RESEARCH ARTICLE

CORPUS-BASED ERROR ANALYSIS ON ENGINEERING GRADUATES' ENGLISH ABSTRACT IN THE MASTER'S DISSERTATIONS

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ARTICLE INFO	ABSTRACT
	Academic English abstract is a miniature of the whole dissertation with the presentation of the principal objectives, scope of the study, methods employed and principal results. However, the Chinese engineering graduates have a relatively poor level of academic writing resulting in ineffective academic communications with internatiosnal experts. Therefore, this study focuses on the main English academic writing errors committed in master dissertations from the perspective of Error Analysis. Results shows the negative transfer of mother tongue has a huge effect. Several solutions are also given in this study.

INTRODUCTION

Nowadays, with the rapid development of the science and technology,English is an indispensable tool for scholars to get involved in the "Discourse Community" (Swales, 1990).Standardized academicEnglish writing is highly required on topics of engineering.For Chinese graduates, they have learned English for more than 10 years, while their English level especially writing ability seems to be considered to be much poorer which becomes obstacles in academic exchange and the application for a doctoral degree abroad. In the past few years, scholars have done abundant researches and investigations on writing errors from different perspectives with qualitative and quantitative methods, but few focuses on the academic writings, especially for engineering graduates. Therefore, the study of errors in academic writings especially in the field of engineering graduates becomes of great importance. This study will mainly focus on the abstracts of the masters' dissertations from one Chinese engineering-oriented university ranking among "985 Project"(Chinese first-class universities) Northwestern Polytechnical University. Through analyzing academic writing errors, detecting possible causes and offering suggestions, this study will be significant in improving academic writing abilities and raising awareness in English academic writing.

Error analysis: In the field of applied linguistics, different scholars bring forward different versions on the definition of

"error". In spite of this, the common viewpoint of the definition is that errors are the unsuccessful language use which needs to be avoided to conduct an effective information expression.Errors can be seen as a guide to the inner workings of the language learning process. According to Corder (1981:10), error analysis (EA) is a type of bilingual comparison between learners' interlanguage and the target language. It is a methodology for describing second or foreign language learners' language systems. EA is based on the assumptions that errors made by L2 learners can be predicted, observed, analyzed, classified and described (Brown: 2002). Richard (1971) distinguishes three different sources or causes of competence errors: interference errors, intralingual errors and developmental errors. Le (1999) hold the opinion that EA contributes to find out how well learners know the foreign language; to explore how learners acquire the second language; to obtain information on common difficulties in language learning, as an aid in teaching or in the preparation of teaching materials; and to provide data from which inferences about the nature of the language learning process can be made. The basic assumption of this study is that by analyzing errors in graduates' English abstracts of their dissertations, better understanding can be achieved about graduates' learning process, the main difficulties they have encountered and the underlying causes, so that some effective solutions can be found.

Research Design

Research Questions:
- What are the most typical errors made by Chinese engineering graduate students in their academic writing?
- What are frequencies of those errors and the underlying causes for those errors?

Data Collection: In this research, both quantitative and qualitative methods are used.The database consists of 32 abstracts collected randomly from "Database of master's and doctor's dissertation of NWPU" (http://tushuguan.nwpu.edu.cn/info/1980/9681.htm) including dissertations in areas of aeronautics, astronautics, marine science and technology, mechanical engineering, architecture, etc.

Subcategories of errors: Errors are presented and reflected through some descriptive taxonomy of errors, which focus on observable surface features of errors, according to Dulay, Burt and Krashen (1982). Under this principle, the author will distinguish the errors from the following five types: substance errors, morphological errors, lexical errors, syntactic errors and cohesive errors (James' categorization). The subcategories for each type are listed below:
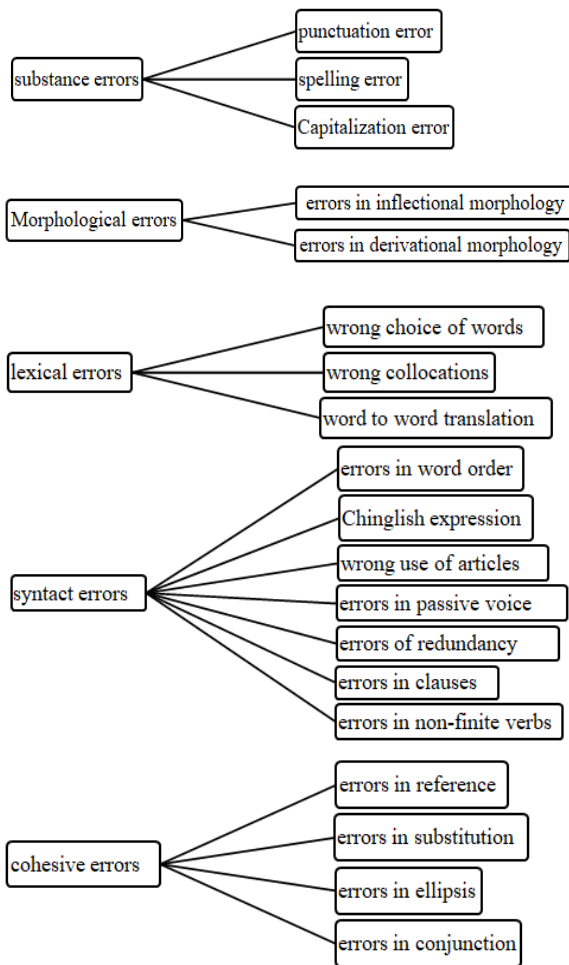

Table 3.3 sub-categories of the errors identified in the sample abstracts

To ensure the reliability and validity, the author invited an English native-speaker as counselor both in the process of identification of errors and categorization.
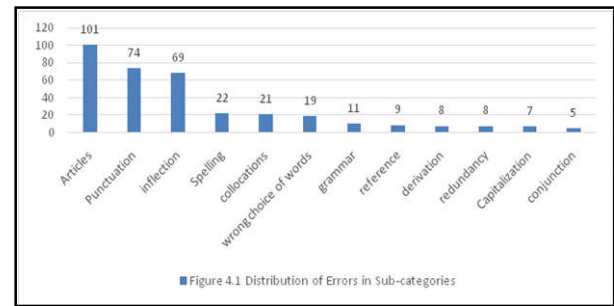
RESULTS

In 32 sample abstracts, 362 errors are recognized totally. Through author's observation of collected errors, the sub-category Chinglish expression and errors in word order can be combined together. The results are as follows:

Table 1. Proportions of error categories

	Substance Errors	Morphological Errors	Syntactic Errors	Cohesive Errors	Total
Number	103	77	168	14	362
Percentage (%)	28.5	21.3	46.4	3.9	100

Generally, the result indicates that the most frequently occurring errors were syntactic errors accounting for 46.4%, which means there are considerable troubles in graduates arranging their syntactic structures properly. The cohesive errors are the least frequently made by graduates due to most of the sentences are simple sentences.

Then, the author put the emphasis on the analysis of frequencies of sub-categories:

Figure 4.1 Distribution of Errors in Sub-categories

Above all, it can be proved that among all the identified errors, the most frequently occurring errors are article, punctuation and the inflectional morphology. Spelling, collocations and wrong choice of the words are followed with approximately 20 times.

ANALYSIS

In this part, the author mainly discusses four most frequently occurring errors of sub-categories and the underlying reasons from the qualitative perspective. Specific sentences from different aspects are analyzed.

Wrong use of Articles: The omission of articles before countable nouns can be seen in every sample abstract. Since there is no article in Chinese, so learners sometimes have no sense of using articles and in engineering dissertation, they often list several nouns together without paying any attention to English rules made before nouns.

- *In addition, object algorithm can predict the possible region of target when target was lost…*
- *…by establishing influence coefficient matrix.*
- *…check the strength of the bolts at connection of the bottom panel…*
- *…which has good effect*

In sentence (1), that 3 articles are absent in one single sentence shows the student does not master the use of articles. This phenomenon is commonly seen in graduates dissertations.

Punctuation Error: English and Chinese have totally different punctuation systems. Comma is the most versatile and widely used one of all punctuation marks and also, it is the most difficult punctuation mark to master. Graduates have made the most punctuation errors in comma when it is used to separate elements in a series.

(1) ...which includes the political environment, economic environment, technical environmentand social environment analysis.

Here when several elements are listed, before "and" should put a "comma". For the reason that graduates usually require listing engineering nouns, and they do not know "comma" should be added before "and". Therefore, it occurs many comma errors.

（2）Visual simulation technology is the combination of computer technology and latest achievements in graphics domain, it constructs the three-dimensional models according to the simulation object…

"Comma" performing the function of "period" can be seen in Chinese articles frequently. In sentence (2), students should use "period" to distinguish these two whole sentences. However, due to the negative transfer of the mother tongue, "comma" is used here wrongly.

Hyphen as the standard means of forming compound adjectives, combining two numbers into one, separating prefixes from proper nouns and dividing words into syllables. The absence of "hyphen" can be found in compound words frequently.

(3) threedimension scene.
(4) a prioritybased online re-planning method.
(5)highspeed motion.

Errors in Inflectional Morphology: As for the inflectional errors, it includes the omission of the plural ending in nouns, the omission of third-person singular ending in simple present tense and lack of agreement between the subject and its verb, etc. examples are:

(1) The main content are as follows: ...
(2) Finally, the discrete manufacturing tooling and distribution architecture is given.
(3) This paper solves basic firing data binding problem quickly.

In these sentences, two kinds of errors are presented. In sentence (1) and (2), disagreement errors between the subject and its verb which was around as the result of Chinese interference. In sentence (3), the omission of the plural ending in nouns caused errors because in Chinese, there is no concept of plural endings in nouns.

Errors in Spellings: That spelling errors such as"Instrment", "countraies", "typtical", "perfomance" and "atenna" account for 22 times are beyond expectations, which shows engineering graduates do not pay much attention to their English abstracts, since those errors can be avoided by computers.Not only the basic vocabularies which should have been mastered in the high school but also the academic words like "atenna" occurs spelling errors. As engineering graduates, they are trained to be serious and cautious of their statistics, because a minor mistake could cause the failure of one project or one experiment. Error in spellings, in the opinion of the author, should not allowed in English abstracts of the engineering graduates. The author holds the opinion that the research results can reflect English academic writing abilities of Chinese engineering graduates and there are many aspects to be improved.

Underlying Causes for Errors and Solutions

Underlying Causes

Negative Transfer of the Mother Tongue: English and Chinese belong to different languages and have great differences in morphology, lexis, syntax, pragmatics, and etc. Chinese negative transfer on academic writing is the largest factor. Odlin (2001:17) has suggested that transfer is an impact resulting from the similarities and differences between the target language and any other language that has been previously acquired. Language transfer can be classified into two categories: Negative Transfer and Positive Transfer in terms of the difference and similarities between L1 and L2 (Hu, 2011: 40) Negative Transfer refers to the use of native language patterns or rule that leads to an error or inappropriate form in the target language. Language transfer to English learning is inevitable. The reason why the negative transfer occurs frequently is that students have limited proficiency both in language ability of mother tongue and target language. Meanwhile, it is true that the native language environment always have an impact on the language transfer, especially for English learners in China. Chinese negative transfer in English as a L2 language among Chinese students is able to explain error in many aspects, such the omission of articles, the misuse of inflectional morphology, and so on.

Insufficient Attention to English Abstracts

important research object. Following contents are mainly studied in this thesis: (1) Discussed the classification, grade, material and other basic theory of the atenna, and then analyzed the transmission and reflection theory of plane wave in single layer and multilayer media. (2) The basic measurement principle of the electrical performance of the antenna is studied, and the detailed test method and calculation method of the electric perfomance test of the radome are extracted. (3) On the basis of theoretical research, a new method of far field automatic testing method for radome is proposed, and the corresponding test system is built. The test system includes test instrument,

This is one part of the English abstract of a graduate from School of Marine Science and Technology. Within 3 sentences, spelling error, error in the inflectional morphology, absence of hyphen occurs and have not been found by his supervisor or the assessment experts, which shows authorities do not show enough attention to English abstracts of engineering graduates.

Few opportunities for engineering graduates to use English: Engineering graduates have heavy scientific research tasks and there exist little chances for them to learn English except the limited compulsory English courses. Most of them only know basic vocabularies and grammars. More importantly, they are rarely trained to think like an English native speaker.

Solutions

(1)Develop the habit of thinking in English

Negative transfer cannot be avoided, but student can be trained to reduce errors they may make.Graduates should understand the impact and interference of the negative transfer of mother tongue on academic writing, and try to think and write in English. Language is a means for people to express their thoughts. A man cannot change the way he speaks or writes, if he does not change the way he thinks. Only in this way can they write correct English sentences themselves.

(2) **Strengthen the awareness in English academic writing:** Although societies and universities have a relatively low request for English abilities among engineering graduates, poor English abstracts will have a negative influence in their further application for a doctoral degreeor academic study abroad. Therefore, both universities and graduates should raise the awareness and compose an excellent English academic writing.

(3)**Practice English Academic Writing More:** Actually, engineering graduates have a heavy Scientific research pressure, and only have limited opportunities and time to practice English writing. They should be encouraged to participate in more English activities, such as English speech contests, English salons and other activities to improve English writing. Moreover, universities and schools should encourage them to apply for international academic exchanges, during which graduates will be forced to improve English academic writing abilities.

Conclusion

English writing is proved vitally significant for engineering graduates in their academic researches. However, errors made by Chinese graduates in their writing process can be easily observed. Thus, is meaningful to categorize and analyze errors from the perspective of Error Analysis, which can illustrate frequency and distribution of errors at different linguistic levels, discover the features of errors, provide insights into the language learning process, and enrich second learning theory. There also existsa limitation in this study. The data is collected only from one university and the reliability of the data can be easily challenged. However, the author hopes that the current study can make some contribution to graduate's English writing, especially for engineering graduates.

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