ese.ipp.pt*

## Abstract

Based on the ongoing work we've been carrying out as teachers of the Translation Practices Curricular Unit, we recognise that this is a field undergoing rapid transformation (Pym, 2023) with the emergence and development of generative AI tools.

The role of the translator is being renewed as these tools develop and their use becomes more widespread. As such, we believe it is important to study this phenomenon and prepare our students for that same reality.

So, stemming from the question "What are the students' perspectives on the use of AI tools for translation practice in Eng/Pt and Pt/Ing?", we designed a case study, combining qualitative and quantitative elements of analysis, and set the main goal of understanding the students' perceptions of the use of AI tools in the discipline of translation practice. Our secondary aim was to adapt assessment practices and tools in this course in order to boost student learning and motivation through the use of AI tools.

The twenty-three participants in the study are third year students of the Degree in Languages and Cultures at the School of Education of the Polytechnic Institute of Porto. They are aged between 20 and 22 and are mostly native speakers of European Portuguese. There are also native speakers of the Brazilian variant of Portuguese. In terms of English language proficiency, these students are attending classes at the C2 level.

We were able to prove that students find it beneficial to use these tools and are able to identify their limitations, complementing them with their revision and manual correction work. We have also proved that this type of practice and assessment task presents a motivating and meaningful challenge for our students, so we consider that we have met our objectives for this study and we hope that it will also serve as a starting point for further research and future reflection on the topic.

**Keywords:** translation practice, artificial intelligence, students

## Resumo

Com base no trabalho que temos vindo a desenvolver como professoras da Unidade Curricular de Práticas de Tradução, temos a noção de que este é um campo em franca transformação (Pym, 2023) com o surgimento e desenvolvimento das ferramentas de AI generativas.

O papel do tradutor é renovado à medida que estas ferramentas se desenvolvem e o seu uso se generaliza. Como tal, consideramos ser importante estudar este fenómeno e preparar os nossos alunos para essa mesma realidade.

Assim, partindo da questão "Quais são as perspectivas dos alunos relativamente à utilização de ferramentas de AI para a prática de tradução em Eng/Pt e Pt/Ing", desenhamos um estudo de caso, combinando elementos qualitativos e quantitativos de análise e estabelecemos como objetivo principal compreender as percepções dos alunos em relação ao uso de ferramentas de AI na disciplina de práticas de tradução. O nosso objetivo secundário passou pela intenção de adequar práticas e ferramentas de avaliação nesta UC de modo a potenciar a aprendizagem e a motivação dos alunos, através do recurso às ferramentas de AI.

Os vinte e três participantes do estudo são alunos do terceiro ano da Licenciatura em Línguas e Culturas, da Escola Superior de Educação do Instituto Politécnico do Porto. Têm entre 20 e 22 anos e são, na sua maioria, falantes nativos de português europeu. Há entre eles também falantes nativos da variante brasileira de português. Em termos de conhecimentos da língua inglesa, estes alunos encontram-se a frequentar as aulas de nível C2.

Conseguimos comprovar que os alunos encontram benefícios no recurso a estas ferramentas e são capazes de identificar as suas limitações, complementando-as com o seu trabalho de revisão e correção manual. Comprovamos igualmente que este tipo de prática e tarefa de avaliação apresenta um desafio motivador e significativo para os nossos alunos, pelo que consideramos que alcançamos os nossos objetivos para o presente estudo e pretendemos que o mesmo sirva de ponto de partida para outras investigações e reflexão futura em torno do tema.

**Palavras-chave:** práticas de tradução, inteligência artificial, alunos

## Abstract

Based on the ongoing work we've been carrying out as teachers of the Translation Practices Curricular Unit, we recognise that this is a field undergoing rapid transformation (Pym, 2023) with the emergence and development of generative AI tools.

The role of the translator is being renewed as these tools develop and their use becomes more widespread. As such, we believe it is important to study this phenomenon and prepare our students for that same reality.

So, stemming from the question "What are the students' perspectives on the use of AI tools for translation practice in Eng/Pt and Pt/Ing?", we designed a case study, combining qualitative and quantitative elements of analysis, and set the main goal of understanding the students' perceptions of the use of AI tools in the discipline of translation practice. Our secondary aim was to adapt assessment practices and tools in this course in order to boost student learning and motivation through the use of AI tools.

The twenty-three participants in the study are third year students of the Degree in Languages and Cultures at the School of Education of the Polytechnic Institute of Porto. They are aged between 20 and 22 and are mostly native speakers of European Portuguese. There are also native speakers of the Brazilian variant of Portuguese. In terms of English language proficiency, these students are attending classes at the C2 level.

We were able to prove that students find it beneficial to use these tools and are able to identify their limitations, complementing them with their revision and manual correction work. We have also proved that this type of practice and assessment task presents a motivating and meaningful challenge for our students, so we consider that we have met our objectives for this study and we hope that it will also serve as a starting point for further research and future reflection on the topic.

**Keywords:** translation practice, artificial intelligence, students

## Resumen

Basándonos en el trabajo que venimos realizando como profesores de la Unidad Curricular de Prácticas de Traducción, reconocemos que se trata de un campo en rápida transformación (Pym, 2023) con la aparición y el desarrollo de herramientas de IA generativa.

El papel del traductor se renueva a medida que estas herramientas se desarrollan y su uso se generaliza. Como tal, creemos que es importante estudiar este fenómeno y preparar a nuestros estudiantes para esa misma realidad.

Así pues, partiendo de la pregunta "¿Cuáles son las perspectivas de los estudiantes sobre el uso de herramientas de IA para la práctica de la traducción en Eng/Pt y Pt/Ing?", diseñamos un estudio de caso, combinando elementos de análisis cualitativos y cuantitativos, y nos marcamos como objetivo principal conocer las percepciones de los estudiantes sobre el uso de herramientas de IA en la disciplina de la práctica de la traducción. Nuestro objetivo secundario era adaptar las prácticas y herramientas de evaluación en este curso para potenciar el aprendizaje y la motivación de los estudiantes mediante el uso de herramientas de IA.

Los veintitrés participantes en el estudio son estudiantes de tercer curso del Grado en Lenguas y Culturas de la Facultad de Educación del Instituto Politécnico de Oporto. Tienen entre 20 y 22 años y son, en su mayoría, hablantes nativos de portugués europeo. También hay hablantes nativos de la variante brasileña del portugués. En cuanto al dominio de la lengua inglesa, estos alumnos asisten a clases del nivel C2.

Hemos podido comprobar que los alumnos encuentran beneficioso el uso de estas herramientas y son capaces de identificar sus limitaciones, complementándolas con su trabajo de repaso y corrección manual. También hemos comprobado que este tipo de tareas de práctica y evaluación suponen un reto motivador y significativo para nuestros alumnos, por lo que consideramos que hemos cumplido los objetivos de este estudio y esperamos que sirva también como punto de partida para futuras investigaciones y reflexiones sobre el tema.

**Palabras-clave:** práctica de la traducción, inteligencia artificial, estudiantes

## INTRODUÇÃO

Generative Artificial intelligence (AI) has been developing at a remarkable rate. ChatGPT gained one million users in just 5 days after launching in November 2022 (Buchholz, 2023). In examining the impact of AI technology on education, Tihiru (2021) asserts that it is transforming schools and classrooms, significantly streamlining tasks for educators. As such, the evolution of educational tools has been gradual yet constant, transitioning from traditional blackboards to whiteboards and incorporating projector screens and computers in the majority of educational institutions. While there may not have been a monumental leap in the integration of AI in education since the 20th century, research has indicated a consistent improvement in its application through various virtual-assisted tools. Accordingly, AI has become part of

our daily lives and has changed the way people work, interact, collaborate, learn, think and communicate. The purpose of this study is to consider the opportunities, benefits, and challenges of AI in translation and students' training of translation practices.

As teachers and researchers, we believe that teaching and learning processes should be built from a dialogical perspective, following constant critical reflections on updated educational techniques and resources.This same dialogical and reflective perspective has led us to consider the impact that current developments in the field of AI may have in the area of PT/EN and EN/PT Translation Practices and the future of translation professionals.

# 1 INTRODUCTION

Generative Artificial intelligence (AI) has been developing at a remarkable rate. ChatGPT gained one million users in just 5 days after launching in November 2022 (Buchholz, 2023). In examining the impact of AI technology on education, Tihiru (2021) asserts that it is transforming schools and classrooms, significantly streamlining tasks for educators. As such, the evolution of educational tools has been gradual yet constant, transitioning from traditional blackboards to whiteboards and incorporating projector screens and computers in the majority of educational institutions. While there may not have been a monumental leap in the integration of AI in education since the 20th century, research has indicated a consistent improvement in its application through various virtual-assisted tools. Accordingly, AI has become part of our daily lives and has changed the way people work, interact, collaborate, learn, think and communicate. The purpose of this study is to consider the opportunities, benefits, and challenges of AI in translation and students' training of translation practices.

As teachers and researchers, we believe that teaching and learning processes should be built from a dialogical perspective, following constant critical reflections on updated educational techniques and resources.This same dialogical and reflective perspective has led us to consider the impact that current developments in the field of AI may have in the area of PT/EN and EN/PT Translation Practices and the future of translation professionals.

# 2 BACKGROUND

## 2.1 AI's current role in education

It is undeniable that considerable praise has been given to AI, acknowledging its tremendous impact across various realms of work, study, and entertainment. Its versatility has also inevitably brought about transformative changes. However, as AI started to become more ubiquitous and its applications more widespread, a critical reevaluation has emerged, questioning some of the initial enthusiasm. This scepticism has been particularly noticeable in domains like education and, more specifically, translation (as will be discussed later), where the practicality and effectiveness of AI technologies have come under scrutiny. While AI has continued to exhibit significant potential, the need for a nuanced understanding of its limitations and challenges has become increasingly apparent, promoting a more balanced and realistic perspective of its capabilities.

Questions are being raised about the use of AI in education in multiple domains, involving both students and educators alike. Some of these challenges have highlighted ethical concerns, pedagogical effectiveness, technological implications, equity and access, student well-being, and the impact on traditional teaching methods. These aspects have collectively contributed to a comprehensive understanding of the broader landscape surrounding AI and its relationship with educational practices and policies. Accordingly, recent research has questioned the use of generative AI for writing by students

(Pederson, 2023); using AI language models for automated essay scoring (Mizumoto & Eguchi, 2023); the limitations and potentials of AI in different educational contexts (Memarian & Doleck, 2023); as well as considerations on AI accuracy when answering questions, data pollution, ethical aspects, safety considerations, the risk of knowledge plagiarism, and some of the new roles for teachers (Yu, 2024). Another primary concern under current debate is that of AI literacy. A fundamental aspect is determining what is AI literacy (Faruqe et al. 2022) and what kind of critical AI literacy do educators and students have (Paiz, 2024). An additional consideration that has equally been raised is whether linguists are able to distinguish between AI and human writing in an academic context (Casal & Kessler, 2023). This has proven especially relevant in the context of both language learning and production. Martínez-Ezquerro (2023) highlights that some authors have started incorporating ChatGPT as a co-author of scientific articles, following recent debates about the ethics and practicality of AI involvement in research.

The current scenario of AI in education has proven to be equally complex and multifaceted. While AI has been praised for its transformative impact in various forms of work, study, and entertainment, its integration into education has prompted both enthusiasm and scepticism. Concerns include ethical considerations, pedagogical effectiveness, technological implications, equity and access, student well-being, and its influence on traditional teaching methods. Recent research has thus scrutinised the role of AI in education, looking at specific areas such as generative AI writing, automated marking, and the broader potentials and limitations of AI in educational contexts. The evolving roles of teachers in the context of AI have also suggested a shifting dynamic in traditional teacher-student relationships. The ongoing debate on AI literacy has similarly emphasised the need to define and evaluate critical AI literacy among both educators and students. In essence, the discourse surrounding AI in education has reflected a growing awareness of the need for a balanced perspective, considering both its potentials and inherent challenges.

## 2.2 The evolution of AI and its effect on translation

The adoption of AI and Machine Learning (ML) has been gaining momentum within a broad spectrum of practical and scientific domains, leading to its widespread integration into various devices, applications, and services, including higher education, as noted by Zawacki-Richter et al. (2019). Multiple studies have explored diverse applications of artificial intelligence in sectors such as healthcare, manufacturing, logistics, and finance (Anu et al. 2023). The integration of artificial intelligence has dated back to the 1950s across various industries and its utilisation has been progressively increasing to automate tasks that previously relied on human intervention, thanks to recent advancements in ML. Recent developments in this specific area have significantly increased the use of AI to automate tasks that previously required human intervention (Pym, 2023).

Over the past few decades, machine translation (MT) engines have become fundamental in the realm of translation and language processing, serving as software designed to automatically translate source texts into target languages Olkhovska& Frolova2020). These engines, which can be categorised based on their algorithm and level of customization, encompass various technologies such as Example-based Machine Translation (EBMT), Rule-based Machine Translation, Statistical Machine Translation (SMT), Pragmatics-Based Machine Translation (PBMT), and Neural Machine Translation (NMT). However, contemporary machine translation engines typically operate on a hybrid basis, combining NMT with another technology, usually SMT. In terms of customization, these engines are classified as generic, customisable, or adaptive, with each category offering distinct benefits and capabilities. Popular, general-purpose MT engines include Google Translate, Amazon Translate, Microsoft Translator, DeepL, Systran Translate and many more.

Recent developments in ML have significantly increased the use of AI to automate tasks that previously required human intervention. This automation has extended to decision-making procedures, enhancing prediction accuracy and providing valuable recommendations. A notable application of AI has been in machine translation, where it has proven capable of automating the conversion of text from one language

to another, improving efficiency and accuracy in the translation process. AI-powered translation tools have, thus, not only assisted human translators by offering suggestions but also streamlined repetitive tasks, ensuring improved translation consistency.

As such, AI has proven itself as a practical application in real-time translation scenarios, such as speech-to-speech translation. This capability has facilitated communication between individuals who speak different languages, contributing to enhanced global connectivity. Through the use of natural language processing (NLP) techniques, AI has refined translation tasks by analysing and comprehending the context of the text with relative credibility. This nuanced understanding has led to more accurate translations, bridging language gaps effectively. AI's role in language-related tasks, from written translation to real-time speech translation, has consequently become instrumental in overcoming language barriers and promoting relatively efficient and accurate global communication services.

Neural machine translation (NMT) is a type of AI technology that uses deep learning algorithms to translate text (Koehn, P., 2020). It has shown promising results in improving translation quality, precisely by using these deep learning algorithms to translate text from any given language to another. Unlike traditional statistical machine translation (SMT) models, NMT models are based on neural networks, allowing them to capture complex linguistic patterns and dependencies and, thus, learn the translation patterns directly from the data, resulting in improved translation quality. The ability of NMT models to understand the context of a text has helped in producing more accurate translations, especially in cases where the meaning of a word or phrase depends on the surrounding context. It is precisely by training on large amounts of bilingual data that NMT models can learn the relationships between words and phrases in different languages, improving translation accuracy.

## 2.3 The challenges of AI in students' training of translation practices

It is obvious that, while AI translation may serve as a widely utilised and essential tool, providing significant convenience to users, the growing dependence on AI translation has also emerged as a noteworthy concern. This reliance has had some impact on translation roles and has presented both advantages and disadvantages in the training of professional students (Wang 2023). This author compared translations produced by AI tools with those made by human translators and found that some translations produced by AI tools approached the level of human translation. However, concerns were also raised about issues such as unemployment and the need to improve core competencies in an era of rapid AI development. As such, the development of AI translation tools has had an impact on the training of translation professionals and the phenomenon of people relying on AI translation has caused some impact on translation positions, evidencing both pros and cons for professional students' training.

In all truth, English language education in universities is adapting to industry needs, focusing on specialised training for high-level English talents. Specialised areas include complex skills like language translation, vital for professionals. Developing this skill requires combining theory with practical application, such as translating projects to improve proficiency. However, some professionals, as exemplified by Wang (2023), have just been relying on AI translation, thus hampering their language skills. Accordingly, recent research has indicated that the rapid growth of AI translation tools could pose a threat to the development of English professionals.

Javier et al. (2023) state that AI and AI-powered machine translation has brought both opportunities and challenges for L2 educators and students alike. As such, the emergence of AI-based chatbots, such as ChatGPT, has led to calls for a revision of traditional teaching methods to prioritise reflective reasoning and critical thinking. These authors study the potentialities of Applied Translation (AT) to promote the essential critical thinking skills needed to engage effectively with AI-based tools in the L2 classroom. By

presenting a framework (Integration, Multimodality, and Interaction) to integrate AT in language education, they expect to help the development of digital literacy and critical thinking in L2 classrooms.

A recent study by Tavares et al. (2023) discusses the challenges of technical translation in an era of NMT. Higher education translation practices students were asked to estimate their use of translation tools and to understand their perceived satisfaction and usefulness of the tools they chose to use. As such, participants were able to opt between computer-assisted translation (CAT) and other translation technologies that could be considered more AI based. Despite the limitations of the study, there were indications of students' preferences towards NMT tools. Students' sole reliance on MT software in this era of NMT thus evidenced the need for post translation tasks and post-editing skills and competences.

It is important to highlight that the increasing reliance on AI translation tools has brought about both advantages and concerns, particularly in the realm of professional training for translation practices. While AI translation tools offer convenience and efficiency, they have also raised issues such as unemployment and the necessity to enhance core competencies amidst rapid AI development. The impact on translation positions has created a dual effect on professional students' training, revealing both positive and negative aspects. In the context of English language education, the adaptation to industry needs has led to specialised training for high-level English talents, including language translation skills vital for professionals. However, there is a noticeable trend where some professionals solely rely on AI translation tools, hindering their language development. This trend has posed a potential threat to the growth of English professionals, as highlighted in recent research. Furthermore, the challenges and opportunities presented by AI and AI-powered machine translation in L2 education have suggested a shift in teaching methods, prioritising critical thinking skills and reflective reasoning. Lastly, in the domain of technical translation, students' increasing preferences for Neural Machine Translation (NMT) tools have indicated a growing need for post-translation tasks and post-editing skills to complement the use of AI-based translation technologies.

## 3 RESULTS AND DISCUSSION

Different methodologies offer unique approaches to investigating research questions and objectives. Choosing the most suitable methodology ensures that the research design is aligned with the goals of the study, maximising the relevance and utility of the findings. The methodology chosen shapes the depth of understanding that can be achieved, therefore selecting methodologies that are well-suited to the research context enhances the validity and reliability of the findings. By employing rigorous and appropriate methods, researchers can ensure that their conclusions accurately reflect the reality of the case under study and can be trusted by peers and stakeholders.

Taking these elements into consideration, we opted for a case study and a mixed-methods research methodology, aiming at generating valuable knowledge, contributing to theory development, and advancing the understanding of the subject area. In this chapter we will present our methodological options and then we will move forward towards the data collected and the discussion of the results.

### 3.1 The challenges of AI in students' training of translation practices

Case study is a research method focused on in-depth exploration and analysis of a particular phenomenon or entity within its real-life context. It involves comprehensive examination of a bounded system or case to gain deep insights into its complexities, dynamics, and unique characteristics.

According to Yin (2003), "the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events". In quantitative inquiry, case study research can provide valuable insights and generate hypotheses for further quantitative investigation. By exploring specific cases in detail, researchers can identify patterns, relationships, or variables that warrant further quantitative analysis. They provide real-world examples and illustrate how variables interact within complex systems or contexts, enhancing the understanding of quantitative findings. While case studies typically focus on specific cases or contexts, they can also serve as illustrative examples or pilot studies to validate quantitative findings or test hypotheses in different settings. Through careful selection and comparison of cases, researchers can enhance the external validity and generalizability of quantitative research findings.

By designing and implementing this exploratory research, we tried to reach a high level of contextual understanding and by integrating qualitative case study data with quantitative data, we intended to gain a more comprehensive understanding of the phenomena under study.

Having been teaching translation practices over the years, we realised that IA is quickly becoming part of our lives and the lives of our students. We see this as an opportunity, more than a setback, and wanted to adapt our lessons and evaluation methods in order to make the most of the usage of IA without hindering our students' learning and the development of essential skills in the field of translation. This could only be done if we could rely on them to provide us with meaningful feedback, with data that we could collect and analyse.

Our cohort was composed of 23 higher education students attending a Curricular Unit called Translation Practices (PT/EN, EN/PT), which is a 3rd-year subject of a Bachelor's Degree in Foreign Languages and Cultures at the Higher School of Education (Polytechnic Institute of Porto) in the academic year 2023/2024. On average, the participants were 20 years old, with Portuguese as their native language and an English proficiency level of C2 CEFR.

Knowing that methodological choices can have ethical implications for participants, we selected methodologies that prioritised informed consent as well as anonymous and volunteer participation in this study.

Students were asked to select two source texts, one in English and another one in Portuguese. Those texts should then be translated into Portuguese or English, respectively, by any AI tool of their choice. Students should then present in class the main translation challenges that they had found in those very same texts, knowing that would be evaluated not only on their ability to find those challenges, but also to discuss them and the translations supplied by the AI tools from a linguistic and contextual standpoint.

Throughout the semester we also took some field notes that helped us analyse their work and their oral presentations. By triangulating data, not only we tried to add rigour and thoroughness to the research process, but we looked for consistency across sources or methods in order to obtain stronger evidence, and support more confident conclusions, and that is why we took notes on the students' presentations and on the comments and suggestions provided by their peers.

Out of a total of forty five students that took part in our classes and prepared a translation task to be presented to us and to their colleagues, around 51% of them (23 students) voluntarily and anonymously replied to the questions we included on a google forms questionnaire once the semester ended. This is how we were also able to gather quantitative data to analyse and triangulate with the qualitative data we had gathered over the first semester.

We would like to present and discuss our key findings, highlighting important trends observed in the data.

## 3.2 The challenges of AI in students' training of translation practices

In the sixteen or so lessons that each of us allocated to the presentation and discussion of the students' work as well as during the preliminary analysis of their translation proposals, our field notes coincided on several points, even though each of us was working only with one of the two variants of the linguistic pairs ENG/PT and PT/ENG.

As such, we both pointed out inaccuracies in the translations provided by the AI tools used by the students, especially in terms of punctuation (e.g. rules for direct speech in English and Portuguese), the correspondence of gender and person number, the use of verb tenses and the appropriateness of the context to the level of language used. We also highlighted the tendency of these tools to use literal translations (especially in more ambiguous textual passages, where there were idiomatic expressions or stylistic resources typical of literary texts) and the way ChatGPT tended to "soften" some words, particularly some that we might consider as "slang". In terms of translation with European Portuguese as the target language, the problem that stood out most had to do with the use of the Brazilian variant of the language by AI tools.

We were therefore interested in finding out more about the students' choices and their perceptions of the use of AI in their translation practice, so we proceeded to collect data by means of a questionnaire.

We began by asking the students if they used generative AI tools to help them with their academic work, and 87 percent of respondents indicated that they did. This demonstrates the importance that students are placing on these tools and the fact that they use them throughout their academic career. We think this is very significant because it supports our conviction that these tools should be mastered and used with openness by higher education teachers, in favour of transforming their practices and innovating in this teaching context. Among the 20 students who indicated that they use these tools, 65 per cent said that they use ChatGPT, ranking this tool first, followed by Deepl and Bard, platforms mentioned by around 20 percent of respondents.

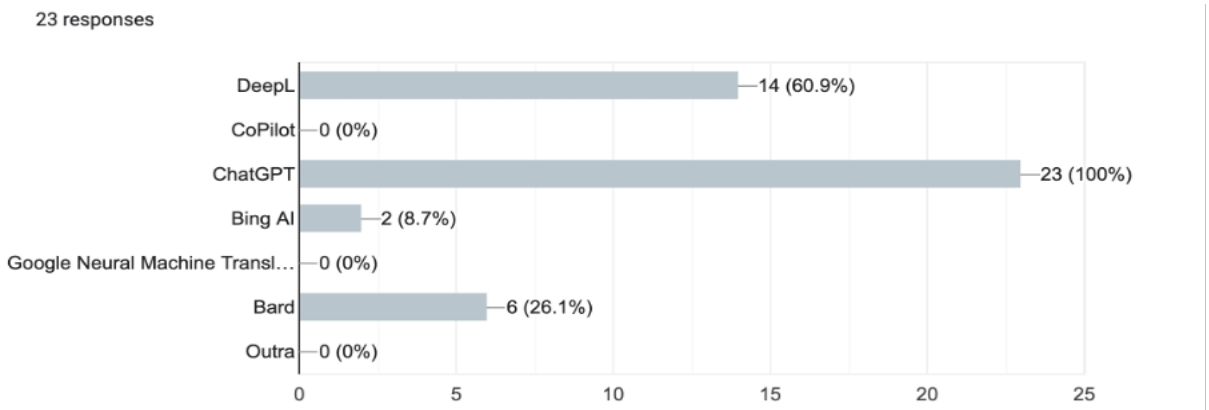
We then wanted to focus our questions more on translation practices and asked the students if they were aware of the growing relevance of the use of generative AI for translation. Thus, 78.3 percent said they had already understood that these tools are becoming increasingly relevant to translation practice and 21.7 percent said they didn't realise this before carrying out the task proposed by the teachers.

In order to obtain data that would allow us to make a comparison between the practices undertaken in the two combinations of the language pairs in question, we asked questions about the assignment that had English as the target language.

We began by asking our students “What tools did you use for the completion of the English translation task?” (see Figure 1).

**Figure 1**

*AI tools used for English translation*




As we can observe in Figure 2, all of them indicated that their initial expectations were positive, and almost half of the students (47.8 per cent) rated these expectations as the second highest on the scale.
If we take these values as a reference for analysing the next question, we find that the students consider that the final product they obtained did not fully meet their initial expectations, as 43.5 percent rated the translation with a score of 3 out of a possible 5 and 30.4 per cent indicated a score of 2 out of a possible 5 (see Figure 3).

**Figure 2**

*Initial expectations regarding the use of AI in English translation*

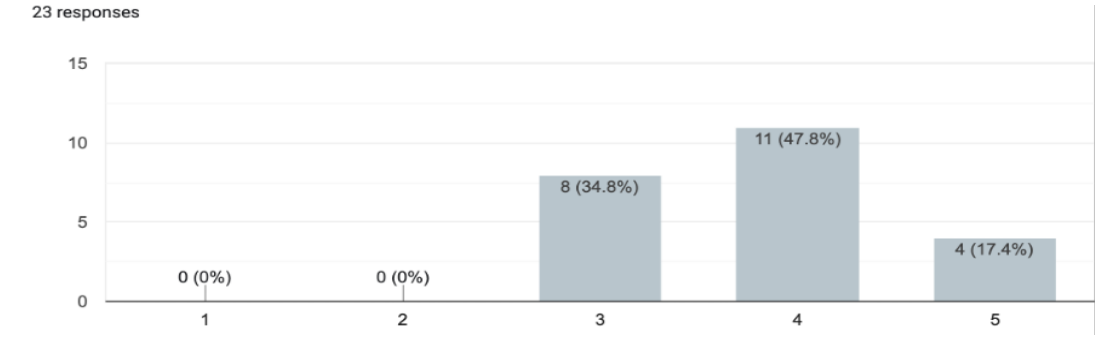
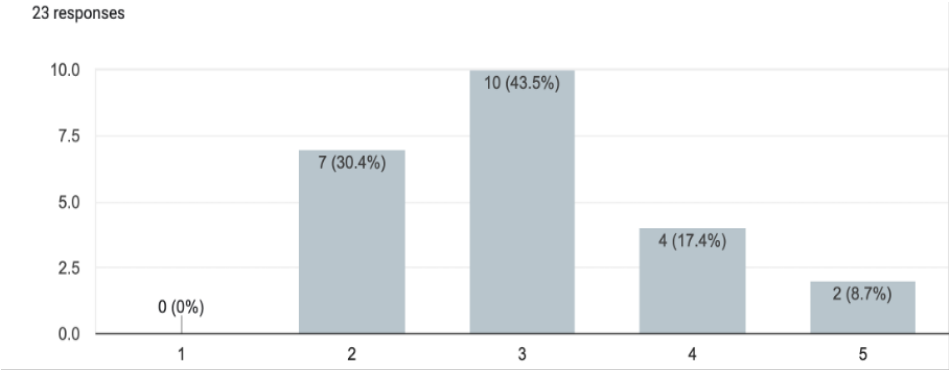


**Figure 3**

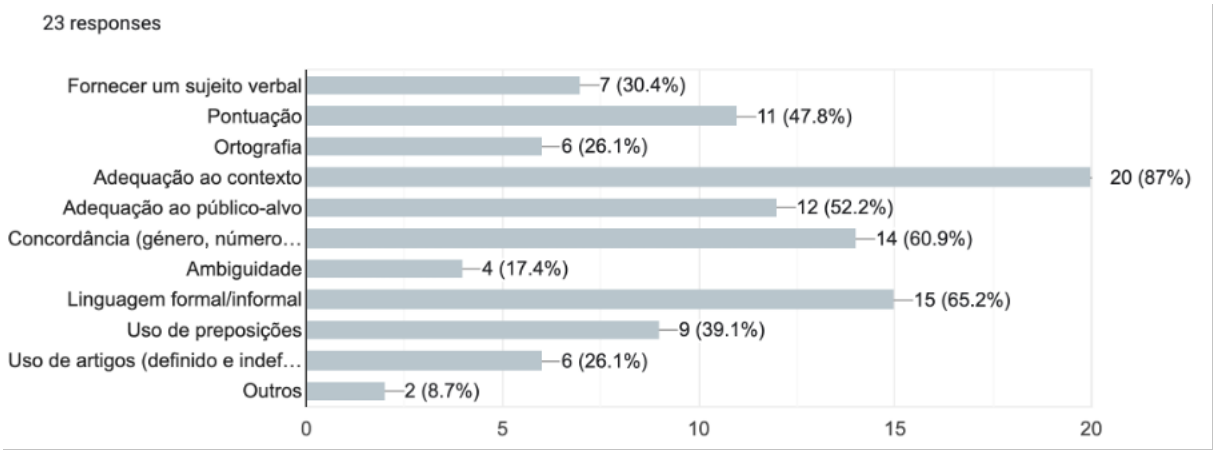
*Students' assessment of the quality of the final translation into English*




With the intention of cross-referencing the students' experience and critical analysis with our own field notes, we asked the students to identify the scope of any errors they might have found in the translation into English. These results can be analysed in Figure 4:

**Figure 4**

*Scope of errors/imprecisions identified by the students in the translation into English*




Analysing this component, we can see that the students mainly found inaccuracies in the adequacy of the enunciative context and towards the target audience, as well as concordance issues and the level of formality of the language. It is also important to mention the punctuation issues and other grammatical factors, such as the use of prepositions.

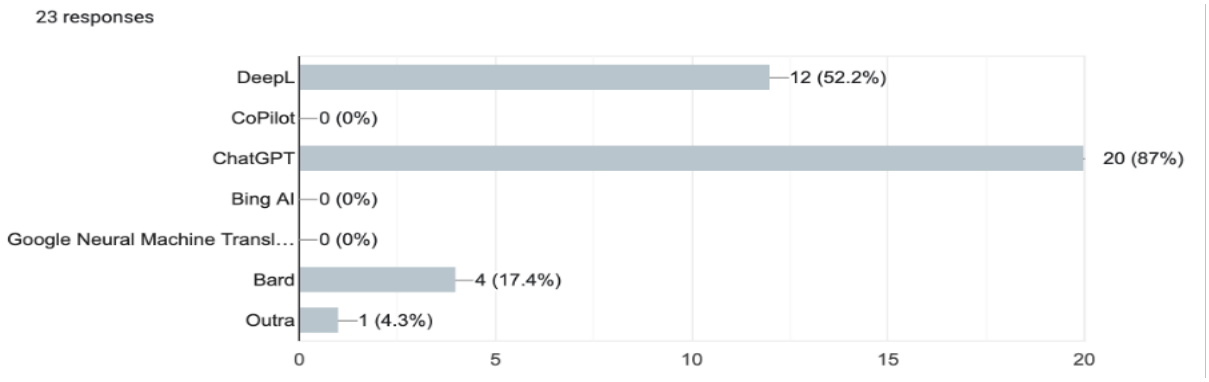
Some of the specific examples highlighted by the students were also consistent with our field notes, so we include some of them here, such as "When translating a pork recipe, instead of translating it as "pork", he constantly translated it as "pig"; "failure to understand the context (""Mentira, eu não fui" [roubada] -> "Lie, I didn't go").

These references enable us to validate our field notes, as these were also the elements that we highlighted when we initially analysed the translations that were given to us by the students for later presentation and discussion.

Considering the translation task that had Portuguese as its target language, we began by posing the same question regarding the AI tools used. We can observe the results in the following figure:

**Figure 5**

*AI tools used in the translation into Portuguese*

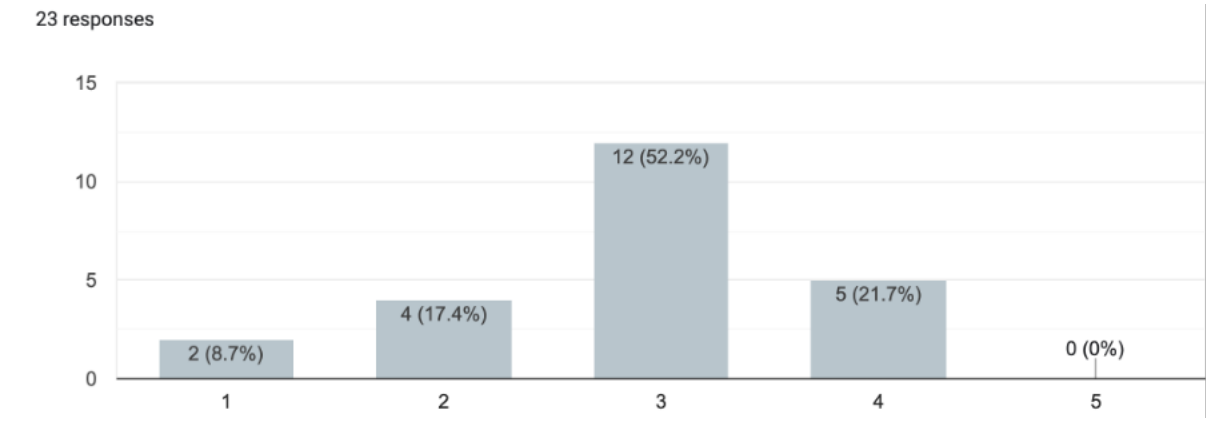



We can confirm that ChatGpt is still the predominant tool, but it doesn't reach the level of relevance achieved in the translation task in which English was the target language. The results also indicate that the students used DeepL and Bard.

We think that the answers the participants also gave to the question about their initial expectations can help us interpret this data, since it's clear that their initial expectations for using IA in this task were lower than those they stated for the task with English as the target language (see Figure 6). For this reason, they may have used less cross-referencing between the AI tools and taken on the responsibility of correcting the errors themselves, as Portuguese is their mother tongue and they felt more confident in this task of proofreading and editing.

**Figure 6**

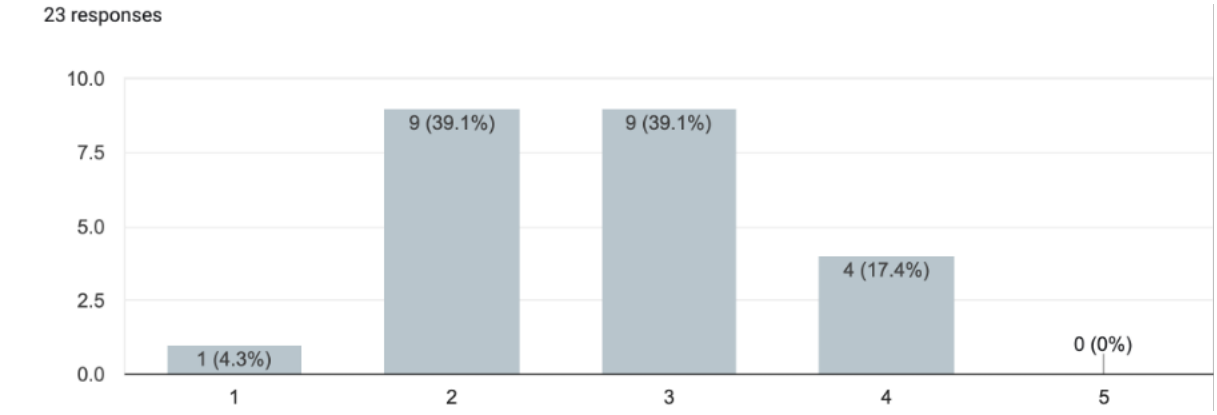
*Initial expectations for the use of AI in the translation into Portuguese*




As we can observe in Figure 7, their final assessment of the quality of the translations provided by the AI tools also seems to be consistent with this analysis, as it is clear that they give these final products a low rating.

**Figure 7**

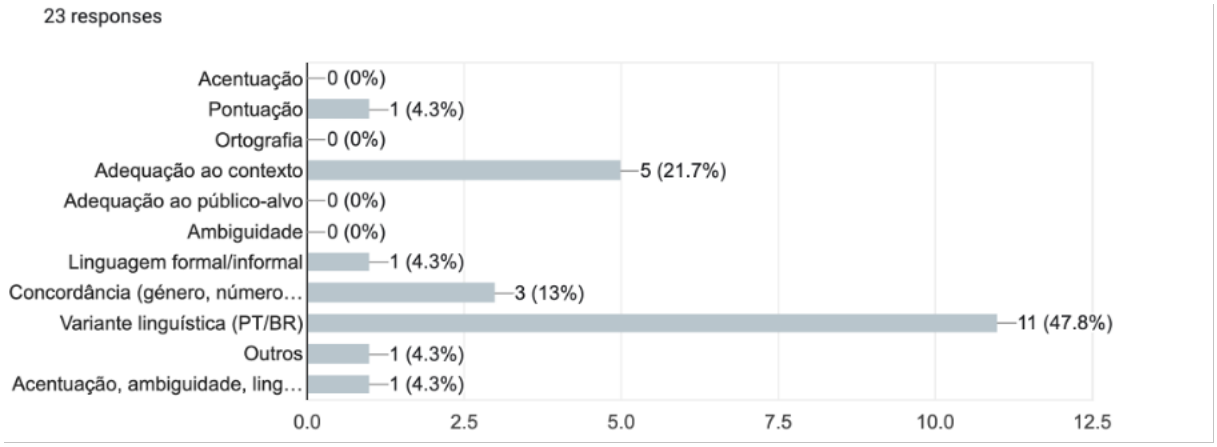
*Evaluation of the quality of the final translation into Portuguese*




In contrast to what happened with the translation into English, no student rated their translation proposal as highly as possible and there was a higher percentage of students who rated it two out of a possible five and even one student who rated the text they obtained from the AI tool as low as possible.
This also allows us to infer that these tools are already producing texts of greater quality and accuracy in English than those that result in a source text in European Portuguese.
When we move on to the identification of the errors/imprecisions detected by the students in the translation into Portuguese, the emphasis on the undue use of the Brazilian variant of the language is evident (see Figure 8).

**Figure 8**

*Scope of errors/imprecisions found in the translation into Portuguese*

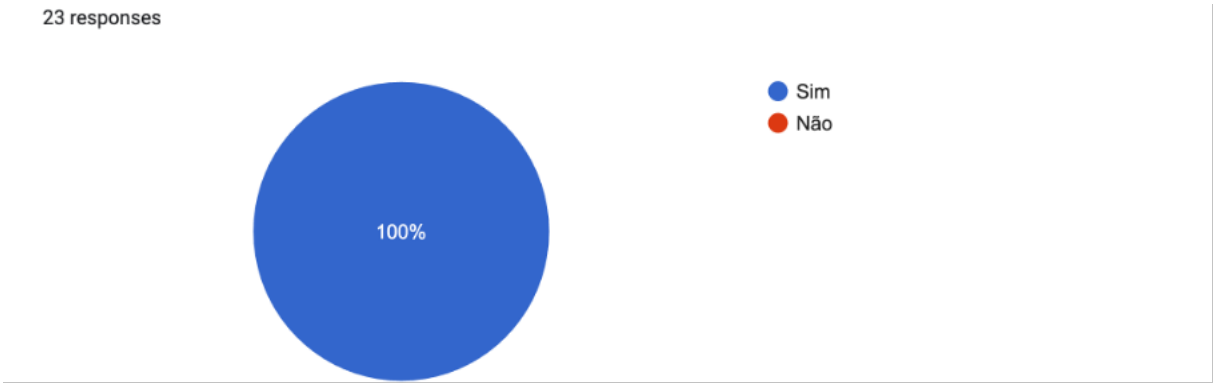



In addition, the students pointed out issues of adequacy to the context and target audience and agreement errors as the ones they detected most frequently.
We again point to the analysis carried out on our field notes and the results obtained on the same question in reference to the work with English as the target language, as the errors pointed out are transversal and are in fact the most prevalent when it comes to assessing the quality of the final texts provided by the IA tools
Sharing some specific examples provided by the students and validated by our field notes, we can cite elements such as "ChatGpt used the Brazilian variant of Portuguese, even after I had specified that I wanted

the translation in the European variety"; "literal translation of expressions that don't exist in Portuguese ("what's the point you're trying to make?" -> "qual é o ponto que você está tentando fazer?")"; "failed to abide by the feminine subject, using adjectives and articles in the masculine form".
We concluded the questionnaire by asking the students to assess the impact of the use of AI on their learning in the Translation Practices Curricular Unit (ENG/PT and PT/ING). The results are available in Figure 9.

**Figure 9**

*Assessment of the impact of the use of AI on learning within the scope of the Translation Practices curricular unit (ENG/PT and PT/ING)*




All the participants indicated that the use of these tools had a positive impact on their learning, despite the errors they detected and the proofreading work they had to do.
Among the justifications that the students offered for their answers, we would like to list a few as illustrative examples. They mentioned elements such as "I was able to recognise the errors and limitations of AI. I was able to analyse errors, find alternatives and establish a balance between the source text and the final product revised by a human."; "The use of AI in the course serves as preparation for the real world where the presence of AI and automatic translators is increasingly strong. It shows that the course is adapting to the new reality. In addition, the use of AI has speeded up a process that would previously have taken longer"; "Although the tool I used didn't do an excellent job when translating, at least it gave me a starting point to think about what would actually be correct"; "By using AI to do the work for this course, I learnt how to better analyse texts for translation, detect errors and improve them."; "It allowed me to learn more about the translation process and how to adapt it to the context and target audience".
This critical reflection on behalf of our students encourages us not only to develop strategies and activities in the field of translation practices that enhance the use of these tools, but also to adapt our practices and assessment processes by incorporating IA into our classes. We also consider that this type of initiative promotes the reflexive and critical use of Portuguese and English, enhancing the study and application of metalanguage and motivating students to engage in meaningful translation practices in these language pairs.

## CONCLUSIONS

We would like to begin by mentioning in these conclusions some limitations of this study and indicate possible lines of future research.

We believe that the main limitation of this study is that there were many variables that we did not control in terms of the students' work and the source texts.

Therefore, for future work, it may be important to reduce the number of uncontrolled variables. So perhaps all students should be given the same translation tasks, the same source texts (with quality checks), and translation errors should be identified by experts. It would also be worth it to include a control group of students with a different educational profile).

After having analysed the data, several conclusions can be drawn as there appears to be a gap between the students' expectations and the actual capabilities of the AI tools used for translation. The students have expected a higher degree of accuracy or fluency in the translations and they may have anticipated that the AI tools would provide more contextual information or explanations to aid their understanding and completion of the translation assignment.

Their dissatisfaction suggests that they perceive the quality of the translations generated by AI tools to be lower than their expectations. This is based on the inaccuracies, inconsistencies, that they found and suggests that there is a need for more contextual information, as the students' desire for more data input implies that they feel the translations could be improved with additional context or information. This could include contextual clues, background knowledge, or specific terminology relevant to the translation task, which the AI tools may not have adequately incorporated.

This leads us to the importance of human involvement in the process because the participants' feedback highlights the importance of that involvement in the translation process, particularly in tasks that require cultural sensitivity, linguistic nuance, or context-specific knowledge. While AI tools can assist with translation, they may yet not fully replace the need for human translators who can interpret nuances, address ambiguities, and adapt to various contexts.

So, we see this as an opportunity for the improvement to refine the use of AI tools in future translation assignments. This could involve providing our students with more guidance on how to effectively use the tools, offering supplementary resources to complement the translations, or integrating feedback mechanisms to address areas of concern and improve the overall learning experience.

The students' feedback suggests that while AI tools can be valuable aids in translation tasks, there may be limitations in their ability to meet certain expectations, particularly regarding accuracy, fluency, and contextual understanding. Addressing these concerns may require a combination of refining the use of AI tools, providing additional support and resources, and recognising the ongoing role of human translators in the translation process.

This also highlights the importance of introducing our future students to the concept of post-editing through their experience with AI translation tools, since it involves reviewing and editing machine-generated translations to improve quality and accuracy. By engaging in post-editing tasks, students will gain practical experience in refining machine-generated translations, which is a valuable skill when working with translation technology.

By raising awareness of post-editing future prospects, students will be better prepared for career opportunities in the translation industry. Post-editing skills are increasingly in demand as organisations adopt machine translation technologies and seek qualified professionals to refine machine-generated translations. Students who are proficient in post-editing will have a competitive advantage in the job market and will be well-equipped to pursue careers as professional translators or language specialists. From our standpoint, engaging students in post-editing tasks will encourage them to develop critical thinking and evaluation skills. They will learn to assess machine-generated translations, identify errors or inconsistencies, and make informed decisions about how to improve the quality of the translations. This

process will also foster a deeper understanding of language structure, linguistic nuances, and translation strategies.

When it comes to the future of translation classes, we must place a larger emphasis on the integration of AI Tools into the Curriculum and translation teaching should incorporate the use and understanding of AI tools, such as machine translation systems and computer-assisted translation (CAT) software so that students develop critical thinking skills to evaluate the quality of translations generated by AI and to identify and correct errors. Additionally, we must help them realise that creativity is essential to adapt translations to different cultural and communicative contexts and that the ethical and social issues related to the use of AI technologies in translation must not be disregarded either. This includes discussing privacy, algorithmic bias, and the socioeconomic impact of automation on the translation industry in class.

We also consider that the curriculum should foster a growth mindset and provide ongoing opportunities for professional development, namely through multidisciplinary collaborative projects that might provide students with practical and contextual experiences, as well as promote the application of knowledge and skills in real-world situations.

## ACKNOWLEDGMENTS

We would like to thank the students of the third year of the Foreign Languages and Cultures degree in the 2023/2024 academic year for their participation and contribution to this study.

## REFERENCES

Anu, Sayal., Ashulekha, Gupta., Rajiv, Kumar. (2023). Artificial Intelligence and Applications. 1-4. doi: 10.1109/ICRT57042.2023.10146698

Buchholz, K. (2023). ChatGPT Sprints to One Million Users. Statista.com. Available online at: https://www.statista.com/chart/29174/time-to-one-million-users/ (accessed February 13 2024).

Casal, J. E., & Kessler, M. (2023, December 1). Can linguists distinguish between ChatGPT/AI and human writing?: A study of research ethics and academic publishing. https://doi.org/10.1016/j.rmal.2023.100068

Faruqe, F. et al. (2022) Competency Model Approach to AI Literacy: Research-Based Path From Initial Framework to Model. *Advances in Artificial Intelligence and Machine Learning, 2(4*), 580-587

Hollweck, T. (2015). Robert K. Yin.(2014). Case Study Research Design and Methods . *Canadian Journal of Program Evaluation*, *30*(1), 108-110.

Javier, Muñoz-Basols., C, H, Neville., Barbara, A, Lafford., Concepcion, B., Godev. (2023). Potentialities of Applied Translation for Language Learning in the Era of Artificial Intelligence. *Hispania, 106(2*), 171-194. doi: 10.1353/hpn.2023.a899427

Koehn, P. (2020). *Neural machine translation*. Cambridge University Press.

Martínez-Ezquerro, JD. (2023). Authors in the Age of Language-generation AI: To be or not to be, is that Really the Question? Arch Med Res. 2023 Apr;54(3):163-167. doi: 10.1016/j.arcmed.2023.03.002.

Memarian B. & Doleck T. (2023). ChatGPT in education: Methods, potentials and limitations, *Computers in Human Behavior: Artificial Humans* doi: https://doi.org/10.1016/j.chbah.2023.100022.

Mizumoto, A., & Eguchi, M. (2023, August 1). Exploring the potential of using an AI language model for automated essay scoring. *Research Methods in Applied Linguistics*. https://doi.org/10.1016/j.rmal.2023.100050

Olkhovska, A. & Frolova, I. (2020). Using machine translation engines in the classroom: a survey of translation students' performance. *Advanced Education*, 15, 47-55. DOI: 10.20535/2410-8286.197812

Paiz, J. M. (2024, January 24). Critical AI Literacy & ELT: Teaching in an AI-rich World. Retrieved from https://www.researchgate.net/publication/377657629_Critical_AI_Literacy_ELT_Teaching_in_an_AI-rich_World

Pedersen I (2023) The rise of generative AI and enculturating AI writing in postsecondary education. *Front. Artif. Intell. 6.* doi: 10.3389/frai.2023.1259407

Pym, A. (2023). Exploring Translation Theories (Third edition). Routledge. https://doi.org/10.4324/9781003383130

Tahiru, Fati. (2021). AI in Education: A Systematic Literature Review. *Journal of Cases on Information Technology, 23,* 1-20. 10.4018/JCIT.2021010101.

Tavares, C., Tallone, L., & Ribeiro, S. (2023). The Challenges of Teaching and Assessing Technical Translation in an Era of Neural Machine Translation. Education Sciences. Advance online publication. https://doi.org/10.3390/educsci13060541

Wang, L. (2023). The Impacts and Challenges of Artificial Intelligence Translation Tool on Translation Professionals. *SHS Web of Conferences*, 163, 02021. https://doi.org/10.1051/shsconf/202316302021

Yin, R. K. (2003). Designing case studies. *Qualitative research methods*, *5*(14), 359-386.

Yu, Hao (2024). The application and challenges of ChatGPT in educational transformation: New demands for teachers' roles. *Heliyon 10 (2).* https://doi.org/10.1016/j.heliyon.2024.e24289.

Zawacki-Richter, O., Marin, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), 39. Advance online publication. doi:10.1186/s41239-019-0171-0