Evaluating Lexical Complexity From EGP to ESP Textbooks

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Abstract—ESP classes are usually designed for college students after they finish EGP learning. Accordingly, ESP textbooks are used after they use the EGP ones. Logically, ESP textbooks should be lexically more sophisticated than EGP ones, because linguistic contents are also important concerns for ESP teaching, and ESP classes should also promote students’ language development in addition to their professional advancement. This research aims to compare lexical complexity between EGP and ESP textbooks used among college students. With lexical sophistication as an index for lexical complexity, this study found some ESP textbooks were lexically easier than the EGP ones in this study, which contrasts with input hypothesis. This implicates that ESP textbook writers should consider the contents of EGP textbooks when writing textbooks.

Index Terms—ESP, EGP, lexical complexity, lexical sophistication, textbooks

I. INTRODUCTION

Classes of English for general purpose (EGP) cover a very vast domain (Zohrabi, 2015), during which grammar, vocabulary, cultures, geography, science, etc. can be acquired. However, EGP classes cannot effectively meet the special needs of many language learners (e.g., businessmen, doctors, scientists) in their professions (Davies, 2008; Hutchinson & Waters, 1987). Therefore, classes of English for specific purposes (ESP) should be provided for them to better their career development. But providing ESP classes does not mean all EGP classes should be abandoned because EGP classes can be the foundation for further ESP learning (Esmailpour & Shahrokh, 2015; Guest, 2016; Li, 2012; Zohrabi, 2015). Hence, a comprehensive language teaching system that integrates EGP with ESP classes in an appropriate manner should be built to meet language learners’ linguistic and professional needs.

An effective integration of EGP and ESP classes necessitates compatible textbooks. For example, with the improvement of students’ language competence, the complexity of textbooks used in higher grades should be more difficult than those used in lower ones (Chen, 2016). Therefore, the textbooks used in ESP courses should be more difficult than those in EGP courses, considering EGP courses are commonly believed as the foundation for ESP courses and practically precede ESP ones. But little research has been conducted to explore whether there exists difficulty development from EGP to ESP textbooks.

This study aims to investigate whether there exists lexical complexity improvement from EGP to ESP textbooks by comparing lexical sophistication among the two categories of textbooks.

II. LITERATURE REVIEW

A. Textbook Evaluation

The large and increasing number of textbooks in the book market enhances the difficulty of textbook selection and makes it necessary to evaluate the target textbooks before making decisions (Cunningsworth, 1995). This is true for textbooks used for English language teaching (ELT). Hence, numerous studies have been conducted to evaluate ESL/EFL textbooks. Because ELT textbook selection entails systematic criteria for textbook evaluation (Sheldon, 1988), various checklists/criteria/principles for English textbook evaluation have been proposed (e.g., Mukundan et al., 2011; Williams, 1983). Mukundan and Ahour (2010) reviewed the checklists for the evaluation of textbooks proposed from 1970 to 2007 and found 48 checklists in total. They found the most frequently cited words in the checklists during the four decades include “students”, “teachers”, “skills”, “practice”, and “contents”. Williams (1983) and Litz (2005) listed the criteria for checking the linguistic contents like reading, listening, writing, and speaking parts. Ansary and Babaii (2002) even took the physical conditions (e.g., size, weight, layout, publishing quality) of textbooks into consideration. Those factors in the above checklists are closely related to the elements of textbooks themselves, while few researchers considered the context in which textbooks are used. For example, the factors beyond textbooks and classrooms themselves including gender, culture, national curriculum guidelines and other social issues were limitedly explored. However, in recent years those factors are gradually investigated in the evaluation of ELT textbooks (e.g., Ahmad & Shah, 2019; Dominguez, 2003; Mahmood, 2010; Thomson & Otsuji, 2003). This is a tremendous advancement because researchers began to consider whether the context is appropriate for the application of a particular textbook rather than paying their attention only to textbooks themselves. However, though the compatibility between textbooks and their
outside factors like culture, gender was considered, few checklists paid attention to another outside factor: connections between or among the textbooks used in sequence, i.e., the relations between particular textbooks and their preceding or following ones. For example, only a limited number of researchers valued the significance of difficulty relations between textbooks used by students sequentially, though more research was conducted to evaluate the difficulty differences of language textbooks published by different institutions or companies (e.g., Rahimpour & Hashemi, 2011; Tang & Zheng, 2018). The research status quo on the connection between EGP and ESP textbooks is the same. Although ESP textbooks are adopted right after EGP ones in universities, it seems researchers have ignored the issue of difficulty advancement from EGP to ESP textbooks. In theory, ESP involves teaching and learning not only specific skills but also English language (Day & Krzanowski, 2011, p. 5). This means that ESP textbooks, on top of specific knowledge about students’ major, should also emphasize learners’ language development. In reality, some successful textbooks even include 70% of contents on language instruction and only 30% on subject contents (Cai, 2013, p. 10). Therefore, it is meaningful to evaluate language contents in ESP textbooks with comparison to their preceding EGP ones.

B. Lexical Complexity

Vocabulary learning is quite essential for language learners, entailing more attention paid to words in the writing and selecting textbooks. For instance, Zhou (2012) pointed out that vocabulary is an objective index for the evaluation of English textbooks. As one of the important issues related to vocabulary studies, lexical complexity in different textbooks should be measured and compared, because lexical complexity has a significant influence on students’ comprehension of the target texts (Arya, Hiebert, & Pearson, 2017), thus impacting their language learning efficiency.

Measurements of lexical complexity have been explored by numerous researchers (Bulté & Housen, 2012; Zareva, 2019). Consequently, diversified measurements have been proposed and utilized to gauge lexical complexity in various texts (X. Wu, 2018). Some researchers paid attention to the particular features of words themselves (e.g., morphological features, semantic features) when they were investigating lexical complexity (e.g., Alfter & Volodina, 2018; Francis & Nusbaum, 1999; Paetzold & Specia, 2016; Rodgers, 1969; Szlachta et al., 2012). Those studies are beneficial for the identification of a single specific word’s complexity. However, the large number of words in textbooks problematizes this approach to the evaluation of lexical complexity, because the overview of lexical complexity about a text with large number of words cannot be elicited only from word level. Instead, most researchers conceptualized lexical complexity with a broader view and index this term with three constructs, i.e., lexical density, lexical variation, and lexical sophistication (e.g., Lahmann et al., 2016; Zareva, 2019), among which lexical density means the relative frequency of lexical words to the total number of words (Flowerdew, 2012, p. 29; Révész & Brunfaut, 2013, p. 38), and lexical variation, also named as lexical diversity (Lu, 2012; Zareva, 2019), was conceptualized as the range of different words used in a particular text (McCarthy & Jarvis, 2010, p. 381; Zareva, 2019).

Because the texts in textbooks are receptive materials and the main learning resources for students, language learners will spend much or even unlimited time on them. For example, students may spend ten minutes analyzing only one sentence or a paragraph, grammatically, semantically, or pragmatically. In one class, teachers may also focus on only one part of the text, explaining the related contents like words, sentences, grammar, culture, etc. in detail. Therefore, the significance of calculating the ratio of content words to the total number of words and the range of different words used in a specific text is limited. Because textbooks are important sources for students’ vocabulary learning, sufficient input of vocabulary in textbooks should be guaranteed. Therefore, only lexical sophistication will be applied in this study to test whether vocabulary is sufficient and appropriate in ESP textbooks.

C. Lexical Sophistication

Read (2000, p. 203), Bulté and Housen (2012, p. 31) conceptualized lexical sophistication as a measure of the ratio of advanced or infrequent words in the text. However, the ambiguity of “sophistication” caused a good number of diversified calculation methods. For instance, some researchers only paid attention to the rareness of words (e.g., Lu, 2012; Zareva, 2019), while Brunfaut and Révéz (2015) related lexical sophistication to not only infrequent words but also formulaic expressions. Eguchi and Kyle (2020) explored lexical sophistication in a multidimensional way, considering word range, age of acquisition and exposure, semantic network, psycholinguistic word information.

Specifically, the range of “sophisticated” words was diversely defined. Lu (2012, p. 192) thought the words out of the 2,000 most frequently used words list from British National Corpus were sophisticated. However, some academic words that are excluded from West’s most frequent 2,000 English word list (as cited in Coxhead, 2000) are indeed rather salient in academic texts including textbooks (Coxhead, 2000, p. 213). Because acquiring those academic words are essential for students to develop their reading and writing competence, textbooks have supplied favorable opportunities for students to learn these words (Yan & Gao, 2014, p. 14). The saliency of these academic words in textbooks problematizes the definition that words out of the 2,000 most frequently applied words are sophisticated, because some academic words, though not commonly used in other written materials (e.g., business letters), are prevalent in textbooks. Therefore, in the evaluation of lexical sophistication about English textbooks, not only general English words but also academic ones should be taken into consideration.

D. Theoretical Framework
Input hypothesis: i + 1

Krashen (1992, p. 409) claimed that comprehensible input is an essential environmental ingredient for language acquisition. It not only means that input should be comprehensible for the acquirers, but also needs to contain “i+1”. The concept of “i+1” is a metaphor, among which “i” means the aspects of language already acquired, while “1” represents the level of language beyond learners’ ability but they are ready to acquire. Therefore, comprehensive input indicates that the input complexity provided for language learners should be above learners’ current ability, but still within a certain complexity. Specifically, if the input contains “i+2” (i.e., the complexity of the input is far beyond learners’ current comprehensible level), or “i+0” (i.e., the complexity of the input is the same as learners’ current understanding level), the acquisition effectiveness will be rather limited (Cheng, 2011, p. 62).

Input hypothesis has been widely referred to by language teachers in the teaching practice. Chao (2013) thought Krashen’s input hypothesis has a great influence on the teaching of English listening, and the teaching effectiveness can be greatly improved by utilizing this theory. Wu (2010) stated that input hypothesis can inspire and benefit both teachers and students, improving the results of second language acquisition and language teaching. Ying (2019) found that many teaching strategies used by English teachers in junior high schools are closely related to input hypothesis, though they never learned this theory. Those studies demonstrate that input hypothesis is quite useful in foreign language teaching.

E. Research Questions

Based on corpus, this study aims to explore whether ESP textbooks are lexically more complex than EGP ones. In this study, only the ratio of sophisticated words in a specific text is considered, and hence lexical complexity will only be indexed by lexical sophistication. The research question is:

Is lexical sophistication in ESP textbooks higher than that in EGP textbooks?

III. Method

A. Research Data

This research will choose 5 textbooks as research materials, including 2 EGP textbooks and 3 ESP textbooks. Zhou (2012, p. 77) once conducted market research in China and found New College English published by Shanghai Foreign Language Education Press (SFLEP, hereafter) and New Horizon College English published by Foreign Language Teaching and Research Press (FLTRP, hereafter) are the top-2 most popular textbooks in Chinese universities, occupying 44.4% and 22.2% market share. Guo and Xu (2013, p. 104)’s research demonstrated that the two most welcomed textbooks are also New Horizon College English (49.3%) and New College English (38.9%), though the market shares of the two textbooks are a little different from those in Zhou’s (2012) study. The two studies showcased that the two textbooks including New College English and New Horizon College English are most widely chosen in China’s universities and indeed occupy most of the English textbook market in tertiary education. Given their wide application, this research chose the two most popular textbooks as the samples for EGP textbooks. Considering college students in China tend to have ESP classes in 5th semester after they finish the EGP classes in 4th semester, book-4s of the two textbooks series will be chosen as the data source, and the bibliographical information of the two books are listed in Table 1.

In the ranking of top ten most heated majors based on student number in China, three of them are related to economics and management, including accounting, financial management, and international economics and trade (Chen, 2017). The large number of students majoring in economics and management means that ESP textbooks about economics and management are greatly needed. Therefore, there should be a large number of textbooks of English for economics and management, and hence the quality of such textbooks should be ensured to meet the demands of the great number of students majoring in economics and management. To help improve the quality of ESP textbooks in this field, this study will choose several textbooks of English for economics and management as examples. Through National Library Consultant Union’s, three ESP textbooks on Economics and management published after 2016 were found. They are published by Tianjin University Press (TUP), China Waterpower Press (CWP), and by East China University of Science and Technology Press (ECUSTP). Their information was listed in Table 1 in detail.

<table>
<thead>
<tr>
<th>book name (Chinese+English)</th>
<th>code for this research</th>
<th>Publisher</th>
<th>ISBN</th>
<th>Published year</th>
</tr>
</thead>
<tbody>
<tr>
<td>全新版大学英语教程 4(New College English 4)</td>
<td>Book A</td>
<td>SFLEP</td>
<td>9787544637152</td>
<td>2014</td>
</tr>
<tr>
<td>新视野大学英语 4(New Horizon College English 4)</td>
<td>Book B</td>
<td>FLTRP</td>
<td>9787513588164</td>
<td>2017</td>
</tr>
<tr>
<td>经管英语(English for Economics and Management)</td>
<td>Book 1</td>
<td>TUP</td>
<td>9787561857199</td>
<td>2017</td>
</tr>
<tr>
<td>经管类专门用途英语教程(English for Economics and Management)</td>
<td>Book 2</td>
<td>CWP</td>
<td>9787517076179</td>
<td>2019</td>
</tr>
<tr>
<td>经管专业英语教程(English for Economics and Management)</td>
<td>Book 3</td>
<td>ECUSTP</td>
<td>9787562845331</td>
<td>2016</td>
</tr>
</tbody>
</table>
Because reading is one of the most important approaches to lexical input, this study only compares lexical sophistication of reading materials in different textbooks. For Book A, Book B, Book 1 and Book 2, they all have 8 chapters or units in total. But for Book 3, it has 15 units, which is too much for only one semester. This study only adopts the first 8 units in this textbook to keep in line with the other three textbooks. In each chapter or unit of the 5 textbooks, there are two reading texts. Therefore, 16 different reading texts were selected in each textbook.

B. Instruments

Because some salient academic words that are excluded from the 2,000 most frequently used list, that list is not enough as the boundary dividing easy and sophisticated words. Given the saliency of those academic words used in textbooks, in this study, both the words which are excluded from the 2,000 frequently used word list and academic word list (AWL, covering 570 word families) are regarded as sophisticated. AntWordProfiler (Anthony, 2014) was used to calculate the percentage of sophisticated words in the 80 selected texts from both EGP and ESP textbooks. The program can provide the percentage of the word families with regard to 1,000- and 2,000-word levels in general English and that with regard to the 570 academic words. When the percentages of the words on the three levels have been achieved, the percentages of the words out of the three levels will be calculated and then be compared among the 80 texts.

PDF documents were firstly made based on the five paper textbooks. The software named Adobe Acrobat Pro DC was used to make the documents editable. Those editable contents will be copied into Microsoft Word text by text to check spelling because some mistakes may occur in the process of format transformation. In the proofreading process, apart from correcting spelling mistakes, the additional information which is not closely related to the research, including paragraph serial number, pictures, page numbers, notes, was deleted. Then the texts were saved as plain txt files for the lexical analyzer. The program AntWordProfiler was used to calculate lexical sophistication of each text. After the results were produced, the data was input into SPSS to analyze.

IV. RESULTS

Table 2 demonstrates the descriptive statistics of lexical sophistication of the 5 textbooks.

<table>
<thead>
<tr>
<th></th>
<th>Mean (%)</th>
<th>Std. Deviation (%)</th>
<th>Minimum (%)</th>
<th>Maximum (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book A (N=16)</td>
<td>20.37</td>
<td>4.91</td>
<td>11.91</td>
<td>31.00</td>
</tr>
<tr>
<td>Book B (N=16)</td>
<td>19.42</td>
<td>2.21</td>
<td>13.98</td>
<td>22.54</td>
</tr>
<tr>
<td>Book 1 (N=16)</td>
<td>10.66</td>
<td>3.85</td>
<td>2.54</td>
<td>17.50</td>
</tr>
<tr>
<td>Book 2 (N=16)</td>
<td>17.25</td>
<td>4.79</td>
<td>8.20</td>
<td>26.56</td>
</tr>
<tr>
<td>Book 3 (N=16)</td>
<td>14.20</td>
<td>6.01</td>
<td>7.27</td>
<td>25.80</td>
</tr>
</tbody>
</table>

Based on the descriptive statistics, it can be found that the two EGP textbooks have very similar percentages of sophisticated words in the whole texts, with the means at 20.37 and 19.42 respectively. However, the mean percentages of sophisticated words in ESP textbooks fluctuate much more greatly than those in EGP textbooks, from 10.66 to 17.25. In addition, the mean percentages of sophisticated words in ESP textbooks are lower than their EGP counterparts. In the three ESP textbooks, the highest lexical sophistication is 17.25 in Book 2. However, it is still lower than 19.42, which is the lowest lexical sophistication mean for the two EGP textbooks.

In order to explore whether there exist significant differences among ESP and EGP textbooks in terms of the percentage of sophisticated words, Kruskal-Wallis H test is used. The test showed that there are significant differences among the five textbooks (\(H = 31.28, df = 4, p < .001\)). Post hoc Mann-Whitney U tests were conducted to explore whether there exists significant difference between each pair of EGP and ESP textbooks. Test results could be found in Table 3.

<table>
<thead>
<tr>
<th></th>
<th>ESP books</th>
<th>(Z)</th>
<th>(p)</th>
<th>(r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Book A</td>
<td>Book 1</td>
<td>-4.41</td>
<td>.000</td>
<td>-0.78</td>
</tr>
<tr>
<td></td>
<td>Book 2</td>
<td>-1.70</td>
<td>.090</td>
<td>-0.30</td>
</tr>
<tr>
<td></td>
<td>Book 3</td>
<td>-2.75</td>
<td>.006</td>
<td>-0.49</td>
</tr>
<tr>
<td>Book B</td>
<td>Book 1</td>
<td>-4.64</td>
<td>.000</td>
<td>-0.82</td>
</tr>
<tr>
<td></td>
<td>Book 2</td>
<td>-1.77</td>
<td>.076</td>
<td>-0.31</td>
</tr>
<tr>
<td></td>
<td>Book 3</td>
<td>-2.64</td>
<td>.007</td>
<td>-0.47</td>
</tr>
</tbody>
</table>

The tests showcased that the two ESP textbooks, including Book 1 and Book 3 are significantly different from Book A and Book B on lexical sophistication. Given the means of percentages of sophisticated words in the two ESP textbooks are lower than those in EGP textbooks, it can be concluded that the percentages of sophisticated words in the two ESP textbooks are significantly lower than those in the two EGP textbooks. However, there is no significant
difference between ESP Book 2 and the two EGP textbooks.

V. DISCUSSION

According to the input hypothesis (Krashen, 1982), students acquire language only when they understand the contents that contain structures that are slightly beyond the learners’ current level. Therefore, the teaching materials provided for language learners should be slightly but not too much difficult for the targeted students. Considering vocabulary is essential for students’ linguistic development, one of the most important objectives of the English textbooks should be to improve their lexical competence, and hence appropriate lexical resources slightly beyond students’ existing knowledge of vocabulary should be provided in those textbooks. Therefore, lexical sophistication in textbooks chosen for students in the following stage should be higher than that for students in the preceding stage. In China’s universities, students have ESP classes after they finish their EGP ones. Hence, ESP textbooks are usually used after the EGP ones. Students will learn a certain number of English words in the EGP classes and improve their language proficiency to “i” level. Given this, ESP textbooks, those used after EGP stage, should provide linguistic knowledge which is on “i+1” level to better students’ language development.

In the three chosen ESP textbook materials, lexical sophistication in two of them is significantly lower than that in the EGP ones. Although the third ESP textbook has the same lexical sophistication with the two EGP textbooks, the mean of lexical sophistication of the ESP textbook is still lower than the EGP ones. This means that all of the three ESP textbooks are, to certain extent, easier than the two most popular textbooks in China in terms of lexical sophistication. In terms of lexical sophistication, if the two EGP textbooks are on the “i” level, the three ESP textbooks may be on the “i-1” level rather than “i+1” level. This runs counter to the input hypothesis proposed by Krashen.

VI. IMPLICATIONS

In China’s universities and colleges, the majority of the ESP classes are arranged after students finish their EGP ones. After the EGP stage, students will have learnt a certain number of words and adapt to the level of lexical sophistication in the general English textbooks. With the EGP classes as the foundation, on the ESP learning stage, students should read more difficult textbooks and meet more lexically sophisticated words than they do in the EGP level. Therefore, when the writers of ESP textbooks are designing textbooks for students in the ESP stage, they should take the vocabulary those students have learnt and the conditions of lexical sophistication in EGP stage into consideration, rather than only focusing on transmitting the specific knowledge. After all, ESP classes concern not only professional knowledge but also linguistic contents. The textbook writers should ensure more lexically sophisticated texts in the ESP books than in the materials used in EGP stage, because a gradual increasing of lexical sophistication from EGP textbooks to ESP ones is essential for language learners’ lexical development.

Limitations

This study applied 5 textbooks, including 2 EGP textbooks and 3 ESP textbooks. The number of samples is limited compared with the large number of EGP and ESP textbooks in the market. In addition, the three ESP textbooks are all from the disciplines of management and economics. Since there are many different majors and disciplines and hence numerous ESP textbooks in different areas, the study only focusing on the discipline of management and economics may not be very representative.

Notes

1. National Library Consultant Union (http://www.ucdrs.net/) is a non-profit platform, on which the resources of its member libraries could be shared. For example, if one book can be found in one of the platform’s member library, the information of this book will be listed on the website. This project makes it very easy for readers to find the targeted books. Currently, a good number of provincial and city libraries, as well as libraries in universities and institutes are its members. Because those member libraries usually have archived a large number of books, almost all the information of paper textbooks published in China can be searched on this platform.

2. There is only Chinese name on the cover of this book, with no English translation. The English name was translated by the author.

3. There seems an English name on the cover of this book under its Chinese name, that is “SELECTED ENGLISH READINGS OF BUSINESS”. However, this is not the translation of its Chinese name. In fact, “SELECTED ENGLISH READINGS OF BUSINESS” may be used to explain the focus of the contents in this book. The direct translation of “经管专业英语教程” is “English for Economics and Management Majors”. In order to keep uniformity among the three ESP textbooks, the author shortened it to “English for Economics and Management”.

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REFERENCES


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