Hudáková, Zuzana. 2024. Comparing the Efficiency of Source Text Pre-editing vs. Machine Translation Post-editing. In: L10N Journal 2(3), pp. 42–59.

Comparing the Efficiency of Source Text Pre-editing vs. Machine Translation Post-editing

Zuzana Hudáková

Comenius University in Bratislava

zuzana.hudakova@uniba.sk

The publication of this article was financially supported by the Scientific Grant APVV-23-0539: Future-Proofing Translators and Interpreters: Establishing a Knowledge Platform for Language Professionals in Slovakia.

Abstract

As machine translation (MT) becomes increasingly embedded in professional workflows, researchers explore ways to improve quality and efficiency. Although neural MT systems like DeepL and Google Translate improve fluency, they still require human intervention. Two key strategies are pre-editing (PrE), which modifies the source text before MT to reduce errors, and post-editing (PoE), which refines MT output to meet quality standards.

This study compares PrE and PoE in MT workflows through a controlled experiment involving 20 translation students. One group used PoE alone, while the other combined PrE and PoE. Translation quality was assessed using the TAUS Dynamic Quality Framework, with time efficiency also analyzed.

Findings show PoE alone accelerates the process but increases error rates, particularly in accuracy and fluency. PrE enhances translation quality by reducing errors and cognitive load during PoE, though it requires more time upfront. The combination of PrE and PoE produced the highest-quality translations, suggesting that integrating PrE improves accuracy and consistency. These results highlight the importance of combining human expertise with MT to improve workflows, balancing speed and quality in professional translation.

Keywords: machine translation, pre-editing, post-editing, translation quality, efficiency in translation workflows

Hudáková, Zuzana. 2024. Comparing the Efficiency of Source Text Pre-editing vs. Machine Translation Post-editing. In: L10N Journal 2(3), pp. 42–59.

1 Introduction

As the translation industry grapples with growing demands for rapid and cost-effective solutions, MT has become an essential technology. Recent advancements in neural MT systems like DeepL and Google Translate have improved the fluency and efficiency of machine-generated translations. However, these systems are still not reliable enough to produce error-free results, making human intervention indispensable. In this context, two key strategies come into play: pre-editing (PrE) and post-editing (PoE).

PrE involves modifying the source text prior to MT to improve clarity, consistency, and compatibility with machine processing, thus reducing output errors. Conversely, PoE takes place after MT, where human translators refine the machine-generated text to meet quality standards. Each strategy has a distinct impact on the efficiency of the translation process and quality of the translation.

This study assesses the effectiveness of PrE and PoE in MT workflows, with a specific focus on determining which approach, or their combination, leads to higher-quality translations while optimizing speed. PrE has the potential to reduce the cognitive load in the PoE phase by producing clearer, more machine-compatible texts, but requires considerable investment of time in advance. On the other hand, PoE alone can speed up the translation process, but it often leads to more extensive revisions. Understanding these compromises is essential for balancing speed, accuracy, and fluency in professional translation.

This research holds particular relevance in light of the increasing reliance on MT tools within the translation industry, which aims to address escalating demands for efficiency without sacrificing quality. Translators often face the challenge of managing a large volume of content within tight deadlines while maintaining high-quality standards. Consequently, it is critical to identify the most effective applications of PrE and PoE to enhance translation workflows. Furthermore, as MT systems continue to advance, the role of human expertise in the oversight and enhancement of machine-generated translations remains a vital area for further investigation.

To examine these issues, this study uses a controlled experimental design involving 20 translation students divided into two groups: one group focuses exclusively on PoE and the other group utilizes both PrE and PoE. Participants' performance, in terms of translation accuracy and time efficiency, will be analyzed to assess the impact of each method.

2 Pre-editing and post-editing in translation

PrE is a strategic practice combining human expertise with machine efficiency to adapt source text for easier MT. The aim is to eliminate challenges for MT systems such as odd phrases, idioms, and typographical errors (Kokanova et al. 2022; Vieira 2019). PrE

involves editing the text based on certain guidelines, such as shorter sentences, simplified grammatical structures, and consistent terminology, which reduces the cognitive load of MT and results in clearer and more accurate translations (Arenas 2020). Optimizing the source text helps prevent errors and misinterpretations, as MT systems still struggle with semantic subtleties (Yang 2023).

PrE is a proactive approach to translation, as it optimizes the source text to improve MT output. While PrE does not rely on technological progress in principle, its role has become more relevant as MT systems benefit from clearer and more structured input. This is a step towards optimizing translation processes and creating source texts that are more suited to MT systems, thus reducing the need for extensive PoE. Studies show that PrE has significant impact on MT quality (Bounaas 2023; Mercader-Alarcón & Sánchez-Martínez 2016), with improvements like lower word error rates and fewer necessary corrections. However, PrE alone cannot prevent all errors without risking grammatical issues in the source text (Mercader-Alarcón & Sánchez-Martínez 2016).

On the other hand, PoE involves correcting MT output to meet certain language and style standards (Arenas 2020). Human translators refine machine-generated text, not only correcting errors but also ensuring that the content aligns with the audience's preferences and contextual needs. This collaborative process, known as the human-in-the-loop (HITL) approach, integrates human expertise into MT-driven translation workflows to improve quality and adaptability. In HITL frameworks, human feedback is essential to train and fine-tune MT models, so that they can adapt to specific linguistic nuances and cultural contexts. This symbiotic relationship leverages the efficiency of AI while retaining the accuracy and cultural relevance that only human translators can provide. By strategically allocating resources and scaling human involvement, organizations can ensure that MT systems improve over time, delivering translations of high-quality standards (Yang et al. 2023). The efficiency of PoE depends on factors such as the quality of the MT system, the complexity of the source text, and the expertise of the post-editor (Yang, 2023).

PoE is a dynamic and cognitively demanding process, particularly for texts with many stylistic elements, which sometimes requires more effort than MT-free translation (O'Brien 2022). Depending on the project objectives, organizations can choose between a light PoE that fixes only significant errors, and full PoE that ensures publication-ready quality (Daems et al. 2017). Full PoE involves addressing all linguistic issues, including cultural appropriateness (Vieira 2019).

PrE and PoE can be studied through the Skopos and functionalist theories, as they involve strategic interventions for translation optimization. However, MT limits the translator's role, reducing functional adaptation compared to traditional workflows. Their integration reflects a shift in translation practices to accommodate MT, however, the impact of PrE and PoE remains debated. Some argue that MT and PoE restrict

functional adaptation by limiting broader structural or stylistic changes, while others view them as necessary adjustments to industry demands. This debate aligns with Toury's (1995) concept of evolving norms, though further research is needed to assess their long-term impact.

Integrating PrE and PoE into translation workflows addresses both machine and human limitations, thus highlighting the collaborative nature of translation by combining human expertise with machine capabilities to produce translations that are accurate and functional.

3 Methodology

In this study, a comparative design was used to evaluate the efficiency and quality of two translation approaches: PrE followed by MT and PoE, compared to MT and PoE only. A review of previous studies highlights the increasing role of MT in translation workflows and its impact on human intervention. Calvo-Ferrer (2023) conducted a study on the ability of viewers to distinguish between machine-generated and human-translated subtitles, focusing on the implications of MT quality and audience perception. The study, which involved 119 translation students assessing ChatGPT-generated subtitles versus human translations, found that participants were generally unable to distinguish between the two, though lower-quality subtitles were more frequently attributed to non-human translation. These findings suggest that while MT has improved in fluency and readability, it still presents challenges in accuracy, particularly with complex linguistic features such as humor, cultural references, and idiomatic expressions. The study also indicates that translation expertise plays a role in identifying MT-generated content, as advanced students were more successful in distinguishing between human and machine outputs. These insights align with the current study's focus on the interplay between MT, human intervention through PrE and PoE, and the role of translation training in optimizing workflow efficiency and quality.

20 participants were recruited from university-level translation and interpreting programs in Slovakia, specifically from the Comenius University in Bratislava and the Matej Bel University in Banská Bystrica. Participants ranged from second to fifth year of study, with second-year students enrolled in bachelor's programs and the remaining participants pursuing their master's degrees. These participants were randomly assigned to two groups of ten to ensure representation from various stages of academic training. Participants were asked about their previous experience with PrE, PoE, and MT tools to assess how familiarity with these processes might impact translation quality and efficiency. The survey also collected information about whether they attended MT and PoE courses, which provided further insight into the impact of formal training on translation effectiveness.

The translation task involved translating a 370-word excerpt from a washing machine instruction manual, selected due to its technical complexity and linguistic challenges. The source text was in English, and participants translated it into Slovak. The text contained detailed instructions, safety warnings, and technical descriptions that are representative of the precision required in technical translations. The selection of a user manual was deliberate, as such documents require accuracy to ensure safety and clarity for end users. The text presented several challenges to both human translators and MT systems. It contained subordinate clauses, ambiguous wording, and misspelling errors, such as "The sensor automatically detects the quantity of a Detergent put by a user and the temperature and the quality of water to make the best washing algorithm for washing and rinsing." These problems are typical of the technical documentation and should reveal differences in translation quality between the two groups. Ambiguous terms such as "nails" and "downs" posed additional challenges and required careful handling in both PrE and PoE phases.

The translation results of both groups were assessed using the TAUS Dynamic Quality Framework (DQF), an established error typology that categorizes translation errors according to terminology, grammar, fluency, and style (TAUS 2017). This framework, which has been harmonized with the Multidimensional Quality Metrics (MQM) to form the DQF-MQM standard, enabled a comprehensive assessment of the quality of the translations produced by both workflows.

Two workflows were defined for the study: Group 1 (G1) was instructed to translate the source text using the NMT tool DeepL, followed by PoE to refine the translation output for accuracy, fluency, and coherence. Group 2 (G2) was asked to pre-edit the source text before MT. The PrE guidelines were designed to improve the clarity of the source text before it was processed by the MT system (Annex 1). Participants were instructed to shorten sentences, correct punctuation and spelling errors, and standardize terminology to improve translation consistency. After PrE, G2 used DeepL for translation and then post-edited the MT output.

DeepL was selected based on the findings of Petráš and Munková (2023), which highlighted its superior performance in English to Slovak translation compared to other tools such as ChatGPT. While ChatGPT is a large language model rather than a dedicated NMT tool, its translation capabilities are increasingly being integrated into professional workflows, making comparisons with specialized NMT tools relevant for evaluating practical translation quality. Additional support came from Agung et al. (2024), who demonstrated the effectiveness of DeepL in translating synthetic languages – such as Slovak and Indonesian – surpassing Google Translate in both accuracy and fluency.

To examine the relationship between translation quality and efficiency, the time taken by each participant for each phase (PrE, MT, and PoE) was recorded and correlated with

the error data. Analyzing the results with a focus on whether participants took a Machine Translation course provides a nuanced view of the impact of structured training on translation efficiency. While participant experience (year of study) was considered in assessing translation quality, its impact on task completion time was not explicitly measured. However, given that more experienced students might require less time, this remains an important variable for further investigation.

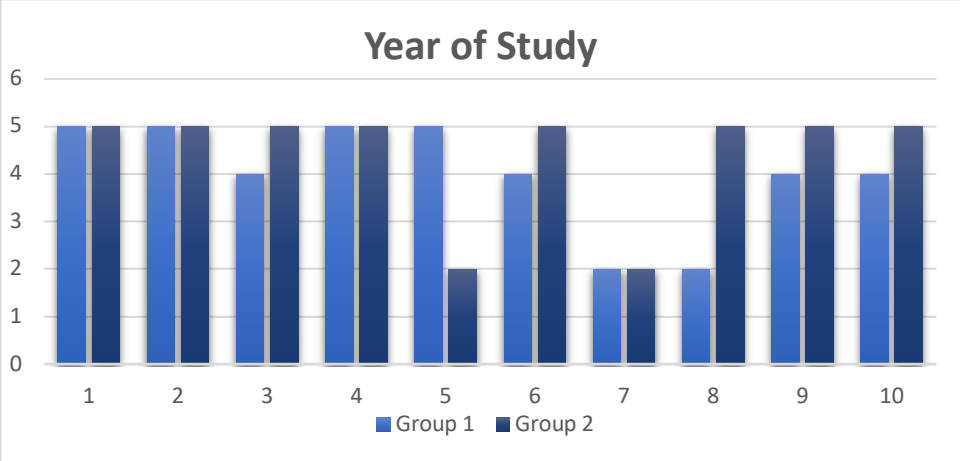
Descriptive statistics and correlation analysis were used to examine whether PrE had a measurable impact on reducing errors and improving translation speed. This approach also allowed for an examination into whether participants with prior education and practical experience in using MT systems performed better in either workflow.

This study acknowledges several limitations. The sample size of 20 participants limits the generalizability of the results, and the focus on a technical text may not reflect the broader challenges faced by other translation areas such as literary or legal translation. Additionally, differences in participants' experience with MT tools and their familiarity with PrE and PoE processes may have influenced the outcomes. Future research could expand the participant pool and diversify the text types to provide more informed conclusions about the applicability of PrE and PoE in different translation contexts.

4 Results

The analysis of G1 and G2 shows clear differences in efficiency and translation quality, which are influenced by both the academic training of the participants and the workflows used. G1, which focused solely on PoE, included a majority of participants in their 4th and 5th years of study, with 80% of participants being in these advanced stages. G2, with 80% of participants in their 5th year, had a slightly more experienced cohort overall. While this suggests that G2 may have had greater familiarity with PrE practices and translation technologies, no specific control was applied to ensure an equal distribution of experience across both groups. Therefore, although the workflow itself may have played a role in the observed differences, the impact of academic experience should be considered as a potential influencing factor (Fig. 1).

Figure 1. ***Participants: Year of Study***



In terms of time efficiency, G1 completed PoE tasks in an average of 28 minutes and 52 seconds (Fig. 2), However, this speed came at the expense of quality, as the average TAUS score was 13.9, reflecting higher error rate, particularly in categories such as accuracy and fluency. G2, which performed both PrE and PoE, took significantly longer – an average of 51 minutes and 19 (Fig. 3) – but their quality metrics were significantly better, with a TAUS score of 6.8, indicating higher quality with fewer errors.

Figure 2. ***G1: Time Spent PoE***

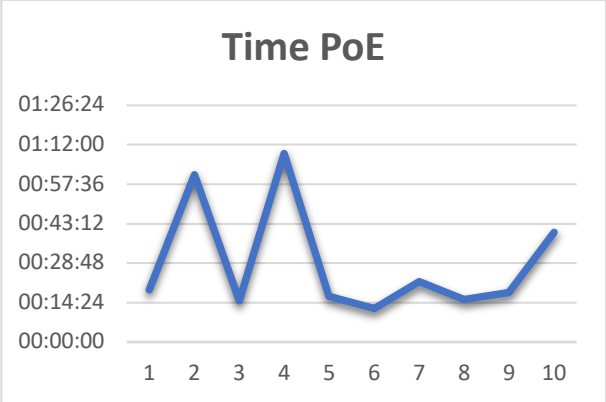
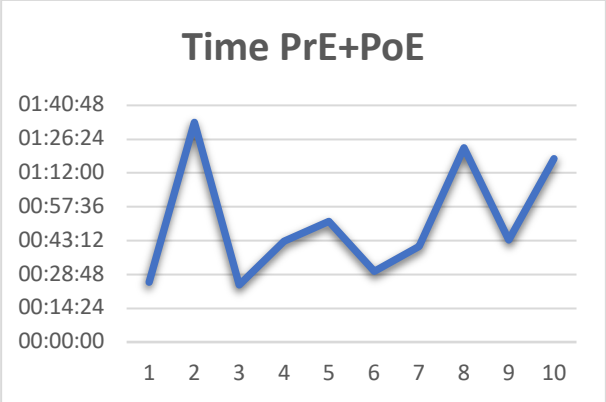
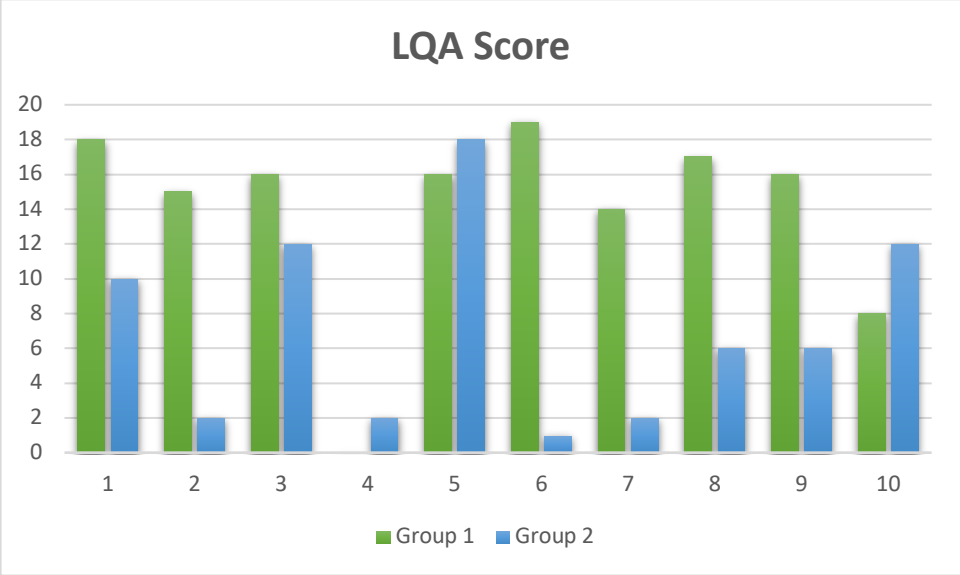


Figure 3. ***G2: Time Spent Total***



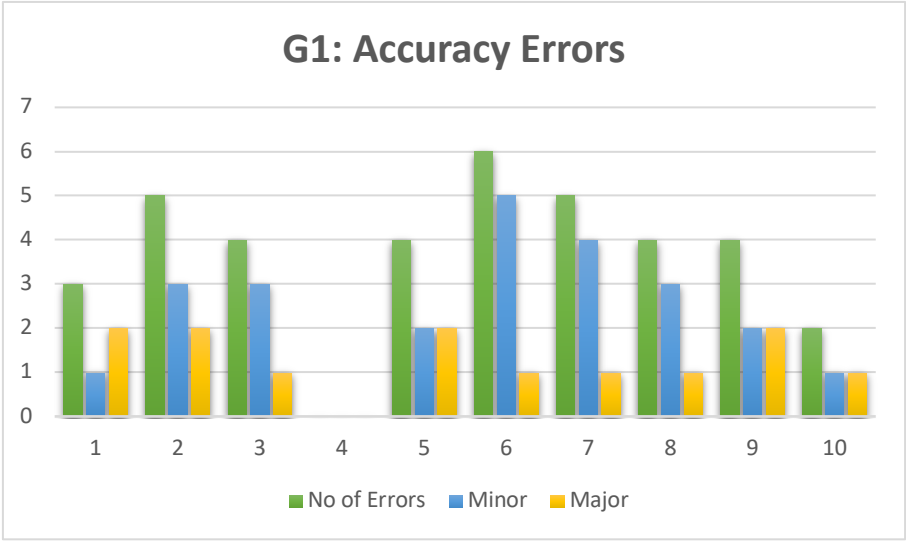
The results show that PrE can help reduce errors by addressing problems before MT, thereby improving the overall accuracy and coherence of the final output. While G1 completed their task faster, the higher frequency of major errors in accuracy, fluency, and terminology emphasizes the limitations of relying solely on PoE. In contrast, G2's PrE step appeared to reduce cognitive load during PoE, resulting in improved quality (Fig. 4).

Figure 4. ***LQA Scores***



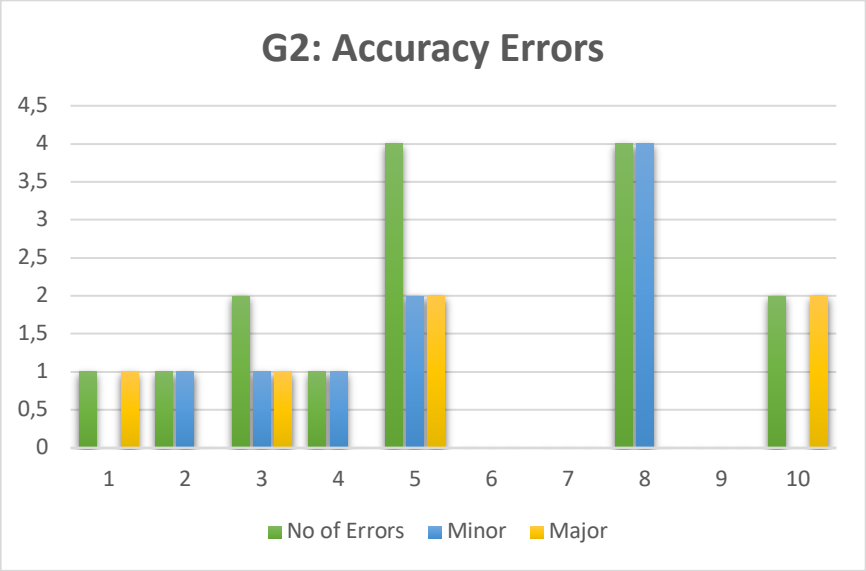
Accuracy was a crucial factor in the evaluation, with errors categorized by TAUS into subcategories such as Addition, Omission, Mistranslation, Over-translation, and Untranslated segments. G1's results showed a correlation between PoE experience and accuracy. Participants with extensive PoE training, such as Participant 4, recorded zero accuracy errors, suggesting that prior experience can help mitigate the risks associated with MT outputs. While this may be linked to specific PoE training, it could also reflect general translation experience, individual diligence and quality-consciousness, as more advanced translators tend to develop stronger revision and error-detection skills. However, participants without such training, like Participant 7, recorded five errors, emphasizing the challenges of dealing with machine-translated text without prior experience (Fig. 5).

Figure 5. ***G1: Accuracy Errors***



G2, which incorporated PrE, demonstrated superior accuracy performance overall. Participants with experience with both PrE and PoE, like Participant 6, achieved flawless results with zero accuracy errors. The structured approach to PrE enabled better control of translation quality and highlighted the importance of addressing potential issues in the source text before MT. Those with less experience in either PrE or PoE, such as Participants 5 and 8, recorded higher error rates, underscoring the role of comprehensive training in optimizing accuracy (Fig. 6).

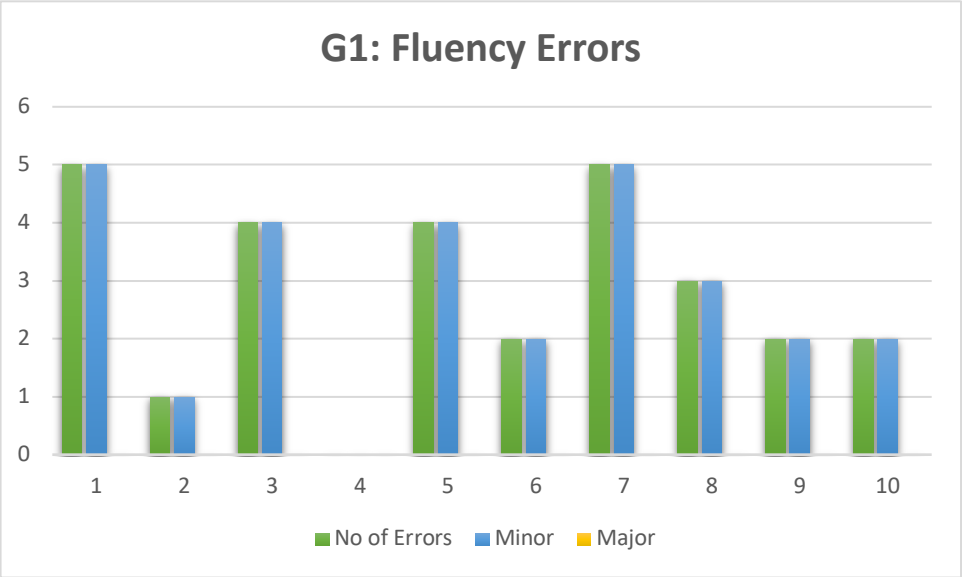
Figure 6. ***G2: Accuracy Errors***



A comparison of accuracy results between groups shows that PrE offers a clear advantage, particularly in reducing major accuracy-related errors.

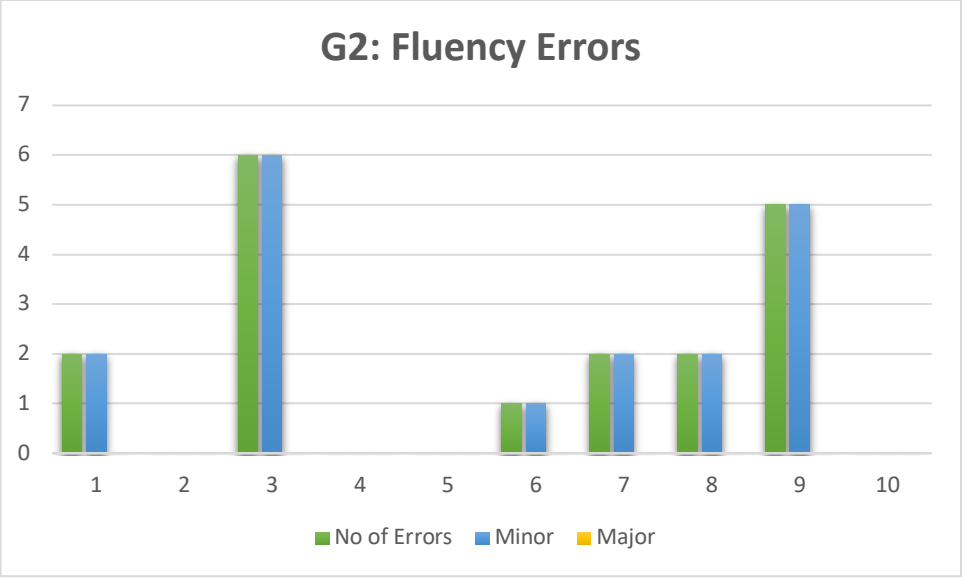
Another key dimension was fluency, which was assessed using subcategories such as Grammar, Punctuation, and Spelling. The performance of G1 in fluency varied greatly. Participants with PoE experience, such as Participant 4, produced translations with no fluency errors, though this may also reflect general translation experience rather than PoE training alone. However, those without such experience, like Participant 7, recorded a higher fluency error count, particularly in grammatical structure and punctuation (Fig. 7).

Figure 7. ***G1: Fluency Errors***



Including PrE in G2 resolved some fluency issues before they became problematic for MT, however, the data shows that fluency in translation is influenced by a combination of factors. Here, participants without previous PoE experience (5, 7, 8) recorded fewer fluency errors than their more experienced counterparts. (Fig. 8). The different results among participants with similar backgrounds suggest that individual skills, the specific nature of the translation tasks, and possibly the type of text may also play a crucial role.

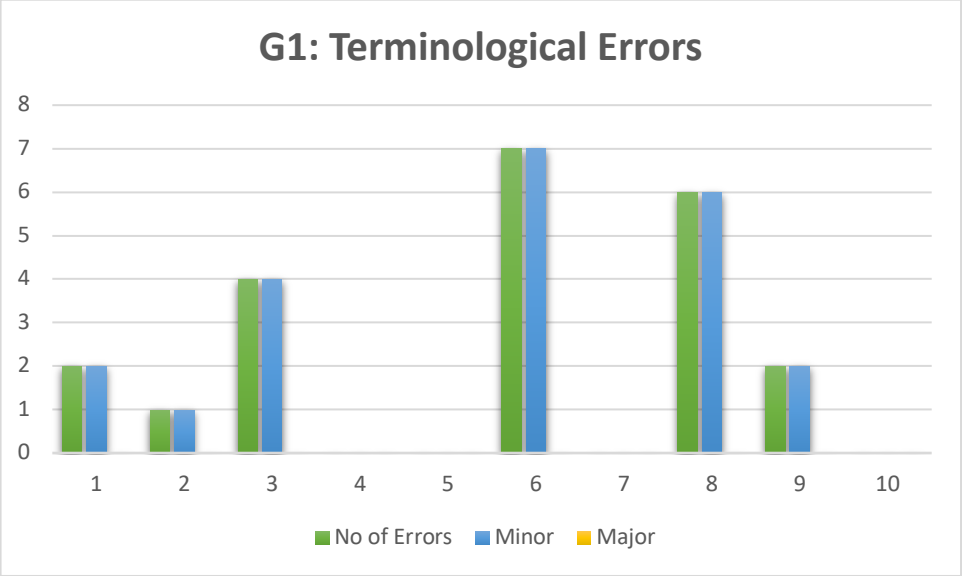
Figure 8. ***G2: Fluency Errors***



The use of specialized terminology was a central focus, particularly given the technical nature of the source text. G1's results showed that participants with PoE experience generally performed better in maintaining terminological consistency. For example,

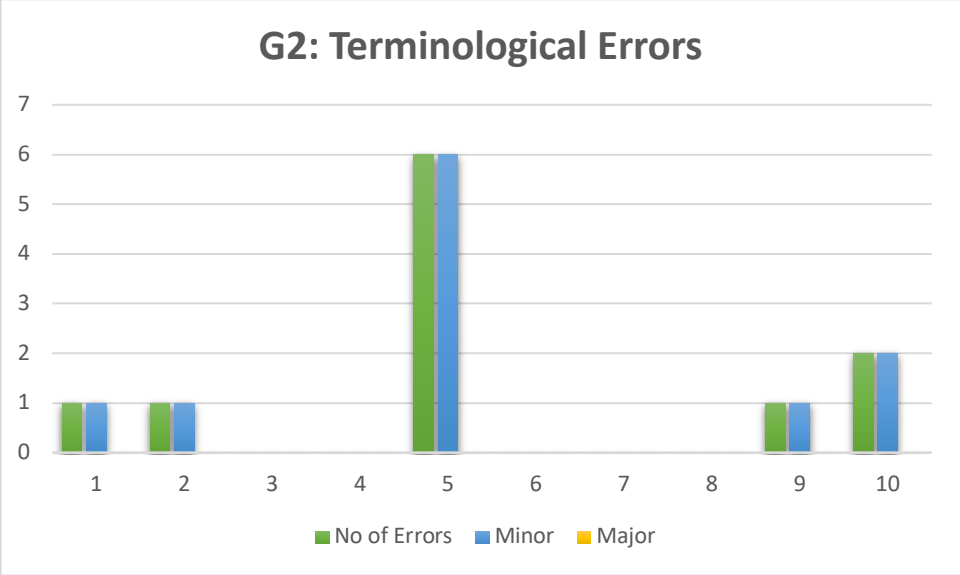
Participant 4, who had extensive PoE experience, recorded no terminological errors, while participants with less experience, such as Participant 6, experienced more issues adhering to the provided glossary (Fig. 9).

Figure 9. ***G1: Terminological Errors***



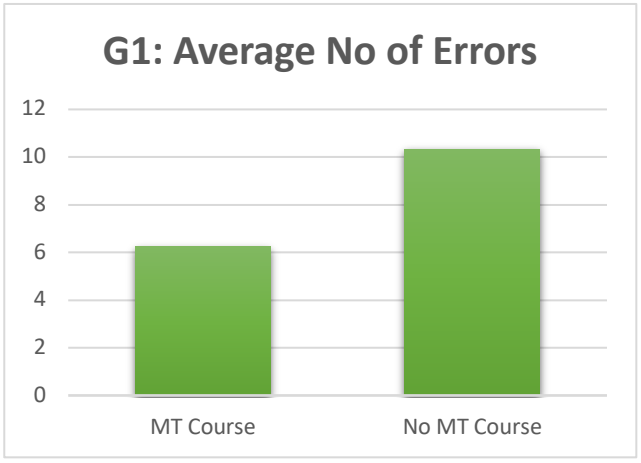
In G2, PrE allowed participants to standardize key terms before translation, resulting in fewer terminology errors during the PoE phase. Participants 3, 4, 6, 7 and 8 recorded an error-free performance, which could illustrate the advantages of addressing terminological consistency through PrE, taking into account the methodological limitations of this research. This step not only simplified the PoE process but also ensured that technical terms were handled correctly from the start (Fig. 10). The results indicate that PrE is especially effective in terminology management, particularly in technical translations where adherence to glossaries and terminological accuracy are crucial.

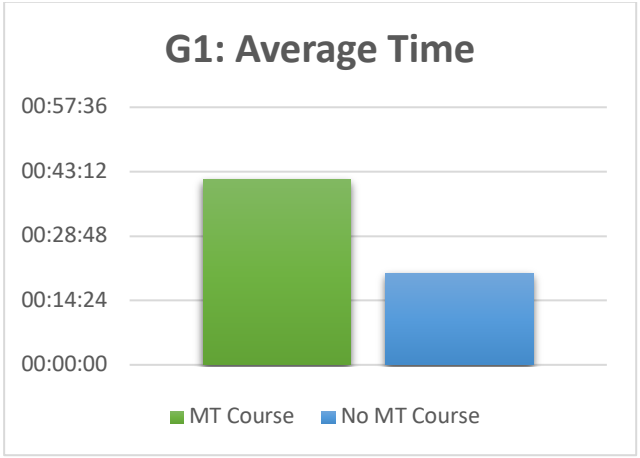
Figure 10. ***G2: Terminological Errors***



Analyzing the results with a focus on whether participants took a Machine Translation course provides a nuanced view of the impact of structured training on translation results. In G1, participants who completed the MT course generally showed mixed results in terms of errors (Fig. 11). It is noteworthy that Participant 4, who attended the course, made no errors, but spent over an hour on PoE, which may indicate thoroughness and application of the techniques learned.

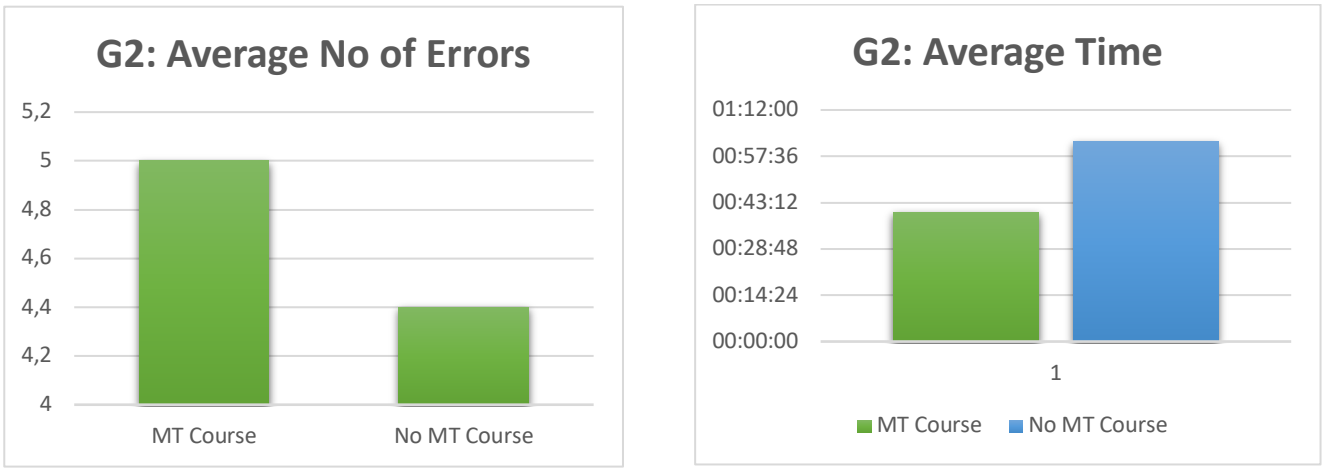
Figure 11. ***G1: Impact of MT course***





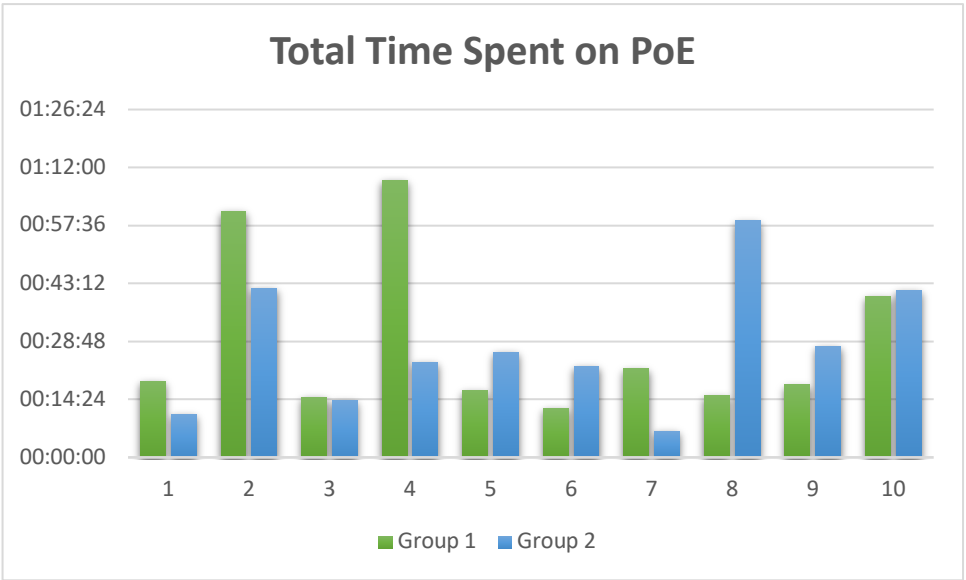
In contrast, G2 shows that those who had taken the MT course and engaged in PrE generally had better control over time management than their counterparts who had not taken the course. However, the untrained participants had a lower overall error rate (Fig. 12).

Figure 12. ***G2: Impact of MT course***



This indicates that although training speeds up the translation process compared to the untrained counterparts in this group, the error rate does not follow a straightforward pattern, suggesting that other factors might influence the quality of the output besides the MT training. Participants who took both MT and PoE courses generally demonstrated a more deliberate and thorough approach, reflected in longer completion times but fewer errors. In G1, trained participants spent an average of 41 minutes and 27 seconds on their task, compared to untrained participants, who completed the task faster but with more errors (Fig. 11). In G2, time efficiency was better balanced (Fig. 12), with trained participants completing tasks faster than their untrained counterparts, however, the error rate does not follow a clear pattern.

Figure 13. ***Total Time Spent on PoE***



5 Discussion

The comparative analysis of G1 and G2 offers valuable insights into the efficiency and quality dynamics of translation workflows when integrating PrE alongside PoE into MT processes. Considering that experience levels among participants varied, the findings of this study should be interpreted as hypotheses rather than definitive conclusions.

The results suggest that although PrE requires additional time investment, it may significantly improve translation accuracy and reduces the PoE workload, ultimately leading to potentially more efficient and higher-quality translation outcomes.

In G1, where participants relied solely on PoE machine-translated texts, significant differences in efficiency were observed. Participants without formal training in MT completed tasks faster, but at the expense of higher error rates. In contrast, participants with MT training – such as Participant 4, who recorded no errors – took longer but produced a significantly more accurate translation. These findings suggest that MT training may improve quality but could also lead to longer task completion times, as participants with more experience tend to invest additional effort into refining machine-generated outputs.

On the other hand, PoE alone can result in faster workflows, although the increased error rates suggest that lower-quality outputs may require more extensive corrections during the PoE phase itself, potentially offsetting the initial time savings. This underlines the trade-off between speed and accuracy, as higher error rates can lead to a more labor-intensive PoE process to achieve acceptable quality levels. These results align with findings by Sanchez-Torron and Koehn (2016), who observed that the quality of MT output directly impacts PoE efficiency, with lower-quality outputs requiring more effort and time during PoE.

G2, which used both PrE and PoE, showed a clear dependency between time and accuracy. Although the PrE phase increased the total time spent on translation tasks, the accuracy improvements were significant. For example, Participant 6 recorded only one error, illustrating that high levels of accuracy can be achieved when PrE is combined with MT training. This result calls attention to the importance of using PrE as a means to improve translation accuracy by addressing problems in the source text prior to MT. However, given the variation in participants' levels of experience, this trend should be explored further before drawing definitive conclusions. The study by Bounaas et al. (2023) supports this conclusion, as it found that PrE significantly improves the accuracy, appropriateness, and acceptability of translated texts.

Although PrE lengthens the initial phase of translation, it could provide strategic benefits for improving overall workflow efficiency, as it simplifies the source text, thereby reducing the cognitive load during PoE. This is particularly evident in the faster PoE times recorded by G2 (Fig. 13). By eliminating complex structures and ambiguities

in the source text during PrE, these participants were able to complete the PoE phase faster and demonstrated that PrE helps mitigate the typical challenges during PoE. This supports the assumption that PrE, when combined with PoE, can compensate for the additional time required upfront by optimizing the latter phase of the workflow.

The relationship between speed and quality, a well-documented phenomenon in translation workflows, is further confirmed by this study. Faster translation workflows, particularly those that skipped PrE, were often associated with higher error rates, as seen in G1. This trade-off between speed and quality reflects a common challenge in the translation industry, where time constraints can lead to a decline in translation accuracy and coherence. In contrast, G2 produced more accurate and consistent translations, highlighting the effectiveness of a more deliberate and structured approach. This result suggests that while fast translation is often a priority to meet tight deadlines, it can come at the expense of quality, especially for complex or technical content that requires precision.

In addition to improving accuracy and fluency, PrE also seems to contribute to improved terminological consistency. The ability to standardize terminology during PrE significantly reduced the likelihood of errors in PoE, further streamlining the translation process. This suggests that PrE is not just a time-consuming step but may serve as a valuable strategy for reducing PoE effort and improving overall translation quality. While the study suggests that PrE may enhance translation accuracy and streamline PoE efforts, further research is needed to confirm these trends across different translation tasks and professional contexts.

6 Conclusion

The main objective of this study was to determine whether PrE combined with PoE, or PoE alone results in a more effective translation process. The results show that PrE may improve translation quality by minimizing the need for extensive PoE, leading to potentially more accurate and consistent outputs. However, the study also confirms that while PoE alone is faster, it can result in lower translation accuracy and fluency.

The results show that PrE could help reduce errors by addressing problems before MT, thereby improving the overall accuracy and coherence of the final output. However, it is important to note that this study focuses on the efficiency of PrE and PoE within MT workflows, rather than comparing them to a fully human translation process. Since participant experience levels were not fully homogeneous, the results should be understood as indicative of possible trends rather than broadly generalizable conclusions.

A human-only workflow would introduce additional variables that are not directly comparable to MT-assisted workflows, making such a comparison beyond the scope of

this study. However, future research is needed to determine whether the lower error count observed with PrE results from the actual benefits of PrE or simply reflects the translator's deeper understanding of the source text before MT. A comparative study could assess whether reading and familiarizing oneself with the source text before translation – without explicitly performing PrE – yields similar improvements in translation quality.

Additionally, in professional settings, PrE is typically performed by source text authors, technical editors, or dedicated language professionals, rather than by the same individuals responsible for PoE. In this study, participants performed both PrE and PoE to ensure a controlled comparison of workflow efficiency and quality. This methodological choice may not fully reflect industry practices. Future research could explore how PrE affects translation quality when performed by different professionals within the workflow and whether its impact is distinct from the natural cognitive processing that occurs when translators engage with the source text before MT. Such studies could provide a clearer understanding of the specific contribution of PrE to overall translation accuracy and efficiency.

A closer look at the data shows that the combined use of PrE and PoE may deliver the most favorable results, especially for participants with experience in both areas. This combined approach resulted in the lowest error rates, which could indicate that expertise in both PrE and PoE improves the overall efficiency of the translation process. While this view is widely supported by language service providers and translation companies, some professional translators remain skeptical, arguing that MT can introduce errors that require extensive revision, potentially negating its efficiency benefits (Alvarez-Vidal et al. 2020; Cadwell et al. 2018). However, given the variability in participant experience, further research is needed to confirm whether this effect is consistent across different professional and educational contexts.

The study suggests that while neither PrE nor PoE alone consistently outperforms the other in every context, a combined approach that leverages the strengths of both methods may offer the best solution for achieving high-quality translations. The integration of PrE and PoE not only has the potential to improve translation fluency, accuracy, and consistency in terminology, but may also enable a smoother PoE phase by reducing the complexity of MT outputs. However, this approach requires a higher initial time investment, especially in the PrE stage. Looking forward, the study highlights the importance of translation training programs to equip future translators with MT and PoE skills. By fostering a deeper understanding of how MT tools can be effectively integrated with human editorial skills, translators can produce higher quality translations more efficiently. A strategic combination of PrE and PoE could therefore represent the most effective path forward for maximizing the benefits of MT in professional translation.

Hudáková, Zuzana. 2024. Comparing the Efficiency of Source Text Pre-editing vs. Machine Translation Post-editing. In: L10N Journal 2(3), pp. 42–59.

Bibliography

Agung, I. et al. 2024. Translating Performance of Google Translate and DeepL in Translating Indonesian Short Stories into English. Proceedings of the 2nd Linguistics, Literature, Culture, and Arts International Seminar (LITERATES). Universitas Mahasaraswati Denpasar. pp. 178-185. https://e-journal.unmas.ac.id/index.php/literates/article/view/8555/6443. Accessed on: 8 December 2024.

Alvarez-Vidal, S. et al. 2020. Post-editing for Professional Translators: Cheer or Fear? In: Tradumàtica Technologies de la Traducció, 18: pp. 49-69. https://doi.org/10.5565/rev/tradumatica.275

Arenas, A. G. 2020. Pre-editing and Post-editing. Bloomsbury Academic eBooks. London. https://doi.org/10.5040/9781350024960.0019.

Bounaas, C., Zemni, B., Shehri, F. A., and Zitouni, M. 2023. Effects of PrE operations on audiovisual translation using TRADOS: An experimental analysis of Saudi students' translations. Texto Livre. 16: pp. 1-5. https://doi.org/10.1590/1983-3652.2023.45539.

Cadwell, P. et al. 2018. Resistance and accommodation: factors for the (non-) adoption of machine translation among professional translators. Perspectives. 26(3): pp. 301-321. https://doi.org/10.1080/0907676X.2017.1337210.

Calvo-Ferrer, J. R. 2023. Can You Tell the Difference? A Study of Human Vs Machine-translated Subtitles. Perspectives. 32(6): pp. 1115-1132. https://doi.org/10.1080/0907676x.2023.2268149.

Daems, J., Vandepitte, S., Hartsuiker, R. J., and Macken, L. 2017. Translation Methods and Experience: A Comparative Analysis of Human Translation and Post-editing with Students and Professional Translators. In: Meta. 62(2): pp. 243-484. https://doi.org/10.7202/1041023ar.

Kokanova, E. et al. 2022. Pre-editing English News Texts for Machine Translation into Russian. In: Language Studies and Modern Humanities. 4(1): pp. 25-30. https://doi.org/10.33910/2686-830x-2022-4-1-25-30.

O'Brien, S. 2022. How to Deal with Errors in Machine Translation: Post-editing. In: Kenny, D. (ed.), Machine Translation for Everyone: Empowering Users in the Age of Artificial Intelligence. (Translation and Multilingual Natural Language Processing. 18). Berlin: Language Science Press. https://doi.org/10.5281/zenodo.6653406.

Petráš, P., and Munková, D. 2023. Strojový preklad založený na neurónových sieťach – sľubná cesta prekladu z analytických jazykov do flektívnej slovenčiny?. In: Slovenská reč. 88(1): pp. 74-89. ISSN 0037-6981.

Quah, C. K. 2006. Translation and technology. London: Palgrave Macmillan UK eBooks. https://doi.org/10.1057/9780230287105.

Sanchez-Torron, M., and Koehn, P. 2016. Machine Translation Quality and Post-Editor Productivity. In: Conferences of the Association for Machine Translation in the Americas: MT Researchers' Track. Austin: The Association for Machine Translation in the Americas. pp. 16-26.

TAUS. 2017. Quality Evaluation using an Error Typology Approach. De Rijp: TAUS BV.

Vieira, L. N. 2019. Post-editing of machine translation. In: O'Hagan, M. (ed.), The Routledge Handbook of Translation and Technology. London and New York: Routledge. pp. 337-354. https://doi.org/10.4324/9781315311258.

Yang, X., et al. 2023. Human-in-the-loop Machine Translation with Large Language Model. arXiv preprint. https://doi.org/10.48550/arXiv.2310.08908.

Hudáková, Zuzana. 2024. Comparing the Efficiency of Source Text Pre-editing vs. Machine Translation Post-editing. In: L10N Journal 2(3), pp. 42–59.

Yang, Y., Liu, R., and Qian, X. et al. 2023. Performance and perception: machine translation post-editing in Chinese-English news translation by novice translators. In: Humanities and Social Sciences Communications. 10: 798. https://doi.org/10.1057/s41599-023-02285-7.

Annex 1

Suggested PrE rules:

- reduce sentence length
  - e.g., The software, which was developed to help with budgeting and has been used by many people since its launch last year, can also assist in tracking expenses effectively. -> The budgeting software, launched last year, also tracks expenses effectively.
- unify terminology if it is inconsistent
  - e.g., The handbook mentions guidelines on staff conduct, employee behavior, and worker regulations. -> The book mentions guidelines on employee conduct, behavior, and regulations.
- correct spelling and punctuation errors
  - e.g., The childrens' toys were scattered all over the living room floor. -> The children's toys were scattered all over the living room floor.
- simplify grammatical structures
  - e.g., There is a need for managers to be able to understand the data that is presented to them. -> Managers need to understand the presented data.
- remove ambiguities
  - e.g., He saw the man with a telescope. -> Using a telescope, he saw the man.