Influence of Pre-translation Project Management on Translation Quality: A Study Based on SPSS20.0 Software

Hong Xie[1], Peng Wang[2], and Lulu Cheng[1,3(✉)]

[1] School of Foreign Studies, China University of Petroleum (Huadong), Qingdao, China
cllsgnh@163.com
[2] School of International Education, Guizhou Normal University, Guiyang, China
[3] Shanghai Center for Research in English Language Education, Shanghai International Studies University, Shanghai, China

Abstract. This study aims to explore how text types and staff size in the pre-translation affect translation project quality. SPSS20.0 software is a commonly used software for data analysis, featuring with complex statistical algorithms but simple operation and clear interface. Hence, statistical survey and one-way Anova test are used to analyze the research data. Results show that in pre-translation in the same project, the more editable texts, the better translation project quality. While the bigger staff size, the lower translation project quality. Therefore, optimizing the text types and reducing staff in pre-translation can ensure translation quality and enhance project management efficiency. But the project management process is complicated, and how to decide the pre-translation management strategy according to the risk preference of an enterprise to improve the project quality is also worthy of further study.

Keywords: Type texts · Staff size · SPSS20.0 Software · One-way Anova Test · Translation Quality

1 Introduction

With the development of artificial intelligence technology, a large number of technical tools and management factors are embedded in translation projects, which vigorously improves the efficiency of translation. However, many problems appeared in translation quality management. Thus, a growing body of research on the management concepts recently combines with translation theories. For instance, some studies emphasize how diverse agents, especially those in managerial and professional roles, use different rhetorical vehicles such as discursive practices and persuasive narratives to construct ideas in the process of translation management [1 – 5]. But we still know remarkably little about the pre-translation management, especially in terms of translation text types and the project size [6].

Therefore, this study makes an attempt to utilize SPSS20.0 software to explore how translation text types and staff size affect translation quality during the pre-translation

X. Yuan et al. (Eds.): ICEKIM 2023, AHCS 13, pp. 1731–1736, 2023.
https://doi.org/10.2991/978-94-6463-172-2_191

process in the translation project. Firstly, this study will introduce research status in translation project management. Secondly, it will show research materials and method, especially the variables definition. Thirdly, the study will analyze data after an empirical survey. Finally, the survey and statistical results will be revealed to help companies improve their translation quality.

2 Materials and Methods

2.1 Materials

This study takes 704 translation projects completed by a project team of a Chinese translation service company within six months as the statistical object. Except for 14 unfinished projects due to suspension or change of project requirements, there are 690 effective projects in total, including 632 qualified projects, 42 unqualified projects and 16 projects without any feedback.

2.2 Methods

SPSS20.0 software is used for significance test and one-way Anova test in this study, including three algorithms steps: hypothesis presentation, test statistics construction and decision analysis [7].

Firstly, we need to put forward the hypothesis zero (H0) and hypothesis one (H1) in order to test whether means of qualified and unqualified projects are equal there is significant difference in their means [8].

Secondly, we construct F statistics according to the equation from (1) to (5):

$$SSA = \sum_{i=1}^{K} n_i \left(\overline{x}_{i-\overline{\overline{X}}} \right) \tag{1}$$

$$SSE = \sum\nolimits_{i=1}^{K} \sum\nolimits_{j=1}^{n_j} \left(x_{ij-\overline{x}} \right)^2 \tag{2}$$

$$\mathrm{MSA} = \mathrm{SSA} / \mathrm{k} - 1 \tag{3}$$

$$\mathrm{MSE} = \mathrm{SSE} / \mathrm{n} - \mathrm{k} \tag{4}$$

$$\mathrm{F} = \mathrm{MSA} / \mathrm{MSE} \sim \mathrm{F}\,(\mathrm{k} - 1,\ \mathrm{n} - \mathrm{k}) \tag{5}$$

Finally, by comparing the F value with the threshold value Fα under the given significance level α, we make the decision about H0 and H1. According to the given significance level α, we check the corresponding value: df1 = k-1, Fα (k-1, n-k) of df2 = n-k in the F distribution table. So if F > Fα, we accept H1, indicating the proportion of pre-translation time of different text types is significant. While if F < Fα, we accept H0, indicating that the proportion of pre-translation time of different text types is not significant.

Table 1. One-way ANOVA Analysis [Self Drawing]

Items		Statistics	Quadratic Sum	Df	Mean Square	F	P
Qualified Project		Between groups	160.791	1	160.791	133.814	0.000
		Within groups	758.208	631	1.202		
		Total	918.998	632	-		
Unqualified Project		Between groups	13.189	1	13.189	22.023	0.000
		Within groups	23.954	40	0.599		
		Total	37.143	41	-		

3 Data Analysis

3.1 Significance Test

SPSS20.0 software was used for significance test and one-way Anova test. The pre-translation time of different text types is significantly different within the 95% confidence interval ($p = 0.000 < 0.05$) (see Table 1), indicating that there are significant differences in the proportion of pre-translation time of different text types.

3.2 One-Way Anova Test

The mean of pre-translation time of editable texts (1.500 in qualified projects and 1.530 in unqualified projects) is significantly lower than that of non-editable texts (2.510 in qualified projects and 2.650 in unqualified projects) in translation tasks with different project quality (see Table 2). Moreover, because $1.500 < 1.530$ and $2.510 < 2.650$, the time of qualified projects is generally lower than that of unqualified projects, indicating that when a worker is translating and revising in the computer aided translation (CAT) tools, the OCR recognition and text noise clean of non-editable texts take more time than that of editable texts.

Among the unqualified projects, the proportion of pre-translation time of the large project (26.39%) and super-large project (32.38%) is significantly higher than that of small (12.06%) and medium-sized projects (22.55%) (see Table 3). At the same time, the

Table 2. Pre-translation Time in Different Text Types [Self Drawing]

Groups Statistics of Qualified Project					
Items	Groups	N	Mean	SD	SEA
Qualified Project	1	322	1.500	0.925	0.052
	2	311	2.510	1.249	0.071
Unqualified Project	1	19	1.530	0.612	0.078
	2	23	2.650	0.885	0.147

Table 3. Size & Text Types of Unqualified Project [Self Drawing]

Items	Small Project	Medium-sized Project	Larger project	Super-larger project	Total
Unqualified Project	0.57%	9.47%	10.90%	18.67%	39.61%
Editable Texts	0.00%	4.76%	9.52%	9.52%	23.81%
Non-editable Texts	4.76%	16.67%	30.95%	23.81%	76.19%
Pre-translation Proportion	12.06%	22.55%	26.39%	32.38%	93.38%

quantity of unqualified projects also raises. For instance, it increases to 18.67% in super-large projects from 0.57% in small projects in terms of unqualified projects. In addition, in unqualified projects, the proportion of non-editable texts (76.19%) is significantly higher than that of editable texts (23.81%).

4 Results and Discussion

4.1 The More Editable Texts, the Better Translation Project Quality

By the above analysis, significant differences exist in different text types in pre-translation. And editable texts take less time and generate less unqualified projects than that of non-editable texts (see fluctuations in Fig. 1). Therefore, the more editable texts, the better translation project quality. This is because editable texts with the formats of.doc,.xls,.xlsx,.txt can be directly imported the CAT tools for translation.

Nevertheless, non-editable texts with the formats of.pdf,.jpeg, caj,.png,.bnp,.psd can not be directly imported into the CAT tools for translation. What is worse, some text pictures and handwriting are not clear, which requires manual typing and recognition. And non-editable texts are difficult to denoise, and the pre-translation process is complex. These obstacles make term extraction and parallel corpus search in pre-translation more difficult, causing the lower translation quality in the same translation time for a project.

4.2 The Bigger Staff Size, the Lower Translation Project Quality

Through one-way test, the proportion of pre-translation time of the large project and super-large project is significantly higher than that of small and medium-sized projects. Meanwhile, the quantity of unqualified projects also raises (see Fig. 2). This outcome indicates that with the increase of the number of participants in a translation project, the pre-translation efficiency gradually decreases.

Because if a project is completed by only one person during pre-translation, it does not need to communicate with others. The translator can independently carry out pre-translation work in the light of their own time planning. However, for large and super-large projects, in the pre-translation, members in the same project must communicate

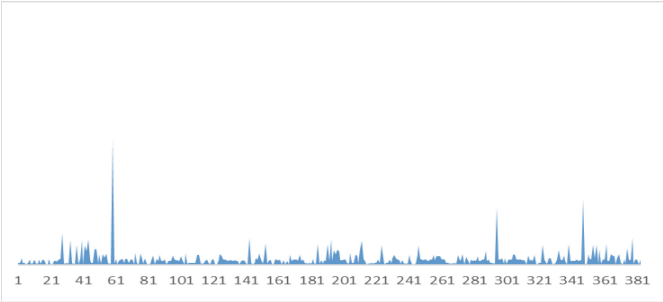

Fig. 1. Different Translation Time Between Qualified and Unqualified Project [Self Drawing]

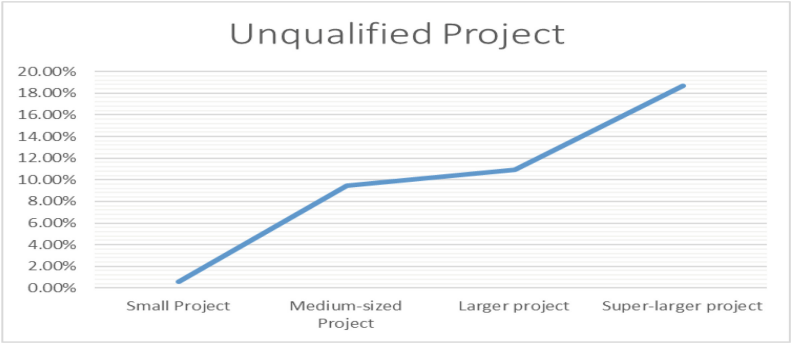

Fig. 2. Unqualified Projects and Participants Relation [Self Drawing]

to arrange translation tasks and schedule of each module. In addition, coordinating various working hours of translators is of great necessity for a project. Therefore, these communication and coordination time will not only prolong the pre-translation time in the project, but also reduce the work efficiency and translation quality [9].

5 Conclusions

In summary, by the SPSS 20.0 software technology analysis, this study proves that whether a translation project is qualified or not, the pre-translation time of non-editable texts is significantly higher than that of editable texts, resulting in a lower translation efficiency. Furthermore, the more people involved in the pre-translation process, the greater the proportion of pre-translation time, the more unqualified projects, and the lower the overall translation quality. Therefore, pre-translation translation project management should pay attention to the streamlining personnel, effectively planning the maximum and minimum working time of each node and marking the critical path in the translation task [10]. These ways can identify the potential delay risks in a project to improve the project quality. However, the translation project management process is complex and there are random decision-making risks. As a result, how to decide the pre-translation

management strategy according to the risk preference of an enterprise to improve the project quality is also worthy of further study.

Acknowledgements. This research was supported by the following three funded programs: "Youth Innovation Team Development Plan of Colleges and Universities of Shandong Province 'Artificial Intelligence and Interpretation Research Team'"; "Cooperation with Enterprises and Universities in the Ministry of Education 'Research on the Training of Foreign Language Translation Talents under the New Liberal Arts'" (220601549232039).

References

1. Guide, A. (2001). Project management body of knowledge. Project Management Institute, 11, 7-8.
2. Reay, T. et al. (2013). Transforming new ideas into practice: an activity-based perspective on the institutionalization of practices. Journal of Management Studies, 50, 963–990.
3. Shuttleworth, M. (2014). Translation management systems. In Routledge Encyclopedia of Translation Technology. London: Routledge.
4. Cassell, C., & Lee, B. (2016). Understanding translation work: The evolving interpretation of a trade union idea. Organization Studies, 38, 1085–1106.
5. Radaelli, G., & Sitton-Kent, L. (2016). Middle managers and the translation of new ideas in organizations: A review of micro-practices and contingencies. International Journal of Management Reviews, 18, 311–332.
6. Van Grinsven, M., Sturdy, A., & Heusinkveld, S. (2020). Identities in translation: Management concepts as means and outcomes of identity work. Organization Studies, 41(6), 873-897.
7. Verma, J. P. (2012). Data analysis in management with SPSS software. Berlin: Springer Science & Business Media.
8. Mehta, C. R., & Patel, N. R. (2011). IBM SPSS exact tests. New York: IBM Corporation, 23-24.
9. Sanchez-Torron, M., & Koehn, P. (2016). Machine Translation Quality and Post-Editor Productivity. AMTA, 1, 16-26.
10. Walker, C. (2022). Translation project management. London: Taylor & Francis.