

Revisiting Post-Editing for English-Chinese Machine Translation

Hari Venkatesan

University of Macau

hariv@um.edu.mo

Abstract

Given the rapid strides in quality made by automated translation since the advent of Neural Machine Translation, questions regarding the need and role of Post-Editing (PE) may need revisiting. This paper discusses this in light of a survey of opinions from two cohorts of post-graduate students of translation. The responses indicate that the role of PE may need further elaboration in terms of aspects such as grammar, lexis and style, with lexis and style being the main sites requiring human intervention. Also, contrary to expectations, responses generally show marked hesitation in considering quasi-texts as final without PE even in case of disposable texts. The discussion here pertains to English-Chinese translation, but may resonate with other language pairs as well.

1 Introduction

Post-Editing or simply editing as a phenomenon may have existed ever since writing and the need to revise came into existence. However, the concept this paper is concerned with is Machine Translation Post-Editing (MTPE) where “...the task of the post-editor is to edit, modify and/or correct pre-translated text that has been processed by an MT system from a source language into (a) target language(s).” (Allen, 2003, p. 297)

The manner in which post-editing was conducted evolved from the paper and pencil work to editing on a word-processor and eventually through interactive software systems (Hutchins & Somers, 1997, p. 153).

MTPE further came to be classified broadly in terms of the extent of editing and targeted quality into minimal post-editing (for inbound purposes) and maximal post-editing (for publication and outbound purposes) (Allen, 2003, pp. 301–303).

Given the relatively lower quality of unedited or quasi-texts (Allen, 2003, p. 298) produced by MT, early discussions considered using unedited texts for “gisting” or as a pre-translation for screening (Allen, 2003, p. 303; Hutchins & Somers, 1997, p. 157). Later, international standards were evolved for MTPE such as the International Standards Organization’s (ISO 18587:2017 Translation Services — Post-Editing of Machine Translation Output — Requirements, 2017) that classifies MTPE into Light Post-Editing and Full Post-Editing. According to this standard, Light Post-Editing is a “process of post-editing (3.1.4) to obtain a merely comprehensible text without any attempt to produce a product comparable to a product obtained by human translation (3.4.3)”;

Full post-editing on the other hand refers to “process of post-editing (3.1.4) to obtain a product comparable to a product obtained by human translation (3.4.3)”.

The definition of Light Post-Editing here is akin to what Allen terms “Rapid Post-Editing” where “a strictly minimal number of corrections on documents that usually contain perishable information” (Allen, 2003, p. 302). It must be mentioned here that this standard was created in 2017 and it is currently under review. Detailed guidelines for MTPE are also provided by the Translation and Automation User Society (TAUS), which makes a similar distinction between light and full PE but suggests creating “a clear matrix of post-editing productivity, quality, turnaround time and pricing discount expectation” based on a detailed analysis (Massardo et al., 2016, p. 12). TAUS guidelines also provide for the possibility of “Good Enough” quality that involve ensuring

semantically correct translation and making no stylistic changes or changes intend to enhance naturalness (Ibid, p. 17). In addition to these many studies have proposed models to arrive at PE decisions or achieve quality goals based on purpose and nature of text being translated (Nitzke et al., 2024; Rico Pérez, 2024; Venkatesan, 2022).

However, given the rapid developments in MT, particularly the emergence of widely available NMT starting around 2016 and more recently Large Language Model based generative AI such as ChatGPT and DeepSeek, the quality of output achieved by MT has vastly increased. It is therefore important to ask which aspects of MTPE, if at all, remain relevant and whether translators perceive a clear distinction between levels of PE that may be required.

2 Post-Editing in the era of NMT and AI

With specific reference to English-Chinese translation, as early as 2018 there were claims of MT having achieved parity with Human Translation (HT) in domains such as news translation (Hassan et al., 2018), though evidence for human translation being superior were also presented (Läubli et al., 2018). The quality of raw output from Machine Translation has increased across domains and recent studies have shown that translations produced by MTPE “were more accurate than the outputs from HT [Human Translation] both for STs of high and low complexity” (Jia & Sun, 2023, p. 963), even though the authors do not report a strong co-relation between perceived and actual difficulty measurement when comparing MTPE and HT. A 2021 study involving Chinese translator trainees also demonstrated increased speed and reduced effort on the part of translators (Wang et al., 2021) when using MTPE. As previously mentioned, even if quasi-texts produced by MT are not considered entirely free of errors, in the interests of efficiency and particularly for general everyday communication, there have always been suggestions that raw MT output may be suitable for gisting or may simply undergo light post-editing to eliminate critical errors. Given the advanced in MT quality today, it may be assumed that the possibility of using MT without editing should be higher, at least for some purposes. A recent study that revisited definitions of light post-editing and full post-editing suggested that these definitions may no longer be valid and instead advocates redefining MTPE guidelines based on an ecosystem

incorporating all aspects that influence a translator’s decision making (Rico Pérez, 2024). The question now is to what extent have the strides made by MT resulted in reduced necessity for PE? Given the improvements in quality, does the distinction between light and full PE continue to hold good? In the following we discuss how postgraduate trainee translators perceive the quality produced by MT in general and the nature and role of PE in particular. For this purpose, a survey of opinions was conducted with two successive cohorts (academic year 2022/23 and 2023/24) of post-graduate students of translation as respondents.

3 Survey

The survey employed a questionnaire (see Appendix A) with responses graded according to the Likert scale. In the data presented below the responses are assigned scores from 0 to 4 (0 for ‘Strongly Disagree’, 1 for ‘Disagree’, 2 for ‘Neutral’, 3 for ‘Agree’ and 4 for ‘Strongly Agree’). The survey was tested and adjusted for clarity. In terms of reliability, using the survey data on SPSS a Cronbach Alpha score of 0.860 and 0.872 was obtained for 2023 and 2024 respectively, which suggest good internal consistency.

The data presented below shows responses from two cohorts of students from the Master of Arts in Translation Studies programme at the University of Macau. Each cohort is made of 25-30 students, of whom 20 from 2024 and 21 from 2023 responded to the survey. A majority of students admitted to the programme come from different parts of mainland China, while roughly a quarter come from Macao SAR. All students go through a rigorous assessment of language proficiency and preparation before admission. All respondents reported falling under the 20-30 years age group with 10-15 years of formal education in English and 15-20 years of formal education in Chinese on average. All students have Chinese (Putonghua or Cantonese) as their primary language and English as their second or acquired language. The students attended a compulsory course titled “Translation Technology” that discussed definitions of MTPE in detail and also trained students to carry out light PE and full PE. They were asked to respond to survey questions based on their experience of post-editing

translations both from Chinese to English and English to Chinese for different genres of writing.

The purpose of the survey was to understand how postgraduate students of translation perceived the role of MTPE in terms of need and scope. The purpose behind repeating the survey over two years was to see if there were significant changes in the attitudes and perception conveyed given the normalization of MT use that is expected to occur with time. The survey questionnaire was divided into three parts: Questions regarding efficiency and quality of MTPE (1a-1d), questions regarding types of MTPE required (meaning aspects that most require PE, 2a-2l), and necessity of PE for MT produced for different purposes (3a-3f). The mean scores for each question are shown in figures 1 and 2 below:

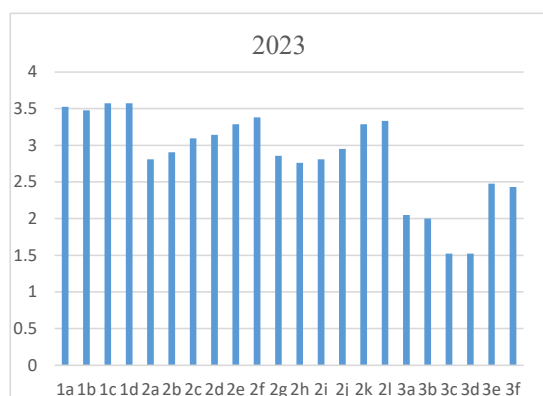


Figure 1: Responses from 2023

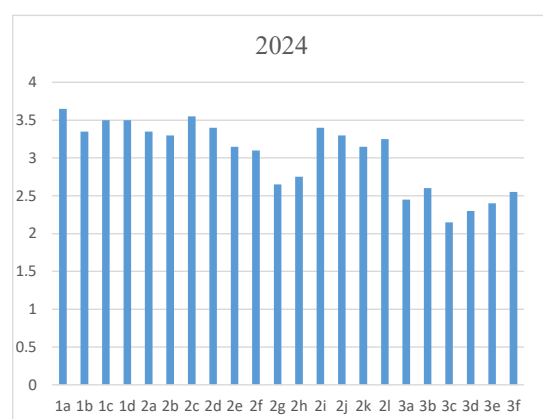


Figure 2: Responses from 2024

3.1 Results

The first part of the questionnaire (1a-1d) asks if MT helped increase efficiency (1a, 1c) and quality (1b, 1d) in case of E>C and C>E translation respectively. In case of both cohorts, responses ranged between ‘Agree’ and ‘Strongly Agree’ in case of efficiency, and also in the case of quality, albeit with slightly lower scores for quality in E>C translation. The standard deviation in responses is shown in Appendix B and C. The deviation in 2023 is largest in case of 1d (0.79) and remained under 0.5 in case of 1b and 1c and a little over it (0.58) in case of 1a.

The first six questions of the second part (2a-2f) ask if PE is necessary to correct grammatical, lexical and stylistic errors in both directions. Respondents from 2023 on average seemed to suggest that this was more necessary in case of C>E translation in each case with responses ranging from “Neutral” to “Agree” in case of grammatical errors, slightly over “Agree” in case of lexical errors and between “Agree” and “Strongly Agree” in case of stylistic errors, indicating relatively high confidence in grammar produced by MT. Respondents from 2024, on the other hand, similarly rated the need to edit for lexical errors higher than grammatical errors, but unlike those from 2023 considered stylistic errors as least important when it comes to PE. Also, unlike 2023 there is a slight reversal observed with E>C perceived as more in need for PE in all three cases. The standard deviation observed in responses to these questions was highest (1.10) in case of 2f and high for 2d and 2e (0.90) in case of 2023. High standard deviation was observed in responses to 2b (1.1) and 2e and 2f (0.79 and 0.7 respectively) in case of 2024. This indicates more relative divergence on the question regarding PE for stylistic errors in C>E translation. In case of 2024 high divergence is observed in responses to the question whether PE is required to correct grammatical errors in C>E translation.

The following six questions (2g-1l) were regarding the extent of PE required to make a text publishable (2g-2j) and whether there was a significant difference between light and full PE (2k-2l). Respondents from both years seemed to fall between “Neutral” and “Agree” to the suggestion that light post-editing was sufficient to make texts publishable in case of MT in either direction. To the suggestion that full post-editing was essential to make texts publishable, both years were relatively more affirmative with 2023 still falling between “Neutral” and “Agree” but close to “Agree”, while

2024 fell between “Agree” and “Strongly Agree”. As for the question of whether there was a significant difference between light and full post-editing both years had average responses situated between “Agree” and “Strongly Agree”, albeit closer to “Agree”. The standard deviation for this group of questions was relatively high (0.62 to 1.10) in case of 2023 and 2024 (0.53-1.23). In both years highest divergence (1.10 and 1.23) is noted in responses to question 2g whether light PE is sufficient to make raw MT (C>E) publishable, with responses ranging from “Disagree” to “Agree”. High deviation is also noted for 2i-2k, with only 2l showing relatively low deviation.

The third part of questionnaire juxtaposes the need for PE with end use (inbound, outbound and disposable). On the suggestion that inbound MT need not be post-edited, responses from 2023 were “Neutral” while those from 2024 ranged between “Neutral” and “Agree” with 3a (E>C) scoring marginally higher in 2023 and 3b (C>E) in 2024. When the question was changed to being about outbound translation (3c-3d) responses from 2023 ranged between “Disagree” and “Neutral”, reaching about the mid-point on average while those from 2024 remained between “Neutral” and “Agree”, albeit with lower averaged than the previous set of question regarding inbound translation but with C>E scoring higher. For the last two questions suggesting that no PE was needed in case of disposable texts responses from both 2023 and 2024 ranged between “Neutral” and “Agree”, though responses almost touched the mid-point between “Neutral” and “Agree” in case of 2023 while remaining marginally short in 2024 in case of E>C and marginally over the mid-point in case of C>E. The standard deviation observed in case of these responses was high in case of 2024 (1.15 to 1.32) and high except for the first three questions (3a-3c) in case of 2023. The last question (3f) that suggested that C>E MT of disposable texts need not be post edited showed the widest divergence of 1.01 and 1.32 in case of 2023 and 2024 respectively, implying responses ranging from “Disagree” to “Agree”. It is apparent that there was generally a wide divergence in opinions on the suggestion of doing away with PE for raw MT output.

3.2 Discussion

The results of the survey are intriguing as they show variations, albeit minor, even when it comes to the direction of translation. For instance, respondents seem relatively more affirmative of MT (without PE) in the C>E direction as shown in responses to 1c, 1d (with the exception of 1a which received the highest score in 2024), 2b, 2d, 2f, 2j, 2l in 2023, while this reverses with 2024 rating E>C MT higher in 2a, 2c, 2e, 2i. In case of 3a-3f C>E shows relatively higher averages in 2024, while responses from 2023 for this group remain largely the same, with E>C marginally highest for 3a and 3e. While the variations are minor, they may indicate varying levels of confidence in either language and differences in the ability to spot errors in quasi texts.

All respondents seem to agree that MT+PE increases both efficiency and quality in both directions, this shows general acknowledgement and recognition of current quality achievable by MT. The suggestion that MT+PE increases quality in E>C translation shows slightly lower averages, which may be understandable given that the respondents have Chinese as their first language.

In case of respondents from 2023, PE seems to be seen as necessary mostly for stylistic changes, while PE for lexical and grammatical errors stood lower, in that order. PE for Grammatical errors also seemed to rank low in importance also as the responses ranged between “Neutral” and “Agree” unlike those for lexical and stylistic errors that ranged between “Agree” and “Strongly Agree”. Furthermore, in each case the need for PE seems to be felt more in the case of C>E translation. Responses from 2024 on the other hand show highest scores in case of need of PE for lexical errors, while grammatical errors and stylistic errors followed. Again unlike 2023, PE for E>C translation received slightly higher scores in each case. However, the need for PE in all three cases ranged between “Agree” and “Strongly Agree”. The relatively low score in both years for the need for PE to correct grammatical errors seems to endorse the maturing of MT in terms of being error free at the grammatical level. Interestingly, lexical and stylistic errors seem to be seen as a more important site of errors necessitating PE. This result resonates with studies that have found that MT may

sometimes leave content untranslated or mistranslated (Goto & Tanaka, 2017).

On the question whether light PE was sufficient to make MT publishable or full PE was necessary (2f-2j), there was only a slight difference in 2023 with responses ranging between “Neutral” and “Agree”. However, in case of 2024 responses ranged between “Neutral” and “Agree” on the suggestion that light PE was sufficient, and “Agree” and “Strongly Agree” on the suggestion that full PE was necessary. Both years also showed responses between “Agree” and “Strongly Agree” to the suggestion that time taken in light and full PE in either direction was significantly different. In summary, there is both agreement and reservation expressed to the idea that light PE may be sufficient to make MT publishable. In both years, this question (2g-2f) shows a relatively large standard deviation, suggesting less convergence in perception. The deviation was slightly lower, between 0.7 and 0.95 on the suggestion that full PE was essential. Finally, all seemed to be more in accord with the suggestion that time taken for light and full PE was significantly different. What is interesting is that average scores for the first two sets of questions (2g-2j, on light and full PE) were nearly identical in 2023, while there was a clear difference in 2024 with need for full PE scoring higher. There is some ambivalence in responses as there is endorsement of the quality of raw MT output and also the possibility that light PE may be sufficient to make texts publishable, but all respondents seem to agree that time and effort in light and full PE are significantly different and seem to suggest that full editing is essential to make a text publishable. Combining this with responses from the previous set of questions, it seems to suggest that while grammatical concerns may not be as serious as before, lexical and stylistic errors continue to require PE, which might fall under the category of full PE.

The third part of the survey makes more direct suggestions to examine what kind of texts produced by MT may summarily do away with PE. Responses from 2023 showed the highest affirmation towards doing away with PE in case of disposable texts (3e-3f), followed by inbound texts (3a-2b) and outbound texts (3c-3d) largely along expected lines. The suggestion regarding no PE for outbound texts adds to questions 2g-2j in a different way to test limits that respondents may be comfortable with. While responses ranged between “Neutral” and “Agree” in 2023 and

“Neutral and “Agree” for light-PE and “Agree” and “Strongly Agree” for full-PE in 2024, responses to 3c-3d (no PE for outbound texts) range from “Disagree” to “Neutral” in 2023 and slight above “Neutral” but less than half way between “Neutral” and “Agree” in case of 2024. This shows definite discomfort with the idea of no PE for outbound texts. In case of no PE for inbound texts (3a-3b) responses were on average “Neutral” in case of 2023 and slightly between “Neutral” and “Agree” in case of 2024. It is interesting to note that while endorsing the largely error-free nature of MT (at least in terms of grammar) respondents from both years are still not very confident about doing away with PE even in case of inbound texts. It is only with disposable texts (3e-3f) that the responses range between “Neutral” and “Agree”, again not emphatic in agreement. Standard deviation in responses was large for every question in this part in 2024 and the part about inbound and disposable texts (3c-3f) in 2023. The average responses therefore do not reflect a general consensus and may instead point to hesitation and confusion in making decisions based on end use.

4 Conclusion

Based on the survey results, it seems that the quality now achieved by MT is indeed considered relatively superior in terms of grammar. However, lexical and stylistic errors remain sites requiring post-editing by translation. As regards the distinction between light and full post-editing, responses do not emphatically support the idea that light PE may be sufficient for any translation that is to be published and also suggest that time and effort in light vs full PE continue to be significantly different. This seems to run counter to findings in other studies that find this distinction increasingly difficult to make. Finally, much reservation is expressed in doing away with PE. This is true in case of outbound texts, but also in case of inbound and disposable texts, albeit to a relatively lesser extent. The results suggest that PE is still considered essential for MT and that there remains a distinction between the extent of PE in spite of the progress achieved by MT.

Given the small size of respondents, it must be acknowledged that more large-scale surveys and those including other language pairs as well as professional translators would be necessary to

corroborate these inferences. It is also important to acknowledge that the fact that the respondents are training to become professional translators may have contributed to a bias and the hesitation reported. Studies have reported negative pre-task perceptions of MT contributing to lower quality and productivity in output (Briva-Iglesias & O'Brien, 2024, p. 451; Sánchez Ramos, 2025). The lack of experience in working with frameworks that clearly define requirements of quality and efficiency may also result in a conservative approach towards MT. This has been observed in previous studies (Mellinger, 2017; Venkatesan, 2023) and may affect responses of students.

References

- Allen, J. (2003). Post-Editing. In H. Somers (Ed.), *Computers and translation: A translator's guide* (pp. 297–317). Benjamins.
- Briva-Iglesias, V., & O'Brien, S. (2024). Pre-task perceptions of MT influence quality and productivity: The importance of better translator-computer interactions and implications for training. In C. Scarton, C. Prescott, C. Bayliss, C. Oakley, J. Wright, S. Wrigley, X. Song, E. Gow-Smith, R. Bawden, V. M. Sánchez-Cartagena, P. Cadwell, E. Lapshinova-Koltunski, V. Cabarrão, K. Chatzitheodorou, M. Nurminen, D. Kanojia, & H. Moniz (Eds.), *Proceedings of the 25th Annual Conference of the European Association for Machine Translation (Volume 1)* (pp. 444–454). European Association for Machine Translation (EAMT). <https://aclanthology.org/2024.eamt-1.37/>
- Goto, I., & Tanaka, H. (2017). Detecting Untranslated Content for Neural Machine Translation. *Proceedings of the First Workshop on Neural Machine Translation*, 47–55. <https://doi.org/10.18653/v1/W17-3206>
- Hassan, H., Aue, A., Chen, C., Chowdhary, V., Clark, J., Federmann, C., Huang, X., Junczys-Dowmunt, M., Lewis, W., Li, M., Liu, S., Liu, T.-Y., Luo, R., Menezes, A., Qin, T., Seide, F., Tan, X., Tian, F., Wu, L., ... Zhou, M. (2018). *Achieving Human Parity on Automatic Chinese to English News Translation*. <https://doi.org/10.48550/ARXIV.1803.05567>
- Hutchins, W. J., & Somers, H. L. (1997). *An introduction to machine translation* (2nd ed.). Academic Press.
- ISO 18587:2017 *Translation services—Post-editing of machine translation output—Requirements*. (2017). International Organization for Standardization. <https://www.iso.org/standard/62970.html>
- Jia, Y., & Sun, S. (2023). Man or machine? Comparing the difficulty of human translation versus neural machine translation post-editing. *Perspectives*, 31(5), 950–968. <https://doi.org/10.1080/0907676X.2022.2129028>
- Läubli, S., Sennrich, R., & Volk, M. (2018). Has Machine Translation Achieved Human Parity? A Case for Document-level Evaluation. *arXiv:1808.07048 [Cs]*. <http://arxiv.org/abs/1808.07048>
- Massardo, I., Meer, J. van der, O'Brian, S., Hollowood, F., Aranberri, N., & Drescher, K. (2016). *TAUS Post-Editing Guidelines*. TAUS. https://commission.europa.eu/document/download/b482a2c0-42df-4291-8bf8-923922ddc6e1_en?filename=emt_competence_fw_k_2022_en.pdf
- Mellinger, C. D. (2017). Translators and machine translation: Knowledge and skills gaps in translator pedagogy. *The Interpreter and Translator Trainer*, 11(4), 280–293. <https://doi.org/10.1080/1750399X.2017.1359760>
- Nitzke, J., Canfora, C., Hansen-Schirra, S., & Kapnas, D. (2024). Decisions in projects using machine translation and post-editing: An interview study. *The Journal of Specialised Translation*, 41, 127–148. <https://doi.org/10.26034/cm.jostrans.2024.4715>
- Rico Pérez, C. (2024). Re-thinking Machine Translation Post-Editing Guidelines. *The Journal of Specialised Translation*, 41, 26–47. <https://doi.org/10.26034/cm.jostrans.2024.4696>
- Sánchez Ramos, M. D. M. (2025). Machine translation post-editing through emotional narratives: A methodological approach. *Translation and Translanguaging in Multilingual Contexts*, 11(1), 31–47. <https://doi.org/10.1075/ttmc.00152.san>
- Venkatesan, H. (2022). The fourth dimension in translation: Time and disposability. *Perspectives*, 30(4), 662–677. <https://doi.org/10.1080/0907676X.2021.1939739>
- Venkatesan, H. (2023). Technology preparedness and translator training: Implications for curricula. *Babel Revue Internationale de La Traduction / International Journal of Translation*, 69(5), 666–703. <https://doi.org/10.1075/babel.00335.ven>
- Wang, X., Wang, T., Muñoz Martín, R., & Jia, Y. (2021). Investigating usability in postediting neural

machine translation: Evidence from translation trainees' self-perception and performance: *Across Languages and Cultures*, 22(1), 100–123.
<https://doi.org/10.1556/084.2021.00006>

Appendix A. Questionnaire

Post-Editing Survey (2024)

Please choose the best response for each of the following based on your experience of post-editing machine translation

1. Questions regarding efficiency and quality with post-editing machine translation. *

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Post-Editing E>C Machine Translation helps increase efficiency | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Post-Editing E>C Machine Translation helps increase quality | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Post-Editing C>E Machine Translation helps increase efficiency | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Post-Editing C>E Machine Translation helps increase quality | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. Questions regarding types (grammar, lexis, style) and levels (light vs full) of post-editing required *

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| In E>C Machine Translation Post Editing is required to correct grammatical errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation Post Editing is required to correct grammatical errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In E>C Machine Translation Post Editing is required to correct lexical errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation Post Editing is required to correct lexical errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In E>C Machine Translation Post Editing is required to correct stylistic errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation Post Editing is required to correct stylistic errors | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In E>C Machine Translation light post-editing is sufficient to make the text publishable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation light post-editing is sufficient to make the text publishable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In E>C Machine Translation full post-editing is essential to make the text publishable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation full post-editing is essential to make the text publishable | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In E>C Machine Translation, time and effort taken to conduct light PE vs full PE is significantly different | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In C>E Machine Translation, time and effort taken to conduct light PE vs full PE is significantly different | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

3. Questions regarding unedited Machine Translation (for inbound, outbound, disposable texts) *

| | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Inbound E>C Machine Translation need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Inbound C>E Machine Translation need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Outbound E>C Machine Translation need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Outbound C>E Machine Translation need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| E>C Machine Translation of disposable texts need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| C>E Machine Translation of disposable texts need not be post edited | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

4. Years of formal education in English *

- ☐ 1-5
☐ 5-10
☐ 10-15
☐ 15-20
☐ Above 20

5. Years of formal education in Chinese *

- ☐ 1-5
☐ 5-10
☐ 10-15
☐ 15-20
☐ Above 20

6. Automated translation services that I frequently use *

- ☐ Google
☐ Deepl
☐ Youdao
☐ Sougou
☐ Baidu
☐ Tencent
☐ ChatGPT
☐ Other

**Appendix B. Standard Deviation in Responses
(2023)**

| | |
|----|-------------|
| 1a | 0.587087048 |
| 1b | 0.499432785 |
| 1c | 0.499432785 |
| 1d | 0.791107035 |
| 2a | 0.791107035 |
| 2b | 0.583211844 |
| 2c | 0.583211844 |
| 2d | 0.906014171 |
| 2e | 0.906014171 |
| 2f | 1.108613974 |
| 2g | 1.108613974 |
| 2h | 0.81092316 |
| 2i | 0.81092316 |
| 2j | 0.70950783 |
| 2k | 0.70950783 |
| 2l | 0.628138379 |
| 3a | 0.628138379 |
| 3b | 0.575383142 |
| 3c | 0.575383142 |
| 3d | 0.940400841 |
| 3e | 0.940400841 |
| 3f | 1.019092122 |

**Appendix C. Standard Deviation in Responses
(2024)**

| | |
|----|-------------|
| 1a | 0.476969601 |
| 1b | 0.653834842 |
| 1c | 0.591607978 |
| 1d | 0.591607978 |
| 2a | 0.653834842 |
| 2b | 1.1 |
| 2c | 0.589491306 |
| 2d | 0.583095189 |
| 2e | 0.792148976 |
| 2f | 0.7 |
| 2g | 1.235920709 |
| 2h | 1.042832681 |
| 2i | 0.734846923 |
| 2j | 0.953939201 |
| 2k | 0.90967027 |
| 2l | 0.536190265 |
| 3a | 1.24398553 |
| 3b | 1.15758369 |
| 3c | 1.314343943 |
| 3d | 1.187434209 |
| 3e | 1.280624847 |
| 3f | 1.321930407 |