

# Exploring Students' Experience with CAT-Integrated MT and Gen AI: Translating Creative Texts in Bureau Works

Viveta Gene<sup>1</sup>[0000-0002-4374-8305], Vilemini Sosoni<sup>2</sup>[0000-0002-9583-4651], María do Campo Bayón<sup>3</sup>[0000-0001-8089-6238], Parthena Charalampidou<sup>4</sup>[0000-0002-5047-228X], and Pilar Sánchez Gijón<sup>5</sup>[0000-0001-5919-4629]

<sup>1</sup> Ionian University, 49100 Corfu, Greece

<sup>2</sup> Universitat Autònoma de Barcelona, 08193 Barcelona, Spain

<sup>3</sup> Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece

**Abstract.** Recent advances in machine learning have resulted in the development of more sophisticated innovative technologies for digital content generation and translation, such as Generative AI (Gen AI) [7]. Naturally, such technologies have been integrated in Computer-assisted Translation (CAT) tools leading to augmented translation scenarios where translators work with Translation Memories (TMs), Neural Machine Translation (NMT) and GenAI in one single tool. The present study seeks to explore Greek and Spanish undergraduate and postgraduate Translation students' experience with CAT-Integrated MT and Gen AI by focusing on the answers they gave in a questionnaire following their training on and use of the Bureau Works tool –a cloud-based Translation Management System combined with CAT-Integrated MT and AI – for the translation of a creative marketing text from the travel and leisure sector from English into Greek and Spanish respectively. The findings reveal that students are in favour of the AI-based features of the tool with variations in their use based on their level of study and their target language.

**Keywords:** CAT-Integrated MT, Gen AI, translator training, post-editing

## 1 Introduction

In recent decades, the translation industry has undergone an unprecedented transformation fueled by globalization, automation, the need for fast turnarounds and for cost cutting [12]. In practical terms, language service providers (LSPs) have integrated language technologies into their workflows, notably Computer-Assisted

Translation (CAT) and Machine Translation (MT) tools, and lately Large Language Models (LLM) and Generative Artificial Intelligence (GenAI) [6][22] while the most common scenario nowadays is one where MT post-editing (PE) is effected in CAT tools [3][19]. For that reason, translation is considered to be a form of «translator-computer interaction» [13]. Naturally, in order to make effective and efficient use of these technologies, translators need special training, both during their university education and in the framework of continuous professional development (CPD) [8]. To that end, educational approaches have swiftly evolved to include MT and PE in translator training [19]. Still, the experience and attitudes of Translation Studies students and professional translators with these tools are still largely uncharted.

This paper will attempt to link the students' experience and attitudes while translating a creative text with CAT-integrated MT and Gen AI in Bureau Works. This research is supported by in-class training on the tool, a pilot translation project within the tool to experience all the AI augmented actions of the translation technology, an exercise for the categorization of their translation challenges and the relevant severity, and a questionnaire to evaluate the students' experience, the attitude toward AI in translation, and their perception of difficulty in the different error categories.

The goal of the study is to analyze the use of the AI features of the tool by the students and to explore their perceptions and attitudes. The paper is arranged as follows. Section 2 presents a brief review of literature related to AI in translation, AI creativity, perceptions and attitudes of students towards AI based on their user experience. Section 3 presents the methodology of the experiment. Section 4 provides an overview of the results with the questionnaire analysis and the findings. Finally, section 5 presents the conclusions and scope for future work.

## 2 Literature Review

### 2.1 Strengths and Limitations of AI Translation

AI has witnessed significant advancements thanks to the integration of DL techniques. DL leverages neural networks and hierarchical data processing to enhance language translation, enabling the analysis of intricate linguistic patterns. However, the deployment of DL in MT poses challenges due to its resource-intensive nature, requiring substantial processing capacity and extensive datasets [11].

Even if DL techniques have powered MT capabilities, their implementation is hindered by resource constraints. Despite these challenges, DL models have demonstrated remarkable effectiveness in handling complex pattern recognition tasks, particularly in language processing and other domains requiring nuanced data interpretation. However, they face difficulties in dealing with sparse data, managing large systems, and capturing subtle linguistic nuances. Thus, while DL has significantly enhanced MT and NLP, its application is constrained by resource limitations and challenges in handling certain types of data and linguistic complexities [11].

Investigating specifically the LLMs aspect of AI translation, according to the findings of Sahari et al. [14], while LLMs have revolutionized attitudes towards

technology-driven translation, they are not a one-size-fits-all solution. Even if they can enhance writing and editing tasks, their application to all translation processes should be approached cautiously.

In terms of strengths, according to Siu [20], LLMs like ChatGPT demonstrate impressive performance and customizability, offering tailored translations that accurately capture intended meanings and adhere to specific preferences. LLMs function as advanced assistive tools for translators, handling a wide range of Natural Language Processing (NLP) tasks beyond translation, facilitating collaboration, and improving efficiency in the translation process.

In terms of limitations, Siu [20] states that neural machine translation (NMT) systems may struggle with translating long sentences accurately due to insufficient training data, model capacity limitations, and challenges in maintaining alignment over long distances [10]. NMT engines, including LLMs, may encounter difficulties in translating specialized documents accurately, particularly with inconsistencies in translation style and terminology [4][21]. In addition, LLMs, depending on the composition of training data, may exhibit limited support for non-English languages, leading to suboptimal translations in languages other than English [21]. Both NMT systems and LLMs face challenges in providing accurate translations that require in-depth analysis of context and background, often resulting in errors or misunderstandings [21]. LLMs often hallucinate and generate fictional details, which can significantly impact the accuracy and reliability of translations [2]. Moreover, MT has historically offered limited support for creative translation endeavors. However, with the evolution of advanced tools like LLMs, AI technologies are now better equipped to offer creative suggestions and editorial assistance, as outlined in Siu [21].

One of the limitations of AI translation involves the attitude of translators towards translation technology. When CAT tools emerged, translators were initially hesitant about using them, but have since adapted. They now have a positive attitude towards CAT tools which offer various benefits like file editing, reusing translations, and project management. In contrast, as Machine Translation (MT) is sometimes used to cut costs, translators are skeptical to use it due to quality concerns, extra effort for editing, and integration issues with existing tools [16].

Consequently, there is a pressing need for educators to tailor curricula, develop instructional strategies that emphasize these specialized areas, fostering students' proficiency and adeptness in leveraging these new tools for both specialized and creative translation [21], shaping a positive attitude towards translation technology.

## 2.2 AI Creativity in Translation

The collaborative ability of humans and AI to coexist and create synergistically, leveraging each other's strengths is defined by Wu et al. [21] as AI Creativity. The proposal of Wu et al. [21] of the Human-AI Co-Creation Model introduces “new possibilities brought by AI throughout the creative process, allows any meaning-making action to be enhanced by AI and delivered in a more efficient way, and emphasizes on collaboration no matter it’s interpersonally or between human and AI”.

This model comprises six phases: perceiving, thinking, expressing, collaborating, building, and testing. Initially, AI enhances human perception by synthesizing big data into meaningful insights, broadening perspectives beyond conventional senses. In the thinking phase, AI augments human cognition, facilitating deeper and more expansive exploration, transcending resource limitations. In the expression phase, AI tools empower individuals to explore diverse creative avenues rapidly, irrespective of talent or training, emphasizing creativity over technical skill. Collaboration between humans and AI capitalizes on their respective strengths, optimizing task allocation for efficient teamwork. Finally, AI facilitates building and testing phases by simulating and analyzing processes, enhancing productivity and quality while reducing costs.

Throughout this co-creative process, humans and AI complement each other, unlocking their combined potential to innovate and achieve remarkable outcomes efficiently. This collaborative model revolutionizes creative endeavors, enabling inclusive access to creativity and streamlining production processes.

The findings of this experiment aim to showcase the experience of the students, their perspectives and attitudes towards CAT-integrated MT and Gen AI, while leveraging AI creativity in the tool's interface in a collaborative model.

### **3 Methodology**

#### **3.1 Bureau Works Integration**

Bureau Works is a cloud-based Translation Management System combined with CAT-Integrated MT and AI. The Bureau Works Generative Language Engine (GLE) represents a novel approach to translation technology, leveraging state-of-the-art natural language processing (NLP) techniques and LLMs, specifically Chat GPT. At its core, the Bureau Works GLE integrates Translation Memories (TMs), MT, and Glossaries into a unified computational framework, enabling seamless adaptation to user preferences and contextual nuances during translation tasks.

Central to the functionality of Bureau Works is its utilization of Chat GPT 3.5 and 4.0, an advanced language model developed by OpenAI. Chat GPT serves as the computational backbone of Bureau Works, facilitating context-aware translation outputs through sophisticated language processing algorithms.

During translation tasks, Bureau Works dynamically incorporates user-specific preferences, TMs, glossaries, and MT outputs in real-time. This adaptive approach ensures that translation outputs are tailored to individual user requirements and reflect the linguistic nuances of the target language. The operational workflow of Bureau Works involves several key stages. Firstly, users initiate translation requests within the Bureau Works editor, prompting the LLM to generate contextually relevant translations based on available linguistic resources. The LLM integrates user preferences, such as preferred terminologies and stylistic conventions, along with TMs and glossaries to produce translation outputs aligned with user specifications.

The Bureau Works Editor also offers a range of augmented actions to facilitate translation refinement and quality assurance. These actions include semantic verifiers,

alternative suggestions, proofreading functionalities, and tag correction tools, each aimed at optimizing translation outputs and ensuring linguistic coherence.

Some of the main Bureau Works augmented translation actions that were tested by the students in our experiment are:

**Alternative suggestion:** The Alternative Suggestion acts as a cognitive agent, providing recommendations, an alternative way of expressing the same translation. In addition, it also explains the rationale behind the word choices.

**Proofread:** Proofread performs a best attempt to fix any potential mistakes while respecting word choice and overall sentence structure. It is engineered to conduct a comprehensive examination of each segment. It checks for grammar, spelling and punctuation mistakes.

**Fix Tags:** Fix Tags performs a best attempt to ensure the translated text preserves the same tag structure as the original source text and prevent text from ending up with corrupted formatting. It automatically corrects tags in translated text to match the original format.

**Translation Smells:** Translation Smells is a semantic analyzer. It examines a given translation looking for potential deviations in meaning, omissions and a wide variety of mistakes. It shows potential translation discrepancies or inaccuracies, prompting users to evaluate translation outputs for consistency and fidelity. Translation Smells is a quality assurance mechanism to enhance translation accuracy and mitigate the risk of linguistic errors in the final output.

From a technical perspective, Bureau Works operates through a combination of machine learning algorithms, natural language understanding techniques, and computational linguistics principles. By harnessing the power of advanced NLP models and incorporating user feedback mechanisms, Bureau Works represents a significant advancement in translation technology, offering enhanced accuracy, efficiency, and user customization capabilities.

### 3.2 Study Setup

The present study constitutes an empirical, participant-oriented research, where the methodology is often characterized by the use of the term “survey” to denote the study design, with the “questionnaire” serving as the primary instrument [1]. This approach underscores a focus on engaging participants directly and gathering data through structured inquiries, aligning with the broader objective of understanding their attitudes and experiences within the study framework.

The study draws on the results of a translation test with Bureau Works, a CAT tool interface that as pointed out integrates TM, MT, LLMs, and Gen AI combined with DL technology. It is followed by a questionnaire that allows to gather information about the users' perception of AI applied to translation. TM tools are commonly used by translators in their daily work, and MT is often embedded in TM tools, which means that PE is frequently carried out in a TM editing environment [9].

**Setting of the research.** The study was conducted on the basis of the online Bureau Works Workshop titled “Bureau Works AI Generative Language Engine: Translators

at The Heart of Technology” delivered to 49 Translation Studies students coming from the Ionian University (IU) (3<sup>rd</sup> year undergraduate students), the Aristotle University of Thessaloniki (AUTH) (2<sup>nd</sup> year postgraduate students), and the Universitat Autònoma de Barcelona (UAB) (1<sup>st</sup> year postgraduate students) (see 3.3.). The workshop included two sessions for each University taking place in the study during November, December 2023 and January 2024.

**Working Text.** For the experiment, the source text (ST) used was a creative text of 264 words written in English. Students were asked to translate it in their native language, Greek for the Greek students and Spanish for the Spanish students. Datayze analyzer (<http://datayze.com>) was used to measure the readability of the text which was an extract from a Travel Company website story/article<sup>1</sup>. The Fry Readability score for the text was grade 6.

**Session description.** In the first two-hour session, students were introduced to and trained on the translation technology of Bureau Works. In the Bureau Works Editor both AI (LLMs) and MT output were presented in the suggestions window of the tool. Students were asked to post-edit on the Bureau Works Editor, output generated by LLMs, while they also had the option to use, and post-edit standard MT output. The students were given a spreadsheet with the source file segments and were asked to copy and paste the raw output before they started their editing. Then, they were asked to proceed with the editing of the text on the Bureau Works Interface and fill out in the spreadsheet the challenges they faced, while also highlighting three of them as the most severe. Once the process was completed, they were asked to fill in a questionnaire on their experience with the tool.

**Questionnaire type and structure.** For the questionnaire, Google Forms and LimeSurvey were used; it consisted of 28 anonymous questions. Approval was given by the Research Ethics and Deontology Committee of the three Universities, while all students were asked to participate in the study at their own free will and those who showed an interest were asked to provide informed consent. The questionnaire featured closed questions on: native language, the students’ academic level, their experience in translation and post-editing, translation technology, and Gen AI, their attitude towards the aforementioned tools, their user experience with the different features of Bureau Works, the potential usefulness of the Bureau Works training, the quality challenges and the role of the translator in the process. There was only one open-ended question in the end asking them to describe their feelings and feedback about Bureau Works AI and the translation technology it integrates.

In the second session, the students were presented with the results of the questionnaires and there was room for discussion on their experience with LLMs and Gen AI, while they had the chance to discuss their observations and the main challenges and translation dilemmas they encountered.

---

<sup>1</sup><https://www.theluxuryholidaycompany.com/stories/unusual-adventures-luxury-in-the-most-unlikely-places>

**Replication of methodology.** This methodology can be replicated with any CAT tool and any language pair for future research purposes.

### 3.3 Participants' Profiles

As pointed out already, an online workshop on Bureau Works was delivered to 49 students from three Universities, with 16% being male and 74% being female: 23 3<sup>rd</sup> year undergraduate students from IU and 26 postgraduate students, 19 from AUTH, and 7 from UAB. Among the respondents, a near-even distribution was observed between undergraduate (51%) and postgraduate (49%) students.

Regarding translation and PE experience, a significant proportion of students reported having over a year of translation experience (71.4%), while a majority indicated PE experience ranging from 0 to 6 months (57.1%). Notably, while all students possessed translation experience, a minority (14.3%) lacked any PE experience.

Undergraduate students had varying levels of experience, with most having 1+ year of experience (92.86%) in translation and 0-6 months of PE experience (64.29%). Postgraduate students also show diverse experience levels, with 1+ year being the most common (77.42%) in translation, and a range of MTPE experience, with 1+ year being the most common (47.37%). The equivalence of the experience between undergraduates and postgraduates in terms of hours is not known, as they were not professional translators, and this information was not requested in this context.

In terms of familiarity with CAT tools and Gen AI, a substantial portion of students reported no prior experience with either (34.7% and 42.9%, respectively). However, a considerable percentage of respondents reported having used CAT tools for durations ranging from one month to over a year (65.3%), while a comparable proportion had experience with Gen AI (57.1%).

Undergraduate students vary in their use of CAT tools, with the majority having 0 experience (50%). They predominantly do not use Chat GPT (85.71%).

Postgraduate students similarly show diverse usage of CAT tools, with 0 experience being the most common (37.21%), followed by 1-6 months (31.91%), and 6 months - 1 year (30.88%). Additionally, postgraduate students also demonstrate varied usage patterns with Chat GPT, with a majority not using it (63.95%), but a significant minority utilizing it (36.05%).

Among students who reported using Gen AI, text creation emerged as the most prevalent use case (26.5%), followed by prompting for translation (14.3%). A remarkable percentage (57.1%) stated that they don't use Chat GPT.

In evaluating the perceived usefulness of CAT tools, machine translation (MT), and Gen AI, the majority of students regarded CAT tools as highly beneficial for translators, assigning a rating of 5 on a scale from 1 to 5 (42.9%). Conversely, opinions on MT varied, with a significant proportion of students (40.8%) rating its usefulness as a 3 out of 5. Similarly, Gen AI received mixed ratings, with a plurality of students (46.9%) assigning a rating of 3, though a small percentage (2%) deemed it minimally useful, rating it as low as 1.

Both undergraduate (92.86%) and postgraduate (84.21%) students generally find CAT tools useful. Similarly, 85.71% of undergraduate students and 80.70% of postgraduate students consider MT to be useful.

However, Chat GPT is viewed as useful by fewer students overall, i.e. 42.86% of undergraduates and 49.12% postgraduates.

The questionnaire data reflects attitudes towards the potential replacement of translators by Chat GPT technology and MT. Among the 49 respondents, the majority (49%) expressed uncertainty (“Maybe”), while 51% expressed certainty about not being replaced (“No”).

The majority of respondents (71.4%) expressed a neutral attitude towards AI in Translation, while a minority (22.4%) reported a positive attitude. Furthermore, a small percentage (6.1%) indicated a negative stance.

Regarding the future impact of technology on translation, both undergraduate and postgraduate students exhibit uncertainty about whether Chat GPT and MT will replace translators. The undergraduates are mostly uncertain (64.29%), while some believe it's a possibility (35.71%). Similarly, postgraduate students also have mixed opinions, with a larger percentage being uncertain (82.46%) and fewer considering it a possibility (17.54%).

#### 4 Correlation of User Experience with Use of Bureau Works Features

**User experience in Bureau Works.** When evaluating the Bureau Works Translator's Editor Interface, respondents' satisfaction levels varied, with a majority (53.1%) expressing a favorable sentiment, rating it with 4 out of 5; no respondents gave it 1.

Analysis of general satisfaction with the tool, considering respondents’ education and experience in Translation, PE, CAT tools, and AI Generative Language Engine Interface, shows no significant differences. Responses clustered between 5 and 4, indicating a consistent satisfaction level across demographics.

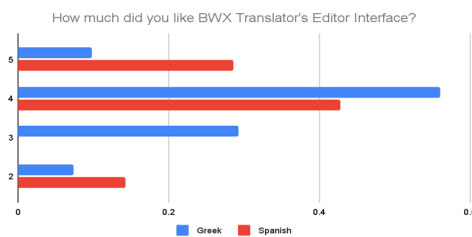
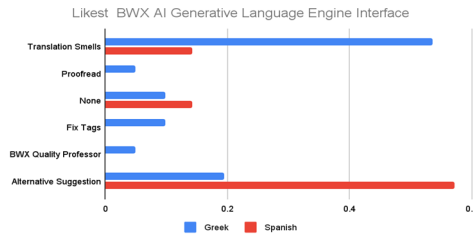


Fig. 1. Analysis of general satisfaction with Bureau Works.

Regarding preferred features within the Bureau Works AI Generative Language Engine Interface, diverse inclinations were observed among participants. “Translation Smells” emerged as the most favored option, with 50% of respondents indicating a preference.

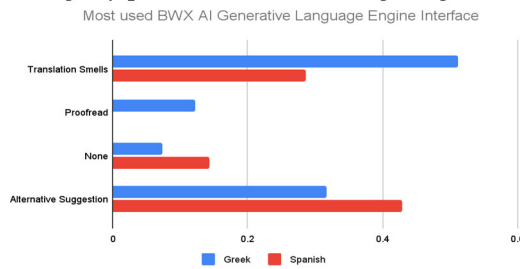


Other features like “Alternative Suggestion” (26.1%) and “Fix Tags” (8.7%) also garnered considerable interest.



**Fig. 2.** Preferred features within the Bureau Works AI Generative Language Engine Interface.

During PE assignments, “Translation Smells” was the most utilized feature (46.9%), followed by “Alternative Suggestion” (32.7%), and “Proofread” (12.2%). A minority (8.2%) reported not using any provided features during assignments.



**Fig. 3.** Utilization of features by Greek and Spanish students.

Spanish students' utilization of features like “Translation Smells” and “Alternative Suggestions” can be attributed to contextual factors, including the acceptable quality of AI-generated Spanish translations. They likely focused on refining style and tone, leveraging these features for diagnostics and creative inspiration.

In contrast, Greek students primarily utilized Bureau Works features for error identification and correction due to poorer AI translation quality into Greek. Both undergraduate and postgraduate Greek students favored “Translation Smells” over “Alternative Suggestions”, indicating a preference for independent problem-solving.

These findings highlight how AI can enhance human productivity and creativity in translation, with usage differences influenced by language pairs and user profiles. The collaborative nature of the Bureau Works framework likely encouraged experimentation with translation strategies and approaches.

The equal utilization of Translation Smells and Alternative Suggestions by Spanish students can be attributed to several factors inherent in their task context. Firstly, as the quality of the Spanish raw output provided by the AI system was quite acceptable, students likely found themselves focusing more on refining the awkward style and tone of the text. Secondly, Spanish students may have leveraged Translation Smells as a diagnostic tool to identify areas where the AI-generated translation deviated from the desired stylistic register or failed to capture the intended tone. Then, the availability of

Alternative Suggestions may have provided Spanish students with valuable creative inspiration and linguistic alternatives to enhance the overall quality of the translation. By exploring alternative phrasings, word choices, and syntactic structures, students could fine-tune the text to better align with their stylistic preferences and the creative requirements of the task.

Greek students, however, chose to use the Bureau Works's features in a different way. Given that Greek is a low-resource language compared to Spanish, AI translation into Greek was of a poorer quality. Thus, students didn't focus on style but rather post-edited erroneous raw outputs of ST critical points, most of which were classified as incorrect translations and to a lesser extent as fluency errors. Both undergraduate and postgraduate students showed a preference over the Translation Smells feature compared to the Alternative Suggestions one. The students' choices show that they feel independent and prefer to find a plausible solution on their own rather than having the tool provide them with it. They used the tool mainly to spot errors faster and then go for their own solutions.

The findings suggest that AI can enhance human productivity and creativity in the tourism and leisure domain with differences in use related to language pairs as well as to the users' profile. Furthermore, the collaborative nature of the Bureau Works framework, which encourages the partnership between translators and AI, likely fostered a dynamic environment where students felt empowered to experiment with different translation strategies and approaches.

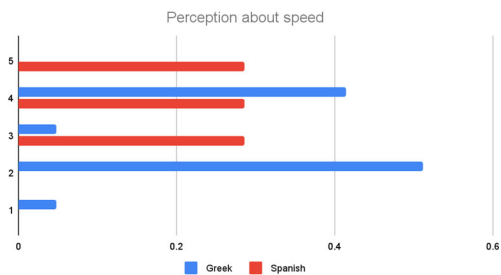
**Efficacy of MT combined with Bureau Works AI capabilities and training.** Respondents' perceptions shed light on the effectiveness of MT combined with Bureau Works AI capabilities in enhancing speed and translation quality, as well as the impact of training on understanding basic PE techniques.

In terms of speed gains, a majority of respondents (51%) rated their perceived improvement as a 5, indicating significant assistance in expediting translation tasks, with 38.8% rating it as a 4, further supporting its positive impact. Conversely, only a small percentage rated the enhancement as lower than 4.

Regarding the effect of Bureau Works AI on translation quality, respondents generally perceived a positive impact, with 53.1% rating it as a 3, indicating moderate enhancement, and 22.4% as a 4, signifying significant improvement. However, a smaller proportion rated the improvement lower.

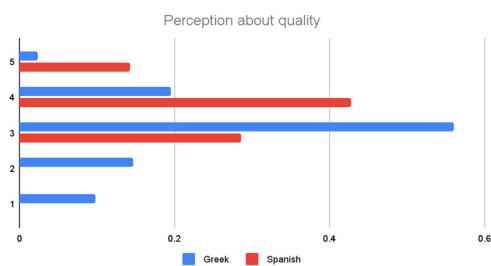
Training in understanding basic PE techniques was generally well-received, with 42.9% rating it as a 5 and 24.5% as a 4, indicating a high level of efficacy. No respondents rated the training below a 3, suggesting positive perceptions overall. Concerning improvements attributed to training, a notable proportion (44.9%) rated the enhancement as a 4, with 34.7% rating it as a 3, indicating moderate improvement.

Both undergraduates and postgraduates favored the Alternative Suggestion feature, while Translation Smells was the most used feature.



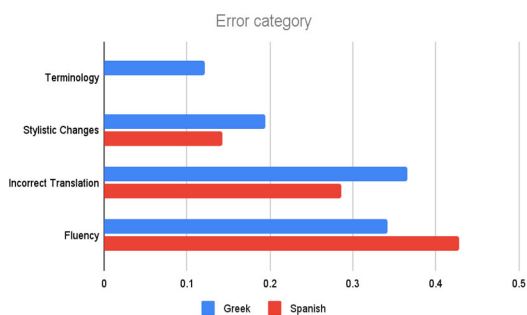
**Fig. 4.** Perception of speed.

Perceptions of speed showed no significant differences based on country of origin, education, or experience, generally leaning towards neutral or positive. However, Greek students were more critical, with some expressing little or no benefit compared to Spanish students who found some benefit.



**Fig. 5.** Perception of quality.

Divergence in perceptions between Greek and Spanish students may stem from academic background and language pair influence. Students with a technology background may be more inclined to embrace such platforms, while language pairs may affect quality perception.



**Fig. 6.** Error identification.

Examining error identification, Greek students predominantly identified incorrect translations, suggesting less proficient output, while Spanish students noted fluency errors, indicating differing perceptions of quality. Greek undergraduates failed to differentiate between fluency and style errors, unlike postgraduates.

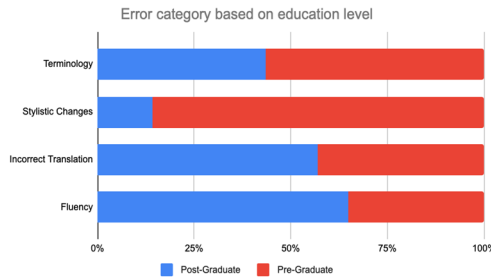


Fig. 7. Education level-based error identification.

Overall, educational backgrounds among Greek students showed differences, with postgraduates more likely to classify incorrect translations as fluency errors compared to undergraduates who categorized them as style errors.

**Bureau Works platform satisfaction.** Respondents' satisfaction with the Bureau Works platform and their future engagement with translation or PE tasks reveal insights into user perceptions. A majority (57.1%) expressed willingness to engage again, indicating potential satisfaction, while 38.8% expressed hesitation, suggesting varying levels of satisfaction or willingness to reconsider engagement.

As to whether they would use the Bureau Works tool again, Spanish students showed more confidence in affirmative responses compared to Greek students, potentially influenced by differences in raw output quality between the languages.

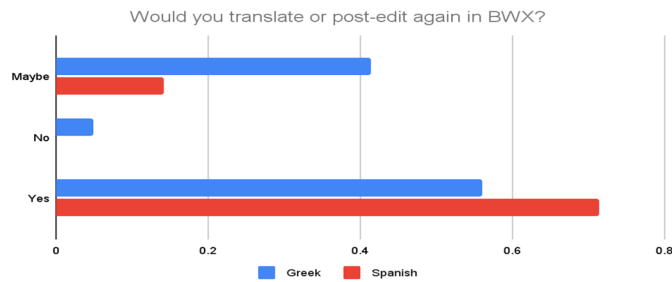


Fig. 8. Platform satisfaction.

Ultimately, we asked the students to summarize their viewpoints regarding the efficacy and utility of the tool. Subsequently, we conducted sentiment analysis to categorize and delineate the array of sentiments expressed by the students, encompassing positive, neutral, and negative evaluations.

- Positive Sentiments: Positive sentiments highlighted the tool's usefulness, efficiency, and innovative features like Translation Smells and Alternative Suggestion, emphasizing its time-saving benefits.
- Negative Sentiments: Negative sentiments noted room for improvement, particularly in fluency, grammar, and terminology translation, with concerns about AI technology replacing human translators.
- Neutral Sentiments: Neutral sentiments expressed reservation due to limited usage or initial challenges, acknowledging the tool's potential but withholding judgment pending further use.

This is the keyword list for each sentiment:

- Positive Sentiments Word Cloud: Useful, Helpful, Time-saving, Translation smells, Alternative suggestions, Efficiency, Innovative
- Negative Sentiments Word Cloud: Mixed feelings, Room for improvement, Fluency, Grammar, Terminology translation, AI technology being scary, Replacing human translators
- Neutral Sentiments Word Cloud: Did not use enough, Challenging, Acknowledged potential

In summary, it is clear that the initial translation output quality impacts on user perception. This finding underscores that regardless of expertise, initial translation output quality significantly influences satisfaction and efficiency in translation workflows, highlighting the importance of language quality in shaping user experiences and attitudes towards translation tools.

## Conclusion

The results of this research show a critical moment in the development of translation studies, especially in the fields of MT and PE. Students and professionals need new skills as they follow technology developments. The current methods of training must therefore embrace the integration of LLMs and linguistic data inside CAT tools.

This adaptation stems from the necessity for learners to develop new skills. They must learn not only to work alongside AI tools, but also to critically evaluate their output, understand their limitations, and refine their contributions accordingly. This transformation in the MTPE task also requires a shift in their mindset and approach because they will need more than ever to cultivate their ability to challenge, assess and validate the quality of the responses of LLMs [20]. This synergy between human intelligence and AI-driven automation holds promising implications for the future of translation, fostering a symbiotic relationship that maximizes efficiency, accuracy, and creativity in multilingual communication.

Students who took part in the study reported a notably enhanced learning experience through the use of the Bureau Works tool, which integrates CAT tools with MT and GenAI. This integration allowed them to work more efficiently by leveraging AI to handle routine translation tasks, thus enabling them to focus on more complex aspects of language and creativity in translation.

It emerges that participants exhibit varied levels of engagement and satisfaction with the Bureau Works tool. In addition, significant differences are revealed in how they utilize AI features based on their linguistic backgrounds, academic levels, target language and MT output. Spanish students were generally more satisfied with the AI outputs due to the good quality of raw output focusing on refining translation style and tone. In contrast, Greek students faced challenges with the initial quality of AI translations, focusing more on error correction. Thus, the need for specialized training in translation teaching is accentuated when dealing with less resourced languages.

Despite some challenges, there was a general consensus among students that AI integration within CAT tools represents a positive evolution in the field. Students appreciated how AI could enhance their productivity and allow for a deeper engagement with the creative elements of translation work.

Moreover, the exploration of GenAI in creative text domains for high and low-resource languages offers promising avenues for future research and practice. While previous studies, such as those by Toral and Guerberof [5], have noted that post-editing MT outputs can sometimes restrict translators' creativity, leading to less expressive translations, our experiment observed a more positive stance. Students expressed favorable views towards AI-driven translation tools, recognizing them as beneficial aids that streamline the translation process and increase productivity, especially in challenging language scenarios. This positive feedback underscores the potential of AI tools to not only complement human translation efforts but also to enhance creativity and productivity during the translation process.

It emerges from the findings and the discussion that translation education must adapt in order to meet the needs of an increasingly AI-driven industry. Students need to be taught how to work with LLMs and how to be adaptable, critical and innovative.

**Acknowledgements.** The authors wish to thank Bureau Works for offering Bureau Works for free for their educational institutions in the context of their Partnership Program. The authors would also like to thank all students from the IU, AUTH and UAB who participated in the experiment.

## References

1. Blagodarna, O.: Insights into posteditors' profiles and post-editing practices. In: Tradumàtica: tecnologies de la traducció 35.10.5565/rev/tradumatica.198 (2018)
2. Bubeck, S., V. Chandrasekaran, R. Eldan, J. Gehrke, E. Horvitz, E. Kamar, P. Lee, et al.: Sparks of artificial general intelligence: Early experiments with GPT-4. arXiv:2303.12712 (2023)
3. Castilho, S., Moorkens, J., Gaspari, F., Sennrich, R., Way, A., & Georgakopoulou, P.: Evaluating MT for massive open online courses. *Machine Translation*, 32(3), 255–278. <https://doi.org/10.1007/s10590-018-9221-y> (2018)
4. Chu, C., Wang, R.: A survey of domain adaptation for neural machine translation. arXiv preprint arXiv:1806.00258 (2018)
5. Guerberof Arenas, A., Toral, A.: Creativity in Translation: Machine Translation as a Constraint for Literary Texts. In *Translation Spaces*. (2022)

6. Hendy, A., Abdelrehim, M., Sharaf, A., Raunak, V., Gabr, M., Matsushita, H., Kim, Y. J., Afify, M., & Awadalla, H. H.: How good are GPT models at machine translation? A comprehensive evaluation. <http://arxiv.org/abs/2302.09210> (2023).
7. Hu, L.: Generative AI and Future. (2023) <https://pub.towardsai.net/generative-ai-and-future-c3b1695876f2>
8. Hurtado Albir, Amparo, Anabel Galán-Mañas, Anna Kuznik, Christian Olalla-Soler, Patricia Rodríguez-Inés, and Lupe Romero. Translation competence acquisition. Design and results of the pacte group's experimental research. (2020) In: *The Interpreter and Translator Trainer* 14 (2): 95-233. <https://doi.org/10.1080/1750399X.2020.1732601>
9. Kenny, D. (ed.): *Machine translation for everyone: Empowering users in the age of artificial intelligence*, ISSN: 2364-8899, 224 pages (2022)
10. Koehn, P., Knowles, R.: Six challenges for neural machine translation. In *First Workshop on Neural Machine Translation*: 28-39. Association for Computational Linguistics (2017)
11. Mohamed, Y., Kannan, A., Bashir, M., Mohamed, A., Adiel, M., Elsadig, M.: The Impact of Artificial Intelligence on Language Translation: A Review. *IEEE Access*. 12. 25553-25579. [10.1109/ACCESS.2024.3366802](https://doi.org/10.1109/ACCESS.2024.3366802) (2024)
12. Nunes Vieira, L.: Automation anxiety and translators. In: *Translation Studies* (2018), 0(0), 1–21. <https://doi.org/10.1080/14781700.2018.1543613>
13. O'Brien, Sharon.: Translation as human-computer interaction. In: *Translation Spaces* (2012) 1: 101-122. <https://doi.org/10.1075/ts.1.05obr>
14. Sahari, Y., Al-Kadi, A., Ali, J.: A Cross Sectional Study of ChatGPT in Translation: Magnitude of Use, Attitudes and Uncertainties. In: *Journal of Psycholinguistic Research* (2023) 52:2937–2954, Springer (2023)
15. Sakamoto, A.: Why do many translators resist post-editing? A sociological analysis using Bourdieu's concepts. *The Journal of Specialised Translation*, 31, 201–216 (2019).
16. Sánchez-Gijón, P., Moorkens, J., & Way, A.: Post-editing neural machine translation versus translation memory segments. *Machine Translation*, 33, 31-59. <https://doi.org/10.1007/s10590-019-09232-x> (2019)
17. Siu, S. C.: *Revolutionizing Translation with AI: Unravelling Neural Machine Translation and Generative Pre-trained Large Language Models* (2023a)
18. Siu, S. C.: ChatGPT and GPT-4 for professional translators: Exploring the potential of large language models in translation. <http://dx.doi.org/10.2139/ssrn.4448091> (2023b)
19. Sosoni, V., Stasimioti, M.: Undergraduate Translation Students' Performance and Attitude vis-à-vis Machine Translation and Postediting: Does Training Play a Role?. In: *Proceedings of the Translating and The Computer* 41, , p. 125-136, November 2019 (2019)
20. Wang, L., Lyu, C., Ji, T., Zhang, Z., Yu, D., Shi, S., & Tu, Z.: Document-level machine translation with large language models. *ArXiv*, abs/2304.02210 (2023) Retrieved from <https://api.semanticscholar.org/CorpusID:257952312>
21. Wu, Z., Ji, D., Yu, K., Zeng, X., Wu, D., Shidujaman, M.: *AI Creativity and the Human-AI Co-creation Model* (2021)