Style Shift in Online Medical Simultaneous Interpretation: An Empirical Study

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Abstract: Practical interpreting often encounters a problem of incomplete correspondence in text style between source language (SL) and target language (TL), which will reduce the interpreting quality. The text style shift (the alteration of linguistic style between source and target language) can explain this phenomenon. This study is designed to verify whether this phenomenon exists in the medical interpreting, expanding the scope of the research and providing reference for students from technological universities when learning interpretation and enrich the theoretical treasure house. The primary application of the paired-sample t-test is to determine if there is a statistically significant difference between two related measurements taken from the same subjects under different conditions or at separate time points. In this study, the establishment of a stylistic shift is based on a statistically significant change observed in a stylistic feature from the pre-to the post-translation version. Therefore, the paired-sample t-test is appropriate for this study. Based on the first online multi-disciplinary forum on COVID-19 with simultaneous interpretation, typical stylistic features have been chosen to analyze whether the stylistic shift exists in the online medical Chinese-English simultaneous interpretation. Results suggest that stylistic shift appears in the online medical simultaneous interpretation from Chinese to English. That means in the process of interpreting the SL into the TL, the style of the written language will shift to or approach orality and vice versa in the simultaneous interpretation for science and technology. Dependency Length Minimization (DLM, the cognitive principle that favors shorter distances between syntactically linked words in language production) and Effort Model (EM, the theory describing how interpreters allocate limited cognitive resources in real-time) can be applied to explain the conclusion. Enlightenment and significance: Apart from offering reference to the teaching of simultaneous interpretation in the technological universities, this study fills the gap in the existing studies in the field of technological interpretation, for there are hardly any studies on simultaneous interpretation in the field of

medical.

Keywords: Online medical Chinese-English simultaneous interpretation; stylistic shift; spoken language and written language continuum; simultaneous interpretation teaching and practice

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1. Introduction

As an important language transmission approach, interpretation is significant in the international communication, and the construction of community with a shared future for mankind. Today's world faces opportunities and challenges, interpretation, breaking the language barrier, has become a key link to community with a shared future for mankind. Facing new requirements to interpretation, namely specialization and complexity, except basic interpreting competence and a wide range of knowledge, interpreter of a certain field needs to deepen his professional knowledge. Gile (2021) put that "uncertainty risk" arises partly from failure to understand source-text segments, either because of lacunae in the Translator's linguistic or extra-linguistic knowledge or because of cognitive issues, such as lapses of attention or, in the case of interpreting cognitive saturation. Besides, students should utilize the emerging technologies to promote the integration, innovation and development of the emerging technologies in science, technology, engineering and mathematics. For those technological universities, they should cultivate interdisciplinary interpreters. Wu Yan (2019) showed that if universities want to construct the "Emerging Liberal Arts" (combing arts and science), they must nurture the international interdisciplinary talents through building strong foreign language skills. That means cultivating interdisciplinary talents who are proficient in one foreign language and can communicate with other foreign languages. Results of this study will enrich the theoretical treasure house of how to enhance interpreting quality, facilitate the exchange and cooperation in the medical field, implement the requirements from the "Emerging Literal Arts", promote the community of a share future for mankind.

2. Literature Review

Wen Qiufang (2009) pointed out style feature means a language phenomenon where the frequency of a certain language feature used varies obviously in the spoken or written language. If a language phenomenon appears in the written language more than that in the spoken language, then we call it a feature indicative of literacy and vice versa. According to the corpus, 9 spoken language features and 7 written language features are chosen. Through the empirical research, Shlesinger (1989) demonstrated that during simultaneous interpretation, the spoken and written language features of SL tend to shift in TL. When SL exhibits prominent oral features, simultaneous interpretation tends to reduce their orality while enhancing literacy; conversely, when the SL demonstrates marked written features, simultaneous interpretation tends to diminish their literacy while amplifying

orality. Pöchhacker (2009) pointed out that during the process of interpretation, interpreters may adjust the stylistic features of the SL based on factors such as the linguistic style of the original speech, the expectations of the target audience, and the specific context of the interpretation setting. This adjustment may enhance or reduce the spoken or written characteristics of the SL, namely the stylistic shift. A study by Hong Lei and Wang Binhua (2011) suggested that in the Chinese- English consecutive interpretation exists the stylistic shift phenomenon. Ji Xiaowen and Wan Hongyu (2017) showed that there is stylistic shift in the English- Chinese sight translation. Xie Qun and Zhang Qianyun (2021) conducted research showing that there is no universal oral/written shift in interpretation processes. From the studies mentioned above, we can learn that the stylistic shift appears in consecutive interpretation, simultaneous interpretation and sight interpreting, but studies have shown divergent trends in confirming the universal of these patterns. Because the language database in the studies made by former researchers is not representative and cannot summarize all the conditions. Therefore, this research will, based on the online simultaneous interpretation on medicine, confirm whether there is stylistic shift in the online medical simultaneous interpretation and whether it occurs throughout the entire simultaneous process.

3. Method

3.1 Corpus and stylistic feature parameter

This research corpus comes from the first online multi-disciplinary forum on COVID-19 with simultaneous interpretation. Two characteristics from this research are worthy of noticing: first, the corpus is about medicine, belonging to technology and seldom former studies concern the stylistic shift in the medical simultaneous interpretation; second, it is an online conference interpretation during the pandemic, and is characterized by its substantial length and rich content, which corporates both written and oral discourse. This approach overcomes the limitation of single-variable research methodology, enabling comprehensive verification of stylistic shifts in online medical simultaneous interpretation. This research integrates the research findings of Cheng Yumin (2004) in his work English Stylistics that stylistic nature is a certain style or variation in a certain environment and stylistic feature is the specific element to constitute this style or variation. Therefore, through analyzing the stylistic feature we can reveal the stylistic nature of the language. Based on the theoretical grounding and the corpus here, 16 representative stylistic features are chosen from the 32 stylistic features listed in the English Stylistics to explore whether the stylistic shift exists in the online medical Chinese-English simultaneous interpretation from lexical and syntactic dimensions.

Cheng Yumin lists 32 stylistic features in his work English Stylistics and the rest 16 stylistic features are omitted from the final analysis for their being are not representative.

3.2 Examining changes in stylistic shift

This research will, based on the number of the speakers, be divided into seven groups, thus getting seven different samples. Then the frequency of the same stylistic feature will be calculated before and after the interpreting in each group. With the SPSS, the author can learn the trend of the stylistic feature changes obviously. Since the data used in the analysis must satisfy the assumption of normality to apply this test method,

the pared sample t-test is used for normally distributed data, while the non-parametric test for two related sample is applied when normality is not met. Thus, two tables are used to calculate the data, ensuring the accuracy of the result.

4. Analysis and Discussions

4.1 Data analysis

This data analysis is based on the IBM SPSS Statistics 27, the latest one. Two tables (Table 1 and Table 2) are used here to calculate the changes in the stylistic features before and after interpreting.

Indicator	Frequency of Occurrence in Seven Source Paragraphs	Frequency of Occurrence in Seven Targets Paragraphs	P-value of the Test Results (P<0.05 Indicates Statistically a Significant Difference)	Shift Trend
Extended prepositional phrases	4, 4, 0, 0, 3, 0, 4	2, 1, 0, 0, 0, 0, 0	0.037<0.05	+
Technical terms	75, 28, 23, 11, 2, 7, 19	52, 21, 7, 4, 5, 4, 11	0.035<0.05	+
Noun phrases	32, 53, 24, 12, 26, 2, 25	2, 5, 8, 0, 0, 0, 4	0.007<0.05	+
Pause	60, 16, 4, 0, 2, 4, 3	107, 26, 37, 13, 24, 2, 25	0.014<0.05	+
Self-correction	40, 4, 15, 3, 0, 2, 2	23, 8, 4, 0, 0, 1	0.182>0.05	-
Logical inconsistencies	2, 0, 6, 0, 1, 1, 0	5, 0, 3, 1, 2, 0, 1	0.703>0.05	-
Part-of-speech misuse	0, 0, 0, 0, 0, 2, 0	6, 1, 0, 3, 5, 0, 2	0.089>0.05	-
Abbreviations	54, 50, 1, 1, 9, 2, 15	7, 9, 2, 4, 8, 2, 3	0. 134>0.05	-
Relative clauses	11, 4, 2, 4, 2, 0, 0	9, 1, 6, 0, 3, 1, 2	0.901>0.05	-

Table 1. Pared t-test (normality assumed)

Indicator	Frequency of Occurrence in Seven Source Paragraphs	Frequency of Occurrence in Seven Source Paragraphs	P-value of the Test Results (P <0.05 Indicates Statistically a Significant Difference)	Shift Trend
Passive voice	2, 2, 1, 1, 0, 0, 1	12, 4, 5, 3, 2, 0 , 1	0.63>0.05	-
Interjections	10, 10, 63, 3, 1, 3, 7	14, 4, 10, 1, 0 , 0 , 0	0. 125>0.05	-
Short phrases	10, 2, 31, 1, 3, 1, 2	7, 0, 6, 0, 3 , 1 , 4	0.375>0.05	-
Modal particle	23, 23, 94, 17, 29, 11, 13	9, 5, 2, 1, 0, 0, 0	0.016<0.05	+
Slang	0, 0, 2, 3, 0, 0, 0	0, 0, 0, 0, 0, 0, 0	0.5>0.05	-
Tag questions	4, 0, 4, 0, 0, 0, 0	18, 1, 6, 2, 4, 0, 3	0.031<0.05	+

continued

Indicator	Frequency of Occurrence in Seven Source Paragraphs	Frequency of Occurrence in Seven Source Paragraphs	P-value of the Test Results (P <0. 05 Indicates Statistically a Significant Difference)	Shift Trend
Ambiguous pronoun reference	2, 0, 3, 0, 1, 0, 0	5, 0, 4, 1, 7, 0 , 0	0. 125>0. 05	-

Table 2. Pared t-test (normality not assumed)

Note 1: frequency of occurrence refers to the frequency of the same stylistic feature in seven groups, respectively. The pared sample t-test and non-parametric test for two dependent samples adopt 5% as the result of p-value.

Two tables above exhibit varying degrees of stylistic shift happens in the 16 stylistic indicators, where 6 stylistic indicators suggest significant difference with the p-value less than 0. 05, a significant stylistic shift, showing the stylistic nature shifts towards written language. The rest 10 stylistic indicators, though, suggest a stylistic shift not significant with the p-value more than 0. 05. The general trend is going towards the written language.

In conclusion, in this research, there is indeed stylistic shift in the Chinese-English medical simultaneous interpretation. However, a clear shift is observed in only 6 out of 16 stylistic features, showing that stylistic shift does not occur throughout the entire interpreting process, consistent with the conclusion got by Xie Qun and Zhang Qianyun in 2021 that oral-literate divergence pattern will not occur throughout the entire interpreting process. However, different shift occurs under different backgrounds. Besides, the research also indicates the quality of simultaneous interpreting relates to the command of linguistic stylistic style by an interpreter.

4. 2 Causal attribution discussion

The stylistic shift in the online medical Chinese-English simultaneous interpretation could be explained with Dependency Length Minimization (DLM) and Effort Model (EM). Liang Junying and Liu Haitao (2016) pointed out that the dependency length (DL) in a sentence refers to the linear distance between two words. DLM means in the handling to a natural language, linearly connected dependent words tend to be positioned as close as possible to their heads, which is actually a kind of limitation to the language structure caused by recognition, especially the working memory capacity. Working memory is not only used in language handling, but also a part of universal cognitive mechanisms in humans.

Gile (2008) pointed out the more words there are between two words with a dependency relationship, the more information we need to memorize in a short time. That means the longer the dependency length is, the more difficult to understand. Average dependency length (ADL) can be compared for different languages (Liang Junying & Liu Haitao, 2016)

E. g., 1: "I eat a big apple." This sentence is composed of "I" (predicate), "a" (object and attributive), "big" (attributive), "apple" (object).

"I" and "eat" forms a subject-predicate relation, DL is 2−1 = 1,

"eat" and "a" form a verb-object relation, DL is 4−2=2,

"a" and "big" and "apple" form a modifier-modified relation, DL is 7−3=4,

"big" and "apple" form a modifier -modified relation, DL is 7−5=2,

Thus, the total DL is 1+2+4+2=9, and the ADL is 9/5=1.8,

Gile (2011) suggested that simultaneous interpretation can be regarded as a process and is composed of four parts: ① listening effort; ② memory; ③ production; ④ coordination. While the total handling effort (TR) = listening effort (LR)+memory (MR)+production (PR)+coordination (CR), namely TR=LR+MR+PR+CR. To smooth the interpreting process, the following formula must be met, TR ≤ TA (the total effort needed to handle multitasks < the total energy that an interpreter is equipped to handle multitasks). there are examples to explain:

E.g., 2:

SL: 我[1]們[2]拿[3]到[4]這[5]些[6]交[7]流[8]、好[9]的[10]一[11]些[12]成[13]果[14]、取[15]得[16]的[17]一[18]些[19]成[20]績[21]、獲[22]得[23]的[24]一[25]些[26]經[27]驗[28], 用[29]於[30]第[31]二[32]期[33]的[34]治[35]療[36]和[37]防[38]疫[39]

TL: We should not stop the sharing or communication of the knowledge we have learned from our first stage of er fight. So good lessons and good knowledge will be good for the phase 2 of the fighting against the coronavirus.

Note 2: superscripts indicate the sequential position of the words, facilitating the calculation of dependency distance values between the main components of the sentence.

DL of SL is 4−2 (我們拿到)+28−4 (拿到經驗)+39−30 (用於防疫)=35

ADL is 35/3=11.666

If compare SL with TL, it shows that: "成果", "成績", "交流",, "成績", "治療" and "防疫" have not been interpreted clearly, the interpreter adopted the abridged translation, retaining the main idea of the SL instead of interpreting according to syntactic linearity.

E.g., 3:

SL: 在[1]這[2]裡[3], 您[4]能[5]不[6]能[7]跟[8]大[9]家[10]也[11]分[12]享[13]一[14]下[15]您[16]對[17]國[18]外[19]的[20]海[21]外[22]的[23]這[24]些[25]疫[26]情[27]的[28]這[29]些[30]看[31]法[32].

TL: Can you tell us about how you look at the oversea[s] epidemic of the coronavirus?

DL is 8−4 (您跟)+10−8 (跟大家)+32−13 (分享看法)=25

ADL is 25/3=8.333.

Comparing SL and TL, it shows that TL expresses the meaning of SL simply and accurately. Combining example 4 and 5, different sentences can be compared based on the ADL.

The ADL of example 2 is 11.666... while example 3 is 8.333 which is less than example 2 significantly. According to (Liang Junying & Liu Haitao, 2016), the more words there are between two words that have a dependency relationship, the more content we need to memorize in a short time. In other words, the longer the DL is, the more difficult to understand. Due to the long DL of example 2 that it is more difficult for the

interpreter to understand, which surpasses the total handling capacity to multitasks. Therefore, in the TL of example 2, abridged translation was adopted to get the main idea of the SL instead of using syntactic linearity. Based on (Gile 2011), only when TR ⩽ TA, the interpreter can interpret the SL smoothly, or the TL will be reduced in its quality. Comparing example 2 and 3 again, the TL of example 3 is better than example 2.

5. Enlightenment to the Simultaneous Interpretation Teaching of the Technological Universities

This empirical research suggests that stylistic shift exists in the medical Chinese-English simultaneous interpretation but not through the entire process. Simultaneous interpretation is a job that is demanding in multidisciplinary competencies, leaving a prestigious and high-profile impression, that most students have a fear of difficulty. Challenges brought by AI gets this condition worse. Therefore, technological universities should guide students to find their interests to deep in a certain field and finally be good at many things but proficient in one area. It also highlights the advantages of the teaching for simultaneous interpretation in technological universities and advocates the "Four Emerging Disciplines (Emerging Engineering, Emerging Medical Science, Emerging Agricultural Science and Emerging Liberal Arts)" requirements. Simultaneous interpretation learners are encouraged to participate in practice frequently to be proficient in a certain field, enhancing confidence, accumulating experience, and making reflection. Only in this way, the capability of simultaneous interpreting can be improved instead of focusing on language learning itself. To reduce the impact brought by the stylistic shift and optimize its quality, learners must know what the whole process of the simultaneous interpretation is, including the theme, background, environment, accent, interpretation booth and so on. Besides, interpreters must embrace the convenience actively from the technology and improve interpreting quality through emerging interpretation tools. Kerremans et al (2019), Gaber and Corpas Pastor (2020) pointed out that levels of interpreting technology uptake among interpreters remain quite low. Pinker (2015) showed that the limitations of the working memory cannot be overcome by practice, no matter how intense and sustained. In the daily life, interpreters must manage their energy, communication and cooperation well to minimize the negative impacts brought by memory limitations.

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