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Foreword

Fostering Student Voices

Roger Nunn

American University of Sharjah

David Young

Khalifa University, Abu Dhabi

Welcome to the first AESP issue of 2018 (Volume 14, Issue 1) in which ‘voice’ takes centre stage, from encouraging doctorate students to adopt their own, as they run the gauntlet of abstract-composition, to coaching creativity and confidence in students so they can pitch and win the attention and regard of a public audience. The primacy of the authorial voice appears in each paper, in its own particular way, which makes the assembly of this issue all the more apt.

AESP is a strong supporter of the use of a transparent first-person voice as an acceptable transitivity choice for authors. In First-Person Pronoun Use in Abstracts: Asian Doctorate Students versus SSCI Journal Writers, White looks at the use of the first-person in what is often the most formal section of a paper: the abstract. He finds that graduate students tend to avoid the first-person. This may not be surprising in that graduate students may feel under pressure to conform to their perception of what is required by supervisors. Rather than being pressured to hide their voice, it is surely time now to encourage them to make fully appropriate choices without hiding their own inevitable interventions in both the research and the text. Interesting, while many American manuals for students strongly advocate a first-person, the prestigious TESOL Quarterly is the one journal in White’s sample where a first-person is not so frequent.
At an earlier stage of higher education, Wyatt et al., in *Supporting First-Year Undergraduate Emirati Engineers in Reading in English for Science*, underline the importance of STEM literacy. STEM literacy education involves specialists in literacy working with subject teachers to determine how best to support and develop students’ ability to perform in their content courses. Wyatt et. al. indicate that greater awareness of the issues by literacy instructors, students and content instructors in combination represents the way forward. We would assume that White’s findings on the first-person would also be relevant in this context as an important component of developing academic literacy.

Another important strand of ESP scholarship is the way we prepare students for professional writing tasks. This is well illustrated in *From Authentic Input to Authentic Output: Assessing the Real World Potential of ESP Tourism Student Writing* by Gregory Friedman. This paper reports on a project in a university ESP Tourism Industry Communication course. Friedman reports on the way students were encouraged to collect authentic samples from the web. They created a class database that contained important lexical and colligational information to use in their own work. Friedman’s paper illustrates how, rather than assuming that mobile phones and smart devices ought to be banned from classrooms, they can in fact be fully and meaningfully integrated into the curriculum. In this case, students went on to create websites that were pitted against professionally produced equivalents, and won by being the preferred reading choice of the general public. Students therefore also have a creative voice in professional writing.

In *Building Blocks of Medical Abstracts: Frequency, Functions and Structures of Lexical Bundles*, Zeinab Abdollahpour and Javad Gholami investigated high-frequency lexical bundles and built a corpus to analyze their use. By exploring the prevalence of such structures and discourse functions, they identified the building blocks of scholarly writing for their students. Their work will boost the caliber of writing expression of their novice researchers and inform material developers and course instructors alike.

Masoomaeh Estaji and Hoda Salimi write in *The Application of Wiki-Mediated Collaborative Writing as a Pedagogical Tool to Promote ESP Learners’ Writing Performance* of the significance of using tech tools to promote an interactive and thereby more engaging learning experience. By commenting on the work of their peers, and exchanging commentary/feedback with their
instructors, students improved their writing abilities. From speeding up the feedback process to simply practicing how to articulate responses, students felt they had found their voice.

Investigating Saudi Medical Students’ Attitudes Towards English-Arabic Code-Switching in Classroom Instruction – The researchers found that students appreciated the opportunity to switch from second to first language for the sake of clarity and expediency when learning new content. The audience, thus, through expressed preference, voiced what it felt best benefitted the particular learning environment.

Also addressing students’ needs, authors Soo Hyun Koo and Min-Chang Sung, in Korea, chart the development and subsequent evaluation of a customized academic writing course for postgraduate students, in Customized EAP Program for Novice Researchers in Engineering; Focus on Progress in Use of Cohesive Devices. Analysis of the bespoke curriculum, which focused on the students’ diagnosed need for improved use of cohesive devices, exhibited progression in the deployment of these specific textual features. However, closer examination revealed a more multi-faceted approach, incorporating linguistic, pragmatic, and cognitive aspects is what learners require to meet the challenges of mastering academic writing.

In The Catalysts and Barriers of Learning Transfer in ESAP Writing Programs, Zohreh Shooshtari, Somaye Haghighi, and Reid Bates examine the learning transfer in discipline-specific academic writing programs. Surveying students in four different medical sciences, the researchers used the Learning Transfer System Inventory as a diagnostic tool to identify the barriers and catalysts to the act of learning transfer. In brief, higher education institutions need to become more aware of the work-related factors that impede the transfer of learning outcomes.

At first glance, the papers in this issue may appear disparate. A closer look though reveals a concerted effort to place the student at the centre of the learning experience. The immersion of the student in the process has allowed for the blurring of expected lines. Hence, literacy and language skills development can integrate rather than just run in tandem with the typical content class. Arguably, code-switching in the classroom, for the sake of expediency and concept-checking, is just another facet of students finding ‘their voice’ too.
First-Person Pronoun Use in Abstracts: Asian Doctorate Students versus SSCI Journal Writers

G. Benjamin White

China Medical University, Taiwan

Biodata

G. Benjamin White has been teaching English in Taiwan since early 2004. He is currently working through his dissertation on self-mentions at National Changhua University of Education. He is also a project lecturer, teaching English, in the College of Humanities and Technology at China Medical University.

Email: whitegben@gmail.com

Abstract

No article is complete without the abstract. It is usually the first item read and gives the reader the basic information of the article. The purpose of this paper was to investigate and compare the use of first-person pronouns in the abstracts of PhD dissertations and SSCI journal articles. The corpus contained 150 abstracts from Chinese, Korean and Taiwanese doctoral dissertations and 200 abstracts from four Applied Linguistics SSCI journals. The results showed that I and We were by far the most frequently used first-person pronouns and that writers in the SSCI journals used first-person pronouns much more frequently than doctoral students. The one exception was with TESOL Quarterly. The results confirmed past research in that many graduate students avoid the use of first-person pronouns in their writing. Graduate students, especially those in Asia and in Applied Linguistics, should be taught that first-person pronouns are acceptable in academic writing and can be used in their own writing, specifically in their dissertation abstracts.

Keywords: first-person pronouns, abstracts, doctoral students, SSCI journals
Acknowledgments

I would like to thank JoAnn White for her comments and suggestions on earlier drafts of this article.

1. Introduction

1.1 Abstracts

Abstracts serve many different purposes. Martín (2003) saw them as “time-saving devices” (p. 27). Dos Santos (1996) discussed how they could also be useful after reading an article or paper as a way to remember the key parts. Silvia (2007) recommended researchers make abstracts good, as it is often the one item (after the title) that everyone reads. Gillaerts and Van de Velde (2010) pointed-out that there are some questions as to abstracts and their place in the research paper. They stated that abstracts can either be “a condensed reproduction of the text or” just “an expansion of the title” (p. 128). Bailey (2011) stated that an abstract was “a short summary of the aims and scope of a journal article” (p. 287). Looking at the definition of abstracts, most studies (e.g., Tseng, 2011) have cited the definition from the American National Standards Institute (1979, as cited by Lorés, 2004, p. 281; Tseng, 2011, p. 28), “it is an abbreviated, accurate representation of the contents of a document, preferably prepared by its author(s) for publication with it.”

There are two keywords involved in abstracts. The first is brief. Tseng (2011) found in a review of 90 abstracts that the average word count was 163.7 words, running from a low of 98 words to a high of 292 words (p. 39). The second keyword is informative. Hartley (2003) stated that abstracts “encapsulate, in a brief text, the essence of the article that follows” (p. 376). These two keywords show that within a short space, writers must give enough details as to what the article contains. One way that writers might attempt to convey this information is through the use of self-mentions and specifically first-person pronouns.
1.2 Self-mentions

Table 1: Self-Mentions from Hyland (2005)

<table>
<thead>
<tr>
<th></th>
<th>Singular</th>
<th>Plural(a)</th>
<th>Generic(b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Me</td>
<td>We</td>
<td>Us</td>
</tr>
<tr>
<td>My</td>
<td>Mine</td>
<td>Our</td>
<td>Ours</td>
</tr>
</tbody>
</table>

Note.
\(a\)Exclusive
\(b\)Includes -s; -’s; -s’
\(c\)Not included on Hyland (2005).

As the name implies, self-mentions “[refer] to the degree of explicit author presence in text measured by the frequency of first-person pronouns and possessive adjectives” (Hyland, 2005, p. 53). The key is that the self-mentions must make “explicit reference to author(s)” (Hyland, 2005, p. 49). Hyland (2005) stated that the “presence or absence of explicit author reference is generally a conscious choice by writers to adopt a particular stance” (p. 53). This is similar to what Mur Dueñas (2007) found in that self-mentions help writers to show themselves as “experts” in the field (p. 144).

Table 1 shows the break-down of the self-mentions. As Noble (2010) discussed the use of I is a clear reference “to the writer of the text” (p. 162). The problem comes with We. We only counts as metadiscourse when it is used exclusively for the writer and not when it is used inclusively for writer and reader, or people in general (Hyland, 2005).

One of the more interesting aspects of self-mentions is that students in the US, and other places, have been taught to avoid using first-person pronouns in writing (Davies, 2012; Graff & Birkenstein, 2010; Orzel, 2007). Editors, in the past, have also been against their use (Taylor, 2005; Webb 1992, 2002; see also Hu & Cao, 2015). Harwood (2006) in his interviews of five political science professors, found that in general the use of first-person pronouns was appropriate, but that they should not be overused. In addition, he found that some professors felt that the use of the generic terms was problematic as they sounded long winded. This opinion follows Cutts (1996) who singled out The Writer as a poor way to avoid using first-person pronouns.
Today, the opinions on the use of first-person pronouns are changing. This can be seen in the writing manuals, guides, and books that show first-person pronouns are useful and appropriate (APA, 2010; Cutts, 1996; Graff & Birkenstein, 2010; Silvia, 2007; Taylor, 2005). The APA (2010) stated that writers should “use a personal pronoun rather than the third person when describing steps taken in your experiment” (p. 69). The APA (2010) specifically showed the use of The Author as an incorrect form for writing. One issue is that the APA (2010) only gave the advice for the methodology section without additional points for the other sections of the paper. While Graff and Birkenstein (2010) were more explicit than Silvia (2007) in their discussion of the use of first-person pronouns, they all argued that active sentences are better than passive ones. This follows Webb (2002) who also stressed the use of active voice over passive voice (see also APA, 2010; Cutts, 1996).

Even though this is the case, Hyland (2002) found that students tended to avoid the use of self-mentions in their writing. He stated that they “consciously avoided the most authoritative functions and sought to deny ownership and responsibility for their views” (p. 1107). He also discussed the idea of publication manuals and instructors having an influence on their writing style (see above). Further, while the APA (2010) did discuss the use of active voice they did not go into much discussion on the use of first-person pronouns, spending much more time on the issue of third-person pronouns. As a result graduate students are probably more likely to follow their professors than writing manuals and books.

Even though Table 1 and the discussion above includes points on generic self-mentions, for this paper I will only investigate first-person pronouns. The main reason is that my prior research (White, 2016) has shown a low use of the generic terms (e.g., The Writer). In addition, others (Carciu, 2009; Mur Dueñas, 2007; Nunn, 2014; Nunn et al., in press) have also not used these items in their data analyses. One additional point is that there appears to be some disagreement as to whether these generic self-mentions are truly self-mentions, or if they should be removed from the list of metadiscourse (APA, 2010; Cutts, 1996; Harwood, 2006; Webb, 2002).

1.3 First-person pronoun use in abstracts

Interestingly, there have been few studies on the use of first-person pronouns in abstracts. Many studies that have investigated metadiscourse in research articles have not included abstracts in their
analyses (e.g., Martínez, 2005; Mur Dueñas, 2007). There is additionally the issue that studies tend to look at more than just self-mentions when investigating abstracts (e.g., Akbas, 2012). Since the other items on Hyland’s (2005) list (e.g., transition markers) offer more interesting findings for discussion, self-mentions are usually only given a short discussion (e.g., Akbas, 2012). Further, Gillaerts and Van de Velde (2010) did not even include self-mentions in the analysis of metadiscourse in abstracts. They stated that “self-mentions have been ignored because there is no agreement on their interpersonal effect” (p. 131). Nevertheless, their discussion bought up the point that while writers might tend to avoid the use of self-mentions in the main article, they may use them in the abstract.

One interesting study is Yang (2016), who investigated journal highlights. While not specifically the abstract, journal highlights fall before the main article and similar to abstracts are probably read by most people before the main article. Yang (2016) found that the hard sciences tended to overuse self-mentions (specifically We) with the soft sciences tending to underuse them. This result along with others (e.g., Hyland & Jiang, 2016) are interesting, as hard-sciences seem to be using self-mentions, specifically the first-person pronouns, more than in the past, while the soft sciences (e.g., Applied Linguistics) are using them less than in the past (Hyland, 2005; Hyland & Jiang, 2016). In White (2016) I found that while Applied Linguistics master's students did use first-person pronouns in theses abstracts, they tended to use them less frequently than the generic self-mentions.

One additional point is that language might influence the use of self-mentions. Zhao and Wu (2013) found that writers in Chinese language medical journals used first-person pronouns less than writers in English language medical journals. Lorés-Sanz (2006) found that English writers used I more frequently than Spanish writers, with Spanish writers using We more frequently than English writers, even when the article was single authored. It is possible that writers will take their writing style from their first language into English. Turning to a study that investigated native English speakers (NES) and non-native English speakers (NNES) writing in English, Akbas (2012) found that NES used self-mentions more frequently than NNES and that this difference was significant. While this study is not specifically investigating language and is also not comparing NES with NNES, the discussion above is important. Since the student corpus is from Asia,
language (Chinese and Korean) along with writing in a second language (English) could be a factor in the use of first-person pronouns by doctoral students.

1.4 Research questions

I undertook this study in order to answer the following questions:

1. Which first-person pronouns are used and what are their frequencies?
2. How do the two groups (doctoral students and journal writers) compare in their use and frequencies of first-person pronouns?

2. Methods

2.1 Corpus

<table>
<thead>
<tr>
<th>Table 2: Corpus</th>
</tr>
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<table>
<thead>
<tr>
<th>Student Corpusa</th>
<th></th>
<th></th>
<th>N</th>
<th>WC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corpus Name</td>
<td>Abb</td>
<td>Years</td>
<td>N</td>
<td>WC</td>
</tr>
<tr>
<td>Taiwan PhD Students</td>
<td>TW</td>
<td>2013 - 2016</td>
<td>50</td>
<td>20,905</td>
</tr>
<tr>
<td>Korea PhD Students</td>
<td>KR</td>
<td>2015 - 2016</td>
<td>50</td>
<td>29,229</td>
</tr>
<tr>
<td>China PhD Students</td>
<td>CN</td>
<td>2013 - 2016</td>
<td>50</td>
<td>42,131</td>
</tr>
<tr>
<td>PhD Students Total</td>
<td>PhD</td>
<td>2013 - 2016</td>
<td>150</td>
<td>92,265</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Journal Corpus</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Corpus Name</th>
<th>Abb</th>
<th>Years</th>
<th>N</th>
<th>WC</th>
</tr>
</thead>
<tbody>
<tr>
<td>English for Academic Purposes</td>
<td>EAP</td>
<td>2015 - 2016</td>
<td>50</td>
<td>8,668</td>
</tr>
<tr>
<td>Language Learning</td>
<td>LL</td>
<td>2015 - 2016</td>
<td>50</td>
<td>7,475</td>
</tr>
<tr>
<td>Journal of Pragmatics</td>
<td>JOP</td>
<td>2016</td>
<td>50</td>
<td>8,752</td>
</tr>
<tr>
<td>TESOL Quarterly</td>
<td>TQ</td>
<td>2014 - 2016</td>
<td>50</td>
<td>8,807</td>
</tr>
</tbody>
</table>
Table 2 shows the background of the corpus for this study. My plan was to include abstracts from doctoral students in Taiwan, Korea, and Japan. The issue was that while Taiwan and Korea have national theses and dissertations databases, Japan does not. Since a countrywide database would offer both an easier place to find dissertations along with having a better selection of doctoral students, Japan had to be dropped from the study. Fortunately, I was able to find a database from China, so China became the third country for doctoral students. For the journal corpus I choose four well known SSCI journals.

2.1.1 Student corpus.

Each of the databases (see Table 2) allowed for the results to be limited to doctoral dissertations. I searched the following terms: (a) English learning; (b) TESOL; along with (c) Second Language Acquisition. I checked the titles of the dissertation to ensure that the studies were focusing on these topics. After this was complete I took the first 50 dissertations that met the following two criteria. First, the dissertation had been written by a native of the country and not by an international doctoral student studying in the country. This was confirmed by looking at the name of the students. Second, the dissertation information had to include the English abstract written by the student. I did not translate any abstract from the original language into English. One interesting item, is that the three corpora have different word counts. The Taiwan PhD Students corpus had the lowest word count (20,905 words) with the China PhD Students corpus having the
highest word count (42,131 words). The Korea PhD Students corpus was almost in the middle (29,229 words). The average word count per dissertation was 615.1 words.

2.1.2 Journal corpus.

Starting with the first full issue available, I took the first 50 abstracts to articles. Since all of the journals were of high quality, there was no need to limit the corpus to writers who were NES. I avoided any special issues that were written in book form (i.e., each article acted like a chapter in a book). In addition, I only took research article abstracts and not abstracts from book reviews or other types of manuscripts published in the journals. Unlike the student corpus, the journal corpus has a similar word count, with the average number of words per article being 168.51 words.

2.2 Instruments

I used AntConc (Version 3.4.4; Anthony, 2016) to search the corpus for first-person pronouns from Table 1. AntConc is “a freeware corpus analysis toolkit for concordancing and text analysis” (Anthony, 2016). I used two of AntConc's functions: (a) the concordance tool, and (b) the file view tool. The concordance tool allows for the corpus to be searched using any search word(s) that the researcher chooses. The concordance tool window shows all of the results from the search, placing the searched word(s) in the center of the window. The results can be downloaded as a text file, which is easily added to a spreadsheet for analysis. The file view tool allows for the word(s) searched in the concordance tool to be seen in the full context of the corpus. The file view tool was important when eliminating first-person pronouns that were being used inclusively by the writers (see below).

2.3 Procedure

The text for the different corpora was taken directly from the electronic versions available at the databases (student corpus) and journal webpages (journal corpus). The text was copied to word documents. Each corpus had its own document. After each corpus was completed, the documents were converted to text files for use in AntConc. Using AntConc (v. 3.4.4; Anthony, 2016), I searched the corpus for first-person pronouns, downloading the search results as text files. These text files were then added to a spreadsheet. Since the results from AntConc include information on
which corpus the text is from, I only needed one spreadsheet, with multiple sheets for the data analysis.

### 2.4 Data analysis

After the results were returned by AntConc, each one was checked to ensure that it was used by the writer as a self-mention that showed “[explicit] reference to author(s)” (Hyland, 2005, p. 49). All inclusive uses of first-person pronouns were removed. For example, We in extract 1 is being used inclusively, as a way to bring the reader into the discussion. [1] When we hear the word, 'figurative', we tend to consider.... (KR).

One month later the entire data was recoded to ensure that the first analysis was correct. The intra-rater reliability between the two codings was high with a 96.2% agreement. The most difficult part of the coding was with the plural first-person plural pronouns, since they can be used inclusively. After all inclusive examples were removed, the remaining first-person pronouns were counted. I used the raw numbers for each first-person pronoun to calculate their frequencies (per 10,000 words). I also used the raw numbers to find the number of first-person pronouns per dissertation (student corpus) and per article (journal corpus).

### 3. Results and Discussion

In the remaining sections I will shorten the names of the three corpora included in the student corpus. I will use Taiwan corpus (Taiwan PhD Students corpus), Korea corpus (Korea PhD Students corpus) and China corpus (China PhD Students corpus) in place of the full names.

#### 3.1 Use and frequencies of first-person pronouns

Table 3 shows the first-person pronouns that were used by writers in each corpus, along with their frequencies. Table 4 shows the number of first-person pronouns per dissertation (student corpus) or per article (journal corpus). As has been found in other studies (Carciu, 2009; Martínez, 2005; Millar, Budgell and Fuller, 2013; Mur Dueñas, 2007; White, 2016) the most frequently used first-person pronouns were the subject pronouns (I and We). With the other first-person pronouns not being frequently used. Outside of I and We, the next most frequently used first-person pronouns were My and Our, however their frequency was only 2.14, compared to 12.15 for I and We. Two
first-person pronouns (Mine and Ours) were not used by any writer. Later, I will discuss the use of Me and Us.

Table 3: Frequencies

<table>
<thead>
<tr>
<th></th>
<th>TW</th>
<th>KR</th>
<th>CN</th>
<th>PhD</th>
<th>EAP</th>
<th>LL</th>
<th>JOP</th>
<th>TQ</th>
<th>JL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0.48</td>
<td>2.74</td>
<td>1.90</td>
<td>1.84</td>
<td>13.84</td>
<td>17.39</td>
<td>21.71</td>
<td>0.00</td>
<td>13.06</td>
<td>4.84</td>
</tr>
<tr>
<td>We</td>
<td>3.35</td>
<td>0.34</td>
<td>1.90</td>
<td>1.73</td>
<td>21.92</td>
<td>40.13</td>
<td>23.99</td>
<td>6.81</td>
<td>22.55</td>
<td>7.30</td>
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<tr>
<td>Total</td>
<td>3.83</td>
<td>3.08</td>
<td>3.80</td>
<td>3.58</td>
<td>35.76</td>
<td>57.53</td>
<td>45.70</td>
<td>6.81</td>
<td>35.61</td>
<td>12.15</td>
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<th>KR</th>
<th>CN</th>
<th>PhD</th>
<th>EAP</th>
<th>LL</th>
<th>JOP</th>
<th>TQ</th>
<th>JL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>My</td>
<td>0.00</td>
<td>0.34</td>
<td>0.47</td>
<td>0.33</td>
<td>1.15</td>
<td>2.68</td>
<td>0.00</td>
<td>0.00</td>
<td>0.89</td>
<td>0.48</td>
</tr>
<tr>
<td>Our</td>
<td>1.44</td>
<td>0.00</td>
<td>0.00</td>
<td>0.33</td>
<td>2.31</td>
<td>9.36</td>
<td>10.28</td>
<td>0.00</td>
<td>5.34</td>
<td>1.67</td>
</tr>
<tr>
<td>Total</td>
<td>1.44</td>
<td>0.34</td>
<td>0.47</td>
<td>0.65</td>
<td>3.46</td>
<td>12.04</td>
<td>10.28</td>
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<tbody>
<tr>
<td>Me</td>
<td>0.00</td>
<td>0.68</td>
<td>0.00</td>
<td>0.22</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.16</td>
</tr>
<tr>
<td>Us</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>2.68</td>
<td>0.00</td>
<td>0.00</td>
<td>0.59</td>
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<td>0.68</td>
<td>0.00</td>
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<td>0.00</td>
<td>2.68</td>
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<td>0.59</td>
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<tbody>
<tr>
<td>All FPP</td>
<td>5.26</td>
<td>4.11</td>
<td>4.27</td>
<td>4.44</td>
<td>39.22</td>
<td>72.24</td>
<td>55.99</td>
<td>6.81</td>
<td>42.43</td>
<td>14.61</td>
</tr>
</tbody>
</table>

Note. See Table 2 for Corpus Codes. PhD (Total for Student Corpus); JL (Total for Journal Corpus); Total (Total for Whole Corpus); FPP (First-Person Pronouns); Frequencies based on 10,000 words.

Table 4: First-Person Pronouns Per Dissertation or Article

<table>
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<th>TW</th>
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<th>JOP</th>
<th>TQ</th>
<th>JL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I</strong></td>
<td>0.02</td>
<td>0.16</td>
<td>0.16</td>
<td><strong>0.11</strong></td>
<td>0.24</td>
<td>0.26</td>
<td>0.38</td>
<td>0.00</td>
<td><strong>0.22</strong></td>
<td>0.17</td>
</tr>
<tr>
<td><strong>We</strong></td>
<td>0.14</td>
<td>0.02</td>
<td>0.16</td>
<td><strong>0.11</strong></td>
<td>0.38</td>
<td>0.60</td>
<td>0.42</td>
<td>0.12</td>
<td><strong>0.38</strong></td>
<td>0.26</td>
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<tr>
<td><strong>Total</strong></td>
<td>0.16</td>
<td>0.18</td>
<td>0.32</td>
<td><strong>0.22</strong></td>
<td>0.62</td>
<td>0.86</td>
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<th>JL</th>
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<tbody>
<tr>
<td><strong>My</strong></td>
<td>0.00</td>
<td>0.02</td>
<td>0.04</td>
<td><strong>0.02</strong></td>
<td>0.02</td>
<td>0.04</td>
<td>0.00</td>
<td>0.00</td>
<td><strong>0.02</strong></td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Our</strong></td>
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<td>0.00</td>
<td>0.00</td>
<td><strong>0.02</strong></td>
<td>0.04</td>
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<td><strong>0.09</strong></td>
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<td><strong>Total</strong></td>
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<td>0.04</td>
<td><strong>0.04</strong></td>
<td>0.06</td>
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<td>0.18</td>
<td>0.00</td>
<td><strong>0.11</strong></td>
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<tbody>
<tr>
<td><strong>Me</strong></td>
<td>0.00</td>
<td>0.04</td>
<td>0.00</td>
<td><strong>0.01</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td><strong>0.00</strong></td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Us</strong></td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td><strong>0.00</strong></td>
<td>0.00</td>
<td>0.04</td>
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<td><strong>0.01</strong></td>
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<td><strong>Total</strong></td>
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<td>0.00</td>
<td>0.04</td>
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<td>0.00</td>
<td><strong>0.01</strong></td>
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<th>TQ</th>
<th>JL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All FPP</strong></td>
<td>0.22</td>
<td>0.24</td>
<td>0.36</td>
<td><strong>0.27</strong></td>
<td>0.68</td>
<td>1.08</td>
<td>0.98</td>
<td>0.12</td>
<td><strong>0.72</strong></td>
<td>0.53</td>
</tr>
</tbody>
</table>

*Note.* See Table 2 for Corpus Codes. PhD (Total for Student Corpus); JL (Total for Journal Corpus); Total (Total for Whole Corpus); FPP (First-Person Pronouns).

### 3.1.1 Student corpus.

Overall the Taiwan corpus used first-person pronouns the most frequently (5.26) with the China corpus using first-person pronouns the most per dissertation (0.36). I used abstracts from doctoral dissertations to build the student corpus. A dissertation, by its nature is written by a single author. As a result the most frequently used first-person pronoun should be **I**. Overall, this was the case for the student corpus. However, looking deeper, there are some differences between the three groups. The Korea corpus had the highest frequency for **I** (2.74). The next highest frequency was in the China corpus (1.90) with the Taiwan corpus having the lowest frequency (0.48). The Korea corpus was also the only one that used **I** more than **We** (see below for more discussion on **We** in the student corpus). Extracts 2 to 5 show examples of the use of **I** in the student corpus.
[2] Based on the results of this study, I offer suggestions for teaching English.... (TW)

[3] I also endeavored to provide insights on how to design relevant English.... (KR)

[4] ...in this study, I attempted to locate research related to the specific topic.... (KR)

[5] Also, I find children who had English class everyday.... (CN)

One of the interesting findings in this study was the use of *We* in the student corpus. Again since doctoral dissertations are single authored works, *We* should not be found. Akbas (2012) and White (2016) both found examples of *We* in theses (master's students). Akbas (2012) did not discuss deeply the findings (he investigated all aspects of metadiscourse). In White (2016), I found that Taiwanese master's students used *We* to reference the graduate student and his or her adviser. This is probably not surprising given the amount of time graduate students need to spend with their advisers during the writing process. This use of *We* is different than Harwood's (2006) discussion of *We* by graduate students. Harwood (2006) interviewed professors who commented on the use of inclusive *We* by graduate students, which is not metadiscourse (Hyland, 2005). The examples of *We* used by the doctoral students in this study (extracts 6 to 8) show a similar use of *We* from White (2016).

[6] *We* also analyzed how the two sets of devices function as metadiscourse.... (TW)

[7] ...*we* administered pre-and post-tests and the survey for the experimental.... (KR)

[8] ...*we* formulated the following research questions.... (CN)

All three student corpora showed examples of *We*, but the Taiwan corpus had the highest frequency (3.35) with the China corpus having the highest number per dissertation (0.16). This aspect of student writing needs more study in order to find the reasons that graduate students use *We* in their final papers. One factor could be the students’ L1 as Lorés-Sanz (2006) found that of the 37 examples of *We* being used by a single author, 34 came from the Spanish writers, writing in Spanish.

Outside of *I* and *We*, the student corpus showed very low frequencies for the other first-person pronouns. One of the interesting findings was in the use of *Me* in the Korea corpus. There were no examples of *Me* or *Us* in either the Taiwan corpus or China corpus. As I will discuss below, *Us*
was only found in the *Language Learning* corpus. The Korea corpus had the lowest frequency (4.11) of any corpus in this study, but interestingly it had a slightly higher number of first-person pronouns per dissertation (0.24) than the Taiwan corpus (0.22). Unfortunately, no study was found that investigated the use of first-person pronouns by Korean writers or Korean NNES writers in abstracts. As a result it cannot be confirmed if this finding is due to instructors (e.g., Orzel, 2007), writing manuals (e.g., Hyland, 2002) and/or language (e.g., Zhao & Wu, 2013).

The rationale for building a Japan corpus was to have students from three different language backgrounds in the study. This way the L1 of the students could be compared in order to discover differences. In this study there are only two linguistic backgrounds (Chinese and Korean), but interestingly the Taiwan corpus and China corpus are not similar, which might show a bigger influence from instructors (Orzel, 2007) than language (Zhao & Wu, 2013).

### 3.1.2 Journal corpus.

The journal corpus had one interesting finding. At the start of the study, I had assumed that the four journals would be fairly similar in their use of first-person pronouns, as the writers for the journals are from a similar field and are publishing in SSCI journals. However, *TESOL Quarterly* showed a markedly different frequency and number of first-person pronouns per article than the other three journals. Beginning with the rankings for the journal corpus, they were the same for both frequency along with the number of first-person pronouns per article: (1) *Language Learning*, (2) *Journal of Pragmatics*, (3) *English for Academic Purposes*, and (4) *TESOL Quarterly*. *Language Learning* had by far the highest frequency (72.24) for all writers in the study, with the *Journal of Pragmatics* being second in frequency (55.99). *Language Learning* also was the only corpus that had an average higher than one in the number of first-person pronouns per dissertation/article (1.08). The *Journal of Pragmatics* was a close second in this analysis (0.98). In addition, outside of two first-person pronouns, *Language Learning* had the highest frequency for all writers. The *Journal of Pragmatics* had a higher frequency for *I*, with *English for Academic Purposes* having a higher frequency for *Our*. While *English for Academic Purposes* was lower in frequency and number of first-person pronouns per article than *Language Learning* and the *Journal of Pragmatics*, *English for Academic Purposes* was still was still much higher than the student corpus in both items.
Returning to *TESOL Quarterly*, it was the only journal that was similar to the student corpus. It was possible that *TESOL Quarterly's* author guidelines had instructions on the use of first-person pronouns, specifically in the abstracts. Amdur, Kirwan, and Morris (2010) found in an analysis of author guidelines that there were some that specifically prohibited the use of first-person pronouns in the abstract. However, this was not the case, as *TESOL Quarterly's* author guidelines has no mention of the need to write in the passive voice nor the need to avoid the use of first-person pronouns. The only item from *TESOL Quarterly's* author guidelines that fits into this discussion is: “TQ prefers that all submissions be written in a style that is accessible to a broad readership.”

The other three journals’ author guidelines were also checked to see if there were any specific references to first-person pronouns. Again, there was no specific discussion on the use of or avoidance of first-person pronouns or the need to write in an active voice, which does not follow what others have found in studies on author guidelines (Amdur et al., 2010; Millar et al., 2013; Minton, 2015; Nunn, 2014; Nunn et al., in press). One interesting question from this study is why the other three journals all showed high frequencies for the first-person pronouns, but not *TESOL Quarterly*. Below are some excerpts from the journal corpus, showing the use of first-person pronouns.

[9] I focus on three general questions that span the scope of conceptual.... (LL)

[10] Based on the results, I argue that there is a need to raise students'.... (EAP)

[11] In this paper we analyze the recreation of interactional architecture.... (JOP)

[12] We conclude with recommendations for extending storytelling.... (TQ)

[13]...my own analysis of the same journal article introduction that.... (EAP)

[14] Indeed, our corpus of Cantonese conversational data yielded.... (JOP)

The principal finding from the journal corpus is that first-person pronouns have their place in writing and can be used in high quality research articles' abstracts. An interesting study for these journals would be to follow Hyland and Jiang (2016) and investigate the change in the use of first-person pronouns in abstracts over an historical period. Hyland and Jiang (2016) found the use of self-mentions in main articles were less in 2015 than in 1965 for Applied Linguistics. It would be interesting to see if this same finding is seen in the abstracts from Applied Linguistics.
3.2 Comparison between PhD students and SSCI journal writers

Tables 3 and 4 show that overall journal writers are much more comfortable using first-person pronouns than Asian doctoral students. The one exception comes when comparing the doctoral students with *TESOL Quarterly*. In this specific journal, the doctoral students and the SSCI writers were fairly close in their frequencies, with the students having a higher number of first-person pronouns per dissertation/article than *TESOL Quarterly*. However, since *TESOL Quarterly* is remarkably different than the other three journals in the use of first-person pronouns, this finding does not take away from the overall finding that SSCI writers are more comfortable than Asian doctoral students in using first-person pronouns in their writing.

One aspect discussed in the literature review has been the opinions of journal editors (Taylor, 2005; Webb 1992, 2002) and instructors (Davies, 2012; Graff & Birkenstein, 2010; Orzel, 2007) on the use of first-person pronouns. I have been personally told not to use first-person pronouns in my writing and only through my research have started to use them. While this study and others (Hyland & Jiang, 2016; Taylor, 2005; Webb, 2002) have shown that the opinions on the use of first-person pronouns are changing, many graduate students are still probably influenced by their professors, who in turn might still be influenced by the past attitudes (Davies, 2012; Graff & Birkenstein, 2010; Orzel, 2007). It is somewhat interesting that the graduate students are not more influenced by their reading of SSCI articles that show the use of first-person pronouns. However, since the Taiwan corpus, China corpus, and Korea corpus all showed low frequencies for the first-person pronouns, it appears that instructors still play a role in the avoidance of first-person pronouns.

Before moving into the conclusion, there are two first-person pronouns (*Me* and *Us*) that are worth discussing a little deeper. *Me* was only found in the student corpus, with *Us* only being found in the journal corpus.

[15] ...to listen to the voices around me and communicate openly, (3) to have ‘our course’ containing our voices of me and my students.... (KR)

[16] ...a hidden Markov model, which allowed us to detect moments of self-organization in the learners’ spoken and written output. (LL)
In the case of the Korea corpus (except 15), it appears that the use of Me is connected to the fact that the dissertation had a personal connection to the writer. Me allowed the writer to create clearer sentences for the reader, along with giving the reader a clear understanding on how the dissertation was personally connected to the writer. This is specifically what Davies (2012) discussed in that first-person pronouns are very important when research is connected to the writer. Davies (2012) stated that when working on a study that had a personal connection, she found that first-person pronouns were needed as passive voice would not work. Looking at the Language Learning corpus (except 16), it appears to follow a similar point, in that Us worked best for the writers to tell the reader how the “Markov model” helped them in their study.

4. Conclusion

The most frequently used first-person pronouns were I and We. This was not surprising as past research has also found these to be the most frequently used (Carciu, 2009; Millar et al., 2013; Mur Dueñas, 2007; White, 2016). This study also found that writers in the SSCI journals used first-person pronouns more frequently than doctoral students. The one surprising finding was the low frequency for first-person pronouns by the writers in TESOL Quarterly. It was the only journal that was similar to the doctoral students.

In general, the results showed that doctoral students, specifically those in Applied Linguistics and in Asia, should be taught that first-person pronouns are acceptable in academic writing. This is an important point for instructors, who might still be influenced by past ideas on the use of first-person pronouns (Davies, 2012; Graff & Birkenstein, 2010; Orzel, 2007). A reluctance to rethink the use of first-person pronouns, by instructors, may affect the writings of future students. Additionally, instructors may need education on the changing attitude on the use of first-person pronouns and the new acceptance of their use. It is also helpful for students to have the ability to use first-person pronouns as Nunn (2014) discussed how the use of first-person pronouns by students was “related to students' empowerment as active agents in their own learning process” (p. 20). This idea is connected to Day and Gastel (2006), who stated that “young scientists should renounce the false modesty of their predecessors. Do not be afraid to name the agent of the action in a sentence” (p. 193; see also Hyland, 2002).
The discussion from Nunn (2014) along with Day and Gastel (2006) also adds to the increasingly favorable opinions on the use of first-person pronouns in academic writing today. Not only writing guides and publication manuals, but also editors and journals are encouraging the use of first-person pronouns and active voice (APA, 2010; Graff & Birkenstein, 2010; Gray & Drew, 2012; Nunn, 2014; Nunn et al., in press; Silvia, 2007; Taylor, 2005; Webb, 2002). This last point adds to the interesting finding in the avoidance of first-person pronouns by writers in *TESOL Quarterly*. Many author guidelines have begun to specifically state that active sentences are preferred over passive sentences (Amdur et al., 2010; Millar et al., 2013; Minton, 2015; Nunn, 2014; Nunn et al., in press). Again, *TESOL Quarterly*’s author guidelines do not specifically mention the use of active voice over passive voice. However, the specific instruction of writing for “a broad readership,” could imply the use of active voice and first-person pronouns. The reason for this finding is still interesting and deserving of an historical investigation in order to find if the avoidance of first-person pronouns in *TESOL Quarterly* has a long or short history. This could also be completed for the other journals in this study to find when first-person pronouns became more common in their abstracts.

There is also a need for more study investigating differences between all graduate students (both master’s and doctoral) and journal writers in their uses of first-person pronouns in abstracts. An interesting way of completing this research would be to follow Kawase (2015) and compare journal articles published from dissertations or theses. Kawase (2015) found differences in the use of metadiscourse between the same writer in his or her dissertation and a journal article, published from the dissertation. This type of study could show if as graduate students write their abstracts, they follow one way (avoid first-person pronouns) in their dissertations, but take a different approach (use first-person pronouns) in their journal articles. This would be helpful for instructors as they work through the different versions of papers with their students.

A further detailed analysis could be completed that investigates how first-person pronouns are used in the different abstract move. Swales and Feak (2004) stated that there are typically five moves in an abstract (Background, Purpose, Methods, Results, Conclusions). Nunn (2014) along with Carciu (2009) both found that in the main articles, the methodology section showed low frequencies for first-person pronouns. It is possible that a similar finding could be found in the methods section of abstracts. This information would also be helpful for writing instructors as they
assist their students with writing abstracts, as they would be able to show how each move uses first-person pronouns differently.

The abstract is an important part of any dissertation or journal article. As Silvia (2007) stated “most readers who come across your article will see only the title and abstract, so make them good” (p. 81). Most of the SSCI Journal writers in Applied Linguistics have found that first-person pronouns can help in making abstracts effective. This is something that graduate students should be taught, as it will help them as they work on their abstracts.

5. Note


6. References


Supporting First-Year Undergraduate Emirati Engineers in Reading in English for Science

Mark Wyatt, Asli Hassan, Alliya Anderson, and David Young

*Khalifa University of Science and Technology*

**Biodata**

**Mark Wyatt**, a committed educational researcher in the Department of English at Khalifa University, has worked as a teacher and teacher educator in Thailand, Nepal, Oman, the UK, and the UAE. Holding a PhD in language teacher education from the University of Leeds, his research interests include teachers’ self-efficacy beliefs, teacher motivation and cognition, and the benefits of practitioner research for both language teachers and their learners. He has published widely in these areas. Mark co-edits *ELT Research*.

Email: dr.markwyatt@gmail.com

**Asli Hassan**, an assistant professor of English and Communication in the Department of English at Khalifa University, has taught English and trained language and content teachers in West Virginia and Maryland. Asli received her PhD in Language, Literacy, and Culture from the University of Maryland Baltimore County. Her PhD research drew on data gathered at the Petroleum Institute, which was classroom-based and looked at teaching and learning approaches across disciplines, particularly in STEM Education and teacher development. Her most recent publications are all related to developing higher order thinking skills and academic success for engineering students.

Email: asli.hassan@ku.ac.ae

**Alliya Anderson** is an English lecturer with the Preparatory Program at Khalifa University of Science and Technology in Abu Dhabi, UAE.
Email: Alliya.anderson@ku.ac.ae

David Young is an English lecturer with the Preparatory Program at Khalifa University of Science and Technology. He has been teaching since the late 1990s at universities, colleges, and language centers in the UAE, Kuwait, China, and Ireland. Along the way, he has worked extensively in broadcast and print journalism, and produced radio documentaries. David’s research interests include student-centered learning, the role of creativity in the classroom, and the coaching of reading skills.

Email: david.young@ku.ac.ae

Abstract

Set in a Middle-Eastern engineering university context, where many first-year undergraduates studying chemistry, mathematics and physics before progressing to their main degree programmes are thought to struggle with reading for science in English, this article describes an intervention involving communication faculty designed to help. It draws upon qualitative data collected through various methods: reflective accounts of supporting the intervention provided by communication instructors; questionnaires completed by content instructors and students, followed by focus group discussions and interviews conducted with samples of the latter groups. Various benefits of the intervention are identified including greater awareness of the issues in both students and content instructors, and some positive changes in reported practices. However, evidence suggests the intervention could have been more effective if better planned, with challenges that arose anticipated; implications are discussed.

Key words: reading for science, reading in English, Middle Eastern university, Emirati engineering students.

Introduction

In recent decades, English has become the language of science to such an extent that scientific writing produced in other languages can struggle to reach an international audience. This compels academics whose first language is not English to learn it. For if they do not do so sufficiently well, “those researchers whose written English-language skills are inadequate find that publication is difficult and indeed may be effectively excluded from participation in the exchange of science
information” (Kaplan, 2001, p. 14). Accompanying this growing dominance of scientific writing in English has been a developing ‘Englishization’ of higher education in international contexts (Coleman, 2006), for various reasons highlighted by Coleman including the availability of teaching and research materials in English, internationalisation and the spread of ‘Content-Based Instruction’ (CBI) and ‘Content and Language Integrated Learning’ (CLIL) approaches; while differing in emphases, these approaches (of which we say more below) relate to notions of ‘immersion’ and thus acquiring language knowledge and skills while focused primarily on content (Richards and Rodgers, 2014).

Nevertheless, despite the trend towards learning scientific content through English, there can be problems with the implementation of English-medium university instruction in different contexts, including “inadequate language skills and the need for training of indigenous staff and students… unwillingness of local staff to teach through English… lack of interest [and] loss of confidence and failure to adapt among local students” (Coleman, 2006, p. 6-7). Unless such issues are addressed, learning outcomes are likely to be disappointing. This article focuses on one English-medium context, an engineering university in the United Arab Emirates (UAE), where first-year undergraduate engineers, who have gained an overall IELTS score of 6, are studying chemistry, mathematics and physics through English as a foreign language. We report on an innovation designed to address challenges faced by content instructors and students in this context, where reading for science is a particular concern.

**Literature Review**

Whether scientific content should even be taught through English, the world’s lingua franca (and the language which has long supplanted German’s much earlier role as the international language of science) or through the students’ mother tongue remains a controversial issue, subject in some educational contexts to dramatic swings in policy. In Malaysia, for example, as Tan and Saw Lan (2011) report, while Bahasa Malaysia had been used as the language of instruction for all school subjects for over 30 years, in 2002 it was decreed that science and mathematics would thereafter be taught in English; in 2009, this policy was reversed (Gill, 2012). Reasons for the latter change included the realisation that levels of English language competency amongst teachers and students varied considerably, and this resulted in some groups feeling disadvantaged. This was more acute in non-urban areas, where students received “reduced linguistic input in terms of English and
impoverished academic content as teachers reduce[d] and simplif[ied] both language and content in an effort to help students understand their lessons” (Tan and Saw Lan, 2011, p. 16-17).

There are various reasons why students might struggle with the language of science, as Fang (2006) reports, even if their teachers are (highly) competent English language users (as is the case in many international university contexts where native speakers may be in the minority). These challenges include a heavy vocabulary load, with a dense concentration of multi-morphemic technical words of Greek and Latin origin often found within complex sentences and sometimes constituting lengthy noun phrases in themselves. There is also a confounding of expectations caused by the metaphorical use of deceptively ‘ordinary’ words, including adverbs in idiomatic phrasal verbs, and by shifting grammatical function, with familiar nouns, for example, sometimes appearing transformed in the text as less familiar verbs, or vice versa. Other sources of confusion include the ellipsis often found in subordinate clauses, the potential of conjunctions such as ‘while’ to construe multiple logical relations, and the favouring of the passive voice in some forms of scientific writing. As Fang (2006) highlights, while proficient adult readers tend to take these features of scientific writing for granted, they can pose significant difficulties for the English language learner (ELL) relatively new to this discourse, and there may accordingly be pedagogical implications.

Teaching science to ELLs, if it is to be done by the science teacher alone, requires a range of knowledge and skills. Santau et al. (2010) point out that not only do such teachers require theoretical knowledge relating to scientific content, and practical knowledge of how to promote scientific understanding and enquiry in the classroom, but also the capacity to employ “teaching practices in science [that] support English language development” (p. 2009). The science teachers in the American context Santau et al. (2010) examined “fell short” in this last regard (p. 2025), which is perhaps unsurprising; many science teachers after all are likely to have a much greater affinity to the subject area they have specialised in than to language/literature/arts. Furthermore, preparation to work with English as a second (ESL) or foreign (EFL) language learners (the distinction relating to the context of instruction) is often inadequate. For example, research cited by Jansen (2008), based on a national survey in the USA, shows that only a very small minority of content teachers (including those of mathematics and science) had received even a minimum of eight hours’ in-service training over the previous three years to support them in dealing with the ESL learning issues in their classrooms. More broadly, Santau et al. (2010) highlight a widespread
general lack of awareness of how to support ESL and EFL learning amongst science teachers around the world. Perhaps, in many cases, these teachers, expecting others to provide the language support, do not regard such activity as integral to their work and have accordingly given it little focus.

This issue has been addressed in different contexts in different ways, including through awareness-raising and sustained bilingual education in the form of CLIL. CLIL “involves a content teacher teaching content through a second or foreign language” (Richards and Rodgers, 2014, p. 94), and can be implemented fairly smoothly if the conditions are facilitative. Morton (2013), for example, reports on a Spanish project in which 40% of the curriculum had been taught in English for over two decades. The 16-year old students observed in his study were “comfortable with using English as a medium of instruction, and had no linguistic problems in following the teacher’s instructions and explanations, responding to her questions or initiating their own contributions” (p. 104). This might be partly because most “had been learning subject matter content in English since primary school”, while the teacher, with nine years’ science teaching experience overall, had taught her subject in English for the past two years (p. 104). Even in this favorable context, though, greater teacher awareness could have led to richer learning opportunities, as Morton (2013) noted.

A slightly different approach to supporting ELLs’ needs has been taken in other, predominantly ESL, contexts, where CBI has been the methodology of choice. CBI typically involves co-teaching, with content and language teachers working side by side, planning lessons, developing the curriculum, and meeting to reflect together on the progress of their ELLs after the lesson (Arkoudis, 2003; Hersi et al., 2016). There can be tensions in such an arrangement, however, with the ESL specialist in Hersi et al.’s (2016) study, for example, reporting lack of time, so that she was always “planning on the fly” (p. 940), and feeling marginalised by the science teacher she was working with, who seemed to treat her as “an aide or helper” and did not listen to her recommendations (p. 941). Arkoudis (2003) similarly reports on unequal power relations (in a team with long experience of working together); the science teacher in her study “firmly positioned himself within his subject discipline, claiming responsibility for the content and not necessarily for the education of ESL students if it [meant] ‘frilling-up’ his teaching of science” (p. 170). The ESL teacher he was working with needed well-developed communication skills, including those
relating to tact, diplomacy and managing a conversation to negotiate a plan that would allow her to support the ELLs in their class (Arkoudis, 2003).

If the language specialist in such a partnership is able to exert sufficient influence on the way that the science content is taught, then pedagogy associated with EFL/ESL such as communicative language teaching (CLT) or task-based learning (TBL) is likely to be evident, since CBI essentially derives from these approaches (Richards and Rodgers, 2014). There may thus be a focus at the outset of instruction on contextualizing language, activating the learners’ schemata, motivating the learners to engage in the lesson, as these concerns are characteristic of CLT and TBL approaches. Language difficulties are likely to be anticipated as far as possible, with complex tasks broken down and key lexis drawn attention to. Engagement in reading scientific text is likely to be supported through the inclusion of pre-, while- and post-reading activities, with tasks successively engaging the learners in utilizing different sub-skills important for reading, such as skimming, scanning, overviewing with the help of graphics provided, and utilizing techniques associated with close reading, such as re-reading, annotating and sketching to help visualise a problem. Scaffolding learners’ verbal responses during whole class elicitation may be a feature of the lesson, as might the encouragement of small group peer interaction. The approach therefore may be essentially constructivist, and perhaps quite different to the more traditional ‘chalk and talk’ approaches to teaching science still found in many classrooms (Arkoudis, 2003).

In this article we report on our attempts (through a modest intervention) to support reading for science in an EFL engineering university context, an endeavour which, as the literature above suggests, might represent both an opportunity and a challenge. We now describe the context, before outlining our research methodology and presenting findings.

**Research Context**

In our context, there has been a longstanding concern that reading for science, particularly amongst undergraduates early in their studies, could be more fully supported. At present, students require an overall IELTS score of 6 and sufficiently good science qualifications, e.g. ‘A’ Levels in chemistry, mathematics and physics, to directly enter the main degree programme, where they initially study further courses in science and engineering, as well as communication.
However, many applicants do not meet these qualifications. If their overall IELTS score is below 6, new students are required to enter the Academic Bridge Program (ABP), which focuses on English language support and IELTS exam preparation. Once they have gained a 6 in IELTS, they can progress to the main degree programme if their science qualifications are good enough. However, most are required to take a semester-long course, which combines chemistry, mathematics and physics (known locally as CAMP), to bring their science knowledge to an adequate level. When it was established in 2016, CAMP did not include an English language component, so that after focusing exclusively on English for IELTS in the ABP, CAMP students would not receive any further English language instruction before (assuming they passed CAMP at the first attempt) taking a communication course in the following semester (which would be focused primarily on developing research and teamwork skills through holistic project-based learning [Nunn, Brandt and Deveci, 2016]). If they failed CAMP (and some did), they would need to retake it before progressing.

When the CAMP course was first run in 2016, there were immediate complaints from the instructors of chemistry, mathematics and physics that their learners did not want to engage at all with the English in their textbooks and the ‘word problems’ they were presented with. ‘Word problems’ in this sense refer to exercises commonly used in mathematics and science classes such as the following (though many are much longer and more complex): “A chemist mixes distilled water with a 90% solution of sulfuric acid to produce a 50% solution. If 5 litres of distilled water are used, how much 50% solution is produced?” (Barnett et al., 2010, p. 55).

Cross-departmental meetings were held about the issue of learners not engaging with reading, which was explored from different angles. According to a chemistry teacher, a typical refrain from the students (I quote from his PowerPoint slides) was: “Do we have to read all of this? Why can’t you give us the important information?”

Discussions within the university focused on the nature of the issue. The learners were receiving no parallel language course, and so may not have studied English for several months. Moreover, the skills required to do well in the reading component of IELTS would not necessarily have equipped them in any case to process dense scientific texts, and engage for example in the visualisation so important in physics. Another issue is that their secondary school science teachers
may not have been able to prepare them very effectively to read scientific texts in English, since it appears that such teachers, while often being Western-educated native speakers, are generally not required to have had any training in teaching English to work in the UAE, though occasionally (a reading of job advertisements suggests) very short, e.g. 10-hour, online TEFL (Teaching English as a Foreign Language) courses are provided them. The CAMP instructors are also “not language teachers”, as some emphasised during the meetings. Many have considerable experience of teaching science and mathematics in English in a range of countries, including the Middle East, and would most likely be familiar with the oral traditions of Arabic; some have received doctorates from prestigious universities in the United States, and, while a few are native speakers of English, the majority would have learned science through English as a second or foreign language in parts of Europe, Africa and West Asia; they would thus have had the experience of having learned science through a second or foreign language to draw upon, which might have mitigated the difficulties.

However, given the challenges they were facing, the help of the communication department was requested, and it was agreed that two faculty (two of the four authors of this article) would provide support. It was established in a meeting held at the beginning of the semester that our role would be to work with the CAMP instructors in rotation by subject; so one week was chemistry, then mathematics, next physics, and so on; we would spend one hour per week with each class; there were 10 classes in total, 5 on the male and 5 on the female campus, so one of us would teach the males and the other the females. Our understanding was that we would provide some support for project work, but focus primarily on supporting reading for science, in the process hopefully introducing ideas and techniques that could be drawn on subsequently when we were not there. We were requested to work on supporting a range of different sub-skills of reading within a syllabus that would need to be flexible, as this would depend on the materials provided by the science and mathematics teachers during the semester. We would be sent the materials, discuss them and then plan how to use them. We now outline our research methodology.

Research Methodology

With a view to evaluating the effectiveness of this intervention, we decided to adopt a qualitative research design that elicited views from different perspectives: those of the communication department faculty involved, the content (CAMP) instructors we worked with and the students. In
doing this, the first two authors wished to capitalise reflexively on their position as insiders, but mindful of ‘reactivity’, i.e. the impact of the researcher on the research setting (Holliday, 2007), also wished to draw upon a relatively ‘outsider’ perspective within the research team. It was felt this could reduce the inherent biases that can spring from researching one’s own pedagogical intervention. For example, eliciting honest views about one’s work directly from students and co-teachers could lead to awkwardness, we felt. Furthermore, as Merriam et al. (2001) argue, in such a scenario, the insider researcher can be “too close… to be curious enough to raise provocative questions” (p. 411).

To achieve the relatively ‘outsider’ perspective required in the research team, the third and fourth authors were involved; unconnected with the planning of the intervention, it was felt they could ask probing questions without embarrassment. The insider/outsider dichotomy is always relative, however (Merriam et al., 2001), and culturally, to some extent, these co-researchers were also ‘insiders’; they shared a background with the first two authors in English language teacher education and had gained experience in other contexts that was highly relevant to the research. One had worked in a CBI environment with content teachers in California, while the other had engaged in materials design for science through English in Kuwait. Furthermore, as ABP instructors employed at the same university, they had developed positive working relationships with students (and some of their past students participated in the study) and CAMP instructors (through another role, facilitators of university-wide continuing professional development events that CAMP instructors had attended). They had thus gained cultural insights and could gain easy access, ‘insider’ characteristics that were capitalised on (Holliday, 2007).

Our study drew upon the following research methods: reflective accounts of the intervention provided by the first two authors; qualitative questionnaires for both students and CAMP instructors administered by the third and fourth authors, who also conducted focus group discussions and interviews with separate groups of volunteer students and CAMP instructors (see Table 1, below, for a summary of the data collected). This combination of methods was designed to capitalise on what it was felt each group of participants could most appropriately contribute, given their level of involvement in the study and the demands it seemed reasonable to make upon their time.
Regarding the first of these methods, the reflective notes of the first two authors offered a way of capturing personal thoughts relating to “insights, hunches or broad ideas” that would have emerged during the intervention (Creswell, 2012, p. 217), with the self-structured writing process in itself involving sense-making and leading to deeper understanding. Wide-ranging narratives were developed and then shared.

Regarding the second method, the qualitative questionnaires, those given to the CAMP teachers were quite structured, encouraging reflection generally but including space for mostly short answers designed to capture information relevant to different topics (see Appendix 1 for the instrument used). Participants (and the 2-page questionnaire was given to all 16 CAMP instructors, 12 of whom responded) were invited to comment on how they found the experience from organisational and pedagogical perspectives and to identify any impact it appeared to have had, e.g. on the learners, the classroom environment and their own teaching.

In contrast, the questionnaire designed for the students (and given to all 10 classes; 129 students completed it) was much simpler. It included one close-ended response, inviting the students to indicate, on a scale of 1-10, how useful they had found having communication support that semester, and one open-ended response, which invited them to explain why. We did not plan to quantify the close-ended responses, but to focus instead on the rich qualitative data, with a view to identifying themes and patterns in the students’ explanations for the extent to which they believed the intervention had been useful or not.

Our third research method built on the questionnaires, in that preliminary analysis of the questionnaires informed the prompts that would be used in the focus group discussions with volunteers (who had indicated willingness to take part at the end of the questionnaires). An example of one of these prompts is as follows:

One student felt it was not useful having a communication instructor visit the class once a week. “The college has an IELTS requirement, so students should already be able to read.” Why would he say this? Is reading for IELTS the same as reading for chemistry, mathematics and physics? If not, how does it differ?

As Creswell (2012) says of focus group discussions, this research method can be useful when interaction among interviewees is likely to lead to expanded responses and when “interviewees are
similar to and cooperative with each other” (p. 218). Creswell also points out that this research method saves time (i.e. it is more economical than conducting numerous interviews) and can be valuable if “individuals are hesitant to provide information” through other means (p. 218). We felt that focus group discussions might be particularly useful in this case for eliciting the views of students, given the potential power distance between them and their interlocutors (notwithstanding the skills, qualities and also experience of interviewing – both had coincidentally earlier trained as journalists before becoming teachers - the third and fourth researchers could bring to this task). Two focus group discussions with groups of three and four female students respectively were conducted, these each lasting 20-30 minutes.

There was also a focus group discussion with CAMP instructors. However, this was less successful because a few dominant individuals set the agenda. The third and fourth researchers responded by holding follow-up semi-structured interviews with a sample of participants (seven CAMP instructors) from the focus group discussion. These typically 30-minute interviews allowed for a degree of probing in order to gain in-depth insights. Sample questions included: “How well did the communication content integrate with your course material?”; “Did you feel like you were co-teaching… or did it feel like you were simply handing over/surrendering your class?” Like the focus group discussions, these interviews were audio-recorded with the permission of participants and transcribed by the third and fourth authors, who anonymised responses in line with the ethical assurances they had given; these assurances included confidentiality and the right to withdraw at any time. Three interviews were also held with male students, who were unable to meet as a focus group due to time constraints. Data collected are summarised below, in Table 1.

Table 1: A summary of the Data Collected

<table>
<thead>
<tr>
<th>Type of data</th>
<th>Number of respondents</th>
<th>Data code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication instructors’ reflective notes</td>
<td>2</td>
<td>CI1R &amp; CI2R</td>
</tr>
<tr>
<td>Instructor questionnaires completed by CAMP teachers</td>
<td>12</td>
<td>IQ</td>
</tr>
<tr>
<td>Student questionnaires</td>
<td>129</td>
<td>SQ</td>
</tr>
<tr>
<td>Student focus group discussions</td>
<td>2 groups of 3 &amp; then 4 female students</td>
<td>SFG1 &amp; SFG2</td>
</tr>
<tr>
<td>Student interviews</td>
<td>3 male students</td>
<td>SI1-3</td>
</tr>
<tr>
<td>(CAMP) Instructor interviews</td>
<td>7</td>
<td>III-7</td>
</tr>
</tbody>
</table>
Data gathered through the above means were collated into an 18,000-word plus document (comprising 2,500 words of communication instructors’ reflections, over 7,000 words of data collected from content instructors through survey responses and interview transcripts, and over 9,000 words of data collected from students through survey responses, and focus group and interview transcripts). Data were analysed inductively, with team members annotating individually, meeting as a group to discuss key themes, coding and clustering data and juxtaposing key quotes in relation to emergent themes. These themes are reflected in the sub-headings used in the findings below. On the basis of thematic analysis, a narrative account, which was largely arranged chronologically from the planning of the intervention to its enactment and evaluation, and which employed ‘thick description’ (Geertz, 1973), was developed. It was reviewed and revised within the research team, and is presented here.

Findings

Uncertain beginnings

The communication faculty felt the intervention was a well-intentioned bottom-up initiative sparked by a genuine concern to address a serious pedagogical issue CAMP instructors had shared openly across the university. However, it was put into operation in an ad hoc way which may have diminished its effectiveness; one CAMP instructor described it as “a bit of a let’s-see intervention, seat-of-the-pants stuff” (Instructor Interview 6–II6). Initial decisions made at the beginning of the semester meeting unwittingly hampered the communication instructors. One reflected: “Obviously I could have created a syllabus and my own schedule if I were given the opportunity, but these important first steps were beyond my control” (Communication Instructor 2 Reflections – CI2R). “When we tried to raise the issue of common time and common syllabus, nobody seemed to entertain our concerns”, this person continued: “because there were more pressing issues for the team to sort out during that meeting” (CI2R). So content would be determined by the CAMP instructors, with communication faculty then interpreting and adapting the materials they had been given. Timetabling would potentially be difficult; sessions, held in a variety of classrooms and laboratories, would need to fit in with other commitments.
Continuing syllabus and planning issues

Further planning was also challenging: “At first, meetings were scheduled with chemistry and mathematics faculty, but afterwards materials were simply sent to us by email”, the other communication instructor reflected;

we adapted, adding activities to support reading and shared them. The materials were sometimes sent to us late. For example, once we were sent physics materials during the weekend that we needed to use at 8 am on the first day after the weekend (CI1R).

Restricted autonomy in planning

Communication faculty needed to relate the science material provided to reading goals, but autonomy was limited even after the materials had been provided. One communication instructor reported:

As the semester went on, I would get the group materials/word problems from their subject team leader and immediately end up getting different emails from the faculty each asking me to work on a particular word problem from that list, basically hand-picking which problem I should use to teach reading skills. It was disheartening to say the least, because that meant what I was doing was really offering a list of items on a menu that they felt they could just pick and choose from (CI2R).

Evidence of insufficiently integrated planning

So, even though there was a great deal of goodwill at the outset, with one CAMP instructor arguing, for example, that “our subject becomes more interesting when integrated with communication” (II5), there was a lack of integrated planning. This became manifest in various ways. For example, one CAMP instructor highlighted that “the goals”, which had not really been fully articulated at the outset, “were not clear” (Instructor Questionnaire – IQ). Others commented that there was no link to assessment (IQ); some students were complaining: “This is extra work. Why should I do it? It’s not in the GPA. It will not benefit me in the exam” (Student Interview 3 – SI3). Furthermore, a consequence of the lack of meetings was that “there was no clear distribution of the tasks to be
carried out by each individual in the classroom” (II4). This may have contributed to some confusion in the roles taken:

sometimes communication instructors tried almost to become the scientists, to explain the content. That’s not what we wanted. We wanted them to use the tools in communication to interpret science. The communication person doesn’t have to explain what an atom is. It’s not important for the communication person to know this content. The important part is to know how to break this information down (II4).

**Uncertainty in co-teaching**

However, such a blurring of roles could also have resulted from a lack of prior discussion as to what co-teaching as pedagogy involves. For example, a communication faculty member noted:

a few CAMP instructors seemed unfamiliar with the concept of there being a co-teacher and appeared to retreat within the class, even when students would clearly have benefited from their input. On one occasion, for example, the CAMP instructor sat in the corner with one group (containing perhaps some of the strongest students) and gave them help but did not get up to monitor the rest of the class. The word problem took the rest of the class ages, partly because they were getting very limited support from their CAMP instructor, leaving me feeling somewhat helpless; when I moved around to monitor, I could not explain the content and when I tried to get my colleague to engage with the students, he was slow to do so (CI1R).

**A disorienting experience?**

Besides confusion regarding roles, another reaction appears to have been surprise, both from CAMP instructors, e.g. “When the English teacher came in, it was like ‘Oh, I wonder what the English teacher is going to do here’” (II7), and students: “The surprising thing? We got surprised that he was in the class” (Student Focus Group 2 – SFG2) or “in the first class… the students were a bit shocked. They were like: ‘Is this English? Is this ABP? Is this the Freshman Year?’” (SI3).

The constantly changing timetable contributed to the problem from the students’ perspective: “It’s
mixed up, you know, different days, different times. I forget what she taught us two weeks before” (SI1). This shifting timetable was also unsettling for the communication faculty. One reflected:

I did not feel or made to feel that that hour or time I was teaching in that space belonged to me. I did not feel I was in charge of that classroom. I was a guest and needed to be gracious about being given this opportunity to come to the classroom. I felt this way and I am sure the students felt this hierarchical treatment (CI2R).

**Positive co-teaching relationships**

Nevertheless, relationships with CAMP instructors were generally very positive; they were all “very welcoming” (CI2R), “the rapport was generally very pleasant” (CI1R) and feelings were reciprocated. Adjectives used by some of the CAMP instructors to describe the co-teaching experience included: “very good”, “fun and interesting”, “fantastic”, “great”, “enlightening”, “excellent” (IQ).

**A positive classroom dynamic**

Reflecting on positive dimensions of the classroom interaction between co-teachers, a communication instructor recalled situations where this “was dynamic, with the co-instructors adding to each other’s utterances” (CI1R). Teamwork could be excellent. “I really felt we worked as a team. I gave the science part of it, and they would give the English part” (II1) was the view of one CAMP instructor, while another highlighted the value of having different kinds of expertise available: “Having somebody in the room who is more attuned to language issues is beneficial and productive” (II6). This individual continued, stressing the affective aspect:

For me, it was very enjoyable to have them in the classroom, and to have that kind of exchange. I felt free to interject when the communication instructor was talking, and when it came to the actual physics, she was more than happy when I stepped up. Team teaching was a positive thing; it was fun. Students liked to see the interaction between instructors. It was more engaging for them (II6).

**Anxieties of content instructors**

However, these feelings were not universal, as another CAMP instructor explained:
Some found it (team-teaching) a bit difficult. It’s just something they’re not used to. Their classroom is their domain, you see. It’s almost like a threat to them. They’re used to delivering the maths content, and then all of a sudden, they’re being asked to look into the English issues. And some of these issues, the maths teacher is not aware of: grammar, vocab, reading. I’m quite easy going about it and quite enjoyed it. But it wouldn’t be the same for everybody. The idea of another teacher in class can take people aback (II7).

*Tensions felt by communication instructors*

Tensions were felt on both sides. A communication instructor recalled one negative experience:

Once one of the teachers interrupted me as I reviewed some of the reading strategies we had used three weeks earlier with that group of students, saying to me, ‘don’t lecture them or you will lose them’, and then the same teacher continued to talk to the class, actually, lectured the students for the rest of the class time while I stood there (CI2R).

*Content instructors’ differing levels of awareness, knowledge and experience*

The 16 different instructors working on CAMP brought to co-teaching very varying degrees of background knowledge with regards general pedagogy, language learning, reading skills and ways of developing these. Some were clearly very open to co-teaching in this area on the basis of their prior experiences. One reported: “I am a lifelong learner :=) so if my learning stops, I don't think I can continue teaching”, while another declared “the teamwork reinforced what I learned about reading and writing skills in my teacher training” (IQ). A healthy awareness of differences in approach between disciplines was evident. One CAMP instructor, for example, reported:

In science and maths, the approach is different to communication. We tend to focus on numbers and facts and things that are black and white - there’s no room for interpretation - whereas communication looks at this information in a different way. In English, there’s more than one interpretation (II4).
Content instructors’ appreciation of the benefits of an interdisciplinary approach

From such a perspective, utilizing the strengths of both approaches seemed valuable, as another CAMP instructor testified:

There were huge benefits. I think the English teacher could see the issues with the mathematics and the sort of problems that we have to solve with them (the students), and the maths teachers could see what the English teachers could focus on: the grammar and vocab issues that we might dismiss. We might just skim the problem without explaining what it actually means. We would go straight to the solution and almost bypass the rationale. With the communication instructor, students could take up to quarter of an hour exploring a word problem. This experience can only improve your teaching (II7).

Different understandings about how to teach reading

While the communication faculty would concur with the above view, it was apparent that not all CAMP instructors necessarily shared all our understandings about learning to read more effectively and teaching reading skills. For example, a few appeared to believe that skills could be acquired like content knowledge, i.e. for immediate competent use, rather than through a gradual process involving scaffolding and acquisition, and one or two may have believed that the same set of learning strategies could be applied to any given text without necessarily much variation (CI1R). Other CAMP instructors seemed deeply concerned about losing time for their subject to communication. One reported: “At the beginning, I was a little bit confused. Should they do that? Should I give them time? I have only one hour” (II5). “We don’t have the luxury of spending so much time on word problems”, another explained: “There are no ifs and buts about it. You cannot spend half the semester going into the intricacies of certain word problems” (II7). Alternative understandings of co-teaching also surfaced, such as the following: “After the second class, I felt it would be good to do co-teaching, so when the communication instructor was talking, I could explain other things connected to my subject” (II5), this idea again perhaps motivated by worry that precious time was being lost. There were also alternative conceptions aired of how to teach reading. For example, in an early meeting, “one CAMP instructor suggested that her standard practice involved getting the students to read the text aloud around the classroom. So, first one student would read the word problem aloud, then another, then another” (CI1R). This kind of ‘reading aloud around the class’ activity has been much criticised in English language teaching,
e.g. by Nuttall (1996), who points out that it can be painful listening to students stumbling over unknown words, demotivating for the rest of the class and indeed valueless in supporting reading comprehension. It was therefore the kind of practice we wished to change, but gently, without hurting feelings (CI1R).

**Our reading goals**

In class, with the materials we adapted, we tried to do the following with the students, at different points in the course:

- activate schemata, motivate students to engage in reading, develop awareness of strategy use (e.g. skimming, scanning, close reading), practise strategy use (e.g. through setting different questions for each encounter with the text; helping students make use of graphical information before engaging in close reading), practise skills associated with close reading (e.g. highlighting key words, annotating, creating graphical organisers, making guided notes), help students notice patterns in the text and help them pay attention to grammatical function, deal with sources of confusion (e.g. relating to the passive, multi-word verbs, differences in meaning between expressions such as ‘How long is…?’ ‘How long does it take?’) (CI1R).

**Interdisciplinary synergy in supporting reading**

CAMP instructors supported these efforts, for example by bringing contextual knowledge to the class that enriched the lesson, as in a mathematics session when the communication instructor “had not anticipated that the students would not know the unit of measurement: ‘inches’. The fast food chain ‘Subway’ with its six-inch baguettes was used as reference” (CI1R). Moreover, it seems strategies introduced in class were followed up afterwards, as a CAMP instructor testified:

> I tried to connect back to what was covered in the class with the communication instructor as much as possible, and I pointed out that they could use the strategies for support with reading throughout the semester. I even made jokes with the students when I forgot the meaning of a word – ‘where is Mark when you need him?’ So I tried to keep what was happening with English and reading fresh in their minds (II3).
Content instructors’ appreciation of the value of the approach.

There was recognition from CAMP instructors that critical thinking skills were being developed through the teaching process. For example, a chemistry teacher reflected:

The communication instructor would put very smart questions to challenge the students’ reading and writing skills, and add extra support questions. For example, they gave the students a paragraph, went through it, and then checked if the students had understood the concept…. They gave the students different types of question to see if they really understood the article, and challenged them to engage with the reading differently (II5).

Content instructors’ appreciation of how learners benefitted

Similarly, it was highlighted that the wide range of questions asked “expanded the students’ imagination” (IQ); the intervention “helped students acquire reading skills and annotate”, “gain a better understanding of word problems” by being able to “break them down when they didn’t understand the meaning”, “pay more attention to details” (IQ), “develop patience in reading” (II4) and “navigate their way through difficult content” (II5), according to different CAMP instructors.

Students’ self-awareness of how they had benefited from communication support

Students highlighted similar benefits, alluding for example to the contextualisation of the science materials that occurred: This was “interactive” (SFG2) and “fun, because our communication instructor used to give a nice introduction to the word problems that we had to do (linking them with life)” (Student Questionnaire – SQ). There was reference to the development of critical thinking skills, e.g. “it helped us to think outside the box” (SQ). Reference was made in the focus groups, too, to the development of specific sub-skills, such as the visualisation required in maths and physics, as students testified:

- The experience of having the communication instructor in the CAMP course was great. It made us understand the questions better. We did fun activities to visualise the question, to know the answer…
- The communication instructor taught us things that we didn’t know before, how to read, and how to know what the question wants exactly…
• I have learned lots of things: like how to read the question, properly; like how to understand it; what it does need; and how I can sketch it easily. Before entering CAMP, it was difficult to sketch a drawing, but now it's easy (SFG2).

Students’ appreciation of the content instructors’ role in supporting reading skills

However, it was by no means only communication faculty who were providing this kind of help. One student highlighted that support in developing visualisation skills was also being provided by his physics teacher (one of the CAMP instructors who had been instrumental in initiating the intervention). In the view of this student, this teacher’s method, involving students in gathering information, with a view to then organizing it, achieving and learning, and requiring annotation of material and sharing, had “helped a lot” (SI2).

Students’ views of the relational aspects of the experience

Students commented positively on the relational aspects of learning with communication faculty, e.g. “they were so kind and explained everything very carefully” (SQ). There was appreciation for individual support:

when she came to the maths class, she gave us six kinds of word problems that you should know how to solve. You want the truth - I solved the first two, but couldn’t continue. So, I went to her and asked her about it. She read the question carefully with me, and we identified what the problem was (SI3).

Students’ views of dialogic learning

There was also an apparent awareness amongst students of how the interactive dialogic process was helping. One student reported: “He pushed us for answers and it was helpful for us. I liked it” (SFG1). Not everyone did, though: “When the content instructor was there, we could sit and relax. We could try to understand the content without being involved in the class. I didn’t like how the communication instructor made us answer questions and be involved” (SFG1). From the perspective of another student:

Some people like to take the information in a very regular way. The instructor goes and writes information on the board, and they just go and write it in the textbook. I think they won’t like the interactive way of teaching… Some think it (the
interactive way) is a waste of time because they think that they are doing nothing because the examples and activities are done together... But at the end of the class, if he asked them a question, they would be able to answer. They don’t see they have done something (SFG2).

**Less positive student perspectives**

Unfortunately, a number of students, both male and female, did describe the intervention as “a waste of time” (SQ). This was particularly an issue with male students, who included many repeaters, doubtless worried about looming high stakes exams (CI1R). Such students seemed to resent the time ‘lost’ to communication, e.g. reporting “our instructors are already pressured due to material given to them”, and they worried about finishing their book “very late” (SQ). Some also considered the communication instructor’s lack of content knowledge an issue, with one complaining: “Having a teacher not related to the course in question teach us about words related to our subject is counter-productive and sometimes confuses the student” (SQ). Others simply felt it was unnecessary, claiming, for example, “we know how to read as we graduated from ABP and got the IELTS” (SQ).

**Awareness of the differences between reading for science and IELTS**

Other students recognised, though, that “reading for IELTS is not the same as reading for science. It has different topics and subjects. IELTS doesn’t prepare you for the subject reading for maths, chemistry and physics. IELTS is general reading” (SFG1). A CAMP instructor concurred: “I’m sure if they have a 6 on the IELTS, they are very good readers, but it doesn’t mean that this is the type of reading we are looking for” (II3).

**Behavioural changes in students from content instructors’ perspectives**

Various positive behavioural outcomes influenced by the intervention were identified, perhaps the most important of which was noted by a mathematics instructor early in the semester: “’look, they are prepared to read now’. He said it had been much harder in the previous semester when (without communication support) the students had refused to do this” (CI1R). If the students refused to read, this did have negative consequences, as another CAMP instructor highlighted:
I’m afraid that the students’ old habits are actually being nurtured and encouraged because they can’t use the book. The book is not accessible. Then the teacher steps up and says ‘OK, I’ll lecture instead’. And this reinforces the idea for the students that the book is not necessary. It’s just a reference. And they only look in it if they’re really desperate. It’s a very easy trap for our faculty to fall into (II6).

**Behavioural changes in students from their own perspectives**

In this context, a student self-report such as the following is very encouraging:

Since I finished with the communication instructor, I refer to the book and read. My practice has changed a lot. Now, I study from the book. I can paraphrase the main ideas without having any problems, any struggle. Before, I used to forget one main idea. I used to spend time on something that’s not important. Now, I think I have developed a lot (SI3).

**A possible need for changes in assessment to facilitate further growth**

So, more positive attitudes appear to have been reflected in greater engagement with reading, at least in an individual such as this, which could help enormously if sustained over time, not only for the student’s well-being, but also if assessments that were not simplified were to be set. In the view of a CAMP instructor: “If you were to set an exam based on the textbook, we all know that students wouldn’t handle it. They’d have no chance because they’re at a lower vocabulary level. You do have to simplify the assessments” (II7). A student reported experiencing simplified assessment, claiming that linguistic content such as that used in the word problems in class never appeared in the maths exams; instead, the students were just given the bare equations (SI2). Another CAMP instructor worried about the extent to which students were being prepared for the future: “The courses after CAMP are even more challenging and complex. The students won’t have to read less. That’s certain” (II6).

**Self-reported changes in teaching practice**

Some positive changes in teaching practice influenced by the intervention had occurred, according to CAMP instructors, such as “the use of discussion topics more often”, “breaking down content” or applying “good positive ideas to motivate students” (IQ). Increased “sensitivity to reading
issues” was reported, while the intervention also seems to have operated as a language refresher, helping one instructor recall “a few things about grammar that [had been forgotten] awhile back” (IQ); another reported “I have a better understanding of the ‘English’ problem now” (IQ). Awareness of “how language teachers approach their topics” was developed, along with the realisation that “communication faculty view reading very differently” (IQ). Others felt their teaching practices were unaltered, though, while for one individual the influence seems to have been something of a surprise: “I even learned something from him” (IQ).

The future

As to the future, there was widespread agreement amongst CAMP instructors that there should be some kind of continuation (perhaps intensified, several suggested, with more contact hours) or follow-up. Better planning was required, though, several emphasised, with fuller integration, a clearer setting of objectives and careful monitoring (IQ). Arguments such as the following were also advanced for teacher education that would enable the CAMP instructors to provide the communication support themselves:

We’re not trained in these strategies, methods, or pedagogy. We should aim for having the content people sufficiently expert in addressing the language issues of the students. Having the reading expert in the class is helpful, a good place to start, but we need the content instructor to become more expert and able to design their curriculum to develop students’ skills (II6).

Discussion

We now discuss the above findings, which, while reflecting in as balanced way as we could manage data gathered from the different stakeholders including ourselves, with triangulation constantly sought, have inevitably been filtered through our own perspective of language teacher educators with insider knowledge. This is both a strength and limitation we have considered reflexively (Holliday, 2007), as we have assembled, commented on and juxtaposed data, and subsequently questioned our own and each other’s interpretations.

Overall, on the basis of the narrative above, the intervention seems to have been a mixed success. There was clearly a need for it, given factors such as some students’ reluctance to read, lack of
realisation that gaining IELTS 6 was insufficient, under-developed science-specific reading skills, and the unevenness in the support they were being provided, with some of their content teachers using more sophisticated techniques, e.g. to develop visualisation skills, others less recommended ones, such as reading aloud around the class (Nuttall, 1996), and others avoiding the issue, perhaps by lecturing rather than asking the students to read, and/or by simplifying assessments. The last recourse, also noted in other contexts such as Malaysia (Tan and Saw Lan, 2011), is unlikely to help students in the long run, as has also been recognised in this context.

While it was needed, though, there is widespread agreement that the intervention could have been better planned. The chief issue is perhaps that it was so rushed, with insufficient time being put into setting it up properly. This resulted unfortunately in a lack of clearly articulated goals, uncertain content, irregular timetables, and confusion over roles and responsibilities. This affected many of the stakeholders, including students trying to understand why the communication instructor was in the classroom in the first place and some CAMP instructors worrying about time lost for content to unfamiliar communicative language teaching methodology. The lack of planning also impacted the communication faculty, who found their roles somewhat diminished as a consequence. Subtle and subliminal power dynamics (Arkoudis, 2003; Hersi et al., 2016), which were unanticipated since the environment was so collegial and friendly, seemed to come into play. Clearly, more orientation regarding the intervention for both students and faculty would have been beneficial.

And yet, despite the challenges, in many ways the intervention did succeed. Many students did appreciate why they needed the kind of support communication faculty were providing, while improved outcomes in terms of greater willingness to read and more success in extracting key information from scientific texts were also reported. Many CAMP instructors too seemed to develop greater sensitivity to the kinds of linguistic issues (Fang, 2006) their students were facing, and greater awareness of how the strengths of different disciplines can be combined. Gaining this kind of insight is important if science teachers, working with ELLs possessing just IELTS 6, are going to be able, over time, to confidently use strategies employed by language teachers (Santau et al., 2010) that they feel might improve students’ learning outcomes.
Clearly, this work is incomplete and there are implications for future innovation in this particular engineering university context. We now discuss these.

- A major reason for the intervention succeeding to the extent that it did was the flexibility and very heartening openness to learning evident amongst faculty. Such goodwill needs to be built on, a consideration that should permeate all other actions.
- Thorough forward planning is crucial. Such planning should include careful integration of reading in English for science in the CAMP syllabus, through a rewriting of syllabus documents, and a sharing of these with the students. Goals need to be articulated and linked with assessment. Teaching materials need to be developed in advance and shared. Timetabling should allow for regular time slots for communication. This will facilitate the continuation of a CBI approach, which would appear valuable at foundation levels and in the short to medium term.
- It is necessary to build, through in-service continuing professional development, expectations for what is involved in successful co-teaching.
- Communication faculty should be provided some orientation as to how particular lexis is used in scientific contexts.
- Workshops specially designed for content instructors working with ELLs should be developed, to facilitate science teachers in themselves addressing the language issues of their students. This would facilitate a move over time from a CBI towards a CLIL model (Richards and Rodgers, 2014).
- Follow-up research as the intervention continues is also recommended. One area this research could focus on would be the value of the intervention for different science subjects. Different linguistic challenges may be posed by the materials of different content areas and we feel this matter would benefit from further investigation.

There is much to be done, and we would not wish to over-generalise findings from this study, set in a Middle-Eastern engineering university context where students’ lack of engagement with reading has been an acknowledged source of concern, to other contexts, particularly those where it may not be such an issue. However, given that science students in many countries are likely to need increased support in reading for English and may not necessarily be gaining the help they
require, we would suggest that lessons learned from the intervention described here might be of interest to curriculum developers, teacher educators and practitioner researchers in this field elsewhere.

References


Appendix 1: Questionnaire for CAMP instructors

This semester, a communication instructor has been providing support for CAMP, visiting chemistry, physics and mathematics lessons, mainly supporting reading for science. We are investigating this innovative teaching approach and would appreciate your participation. Thank you so much. Mark Wyatt, Asli Hassan, Alliya Anderson and David Young

1. Could you please comment on the following?
   a) How easy/difficult it was to make space for communication in the timetable:

   __________________________________________________________
   __________________________________________________________

   b) How you found co-teaching with the communication instructor:

   __________________________________________________________
   __________________________________________________________

   c) Any impact you noticed on the classroom environment:

   __________________________________________________________
   __________________________________________________________

   d) Any impact you noticed on student learning:

   __________________________________________________________
   __________________________________________________________

   e) Any opportunities the experience provided to learn more about the students:

   __________________________________________________________
   __________________________________________________________

   f) Anything you learned about language teaching and learning:

   __________________________________________________________
   __________________________________________________________

   g) Any impact you have noticed on your own approach to teaching:

   __________________________________________________________
   __________________________________________________________

   h) Anything else that seems relevant:

   __________________________________________________________
   __________________________________________________________

2. Overall, how useful have you found this experience? Please circle an appropriate number:

   Not useful  1  2  3  4  5  6  7  8  9  10  Very useful
3. If given the choice next semester, how likely is it that you would choose to teach a CAMP 060 course with communication support? Please circle an appropriate number:
   Not likely  1  2  3  4  5  6  7  8  9  10  Very likely

Why? Please explain your answer.

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

4. What recommendations do you have for supporting communication in CAMP courses in the future?

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Thank you for completing our questionnaire.
Would you like to take part in a short focus group discussion about this?  Yes / No
(If you circled yes, please inform Alliya Anderson or David Young when giving them the completed questionnaire.)
Many thanks again.
From Authentic Input to Authentic Output: Assessing the Real World Potential of ESP Tourism Student Writing

Gregory Friedman

Department of English Language Communication, Showa Women’s University, Tokyo, Japan

Biodata

Gregory Friedman is an Associate Professor in the Department of English Language and Communication of Showa Women’s University in Tokyo, Japan. He specializes in English for tourism communication, focusing on the promotion of lesser-known areas. His research interests include the use of internet resources and corpora for ESP; the use of interactive mobile technology to promote sustainable tourism; and collaborative approaches to producing foreign language material for residents.

Email: friedman@swu.ac.jp

Abstract

This paper reports on a project undertaken in a Japanese university ESP Tourism Industry Communication course, in which students searched for and collected examples of professional language from the web to create a class database of key lexis and colligational information. This lexis was subsequently used by students to create model destination websites for inbound tourism to Japan. In order to determine whether this pedagogical process resulted in website text that could be effective for its ostensible purpose of attracting international tourism, an online survey of potential inbound tourists was carried out that allowed respondents to compare text written by students for attractions in one destination to text from the official English website for the destination. Results indicated a strong preference for the student-written destination descriptions. Ease of comprehension, lack of extraneous detail, and description of concrete experiences were found to be the most important factors in this preference.
Relationships between the survey data and lexicogrammatical features of both official and student writing are considered.

**Keywords:** ICT, tourism communication, vocabulary

**Introduction**

*Authentic language and ESP*

The use of authentic material for input has become increasingly common in foreign language and second language classrooms. Media produced for consumption outside the classroom may offer benefits to learners relative to specially-produced educational material (Gilmore, 2011; Johns, 1994; Willis, 1993). A primary benefit is the affordance of being able to see or hear how target lexis is used in real-world contexts. A further potential advantage is the richness and variety of lexis that can be encountered in such materials, though this richness may also be viewed as disadvantageous at times, in that the length, lexical density, and syntactic complexity of some authentic texts may present challenges for learners. Authentic texts may also be seen as being intrinsically motivating for learners, adding to their value in the language classroom (Peacock, 1997).

For ESP learners in particular, exposure to language as used by professionals in the target field may enhance their ability to enter and operate within the field successfully (Albi et al., 2014; Braun, 2005; Mishan, 2005; Polezzi, 1994). Carver (1983), noting ESP’s strong “orientation towards purpose”, argues that for ESP learners to engage in authentic “real-world language performance” they first need authentic material (133). Gaining knowledge and command of field-specific vocabulary and discourse strategies in this way can be seen as conferring clear advantages. When these strategies and lexical items are specifically required for the successful marketing of a product or destination, as in tourism and hospitality marketing, the need for them arguably becomes even greater. In the case of the present study, the goal for the participants was to create L2 travel writing that could depict destinations clearly and appeal to potential visitors. Travel promotion text samples written for ESP tourism textbooks are too limited in number and variety to provide sufficient modeling of the discoursal and lexical strategies particular to this genre, and cannot represent the broad spectrum of places and attractions described in actual travel promotion material. In response to this need, the class instead made use of the vast number of travel promotion sites available online as a source for observing professional language in context.
Corpus-based vocabulary learning

One approach to authentic language exposure that is frequently applied in ESP classrooms is the use of language corpora. The benefits of corpora to learners have been argued by many researchers (e.g., Boulton, 2016; Braun, 2005; Hafner and Candlin, 2007; Gavioli and Aston, 2001; Grosse and Voght, 2012). At the same time, some researchers in applied corpus linguistics (e.g., Braun, 2005; Hunston, 2002; Mishan, 2004; Tribble, 2002; Widdowson, 2000) have noted a potential disadvantage for language learners of using concordance line output for lexical study, namely the disconnect between the lines and their original discourse context. Use of corpora by learners in language classrooms has generally been limited to preexisting corpora compiled by linguistic specialists. Concordance lines produced through search queries of these corpora are then analyzed by students. As a result, learners typically have little contact with the original discourse contexts from which the concordance lines are drawn. Key features of the discourse relevant to a full understanding of its discrete lexical components may remain unseen. Tribble (2002), though focusing on academic discourse, notes several such features that are arguably just as relevant in ESP tourism contexts, such as the social context and communicative purpose of the text, and the cultural values presupposed by writer and/or reader. Hunston (2002) notes the potential deficiencies when a text is not “encountered in its visual and social context”, noting that a “text consists not of the words alone but the spatial context in which the words appear” (23). This last point may be particularly relevant when linguistic data comes from the richly visual context of promotional material on the web, and when, as in the case of the present study, the data is embedded in a series of persuasive claims intended to attract a potential consumer.

Thus, as receivers of mass data produced by educators or linguists, learners are cast in a relatively passive role in the process. This may be somewhat inconsistent with one of the prime motivations for classroom-based corpus work: the idea that students can and should be active participants in language discovery. What may be the advantages for learners in compiling their own linguistic data, as opposed to simply making use of a preexisting corpus? Aston (2002) uses the analogy of home-made versus store-bought food to illustrate potential benefits:

Control. You can devise your own recipe, choosing your own ingredients, thereby obtaining assortments that may be unavailable in pre-packaged versions.
Certainty. If you make your own fruit salad, you have a good idea of what went into it, and this makes it easier to decide what that strange-looking bit was, or why it tastes too bitter or too sweet. *It is much easier to interpret [results] if you know exactly what texts a corpus consists of.* [Emphasis added]

Critical awareness. Through trial and error, and consulting books and experts, you will probably become a better chef (whether of corpora or fruit salads) as you compare the effects of different proportions of different ingredients.

Communication. Making your own corpus or fruit salad can have more social spin-offs than opening a supermarket tin, providing lots to talk about with co-constructors and with other chefs.

(Adapted from Aston, 2002, p. 10)

The implication is that learners can take ownership, literally and figuratively, of their lexical study, deepening their understanding of the material by having a closer bond with it, and increasing the potential for discovery by collaborating with fellow student researchers. In the context of the present study, control and certainty were enabled through the use of tailored searches within a particular field—tourism promotion—that allowed students to find examples of lexical usage specific to this field. In other words, they could learn how certain grammatical or lexical items function in this discourse context and specifically how they are utilized by professional travel writers in order to attract potential tourists. This would have been much more difficult to achieve with a general corpus. In terms of critical awareness, by having the students compile their own database, the intent was for them to take ownership of their language study, leading to a more personal connection with the data. As an illustration, when students had questions about how to use the lexis in their own writing, the instructor could point to specific sentences in their own collected data, with which they were familiar, as exemplars. Finally, the database created many opportunities for communication among the students, as they shared example sentences and discussed them.

Though some research has been carried out on learners examining corpora of their own language production (*e.g.*, Lee and Swales, 2006; Perez-Paredes and Cantos-Gomez, 2004; Seidlhofer, 2002), few studies have focused on learners gathering examples of lexical usage
directly from original sources. One notable exception to this is Charles (2012), whose EAP students each created their own mini-corpus of academic research articles in their individual disciplines. Her study found favorable results in terms of reported usage and perceived usefulness. One of the factors that Charles points to as arguably key to the positive response from the participants is the “excitement” of being personally involved in collecting the data. As she puts it, “there is a truly revelatory moment when they see the patterns appear before their eyes in their own data” (101, emphasis hers). Outside of EAP, other relevant studies include one by Castagnoli (2006) in the discipline of translation studies and one by Smith (2011) in the context of a general English course. Castagnoli’s trainee translators compiled specialized corpora for three fields (medicine, company law, and cell phone technology) using them to better understand translations of field-specific terminology. Castagnoli notes that familiarity with the field in question may determine the usefulness of corpora to learners. Smith’s students carried out collocational analysis on vocabulary of their own choosing, using individual corpora they constructed themselves using specialized software. Smith highlights the importance of this DIY approach in creating among the students a strong sense of ownership of both the process and the collected material.

Specialized corpora and ESP

Researchers in the ESP field of Language for Tourism are increasingly making use of specially-tailored tourism English corpora in order to inform the teaching of pre-service or in-service hospitality and tourism professionals. Lam (2007) analyzed a broad corpus of tourism texts and, comparing it with a general English corpus, found key differences in semantic prosody. Similarly, Kang and Yu (2011) examine both grammatical and stylistic attributes of English in tourism texts. Pierini (2009) focused on the particularities of adjective use in a hotel promotion corpus. Henry and Roseberry (1996) determined sets of words that may appear frequently within four key moves—Identification, Location, Description, and Facilities—of what they termed “Brief Tourist Information texts” in online sources. Hou (2014) created corpora of wine tasting notes from online sources for use with hospitality students, leading to positive classroom results. Though these studies make use of web content for building a corpus to inform praxis, they do not envision learners themselves as active participants in accessing original sources or collecting data. The present study, which is also situated in an ESP travel industry context, emphasizes the role of learners as linguistic explorers—positioning them in a central role in the compilation process, and prioritizing direct contact with original source
material. However, rather than have participants compile data separately, the object was to collectively create a class database that could be accessed by individuals and groups for reference. Unlike the students in Charles (2012), the student participants in the present study were all focused on a single ESP discipline, making it very appropriate to collectively gather and examine lexical data.

The specialized corpus, in this case, was comprised of language in tourism destination websites around the world, accessed through the search tools of the WebCorp Linguists’ Search Engine (Renouf et al., 2006), as well as Google Advanced Search. This method of using the web as a live, searchable repository of specialized language falls into what Gatto (2014) has called the “new model” of corpus study, based on “a ‘distributed architecture’ in which the researcher works from any computer on data and query tools located on a remote server, so that it becomes redundant to replicate the digital data (the corpus) in a local copy…, since all the processing can be done directly online” (171). In other words, rather than querying a single corpus file with pre-selected data, the students in the present study were able to directly query the entirety of the web itself.¹

Though the original material existed on the web, the students could keep examples of target lexis that they chose in their own shared online database (a table in Google Drive), which would provide a resource for students to use in their class projects. The database in the present study was thus intended to be in line with Carver’s (1983) claim that, “opportunities for self-direction in ESP would be increased through a bank of materials (to which learners could and should contribute) to be used by learners individually or in groups on a self-access basis” (135), as exemplified by Mishan (2004), who discusses the benefits of having learners pool their lexical discoveries in order to enhance inductive and deductive learning of lexical patterns.

**Setting and Classroom Methodology**

The course in which the study was carried out, entitled Communication for the Hospitality and Tourism Industry, was comprised of fifteen second and third year students enrolled in a four year undergraduate program at a Japanese university. The students had TOEFL Ibt scores ranging from 55 to 81, equivalent to the upper intermediate CEFR ranking B2. The course focuses on discourse strategies for use in communicating with inbound international tourists in Japan in a wide variety of contexts. One of the projects that students in the course carry out is the creation of original websites promoting tourism to specific regions of Japan, in particular
lesser-known regions. Students work in teams, doing all research, writing, and design for their websites.

As part of the preparation for the project, students read and discussed the content of English-language travel websites, covering both foreign and domestic destinations. Students considered differences in content, writing style, and design between sites produced in other countries and those produced in Japan. They also compared English language and Japanese language sites for the same destination, considering the needs and interests of inbound foreign tourists as opposed to those of domestic Japanese travelers. In particular, the class noted the heavy reliance upon insider knowledge of much of the web content produced in Japan. Many sites, whether in English or Japanese, appeared to be written from a native perspective and assumed familiarity with Japanese culture and history.

Subsequently, the class turned its focus to how English is used online by tourism professionals when describing attractions. Students began with a set of selected English language travel websites about three destinations in other countries, produced by official regional tourism bureaus: the states of Oregon and Tennessee in the United States, and the Skane region of Sweden. The sites were selected for their rich content, attractive design, and engaging writing. Students were asked to notice how verbs were being used in the text of these sites, in particular:

- The use of verbs to describe concrete actions and experiences of visitors
  - At Stenshuvud you can breathe sea air!
  - One tip is to go up to the park's highest point.
- The frequent use of imperatives
  - Delve into geologic wonders.
  - Fulfill your dreams and spend an unforgettable summer in Skane
- The use of sentence-initial participle clauses
  - Operated by the Tennessee Valley Authority and located near Tracy City, this recreation area provides a safe and beautiful base for exploring the south end of the Cumberland Plateau.
  - Resting atop a sea stack of basalt, the notorious Tillamook Rock Lighthouse is the stuff of aged lore.
The next step was for students to discover examples of verbs being used in these ways on other travel websites. First, examples of imperatives and other verb phrases found by students on the three sample sites were added by students to a shared table on Google Drive. The students were then tasked with finding more examples of these items in travel promotion sites around the web. To carry this out, focused searches using WebCorp (Renouf et al., 2006) and Google Advanced Search were employed, enabling the discovery of examples from the target context of travel promotion discourse. So as to narrow the searches to sites that focus on tourism promotion, page filters such as “travel” and “destination” were used. (Review sites, which feature content written by non-professionals, were eliminated from the searches by using negative filters, such as “-tripadvisor”.) The concordance lines produced by WebCorp are clickable, which allowed students to access and view the original context of the lines. In the shared online table, students highlighted key collocational and colligational components, particularly the object clauses following imperatives or following key verbs in the functional phrases. The students also linked their database contributions back to the original webpage sources, making the database a live, clickable resource that allowed other students in the class to examine the original contexts in which the sentences were embedded. This feature also facilitated the ability of the instructor to display the original webpage contexts to the class in teacher-fronted settings. Figure 1 shows sample sentences collected by the students for the phrase choose from. In this case, students were asked to highlight the set of things which can be chosen from. One student also found the verb offer (also an item in the database) in the sentence, highlighting the relevant colligation for that, as well. This illustrates the sort of serendipitous discovery that can occur when learners engage in close examination of authentic material.

The collected examples offered the students many opportunities to discover useful collocational and colligational associations. Figure 2 shows a portion of the database itself, for the verb phrase offer + you/traveler/visitor. When the students looked at these sentences, they found that most of them were followed closely by opportunity. The specific pattern we discovered was [offer + receiver of offer + opportunity + infinitive verb phrase]. This pattern was not one that the instructor had planned to teach beforehand, but its salience in the student-collected data brought it naturally to our attention.

We have a wide selection of tours to choose from which we can add in easily to any holiday you have in mind. We are experts in tailor making packages, so let us help you plan the perfect train tour holiday. (Tomoka)
With over 100 destinations and cruises to choose from, our tours offer the traveller choice, interesting itineraries, flexible pacing, good value and quality. (Tomoka)

You can choose from 16 family rides and another 20 rides and attractions for a great day out. (Haruna)

**Figure 1: Sample sentences from the database: Choose from**

| Offers you | Located in the Finger Lakes Region on 12 meticulously designed acres of Monet-inspired gardens. Woodlands and courtyard ponds. Mirabeau Inn & Spa offers you the opportunity to be pampered and to refresh, relax and recharge in our uniquely beautiful facility. (Ayaka) |
| Offers travelers | Traveling from Pennsylvania to Florida by train offers you the opportunity to take in the scenery, and explore train travel. (Ayaka) |
| Offers visitors | As the largest city of the United States, New York City never sleeps and offers you non-stop fun and spectacle. (Mami) |

**Figure 2: Database excerpt: Offer**

Concurrently, with their work on the vocabulary database, the student teams carried out research on the regions that they had decided to promote, and began writing about specific attractions. Their writing and research was shared with the instructor in an online dossier, which allowed for interactive feedback. Comments from the instructor during the first month of writing were limited to content issues, but gradually shifted to lexicogrammatical features during the subsequent weeks. Only rarely did the instructor give direct corrections; most comments pointed out passages that lacked clarity, or gave hints and reminders about particular grammar problems. Each student team’s dossier went through at least three rounds of a recursive feedback-rewriting cycle.

As noted above, the purpose of the shared database was to inform and inspire student use of lexis in their writing for the website project. Students were asked to use phrases or imperative verbs that they or their team members had added to the database, as well as lexis added by others. Examples of sentences produced by students for their website projects are shown in...
Figure 3. Most focus on description of concrete experiences, and include imperatives, participial, and other key lexis from the database.

**Chiba Prefecture**
Feel the gentle breeze and spend an unforgettable time in Sawara. Surrounded by weeping willows, the Ono river flows through the center of Sawara. On sightseeing boats, friendly boatmen explain the history of Sawara, and can recommend shops, such as Kamata-ya, which sell traditional crafts.

Choose from various activities such as swimming, snorkeling and fishing.

**Miyagi Prefecture**
Feel nature’s power at Kamiwari-zaki. Be impressed by the Pacific Ocean’s wild waves coming toward you from between these two rocks.

Immerse yourself in Miyagi history! Hikoronosato, Japanese for “bright village”, contains the historical silk museum and Matsukasa yashiki, a restored Edo-era samurai dwelling. Built in the last part of Edo period, Matsukasa yashiki is a rare mixture of samurai housing and peasant housing.

Marvel at Minamisannriku’s huge moai. Minamisannriku’s moai statue represents the area’s friendship with Chile.

**Aomori Prefecture**
Don’t miss the opportunity to see endangered species here at Shirakami-sanchi. Located between Aomori and Akita prefecture and chosen as a world heritage site in 1993, Shirakami-sanchi is one of the biggest mountainous region of primeval beech forest in the world. To explore this area, choose from any of seven paths depending on your stamina. At the museum in the village at the foot of the mountain, learn the connection between the ecological system here and beech trees, and experience the four seasons in Shirakami-sanchi in a special cinema.

**Aichi Prefecture**
Refresh your mind in Mt.Tsugao. Designated as a national park, the mountain was considered sacred by ancient people because of its unspoiled forest.

Experience a traditional Japanese tea-ceremony at a Japanese heritage site.

**Figure 3: Excerpts from student websites**

**Study Rationale and Design**

Since the process used in the class comprised various pedagogical techniques, such as immersion in authentic material, guided vocabulary study, collaborative database construction, and instructor feedback, it would be difficult to test for effects of these specific techniques on the resulting student writing. Instead, the researcher wished to evaluate the process holistically...
in terms of whether it resulted in a final product with potential value in the marketplace for which it was intended: the travel industry. In particular, how would the writing for the student websites measure up against the writing on official websites?

It was felt that the only way to reliably gauge this was to do a comparison study that made use of existing web material on the same destination. The goal, therefore, was to compare writing from the class—which was the result of guided vocabulary study of professional English material and feedback from a native English speaker—with more typical Japanese destination writing, which commonly is produced without consultation or feedback from native speakers. In such a context, it was considered important to compare writing samples that describe the same attractions—in other words, to compare apples with apples. Though it would have been preferable to assess potential tourists’ reactions to text from all of the students’ websites, it proved difficult to find existing material that could be matched attraction-for-attraction with the student-produced material. In some cases, existing material that could be matched was found, but it was of such inferior quality that it would create a stacked-deck effect. Finally, one official English website for a destination was found that matched the destination and individual attractions of one of the student sites: Inuyama in Aichi prefecture. The quality of the English writing on this official site was reasonably acceptable, as well, though with clear indications that it was produced without native feedback (e.g., instances of Japanese English, odd capitalizations, and an emphasis on historical references).

A survey was then created based on text extracts from the official Inuyama website and the students’ Inuyama website. Three attractions featured in both the official and student websites (Inuyama castle, Inuyama festival, and Meiji Village) were selected, and text extracts from each were paired and presented within the survey for respondents to compare (Appendix). For each attraction, respondents judged which of the two extracts they preferred, then gave reasons for their preference. The following explanation was read by respondents before viewing the extracts: “To help us create better English language information for tourists in Japan, we would like to get your reaction to two versions of webpage text for a destination. You will read three pairs of webpage excerpts, each about a different attraction. For each pair, please tell us which excerpt you prefer, and why”. As far as the survey respondents knew, then, both sets of text were intended for potential use in a real website that would promote tourism to an actual destination.
Respondents could select without limit from a list of six reasons: *easier to understand, more vivid description, more interesting, more detail, not too much extraneous detail, and better grammar*, as well as an *other* option which allowed them to specify a different reason. In addition, respondents could specify which words, phrases, or sentences influenced their choice. It was hoped that this latter option would allow insight into whether the particular lexical strategies learned in the class would have an effect on respondent preference.

The survey was carried out online during August of 2016, using a professional survey audience service that can target specific respondent demographics, in this case based on frequency of international travel and pleasure travel. The target audience of the survey was adult residents of the United States who tend to travel for pleasure frequently, but who had never been to Japan.

**Results**

Averaged for all three text pairings, three-quarters of survey respondents (*n*=291) preferred the student-written text (Table 1). For respondents who chose the student texts, the three most common reasons given were ease of comprehension, absence of extraneous detail, and more interesting writing. Among respondents who preferred the official texts, the top three reasons were ease of comprehension, more interesting writing, and more vivid description. Table 2 shows the total number of times each reason was selected for the three attractions by respondents preferring either the official or student text.

**Table 1: Respondent Preference (% respondents)**

<table>
<thead>
<tr>
<th>Attraction 1 (Inuyama Castle)</th>
<th>Official</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attraction 2 (Inuyama Festival)</td>
<td>8.8</td>
<td>91.2</td>
</tr>
<tr>
<td>Attraction 3 (Meiji Mura)</td>
<td>31.2</td>
<td>68.8</td>
</tr>
<tr>
<td>Attraction 4 (Nara Park)</td>
<td>33.6</td>
<td>66.4</td>
</tr>
<tr>
<td>Total</td>
<td>24.5</td>
<td>75.5</td>
</tr>
</tbody>
</table>
Table 2: Reasons for Preference (number of times selected by respondents)

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Attraction 1</th>
<th>Attraction 2</th>
<th>Attraction 3</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Official</td>
<td>Student</td>
<td>Official</td>
<td>Student</td>
</tr>
<tr>
<td>Easier to understand</td>
<td>6</td>
<td>182</td>
<td>37</td>
<td>90</td>
</tr>
<tr>
<td>More vivid description</td>
<td>14</td>
<td>33</td>
<td>13</td>
<td>65</td>
</tr>
<tr>
<td>More interesting</td>
<td>8</td>
<td>67</td>
<td>27</td>
<td>72</td>
</tr>
<tr>
<td>More detail</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>30</td>
</tr>
<tr>
<td>Not too much detail</td>
<td>1</td>
<td>132</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>Better grammar</td>
<td>2</td>
<td>62</td>
<td>12</td>
<td>58</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>2</td>
<td>33</td>
<td>3</td>
<td>13</td>
</tr>
</tbody>
</table>

Discussion

**Comprehension and description**

The reasons for preference in the survey can be divided into comprehension factors (Easier to understand and Better grammar) and description factors (More vivid description, More interesting, and More detail/Not too much detail). Comprehension factors were selected 511 times in the survey by respondents preferring the student writing, as compared to 100 times for respondents preferring the official writing. This would seem to show that the attention paid to grammar and syntax during the recursive editing phase of the writing process paid off for the student website. A count of optional comments from respondents regarding this factor lends support to this notion. Those preferring the student writing made 25 comments that refer specifically to clarity or the quality of grammar and syntax as key positive factors in their choice, compared to a single such comment from those preferring the official writing. This comment from a respondent who preferred the student writing for the festival attraction is fairly representative: (the student writing has) much better grammar, with complete sentences that complement each other and don't seem "thrown together". The comprehension results indicate that higher quality grammar and syntax may have a measurable impact on potential customer reaction in tourism promotion.

Yet it would appear that description factors were also seen as important by respondents. Grouped as a set, the reasons more vivid description, more interesting, and more detail were chosen 407 times, more often than easier to understand. As noted earlier, a priority for the
students in writing their promotional text was to highlight specific activities and experiences of visitors. The three excerpts from the student website featured fifteen specific visitor activities and experiences. By comparison, the excerpts from the official site contained four such descriptions, and these experiences were somewhat vague. Figure 4 lists the key verb phrases or clauses for the activities and experiences described in each set of excerpts.

**STUDENT**
- Visit (a) national treasure
- Learn its history
- Climb to the top floor
- Have a fine view
- See the parade
- Festival enchants you with different views
- See the magnificent display

**OFFICIAL**
- Offers the tourist a special place of social education and recreation
- Touch the form and spirit of the Meiji era

**Figure 4: Concrete experiences**

Respondent comments indicate that concrete activities and the use of imperatives and other structures may have played a role in the strong overall preference for the student writing. When respondents selecting *more vivid description, more interesting, or more detail* are isolated in the data, revealing insights can be gleaned from their comments about which words or sentences influenced their preference. Figure 5 shows, for each attraction, the five most frequent words and phrases mentioned by respondents preferring the student writing (and who selected at least one of these three reasons) as influencing their selection. (The lists exclude common and content-specific words, such as Japanese, castle, and float, and function words.) Most are either imperatives, participial verbs, or verbs and other words used for description of concrete experience. Figure 6 shows, for each attraction, the three most frequently mentioned sentences given by respondents who preferred the student writing and who chose either *more vivid description, more interesting, or more detail*. Notably, most contain descriptions of concrete experiences, or feature the verb structures learned by the class.
If you climb to the top floor, you have a fine view of the Kiso River, and a panorama of Inuyama city. (33%)

A national heritage site, Inuyama castle’s tower is the oldest in Japan, and has two stories below and four above the ground. (26%)

Nobunaga was one of the most powerful military commanders in the Sengoku era, about 600 years ago. (18%)

In the autumn night, floats decorated with 365 shining lanterns give you a totally different impression from the spring festival, as the warm light of the lanterns kindly envelops you. (43%)

Some karakuri dolls operate by clockwork, while others are manipulated by craftspeople using thread. (29%)

Held twice a year, Inuyama festival enchants you with different views. (24%)

The overall structure is Japanese, but the designs imitated western architecture. (48%)

You can learn how Japan developed and what sort of life Japanese people led in the Meiji era. (42%)

See the house of great Japanese writers Soseki Natsume and Ogai Mori, and important cultural properties such as St. John Church and Gohukuya, where traditional Japanese performances like kabuki, rakugo and kodan are held. (42%)

One interesting result was the fact that extraneous detail played a strong role as a negative preference factor for both the official and student site writing. In the case of the castle attraction, the official site writing gave great detail about the historical figures associated with the location relative to the student site writing. (Notably, these figures would be familiar to most Japanese people, though unknown to most foreign tourists.) By contrast, for the festival attraction the
student writing went into intricate detail regarding the puppet mechanisms on the floats. In both cases, respondents tended to react negatively to this feature of the writing. Over half (58%) of respondents preferring the student writing about the castle chose lack of extraneous detail as a reason; for the festival attraction, 32% of respondents who preferred the official site writing gave this as a reason. One respondent, who preferred the student writing for the castle but the official writing for the festival, provided illustrative comments about the effect of this factor on her preferences:

Castle:  [The student writing] gave me a general understanding of the history and importance of the castle without losing me in the unending details.

Festival: [The official writing] gives me a good overview without the mind numbing details.

In their writing on the castle, the students made sure to explain who the historical figures were, and avoided too much historical detail. In a telling comment, one respondent who preferred the student writing on this attraction referred to a point that had been discussed during the class: the importance of catering to an outsider’s perspective. The [official writing] assumes the reader has prior knowledge. This is a violation of one of the cardinal rules of good writing.

Those who preferred the official writing about the castle appeared to like the historical detail. Vivid description, more interesting, and more detail were the most common reasons given in this case.

Overall, the role of “more detail” as a positive factor was fairly limited, relative to the other reasons. English writing instruction tends to emphasize the use of details as a key to successful composition, and the class in which the project was carried out was no exception. It was of some concern that some of the descriptive writing done by the students might lack sufficient detail to be effective, yet the data indicates that brief description may in fact be more attractive in a travel promotion writing context.

Capitalization

As mentioned earlier, the official text contained many Japanese words and names rendered in all-caps. The researcher made the choice to retain this capitalization in one of the official excerpts, in order to explore whether this would be a factor in preference. (This feature was
removed from the other official excerpts.) The data give some indication that this may have influenced the respondents, yet it appears that it was likely not a major factor. For Attraction 1 (castle), in which the capitalization was left intact, 20 of 35 respondents who chose “Other” mentioned this as a reason for their preference of the student writing; a further seven respondents also mentioned this issue as a contributing factor in their preference. Taken together, however, this represents just 8% of all respondents who preferred the student writing for this attraction.

Conclusion

This study examined the presence of certain phrases, verb patterns, and colligations in professional travel promotion texts. As with the specialized corpus used for ESP hospitality students in Hou (2014), field-specific phraseology was thus gleaned from web-based linguistic data. Students were actively involved in gathering and analyzing this data, similar to Castagnoli’s (2006) translation students, Smith’s (2011) general English students, and Charles’ (2012) EAP students. However, the present study took a further step in validating the pedagogical techniques used, by exposing the resultant student work to an audience outside the classroom. It was found that the use of the lexis from the class database in student-produced promotional text, along with the use of concrete, descriptive writing techniques, contributed to favorable evaluation of the text by potential visitors to Japan, relative to writing produced for an official website for the same destination.

The hope was that, through conscious exploration of language as it exists in a target ESP context, student writing could itself become somewhat authentic in its own right. The results of the survey of potential tourists give some indication that the process did result in material that was considered relatively attractive by an audience who comprise the normal target audience for such work.

A potential limitation of the survey used was that it limited the choice to simple preference, without delving into the question of whether the writing created actual interest among respondents to visit the destination. In addition, since respondents were able to view text from both official and student sources, there is the possibility that the positive results for the student writing could have been influenced by this comparison. In response to this, a further survey is being planned that allows respondents to see only one text source, and which makes an attempt to gauge the effect of the writing on destination interest.
The present study had a consciously lexical focus, investigating whether the presence of certain vocabulary and writing strategies learned by the students would prove effective. Yet it should be noted that the student writing for their websites was not perfect, grammar-wise, nor was it particularly intended to be. Some grammatically questionable phrasing certainly remained, and it was not the purpose of the study to compare fully-corrected, native-level writing with the official destination website writing. Since the context of the study was ESP education, it was instead hoped that the study might indicate that certain second language skills and lexical knowledge applied by non-native writers can translate into success in the target field.

References


Footnote

1 Compared to the use of traditional, static corpora, the use of web-as-corpus naturally creates a somewhat different context for retrieval of target lexis samples, in that the size of the corpus is potentially limitless and continually changing. The actual size of the corpus in each instance depends on the exact search terms used for each individual query. Though the size of the base set of texts upon which queries are based is essentially unknown, the search engines that WebCorp piggybacks on, such as Bing, are known to index a large proportion of the existing web. They then return a maximum of 50 selected hits per query. According to Matthew Gee, co-creator of the WebCorp site (M. Gee, personal communication, July 4, 2017), to arrive at this selection, “measures are used which combine the importance of a page on the web (like PageRank) and the relevance of a page to your query”. As an example, a search of this kind for the phrase choose from “returned 32 hits (out of
an estimated 121,000). WebCorp successfully accessed 29 web pages and generated 29 concordances”,
according to the readout which appears at the end of the WebCorp concordance lines.

Appendix: Site Excerpts Used for Survey

Attraction 1: Official

National Treasure INUYAMA Castle

One of four national treasure castles in Japan, located on the south side of the KISO River. INUYAMA castle was constructed by uncle Nobunaga ODA, Nobuyasu ODA in 1537. It was at the very border of OWARI (present AICHI pref.) and MINO (GIFU) and a very important base in wartime, so that its owner was changed many times by every war. In the battle of KOMAKI/NAGAKUTE, Hideyoshi TOYOTOMI was based at this castle with 120,000 soldiers, and fought the only battle against Ieyasu TOKUGAWA in his lifetime. In the EDO era (1603-1868), the chief retainer of OWARI Masanari NARUSE owned this castle and in the MEIJI revolution in 1868, AICHI prefecture retook the castle from the NARUSE family. But in the NOUBI earthquake in 1891, INUYAMA castle was half destroyed and the NARUSE family regained it with the condition of restoring the castle, and, as a result, it has been the only privately owned castle in Japan until the NARUSES transferred its property right to a judicial foundation in 2004.

Attraction 1: Student

Visit one of Japan's official national treasures.

A national heritage site, Inuyama castle’s tower is the oldest in Japan, and has two stories below and four above the ground. The castle was originally made by Nobuyasu Oda, uncle of Nobunaga, in 1537. Nobunaga was one of the most powerful military commanders in the Sengoku era, about 600 years ago. The location where Inuyama castle is standing was the site of many battles among warlords, and the castle was an important center for trade, economy and politics during the Sengoku era. Today, you can explore the castle, and learn its history and its architecture, as well. If you climb to the top floor, you have a fine view of the Kiso river, and a panorama of Inuyama city.

Attraction 2: Student

Begun in 1635, the Inuyama festival is now one of the most important Intangible Cultural Properties in Japan. This festival offers you an opportunity to see the famous parade of 13 floats called yama. All yama have a three-layered structure equipped with trick mechanism karakuri
dolls at the top. Some karakuri dolls operate by clockwork, while others are manipulated by craftspeople using thread. Chahakobi (tea server) dolls controlled by springs and gears bring tea to guests, then come back after they drink the tea. During the parade, skilled craftspeople ride on the yama, and operate the karakuri dolls to show the performance of mai, traditional Japanese style dance, accompanied by Japanese drum and flute. Pulled by local people, the floats go down the street and come together in front of Haritsuna shrine.

Held twice a year, Inuyama festival enchants you with different views. In spring, see the magnificent display of floats while enjoying the beauty of cherry blossoms. In the autumn night, floats decorated with 365 shining lanterns give you a totally different impression from the spring festival, as the warm light of the lanterns kindly envelops you. Inuyama— the festival worth seeing more than once!

**Attraction 2: Official**

A national significant intangible gold cultural asset, started in 1635 as an annual festival of the Haritsuna shrine, and is still held every year on the first weekend of April. The highlight of this festival is the parade by 13 three-layered floats 25 feet in height, with the sound of Japanese flutes and drums. In the nighttime, every float is lit by 365 Japanese lanterns and its light and fully bloomed cherry blossoms make the scenery a truly unforgettable picture.

Inuyama festival was originally an event of the Haritsuna shrine, where Inuyama’s genius is enshrined. This became an annual event in 1635, by the chief retainer Hayatonosho Masatora Naruse’s order.

The highlight of Inuyama festival is a parade by 13 floats. Every float has very gorgeous three layered construction, Japanese automaton and some of these can be seen only here in Inuyama.

All of these 13 floats are designated as Aichi prefectural tangible folk assets. The parade of floats itself is not that rare in Japan and can be seen all over Japan and floats are called in different ways. Hoko, dashi, yatai, danjiri are examples of them and in Inuyama, floats are called yama, and written 車山 in Chinese character.
The Meiji era is the time when modern Japan was shaped by opening the door to the world and introducing western culture, so that is recognized as a very important part of Japanese history along with the Asuka and Nara eras.

Because of these facts, the Meiji era constructions are based on traditional techniques and knowhow inherited from Edo era and at the same time, they include newly introduced things from the west. Bricks and stones began to be used in construction designed in western styles and as the Industrial Revolution proceeds, more new materials like steel, cement and glass came in. Thus modern Japanese construction style was established through this era.

Meiji Mura offers the tourist a special place of social education and recreation by collecting, preserving, and maintaining valuable buildings and historical materials. Visitors can touch the form and spirit of the Meiji era, see the evidence of East–West cultural exchange and enhance mutual understanding between the people of Japan and other countries of the world.

**Attraction 3: Student**

Experience Meiji life!

Meiji Village preserves the buildings and materials of the Meiji era (1868-1912). Meiji-style buildings combined both Japanese and western styles. The overall structure is Japanese, but the designs imitated western architecture. During this key era, Japan rapidly transformed its economy, lifestyle, diplomatic relationships, and industry. You can learn how Japan developed and what sort of life Japanese people led in the Meiji era. Visit factories that contributed to the progress of Japanese society and houses of statesmen who worked actively during the Meiji era. See the house of great Japanese writers Soseki Natsume and Ogai Mori, and important cultural properties such as St. John Church and Gohukuya, where traditional Japanese performances like kabuki, rakugo and kodan are held. Get into the spirit by trying on Meiji-style haikara clothing!

by trying on Meiji-style haikara clothing!
Building Blocks of Medical Abstracts: Frequency, Functions and Structures of Lexical Bundles

Zeinab Abdollahpour  
Urmia University, Iran

Javad Gholami  
Urmia University, Iran

Zeinab Abdollahpour, PhD candidate in TEFL at Urmia University, Iran, is an experienced EFL and ESP teacher. Her research interests are academic writing, corpus linguistics, and computer-assisted language learning.

Javad Gholami is associate professor of applied linguistics at Urmia University, Iran. His main publications have been on incidental focus on form, teacher education, and ESP/EAP. Recently, he has been working as a professional EFL teacher convenient editor and researching on convenience editing and academic writing in EAP.

Email: j.gholami@urmia.ac.ir

Abstract

This study investigated frequently-used four-word general and technical lexical bundles (LBs) in the abstract sections (ASs) of research articles (RAs) in medical sciences. To this end, a corpus of 1800 empirically-oriented RA abstracts of approximately 414,000 words from recently published ISI-indexed journals with high impact factors was compiled and analyzed. The frequency of four-word lexical bundles was retrieved through AntConc software. Then, all identified target LBs were sub-classified into general and technical LBs by two qualified raters and their distribution were accounted for in terms of their structures and discourse functions manually. The findings demonstrated 81 general and 32 technical LBs in medical abstracts. This study also revealed that medical abstracts structurally contain a wider range of noun phrase bundles (e.g., this study was designed) than clausal phrases. Moreover, in terms of
discourse functions, referential expressions (e.g., *little is known about*) was found to be the most prevalent ones in medical abstracts. Since LBs are building blocks of scholarly writing and RAs as is the case in medical sciences, they deserve special treatment and pedagogical practice in teaching academic and scholarly writing, especially for novice researchers and graduate students in medical sciences as well as material developers and academic writing course instructors in English for Medical Purposes (EMP).

**Keywords:** discourse functions, lexical bundles, medical abstracts, scholarly writing, structure

**Introduction**

Nowadays, in academic communities, the importance of academic writing skill is undeniable since it is an essential criterion for university success. Publications in leading journals are prestigious and bring about success and career promotion for scholars. Therefore, writing research articles for publication is considered as one of the key competencies for scholars across various disciplines.

LBs as building blocks of language play an essential role in academic writing and are considered as perquisite for writing. LBs have been proven to be pervasive in academic genres and to have certain features particular to academic texts (Salazar, 2014). It has been consistently argued that “each register employs a distinct set of lexical bundles, associated with the typical communicative purposes of that register” (Biber & Barbieri, 2007, p. 265). There is a need for an instructional approach to teach discipline-specific academic writing to both novice and advanced, native and non-native speakers of English to develop their writing through exploration of their disciplinary genre (Wingate & Tribble, 2012) since as a technical skill it cannot be taught outside the discipline (Lea & Street, 1998).

In spite of the importance of LBs, to the best of the researchers’ knowledge, a list of general as well as technical LBs in medical sciences has not been retrieved yet. To this end, this heuristic descriptive study aims to explore a comprehensive list of both general and technical LBs in abstract sections of medical science RAs and discusses the pedagogical implications of such lists in writing scholarly abstracts in medicine, and developing materials and teaching English for Medical Purposes (EMP) courses.
Literature Review

Lexical bundles

The termsformulaic language in general and lexical bundles in particular have received a lot of scholarly attention in recent years (Schmitt, 2004; Wray, 2002). LBs are “a string of words with a meaning or function different from that of its component parts and which, for that reason, is hypothesized to be processed holistically” (Wray, 2002, p. 9). Large numbers of studies have investigated multi-word sequences under various terms, such as ‘lexical bundles’ (Biber, 2004; Biber & Conrad, 1999; Biber, Conrad & Cortes, 2003; Biber, Johansson, Leech, Conrad & Finegan, 1999), ‘lexical chunks’ (Sinclair, 1991), ‘formulaic sequences’ (Cortes, 2006; Wray, 2002), ‘lexical priming’ (Hoey, 2005), ‘multi-word unit/expressions’ (Rayson, 2008), ‘prefab/prefabricated patterns’ (Altenberg & Tapper, 1998), ‘recurrent sequences’ (De Cock, 2003), and ‘word clusters’ (Saber, 2012; Scott & Tribble, 2006).

Nattinger and DeCarrico (1992) categorize LBs into the following four main groups of polywords, institutionalized expressions, phrasal constraints, and sentence builders. Polywords are short phrases that function as single lexical items. They are both fixed and continuous. They characterize numerous functions such as agreement marker (e.g., I’ll say), parting (e.g., so long), summarizer (e.g., all in all), and so on. Institutionalized expressions are sentence length lexical phrases and function as an independent utterance. They are both fixed and continuous. They are mostly used for quotation, allusion or direct use (e.g., how do you do? how are you? give me break, have a nice day). Phrasal constraints are short or medium-length phrases and allow variation of lexical and phrasal categories (e.g., good morning, good afternoon, good evening, see you, see you soon, and see you later). Finally, sentence builders are lexical phrases that provide a full sentence framework and involve slots to express an entire idea in a sentence (e.g., it’s only in X that Y, it’s only in working through problem carefully that you can come up with solution).

In order to have control over a new language/ register and become a qualified member of a speech community (Ädel & Erman, 2012; Pawley & Syder, 1983), we need to take into consideration what specific sequences of words experts prefer to use because learning how to use specific sequences of words can contribute to a communicative competence in a particular discipline (Hyland, 2008b) and the absence of these bundles indicates being a novice in a specific disciplinary community (Li & Schmitt, 2009).
Over the past decades, numerous studies on language learning and teaching have affirmed the important role of LBs in language teaching materials (Ädel & Erman, 2012; Biber, Conrad, & Cortes, 2004). Since the use of LBs is considered as a signal of competent and proficient academic writer within a discourse community (Cortes, 2004; McCulley, 1985) and constitutes about 52.3% of written discourse (Erman & Warren, 2000) or about 80% of natural language (Altenberg & Tapper, 1998), English for Academic Purposes (EAP) programs should provide opportunities for L2 learners to acquire and internalize formulaic sequences (Jones & Haywood, 2004). Knowing these sequences enables L2 writers to express themselves in a native-like fashion (Ellis, Simpson-Vlach, & Maynard, 2008) and can mark a speaker or writer as insider or outsider in a discourse community (Wray, 2002).

**Lexical bundles in academic writing**

Writing is seen as an essential achievement in a person’s individual experience, professional career and social identity, and scholars are often evaluated by controlling their writing in academic communities (Hyland, 2011). Today, students’ written texts are considered as a major form of assessment and a ‘high stakes’ activity in university education (Lillis & Scott, 2007). Most of current higher education students and non-native writers struggle with the standards of academic writing.

Many studies have pointed out the importance of acquiring these bundles and viewed them as the building blocks of academic writing (Lewis, 2000; Li & Schmitt, 2009; Martinez & Schmitt, 2012). They are considered essential for the production and comprehension of appropriate and fluent language (Meunier, 2012; Schmitt & Carter, 2004). LBs are ubiquitous in academic genres and enjoy special characteristics that are particular to theses genres (Salazar, 2014). Although LBs are numerous and functionally important in written discourse, their use is difficult for L2 learners. Most often L2 learners overuse a limited number of prevalent sequences, and do not have a rich repertoire of LBs at their disposal to employ unlike their native counter-parts (Li & Schmitt, 2009).

Coxhead and Byrd (2007) argue that LBs are important for composition teachers and their students for three reasons: (a) the word sequences are typically recurrent and constitute a part of the learners’ structural material repertoire, (b) as a result of the repeated use of these sequences, such sequences become defined signs of fluent writing and are essential for the development of writing skill that meets readers’ expectations in academic community, and (c) these words often are placed at the crossroad between grammar and vocabulary of language.
and constitute the lexico-grammatical basement of a language which are often identified in corpus studies but are so difficult to catch them through analyzing individual texts. Coxhead and Byrd (2007) add that the use of LBs makes academic writing skill easier because the writer is using ready-made phrases rather than creating each sentence word by word. If one wants to be successful as an academic writer, acquiring and mastering academic LBs is essential for him/her (Li & Schmitt, 2009).

Wray (2002) pointed out the challenges that adult second language learners face in realizing these bundles rather than individual words. She contended that learners through literacy development often have tendency to see vocabulary in terms of individual words rather than the sequence of words that are typical feature of language-in-use. Therefore, in their EAP writing classes, learners should be helped to internalize these sequences as a whole and to have opportunity to use such sequences in their own writings.

Due to the formulaic nature of academic writing and the problems foreign language (FL) learners have in using these sequences appropriately, learners need to be acquainted with the sequences accompanying the communicative functions of academic prose (Hüttner, 2007). Given the crucial role of lexical bundles, novice writers (L1 and L2) should learn appropriate use of lexical bundles as major discourse conventions of advanced academic writing (Biber, Gray, & Poonpon, 2011; Cortes, 2004).

The importance given to LBs in academic writing means that mastering academic LBs is considered as a prerequisite for FL learners who desire to be successful in their academic writing. FL learners should not only become familiar with text organization in terms of functional units but also be acquainted with how these sequences are recognized linguistically and lexically (Cortes, 2013).

**Structural and functional taxonomies of lexical bundles**

Biber et al. (1999) were the first to develop the structural and functional taxonomies of LBs. Concerning structural and functional characteristics of LBs, Biber et al. (1999) divided LBs into three major structural types. Type 1 LBs embrace verb phrase fragments (e.g., it’s going to be, is going to be). Type 2 LBs include dependent clause fragments in addition to simple verb phrase fragments (e.g., I want you to, what I want to) and type 3 LBs incorporate noun phrase and prepositional fragments (e.g. the end of the, of the things that). These grammatical features are considered to appear differently depending on the register. That is, bundles in conversation tend to be clausal (e.g., I want you to, it’s going to be), while in academic prose
most of bundles are commonly phrasal (e.g., *as a result of*, *on the other hand*) (Biber et al., 1999).

Biber, Conrad, and Cortes (2004) also classified LBs into three primary functions each of which having several sub-categories including: stance expressions, discourse organizers, and referential expressions. “Stance expressions express attitudes and assessments of certainty that frame some other proposition” (p. 384) (e.g., *it is possible to, can be used to*), discourse organizers indicate “relationships between prior and coming discourse” (p. 384) (e.g., … illustrates how the techniques are employed together as well as the …), and “referential expressions make direct reference to physical or abstract entities, or to the textual context itself, either to identify the entity or to single out some particular attribute of the entity as especially important” (p. 384) (e.g., … and extreme periods of depression it can mean a lot of things-and that's one of the problems of schizophrenia).

Starting with Biber et al. (1999), many studies have attempted to investigate structural functions of LBs in various registers. For instance, Pan, Reppen, and Biber (2016) examined the structural and functional types of lexical bundles used by English L1 and L2 academic writers. The findings showed L1 writers used bundles consisting of noun and prepositional phrases more than L2 writers. Some researchers (Biber, Conrad, & Cortes, 2003; Cortes, 2013; Pan et al., 2016) have shown that academic writing draws heavily on referential or discourse organizing functions. Ädel and Erman (2012) examined the use of LBs in native speakers (NSs) and non-native speakers’ (NNSs) writings. They found that both NSs and NNSs groups used referential bundles more than discourse organizers or stance bundles.

As this brief review indicates, an extensive number of studies have investigated various aspects of LBs in recent years. However, most of previous studies have focused on the use of LBs in spoken discourse (Conklin & Schmitt, 2012; Crossley & Salsbury, 2011; De Cock, 2004; Ellis et al., 2008; Jiang & Nekrasova, 2007; Kashiha & Chan, 2015; Nekrasova, 2009; Nesi & Basturkmen, 2006; Wood, 2006). While there have been some studies on LBs in academic writing, these studies have investigated LBs in various fields and in full length research articles (RAs) rather than specific section of RAs. Drawing on Biber et al. (1999), this study adopts a frequency-driven approach to extract technical as well as general taxonomy of most frequently occurring LBs in medical sciences ASs. Additionally, their distributions are accounted for in terms of their structures and discourse functions manually. Moreover, unlike previous studies which adopted whole RA approach, this study delves into the use of LBs in abstract sections.
in medical sciences because abstracts “can be used in the classroom as advanced organizers” (Graetz, 1985, p. 1), as screening devices helping the reader to decide to continue reading the article or not (Huckin, 2001), and are considered crucial for novice writers to learn how to write an abstract to enter the discourse community of their discipline (Pho, 2008). Thus, abstracts of scholarly papers take precedence over other sections of RAs for scholars (Ulijn, 1985). Moreover, it seems an interesting issue to examine how authors of research paper abstracts employ bundles structurally and functionally in abstracts compared to such practices in whole research articles based on previous studies in the literature.

According to the research aims, the following research questions are addressed in this study:

1. How frequently are four-word LBs employed in the ASs of medical research articles?
2. What discourse functions do four-word LBs have in the ASs of medical research articles?
3. What structures do four-word LBs have in the ASs of medical research articles?

**Research Method**

**Corpus**

The present study investigated the frequency of four-word lexical bundles since four-word bundles are more frequent and many of them embrace three-word bundles in their structures (Cortes, 2004). To ensure the generalizability of the results to the target discourse and account for representative practices of medical discourse community, leading journals in medical sciences were selected based on consultation with discipline experts and the impact factors reported in Journal Citation Reports (JCR) in 2015 with Median Impact Factors (MIFs) ranging from 1 to 5. Five data bases including Elsevier, Sage, Springer, Taylor & Francis, and Wiley Online Library comprise the sources of RAs in medical sciences published between 2006 and 2016 in this descriptive study. In the selection of this corpus, we ensured that there is a proportionate number of native and non-native writers. Table 1 provides detailed information on the selected journals, the number of words, and abstract sections.
Table 1: Corpus Description of ASs in Medical RAs

<table>
<thead>
<tr>
<th>Journal Title</th>
<th>No of Words</th>
<th>% of Corpus</th>
<th>Number of Abstracts</th>
<th>MIFs</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Journal of Alzheimer's Disease &amp; Other Dementias</td>
<td>24,237</td>
<td>5.88</td>
<td>157</td>
<td>1.614</td>
</tr>
<tr>
<td>American Journal of Otolaryngology–Head and Neck Medicine and Surgery</td>
<td>32,563</td>
<td>7.9</td>
<td>138</td>
<td>1.097</td>
</tr>
<tr>
<td>Autism</td>
<td>22,287</td>
<td>5.4</td>
<td>132</td>
<td>3.170</td>
</tr>
<tr>
<td>Bone</td>
<td>47,597</td>
<td>11.54</td>
<td>169</td>
<td>4.146</td>
</tr>
<tr>
<td>Breast Cancer Research</td>
<td>48,239</td>
<td>11.7</td>
<td>166</td>
<td>5.211</td>
</tr>
<tr>
<td>Depression and Anxiety</td>
<td>34,008</td>
<td>8.25</td>
<td>155</td>
<td>5.004</td>
</tr>
<tr>
<td>Cardiovascular Interventional Radiology</td>
<td>44,017</td>
<td>10.67</td>
<td>186</td>
<td>2.144</td>
</tr>
<tr>
<td>Hematological Oncology</td>
<td>11,799</td>
<td>2.86</td>
<td>49</td>
<td>3.494</td>
</tr>
<tr>
<td>Human Vaccines &amp; Immunotherapeutics</td>
<td>9,870</td>
<td>2.39</td>
<td>42</td>
<td>2.146</td>
</tr>
<tr>
<td>International Journal of Cardiology</td>
<td>23,268</td>
<td>5.64</td>
<td>95</td>
<td>4.468</td>
</tr>
<tr>
<td>International Journal of Pediatric Obesity</td>
<td>14,238</td>
<td>3.54</td>
<td>60</td>
<td>5.70</td>
</tr>
<tr>
<td>Journal of Addictive Diseases</td>
<td>8,209</td>
<td>1.99</td>
<td>54</td>
<td>2.201</td>
</tr>
<tr>
<td>Nutrition Research</td>
<td>26,994</td>
<td>6.54</td>
<td>115</td>
<td>2.983</td>
</tr>
<tr>
<td>Sleep&amp; Breathing</td>
<td>34,541</td>
<td>8.38</td>
<td>140</td>
<td>2.332</td>
</tr>
<tr>
<td>Wound Repair and Regeneration</td>
<td>30,292</td>
<td>7.34</td>
<td>142</td>
<td>2.628</td>
</tr>
<tr>
<td>Total</td>
<td>412,159</td>
<td>100</td>
<td>1800</td>
<td>3.222</td>
</tr>
</tbody>
</table>

Note: MIFs = Median Impact Factors

Due to the shortage of ASs of RAs, 1800 empirical RAs were selected based on purposive sampling from five data bases, yielding a corpus of approximately 414,000 words. The word limits of the abstracts ranged from 130 to 350 words. In order to better reflect the genre features of the most recently-published RA abstracts, only the articles published between 2006 and 2016 were included in the corpus (see Table 1).
Data categorization

To analyze the corpus, ASs were identified in the articles and stored separately. The text files were cleaned out of different marks which did not belong to abstract section prose (e.g., titles, page numbers, and scientific formulae/numbers) and converted into plain text files (txt). Afterwards, using AntConc software (Anthony, 2015), we identified the frequency of four-word lexical bundles.

De Cock (2004) analyzed 2-, 3-, 4-, 5- and 6-word bundles which in the case of four-word bundles covered bundles that recurrent at least four times per 100,000 words. Similarly, we adopted a conservative approach and set a relatively high frequency threshold of approximately 16 since the total corpus size is 412,159 words. Using Antconc program, we identified all four-word LBs. A closer examination of these bundles led to their categorization into two major groups of LBs, namely general and technical LBs (see Appendices A and B). Consultation was made with ten medical specialists at Urmia University of Medical Sciences in assigning the retrieved LBs to general and technical. The Kappa coefficient agreement rate between the researchers and medical specialists was found to be K=0.97.

We further classified both the general and technical bundles into four main structural categories of verb phrases (VPs), dependent clauses (DCs), and NP-based bundles which composed of noun phrases (NPs) and prepositional phrases (PPs) which are taxonomies of Biber et al.’s (2004) taxonomy (see Appendix C). Moreover, we assigned all general and technical bundles into discourse functions of stance expressions, discourse organizers, and referential bundles as categorized by Biber and Barbieri (2007) (see Appendix D).

Referential bundles in Biber and Barbieri’s (2007) taxonomy constitute imprecision bundles (e.g., or something like that), specification of attributes bundles (e.g., little is known about), and time/place/text-deixis bundles (e.g., in vitro and in). In this study, a new sub-category labeled descriptive bundles (e.g., epidermal growth factor receptor) added to referential bundles which constitute bundles that describe noun phrases mainly in Introduction/Background section of abstracts in medical sciences. These bundles contained mainly bundles which were discipline specific and related to medical sciences field.

To ascertain the reliability of data coding and its categorization, a second coder was also invited and trained to categorize the whole corpus, functionally and structurally. With reference to
Cohen Kappa coefficient, the inter-coder reliability for categorizing structural and discourse functions of the LBs between the two raters was found to be very high (K=88).

**Results and Discussion**

One hundred and thirteen four-word LBs were extracted from the corpus using AntConc software. As Appendices A and B illustrate, 32 different technical bundles (types) with 1,069 tokens (frequencies) make up about 0.27% of the words in the whole corpus of 412,154 words and general bundles with 81 bundle types and 2,860 tokens constitute 0.71% of the corpus.

*Structural distribution of general and technical LBs*

According to our corpus, medical science writers used more NP-based bundles than PP-based, VP-based, and DC-based bundles in their abstracts. Table 2 provides macro-structural frequency of general and technical bundles. The analysis of structural distribution of LBs indicated that medical science writers used a high rate of NP-based and PP-based bundles in both general and technical LBs. VP fragments together with DC occurred much less frequently in general LBs, while VP and DC fragments were totally absent in technical LBs of medical abstracts.

**Table 2: Macro-structures of General and Technical LBs in Medical ASs**

<table>
<thead>
<tr>
<th>Structures</th>
<th>Frequency of general LBs</th>
<th>Frequency of technical LBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP</td>
<td>488</td>
<td>0</td>
</tr>
<tr>
<td>NP</td>
<td>1,542</td>
<td>635</td>
</tr>
<tr>
<td>PP</td>
<td>757</td>
<td>434</td>
</tr>
<tr>
<td>DC</td>
<td>73</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>2,860</td>
<td>1,069</td>
</tr>
</tbody>
</table>

As shown in Figure 1, the analysis of the structural distribution of general and technical LBs indicated that NP-based bundles with adjectives modifying a head noun fragment constituted 53.89% and 60% of the bundle types, respectively. PP-based bundles made up about 27% of the general LBs and 41% of the technical LBs. VP fragments together with DC occurred much less frequently in general LBs (i.e., 17.05% and 2.55%). Interestingly, VP and DC fragments were totally absent in technical LBs of medical abstracts.
Table 3 provides a more detailed account of the sub-types of four macro-structures. As for general LB list, noun phrase fragments comprise the largest proportion, prepositional phrase fragments are the second important fragments, while verb phrase fragments together with dependent clause occur much less frequently. This finding is consistent with the reported rates of LBs in full-length research articles in the literature where they were found to be structurally phrasal rather than clausal (Biber et al., 1999; Biber & Conrad, 1999; Cortes, 2004; Hyland, 2008a; Pan et al., 2016; Salazar, 2014). This may reveal medical sciences writers’ strong inclinations toward condensing their content in the form of noun phrases in their RAs.

In addition, some new sub-categories such as (modal) V be+ *(complement noun phrase/adj. phrase) fragments, adjectives modifying a head noun fragments, and (noun phrase/pronoun) +V+ *(complement) fragments were identified also in this study. These bundles constituted almost 8.11%, 5.83%, and 2.55% of the tokens, respectively (see Table 3).
Table 3: Structural Distribution of General LBs in Medical ASs

<table>
<thead>
<tr>
<th>Macro-structures</th>
<th>Type</th>
<th>Token</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(modal) V be+(complement noun phrase/adj. phrase)</td>
<td>10</td>
<td>232</td>
<td>8.11</td>
</tr>
<tr>
<td>(e.g., were no significant differences)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verb phrase with passive verb</td>
<td>5</td>
<td>96</td>
<td>3.35</td>
</tr>
<tr>
<td>(e.g., is known about the)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(verb/adjective+) to-clause fragment</td>
<td>7</td>
<td>160</td>
<td>5.59</td>
</tr>
<tr>
<td>(e.g., to be associated with)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>17.05</td>
</tr>
<tr>
<td><strong>NP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(connector +) Noun phrase with of-phrase fragment</td>
<td>10</td>
<td>666</td>
<td>23.28</td>
</tr>
<tr>
<td>(e.g., purpose of this study)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pronoun/noun phrase+ be(+ …)</td>
<td>13</td>
<td>601</td>
<td>21.01</td>
</tr>
<tr>
<td>(e.g., there were no significant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjectives modifying a head noun fragments</td>
<td>8</td>
<td>167</td>
<td>5.83</td>
</tr>
<tr>
<td>(e.g., no significant difference in)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other noun phrase expressions</td>
<td>4</td>
<td>108</td>
<td>3.77</td>
</tr>
<tr>
<td>(e.g., study was designed to)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>53.89</td>
</tr>
<tr>
<td><strong>PP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepositional phrase expressions</td>
<td>20</td>
<td>739</td>
<td>25.83</td>
</tr>
<tr>
<td>(e.g., of this study is)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comparative expressions</td>
<td>1</td>
<td>18</td>
<td>0.62</td>
</tr>
<tr>
<td>(e.g., as well as the)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>26.45</td>
</tr>
<tr>
<td><strong>DC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(noun phrase/pronoun)+V+(complement)</td>
<td>3</td>
<td>73</td>
<td>2.55</td>
</tr>
<tr>
<td>(e.g., these results suggest that)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>2.55</td>
</tr>
<tr>
<td>Macro Total</td>
<td>81</td>
<td></td>
<td>2.860</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chi-square analysis on the distribution of macro-structures revealed a significant difference ($X^2=269.8$, df =3, p < .0001, Cramer’s V=0.2627) between structural distribution of general and technical LBs.

As for possible reasons, Biber, Gray, and Staples (2016) state that compressed phrasal bundles are more preferred than elaborated clausal bundles since “they are more economical; they allow for faster, more efficient reading; and they are equally comprehensible to the expert reader” (p. 15). Another plausible justification for the abundant use of phrasal structures in ASs is that abstracts as an important piece of academic discourse are more compressed than elaborated, and therefore, this complexity leads to phrasal embedding than clausal one (Ibid.). Some studies (Biber, Gray & Staples, 2014; Chen & Baker, 2010; Ortega, 2003) found that higher proficiency research writers rely heavily on phrasal structures than clausal structures. In fact, these structures of LBs in our study reflect academic writing style and corroborate the findings of previous studies (Biber et al., 1999; Biber & Conrad, 1999; Cortes, 2004; Hyland, 2008a; Pan et al., 2016; Salazar, 2014) which claimed that academic writing is heavily phrasal rather than clausal.

Too many instances of noun phrases and prepositional phrases and the absence of VP and DC fragments in this study could be due to the fact that academic writing is informational in nature and informational integration requires using noun phrases and prepositional phrases (Halliday & Hasan, 1989; Pan et al., 2016). Medical science authors’ structural use of NP-based and PP-based bundles in general LBs corresponds with the use of bundles employed by authors across disciplines, while their use in technical bundles was less consistent with similar practices in other disciplines as VP and DC fragments were absent in technical LBs.

**Functional distribution of general and technical LBs**

Drawing upon Biber and Barbieri’s (2007) taxonomies, all bundles were classified according to their discourse functions. Table 4 illustrates macro-functional frequency of general and technical bundles. The analysis of functional distribution of LBs indicated that medical science writers used a high rate of referential expression bundles in both general and technical LBs. Figure 2 illustrates functional distribution of both general and technical LBs. This indicated medical science writers’ strong inclinations toward referential expressions. Stance expressions and discourse organizers occurred much less frequently in general LBs, while technical LBs were never used to convey such functions.
Table 4: Functional Distribution of General and Technical LBs in Medical ASs

<table>
<thead>
<tr>
<th>Macro-functions</th>
<th>Frequency of general LBs</th>
<th>Frequency of technical LBs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stance expressions</td>
<td>1,119</td>
<td>0</td>
</tr>
<tr>
<td>Discourse organizers</td>
<td>163</td>
<td>0</td>
</tr>
<tr>
<td>Referential bundles</td>
<td>1,575</td>
<td>1,069</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,860</strong></td>
<td><strong>1,069</strong></td>
</tr>
</tbody>
</table>

![Functional distribution of general and technical LBs](chart)

**Figure 2: Macro-functions of General and Technical LBs in Medical Ass**

Table 5 provides more detailed account of the sub-types of three macro-functions. As for general LB list, referential bundles (56%) made up a high rate of LBs, accounting for over half of the LBs, whereas stance expressions constituted almost 39%, and discourse organizers (5%) comprised a small fraction and were used marginally. Stance expressions were found to be the second most prevalent function and the writers in our corpus mainly relied on attitudinal/modality stance sub-category. This is followed by time/place/text-deixis bundles. One reason for overusing of stance expressions in academic writing is related to writers’ tendency to convey their degree of commitment or distancing from others’ views (Lancaster,
2011) and to withdraw from commitment to a proposition and allow writers to present information as an opinion rather than a fact (Hyland, 2008a) and to “report personal feelings, thoughts, or desires” (Biber et al., 1999, p. 1003). This finding corroborates the previous findings (Biber, et al., 2003; Pan et al., 2016) on full-length research articles that show academic writing draws heavily on referential expressions. One plausible explanation which could be given for the high occurrence of referential expressions in ASs of RAs in medical sciences is that referential expressions provide factual, detailed, and informative information (Biber et al., 1999).

Table 5: Functional Distribution of General LBs in Medical ASs

<table>
<thead>
<tr>
<th>Macro-functions</th>
<th>Sub-categories</th>
<th>Type</th>
<th>Token</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stance Expressions</td>
<td>Epistemic stance(e.g., were more likely to)</td>
<td>2</td>
<td>47</td>
<td>1.62</td>
</tr>
<tr>
<td></td>
<td>Attitudinal/modality stance(e.g., this study was to)</td>
<td>23</td>
<td>889</td>
<td>30.66</td>
</tr>
<tr>
<td></td>
<td>Other stance bundles(e.g., has been shown to)</td>
<td>9</td>
<td>184</td>
<td>6.31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>39</strong></td>
<td></td>
</tr>
<tr>
<td>Discourse organizers</td>
<td>Topic introduction/focus(e.g., these findings suggest that)</td>
<td>4</td>
<td>109</td>
<td>3.75</td>
</tr>
<tr>
<td></td>
<td>Topic elaboration/clarification(e.g., as well as the)</td>
<td>1</td>
<td>18</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>Identification/focus(e.g., is one of the)</td>
<td>2</td>
<td>38</td>
<td>1.24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>5</strong></td>
<td></td>
</tr>
<tr>
<td>Referential bundles</td>
<td>Imprecision(e.g., or something like that)</td>
<td>NF</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Specification of attributes (e.g., little is known about)</td>
<td>23</td>
<td>947</td>
<td>32.66</td>
</tr>
<tr>
<td></td>
<td>Time/place/text-deixis bundles(e.g., at the time of, in this study the, and of this study was)</td>
<td>17</td>
<td>628</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>56</strong></td>
<td></td>
</tr>
</tbody>
</table>

Note: NF= Not Found

In addition to the functional distribution of general bundles, this study also accounted for the functional distribution of LBs in English for Medical Purposes (EMP). Descriptive bundles (e.g., epidermal growth factor receptor) as a sub-category of referential bundles which describe noun phrases mainly in Introduction/Background section of abstracts were the most prevalent technical LBs. The second most common sub-category of referential bundles was place bundles (e.g., with autism spectrum disorder). Descriptive bundles made up 91% of bundles types and
85% of tokens, while place bundles constituted 1% of bundles type and 15% of the whole tokens in bundles (see Figure 3).

![Figure 3: Distribution of Referential Expression Functions in Technical LBS](image)

A chi-square test indicated that there was significant difference in the functional distribution of general and technical LBs at 0.05 level of significance ($X^2 = 712.27$, df = 2, $p<0.001$, Cramer’s $V=0.4259$).

The functional analysis revealed a similar use of referential bundles across general and technical bundles. This finding on overusing referential expressions is in line with some previous studies (Ädel & Erman, 2012; Biber et al., 2004; Cortes, 2013; Grabowski, 2015; Hyland, 2008a; Pan et al., 2016; Parvizi, 2011) in that academic writing tends to use referential bundles more than discourse organizers and stance expressions. In this study, discourse organizers occurred much less frequently than stance expressions in general LBs, while technical LBs were never used to convey such functions. Therefore, the use of functional bundles in technical bundles by medical sciences writers vary far from the use of these bundles by authors in various disciplines.

**Conclusion and Implications**

The main aim of this descriptive study was to retrieve the most frequently-used four-word LBs in abstracts of medical sciences RAs and subsequently discover their structural and discourse functions. This study found that structurally both general and technical LBs in medical
abstracts contained a wider range of NP-based and PP-based bundles. That is, structures of the majority of bundles in medical science were phrasal rather than clausal. These results are in line with some previous studies (Biber & Conrad, 1999; Biber et al., 1999; Biber et al., 2004; Biber et al., 2014; Chen & Baker, 2010; Cortes, 2004; Hyland, 2008a; Parkinson & Musgrave, 2014; Ortega, 2003; Pan et al., 2016; Salazar, 2014) which claimed that academic writing is phrasal rather than clausal.

From these results, it can be concluded that technical bundles in ASs behaved functionally differently from whole research articles across disciplines. Full-length research articles in both hard and soft sciences relied more on referential expressions and roughly drew on discourse organizers and stance expressions, while in this study both discourse organizers and stance expressions were absent in technical LBs of medical ASs. In this study, stance markers in comparison with discourse organizers were overused in general LBs of medical ASs, while both discourse organizers and stance expressions were absent in technical LBs of medical abstracts. Overusing stance bundles in general LBs can be contributed to better controlling and expressing the degree of doubt and certainty (Hyland & Milton, 1997; Pan et al., 2016).

In recent years, journals have been striving for fewer numbers of words in their research articles and they set strict word limits. This has pushed scholarly paper writers to use compressed phrasal bundles more than elaborated clausal bundles. To this end, these findings can assist the international community of medical sciences scholars to gain useful insights into their written discourse.

These findings can also have pedagogical implications for both teachers and L2 students. Teachers can integrate the structural and discourse functions of LBs in their academic writing teaching programs. It can be one of the important resources of general LBs in general and technical LBs in particular to draw upon for EMP learners and novice writers in medical sciences since LBs as a type of conventionalized knowledge are crucial for learners’ production skills (Conklin & Schmitt, 2008; Wood, 2006; Wray, 2002).

We think that the findings of this study could be very constructive in teaching academic and scholarly writing, especially for novice researchers and graduate students in medical sciences as well as material developers and academic writing course instructors in English for Medical Purposes (EMP). Narrow angle ESP material
developers can also use these medical jargon LBs in designing their materials, while wide angle ESP material developers can use general LBs which are universal or common core across all disciplines.

Acknowledgments

The authors would like to thank medical specialists at Urmia University of Medical Sciences and anonymous reviewers for their valuable comments on an earlier draft of this manuscript. There is no conflict of interest in this study. This study is part of a larger research project as the dissertation project for Ms. Zeinab Abdollahpour under the supervision of Dr. Javad Gholami at Urmia University.

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student texts. Frankfurt am Main: Peter Lang.


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Appendix A: The Most Frequent General lexical Bundles in ASs of Medical RAs

<table>
<thead>
<tr>
<th>No. LBs (types)</th>
<th>Frequency</th>
<th>No. LBs (types)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>220</td>
<td>49</td>
<td>23</td>
</tr>
<tr>
<td>2</td>
<td>216</td>
<td>50</td>
<td>22</td>
</tr>
<tr>
<td>3</td>
<td>114</td>
<td>51</td>
<td>22</td>
</tr>
<tr>
<td>4</td>
<td>107</td>
<td>52</td>
<td>22</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>53</td>
<td>21</td>
</tr>
<tr>
<td>6</td>
<td>97</td>
<td>54</td>
<td>20</td>
</tr>
<tr>
<td>7</td>
<td>62</td>
<td>55</td>
<td>20</td>
</tr>
<tr>
<td>8</td>
<td>58</td>
<td>56</td>
<td>20</td>
</tr>
<tr>
<td>9</td>
<td>54</td>
<td>57</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>53</td>
<td>58</td>
<td>19</td>
</tr>
<tr>
<td>11</td>
<td>52</td>
<td>59</td>
<td>19</td>
</tr>
<tr>
<td>12</td>
<td>45</td>
<td>60</td>
<td>19</td>
</tr>
<tr>
<td>13</td>
<td>44</td>
<td>61</td>
<td>19</td>
</tr>
<tr>
<td>14</td>
<td>41</td>
<td>62</td>
<td>18</td>
</tr>
<tr>
<td>15</td>
<td>40</td>
<td>63</td>
<td>18</td>
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<tr>
<td>16</td>
<td>39</td>
<td>64</td>
<td>18</td>
</tr>
<tr>
<td>17</td>
<td>37</td>
<td>65</td>
<td>18</td>
</tr>
<tr>
<td>18</td>
<td>35</td>
<td>66</td>
<td>18</td>
</tr>
<tr>
<td>19</td>
<td>34</td>
<td>67</td>
<td>18</td>
</tr>
<tr>
<td>20</td>
<td>34</td>
<td>68</td>
<td>18</td>
</tr>
<tr>
<td>21</td>
<td>32</td>
<td>69</td>
<td>18</td>
</tr>
<tr>
<td>22</td>
<td>31</td>
<td>70</td>
<td>17</td>
</tr>
<tr>
<td>23</td>
<td>31</td>
<td>71</td>
<td>17</td>
</tr>
<tr>
<td>24</td>
<td>30</td>
<td>72</td>
<td>17</td>
</tr>
<tr>
<td>25</td>
<td>29</td>
<td>73</td>
<td>17</td>
</tr>
<tr>
<td>26</td>
<td>29</td>
<td>74</td>
<td>17</td>
</tr>
<tr>
<td>27</td>
<td>29</td>
<td>75</td>
<td>17</td>
</tr>
<tr>
<td>28</td>
<td>29</td>
<td>76</td>
<td>16</td>
</tr>
<tr>
<td>29</td>
<td>28</td>
<td>77</td>
<td>16</td>
</tr>
<tr>
<td>30</td>
<td>28</td>
<td>78</td>
<td>16</td>
</tr>
<tr>
<td>31</td>
<td>28</td>
<td>79</td>
<td>16</td>
</tr>
<tr>
<td>32</td>
<td>28</td>
<td>80</td>
<td>16</td>
</tr>
</tbody>
</table>

36 differences in
37 an important role in
38 between the two
39 groups
40 the
41 this study examined
42 at the end of
43 has been shown to
44 results a total of
45 there was no
46 significant
47 these findings suggest
48 that
49 were included in the
50 study was to assess
51 the present study was
52 to be associated with
53 at the time of

Appendix B: The Most Frequent Technical Lexical Bundles in ASs of Medical RAs

<table>
<thead>
<tr>
<th>No.</th>
<th>LBs (types)</th>
<th>Frequency</th>
<th>LBs (types)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>disease</td>
<td>141</td>
<td>of Alzheimer's (AD)</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>with autism spectrum disorder</td>
<td>102</td>
<td>18 apnea</td>
<td>23</td>
</tr>
<tr>
<td>3</td>
<td>children with autism spectrum</td>
<td>59</td>
<td>19 body mass index (OSA)</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>BMI</td>
<td>58</td>
<td>21 obstructive sleep</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>apnea</td>
<td>56</td>
<td>18 epidermal growth factor receptor</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>with Alzheimer’s Disease</td>
<td>40</td>
<td>17 vascular endothelial growth factor</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>a total of patients</td>
<td>39</td>
<td>16 the apnea hypopnea index</td>
<td>27</td>
</tr>
<tr>
<td>9</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>33</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Structural Classification of General & Technical LBs in ASs of Medical RAs

1. LBs incorporating verb phrase fragments

   1.a. (modal) V be+(complement noun phrase/adj. phrase)
   was to evaluate the, were no significant differences, was to determine
   the, was to examine the, was no significant difference, is one of the,
   was to assess the, were not significantly different, was to investigate
   the, were more likely to

   1.b. Verb phrase with passive verb:
   is associated with a , is known about the, were included in the, included
   in the study, compared with the control

   1.c. (verb/adjective+) to-clause fragment:
   to be associated with, to evaluate the effectiveness, more likely to be,
   has been shown to , were randomly assigned to, was found to be

2. LBs incorporating noun phrase and propositional phrased fragments

   2.a. (connector +) Noun phrase with of-phrase fragment:
   the aim of this, the purpose of this, aim of this study, purpose of this
   study, the objective of this, objective of this study, the aim of the, aim
   of the study, the end of the, an increased risk of

   2.b. Pronoun/noun phrase+ be(+ ...):
   there was no significant, there were no significant, there were no
differences, this study was to, this study were to, study was to evaluate,
study was to investigate, this study is to, study was to examine, the
study was to, study was to assess, study was to compare, study was to
determine

   2. c. Other noun phrase expressions:
   study was designed to, this study aimed to, this study examined the, this
   study was designed, children with autism spectrum, patients with
obstructive sleep, patients with Alzheimer’s, a total of patients, vitro and in vivo

2.d. Adjectives modifying a head noun fragments
long term follow up, no significant difference in, an important role in, no significant differences in, little is known about, an increased risk of, present study was to, the present study was, the follow up period, obstructive sleep apnea OSA, epidermal growth factor receptor, vascular endothelial growth factor, continuous positive airway pressure, obstructive sleep apnea syndrome, posttraumatic stress disorder (PTSD), the apnoea hypopnea index, continuous positive airway pressure, autism spectrum disorder and, major depressive disorder MDD, mini mental state examination, body mass index (BMI), bone mineral density (BMD), the apnea hypopnea index, breast cancer cell lines, epidermal growth factor receptor, human epidermal growth factor

2.e. Prepositional phrase expressions:
of this study was, of this study is, of this study were, of the study was, for the treatment of, at the end of, in the development of, in the presence of, of the present study, in a sample of, at the time of, in the absence of, in the control group, in the united states, between the two groups, in the present study, in this study the, during the follow up, in this study we, in the treatment of, of Alzheimer’s disease (AD), with Alzheimer’s disease, with autism spectrum disorders, of children with autism, in breast cancer cells, with obstructive sleep apnea, in vitro and in, for children with autism, in the pathogenesis of, with autism spectrum disorder

2.f. Comparative expressions:
as well as the

3. LBs incorporating dependent clause fragments
3.a. (noun phrase/pronoun)+V+(complement)
these findings suggest that, these results suggest that, was significantly associated with

Appendix D: Functional Classification of General & Technical LBs in ASs of Medical RAs

<table>
<thead>
<tr>
<th>Stance expressions</th>
<th>Discourse organizers</th>
<th>Referential expressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Epistemic LBs were more likely to, more likely to be</td>
<td>A. Topic introduction/ focus an important role in, these findings suggest that, these results suggest that, was found to be</td>
<td>A. Imprecision</td>
</tr>
<tr>
<td>B. Attitudinal/modality</td>
<td>B. Topic elaboration/clarification</td>
<td>B. Specification of attributes</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>B1) desire</td>
<td>as well as the</td>
<td>B1) Quantity specification</td>
</tr>
<tr>
<td>B2) obligation/directive</td>
<td></td>
<td>little is known about, a total</td>
</tr>
<tr>
<td>B3) Intention/prediction bundles</td>
<td></td>
<td>of patients, long term follow up, an increased risk of Statistical: there was no significant, there were no differences, was no significant difference, were no significant differences, there were no significant, were not significantly different, no significant differences in, results a total of, no significant difference in</td>
</tr>
<tr>
<td>this study was to, study was to evaluate, was to evaluate the, study was to investigate, study was to determine, this study is to, study was to examine, was to investigate the, study was designed to, was to determine the, the study was to, was to examine the, this study examined the, the present study was, this study was designed, study was to compare, present study was to, was to assess the, this study were to, study was to assess, to evaluate the effectiveness, this study aimed to, for the treatment of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B4) ability</td>
<td></td>
<td>B2) Tangible framing attributes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the aim of this, the purpose of this, the objective of this, aim of this study, purpose of this study, objective of this study, the aim of the, aim of the study</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B3) Intangible framing attributes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in the absence of, in the presence of</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Other stance LBS</th>
<th>C. Identification/focus</th>
<th>C. Time/place/text/descriptive references</th>
</tr>
</thead>
<tbody>
<tr>
<td>has been shown to, were included in the, to be associated with, is known about the, included in the study, were randomly assigned to, compared with the control, is associated with a, was significantly associated with</td>
<td>in the development of, is one of the</td>
<td>C1) Time reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at the time of, at the end of, the follow up period, during the follow up, the end of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C2) Place reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in this study the, in the present study, in the control group, in a sample of, in the united states, in this study we, between the two groups, in breast cancer cells, in the pathogenesis of, in vitro and in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C3) Text deixis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of the present study, of the study was, of this study is, of this study was, of this study were</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C4) Descriptive reference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>obstructive sleep apnea OSA, epidermal growth factor receptor, vascular endothelial growth factor, continuous positive airway pressure, obstructive sleep apnea syndrome, posttraumatic stress disorder (PTSD), the apnoea</td>
</tr>
</tbody>
</table>
hypopnea index, continuous positive airway pressure, autism spectrum disorder and, major depressive disorder MDD, mini mental state examination, body mass index (BMI), bone mineral density (BMD), the apnea hypopnea index, breast cancer cell lines, epidermal growth factor receptor, human epidermal growth factor, children with autism spectrum, patients with obstructive sleep, patients with Alzheimer’s, a total of patients, vitro and in vivo, with Alzheimer’s disease, with autism spectrum disorders, with obstructive sleep apnea, for children with autism, with autism spectrum disorder

C5) Multi-functional reference
the end of the
The Application of Wiki-Mediated Collaborative Writing as a Pedagogical Tool to Promote ESP Learners’ Writing Performance

Masoomeh Estaji
Assistant Professor of TEFL, Allameh Tabataba’i University, Iran

Hoda Salimi
M.A. in TEFL, Allameh Tabataba’i University, Iran

Biodata

Masoomeh Estaji is Assistant Professor of TEFL at Allameh Tabataba’i University. She is also the head of English Department and an adjunct professor of TEFL at Khatam University. She is currently the director of Research Institute for Translation Studies at Allameh Tabataba’i University. She has published numerous books and papers on methodology, testing, and teacher education. Her research interests include language testing and assessment, teacher education, and ESP.

Email: mestaji74@gmail.com

Hoda Salimi holds an M.A. in TEFL from Allameh Tabataba’i University. Her areas of interest are Language Learning and Technology, ESP, and Teacher Education.

Email: hodisali@mail.com

Abstract

This study was aimed at investigating the impact of wiki-mediated courses, compared to non-wiki courses, on the students' writing performance in ESP collaborative writing classes. Moreover, the advantages and disadvantages of this tool in an ESP collaborative writing class were explored from the learners’ perspective. To this end, the researcher selected 46 undergraduate students, who were doing an ESP writing course in the university. These students were in intact groups and were randomly divided into two groups with 25 learners in the experimental group and 21 students in the control group. The wiki-mediated program was
employed for the participants in the experimental group. However, the participants in the control group enjoyed the conventional, face to face writing course. In order to collect data, one pretest and two posttests of writing were administered. Subsequently, a semi-structured interview was carried out with 8 participants. An Analysis of Covariance (ANCOVA) was run and the results revealed that there was a statistically significant difference between wiki and non-wiki users considering their writing performance (p<0.05). Furthermore, most of the ESP students found the wiki a beneficial writing technique with great advantages while some of them pointed out some disadvantages of the software.

**Keywords:** English for Specific Purposes; wiki; wiki-mediated collaborative writing; wiki users; writing performance

1. **Introduction**

Since today’s world is a socially computer-mediated learning environment, technology has become a very important means in teaching languages. Besides, technological tools are the elements that make the English learning environment interactive and intercreative. For instance, wikis are a set of well-known technological tools, which can help the teachers provide a creative environment for the students so that they can have collaboration (modifying and re-working each other’s works), peer assessment (taking advantage of peers’ comments and feedback), and formative evaluation (providing continuous feedback) of the students (Duffy & Bruns, 2006). According to Zorko (2009), “a wiki is a web-based publishing tool that offers learners and teachers an easily editable virtual space for sharing information and knowledge and it is believed to be particularly suitable for collaborative learning” (p. 645).

On the other hand, in the age of globalization, technology, information, and internet, written English has become a critical demand for any individual who intends to follow up the vast change in our modern world (Isa, 2012) since much information and knowledge is shared through virtual space. However, teaching and learning writing is not an easy task for both the teachers and learners. Writing practices in ESP classes are limited owing to the time required to do so and that ESP learners may need more time and support while writing. Writing is also a critical skill for all university students mainly ESP learners since they are constantly expected to present their discipline and purpose specific research studies, written assignments, reports, proposals both for their occupational and academic purposes.

One collaborative writing tool that deserves serious attention is the wiki, which provides a form of collective action in which a large number of people work independently on a single
project. Wikis can provide the ideal collaborative environment by enabling visitors on the internet to jointly edit content on a web page (Parker & Chao, 2007). Although many students may be active users of Web 2.0, students do not necessarily have the experience of using wikis or an understanding of the underlying rationale for using a wiki in an academic setting (Dohn, 2010). Wikis and their applications have been studied mostly in EFL classes; however, the use of such devices in English for Specific Purposes (ESP) courses, especially the impact of such devices on promoting the ESP learners’ writing has not been investigated. This study can hence motivate ESP learners to take an active role in revising their own and their peers’ writings through wikis. Moreover, far too little attention has been paid to the students’ perceptions about the applications of such devices in the ESP classes.

Despite the fact that wikis enable the students to add and edit texts, it is more important to understand whether editing their own texts and the other students’ writing during the collaborative writing process can affect their writing performance. Particularly, the number of empirical research studies on the effect of applying wikis for promoting the collaborative writing performance in ESP classes is very limited. In other words, the application of social and communicative tools in learning academic language, or language skills especially in writing has been the focus of very few research studies.

The current study is expected to enrich the body of research in the area of wiki application and ESP academic writing. The results of the study can contribute to the learners’ practices of writing in ESP engineering fields. Moreover, the findings of the study can be a good source of interest for the university professors and ESP language teachers and researchers to get a better understanding of how to provide more effective, creative, and novel situation for their students to practice writing in an academic context. The present study also intends to contribute to the research studies of wikis in any context which are all to support the existing pedagogy and promote writing through technology, negotiation of meaning, and student interactions. In fact, this study adds to the small but growing body of literature (Judd, Kennedy, & Cropper, 2010; Norton & Hathaway, 2008; Parker & Chao, 2007) by investigating the differences between wiki-mediated and non-wiki-mediated ESP classes in terms of learners' writing performance. In addition, the learners' perceptions of the advantages and disadvantages of the software are explored in this study.
2. Literature Review

At the time that technology is penetrating the world of languages, web 2 technology or the Social Web provides outstanding virtual educational environments. Leuf and Cunningham (2001) introduced "wikis" as interactive websites that anyone could create, write texts, add or edit the content without any prior knowledge or skills in editing and publishing. Wikis enable the learners to develop texts and simultaneously edit other students’ works within a shared document in a collaborative environment (West & West, 2009). Chu (2009) claims that wikis are easy and simple to use. Someone who has no technological background can work it out even with minimal training. Additionally, wikis facilitate collaborative authorship, provide a free atmosphere in the workplace and allow no dictatorship, make the students perceive the act of cooperation, enhance efficiency, and allow the interlinking of pages. Wikis also offer an open editing system that makes everyone edit the page. This way, the students would be able to see the cooperation in the digital environment and find the barriers of communication. Moreover, the interlinking of the pages promotes knowledge sharing among users.

Collaboration is also one of the applicable methods in teaching a foreign language. Lee (2000) and Warschauer and Healey (1998) assert that Computer Assisted Language Learning (CALL) technologies provide the situation for the students to work collaboratively in pairs or groups, so they can exchange their feedback and work in a team environment. This way the students can also enhance their achievements, have access to authentic materials, use multiple web sources in their works, and interact better in a collaborative environment. Similarly, Haring-Smith (1994) introduced technology as the main source that could help collaborative learning and collaborative writing. He described collaborative writing as a situation which “involves more than one person who contributes to the creation of a text and makes sharing responsibility more essential” (as cited in Suwantarathip & Wichadee, 2014, p. 149). In other words, collaborative writing is a distinct process in which the participants work together and interact in order to generate the ideas, set the structure of the text, then edit and revise it (Storch, 2011).

In recent years, there has been an increasing number of studies on collaborative writing. For instance, Kessler, Bikowski, and Boggs (2012) carried out a study on the use of collaborative writing in Academic Web-Based Projects. The findings of their study revealed that the use of the discussion boards, online chats, and email communication through wikis assisted the students in their writing when they most needed it. In 2014, Aydin and Yildiz also published a study in which they described the role of three various meaning-focused wiki-based
collaborative writing tasks (argumentative, informative, and decision-making) in form and meaning related changes and self and peer corrections. Moreover, the students’ perceptions of using wikis in collaborative classes were explored. The results of the study showed that tasks improved the EFL learners’ collaborative interaction in the wiki environment. However, the argumentative tasks led to the improvement of peer corrections whereas informative tasks improved self-corrections more. Further, writing in a collaborative environment resulted in the learners’ concentration on the meaning rather than the form. Overall, writing through wikis promoted the learners’ writing and they found it a positive experience. Likewise, Warschauer (2010) elaborated on the positive impacts of the wikis on writing essays. In a study on “Tools for Teaching Writing”, he suggested that the wiki increased the quantity of writing owing to the ease of writing and publishing on blogs which make them an attractive means to the students (Fellner & Apple, 2006). This software also developed confidence in the skill and made writing more motivating to the students. Similarly, Alshumaimeri (2011) demonstrated that the use of wikis significantly promoted the students’ writing in terms of both accuracy (lexico-grammatical accuracy e.g. spelling, word choice, word order, punctuation), and quality (organization, elaboration, coverage, clarity, links, and intent).

As to the learners’ perception of wikis in collaborative writing classes, Chao and Lo (2011) found students were satisfied with wiki-based collaborative writing and that this environment helped them write and fulfill collaborative writing tasks in a less limited time. In addition, Marzec-Stawiarska (2015) studied the reactions of some of the students about writing through wikis in a research entitled "Wikis and new perspectives for collaborative writing". From the students’ point of view, writing on the wiki makes them think about the reader more. Besides, they thought that writing on the wiki makes them use more diversified vocabularies as well as grammatical structures. It also enables them to think about the content more while using the wikis and they become more careful about the accuracy of their writing.

Despite the advantages found in the studies of wikis, some disadvantages, regarding the uses of the wikis, have been also mentioned. According to Klobas and Beesley (2006), primarily, wikis have a changing nature that makes them not be able to be published on the live webs. Likewise, the combination of management and technology in this social software makes them unable to effectively manage as a source of information. In addition, Adekunle and Olla (2015) mentioned some of the other disadvantages of the wikis. They mentioned that wikis are open systems but in some cases, this feature might not be considered as a very valuable characteristic especially in the projects that are confidential; therefore, this software would be open to SPAM
and vandalism if the users do not manage it properly. According to these two scholars, we always require an internet connection to get access to the wikis, so we can see that the print versions of the practicing materials would be more applicable than easier for the students to use. Congruent to these detriments, flexibility of using the wikis would make their information disorganized (as cited in Tella, 2015).

All in all, most of the research studies on the wikis have been done in EFL classes and ESP courses (developed based on needs analysis and designed for specific disciplines) have rarely been taken into account. Among the existing research studies in this domain, we can refer to Asztalos (2014) who evaluated the use of the wikis at a college in Hungary to figure out whether or not this tool would be applicable. The results of the study showed the students have positive perceptions of the wikis in English for Business and Finance purposes. It should be noted that they had this perception for their general English skills in several areas and did not solely focus on the skill of writing. In another major study, Vaičiūnienė and Užpalienė (2010) demonstrated that integrating the wikis into teaching in ESP writing courses can help the learners have access to authentic materials, become autonomous, and be responsible for their own learning. However, this study proved that course books and traditional methods of language teaching are still preferred as the first choices by the students. Further, Kavaliauskiene (2010) compared the effects of Web Logging as well as the wikis on the students’ writing performance in ESP classes for university students studying Social Policy. According to their findings, the students did not find the wikis useful to improve their writing in ESP courses.

Hence, more research is required to gain a better understanding of how wikis can influence the process of collaborative writing in ESP courses. To this end, this study particularly intended to address the following questions.

1. Are there any statistically significant differences between wiki and non-wikis users’ writing performance in ESP collaborative writing classes?
2. What are some of the advantages and disadvantages of using wikis for ESP collaborative writing classes from learners' perspectives?
3. Research Methodology

3.1. Participants and research setting

Prior to the selection of the participants, primarily, the permission and consent of the participants and authorities were obtained. In order to investigate the impact of applying wikis in ESP classrooms, 60 ESP students from Iran University of Science and Technology in Tehran were selected to participate in this study. After homogenizing the participants through an IELTS Academic writing task 2, 46 female and male students, aged between 20 and 28 and studying computer and mechanical engineering, were selected. These participants were in intact groups who were randomly assigned to two groups of experimental and control with 25 participants in the first group and 21 participants in the second one. It is significant to mention that the participants in both the experimental and control groups did 4 writings as their assignments until the end of the course. Half of the essays were on specific topics such as "Mainframe Computers, Minicomputers, Microcomputers as well as Computer Capabilities and Limitations" and the other half was dedicated to Academic topics that were related to computer and technology such as "Distance Education, Internet Advertising, and the Role of Internet in Communication". It is worthy of note that in the control group, the participants did not receive any treatment and the whole course was passed through conventional instruction. Moreover, after getting the participants’ consent for further cooperation, 8 participants were picked through convenience sampling to be interviewed in order to find out their perceptions about the uses and efficiency of the wikis in ESP classes. Convenience sampling is a form of non-random sampling method used for “the selection of individuals who happen to be available for study” (Mackey & Gass, 2005, p. 122).

3.2. Materials and instruments

The researcher designed the lesson plans and established the wiki environment for six weeks of treatment. Google Groups was the main wiki used in the research, and different groups of four were created on Google for the experimental group by the researcher. Further, in order to avoid any confusion or misunderstanding, the researcher taught the students how to work with their wiki pages and post their comments and their writings. Subsequently, the students were provided with their lesson plans as well as the dates they were supposed to post their writings on their pages. The researcher explained that the main responsibility of the students was to comment on each other's texts and give each other feedback. Figure 1 below shows a sample of a wiki page.
Figure 1: A Sample Wiki Page Designed for the Wiki Class

The wiki pages contain two parts — the upper section and — the lower section. The upper section shows the author of the text, his/her name, the detailed information about the author, and complete report about the changes in form and content that the author made. The second section, which is the lower section, is the content part that includes the text (Mak & Coniam, 2008).

In order to assess the students’ writing performance, IELTS Academic Writing test task 2 (Cambridge ESOL, 2005) was used so as to collect the quantitative data. This test was chosen for two reasons: Firstly, it is one of the most formal and popular methods of assessing writing skills. Secondly, accomplishing this task requires using more words and idioms in a formal essay; therefore, it leaves more room for making mistakes and providing feedback which can be considered a suitable technique to evaluate students’ writing skill (Ganji, 2009). In this task, learners are required to write an essay of 250 words in 40 minutes. At the beginning of the course, an academic IELTS test of writing was taken to check the learners’ writing performance at the entry level and homogenize them based on their writing scores. Likewise, at the end of the course, the students were provided with two tests of writing; one of which was the one administered as the pretest then another test of writing was used to ensure the level
of difficulty of the writing tests and examine whether the students could change their overall
data. Two certified language examiners did the scoring to provide a valid
evaluation of the tests. The two examiners were also provided with a scoring rubric published
by the British Council and the University of Cambridge (ESOL Examination) in order to score
the test in a standard way. To do so, Pearson product moment correlation coefficient was run
and the results indicated that there was on the whole, high agreement between the raters
because the great majority of the indices were above 7.

In the qualitative phase of the study, a semi-structured interview was run with 8 participants,
picked through convenience sampling, to determine the advantages and disadvantages of using
the wikis in learning second language writing. It is important to note that the interview items
were designed by the researcher (see Appendix A) and three language experts reviewed them
to check their accuracy and appropriacy. To ensure consistency in the ratings (in terms of
coding of the transcripts), two raters were employed and inter-rater reliability index of 0.85
was obtained using Cohen's Kappa. Each interview lasted about 15-20 minutes and the
interviewee's responses were recorded by a Digital Voice Recorder (DVR) in order to avoid
the loss of information. Finally, all the recordings were transcribed, and then coded to be
analyzed.

3.3. Data collection procedure

The steps taken to collect the data included pilot-testing, homogenizing the participants,
administrating the writing tests as the pretest and posttests, conducting the treatment sessions,
and running a semi-structured interview. After ensuring the reliability of the research
instruments and homogenizing the participants, the researcher took a sample of IELTS
academic writing test task to examine both the control and experimental group's writing
performance. After pretest, the treatment sessions were conducted to the participants in the
experimental group. In order to achieve the objective of the study, the students were provided
with orientation sessions about wiki and how it assists them in accomplishing their writing
activities. Once the training session was over, each class was divided into four groups of five.
Then the students were given a weekly writing program. According to the program, the learners
were required to write an essay on specific subjects every week as an assignment. In the
following session, the researcher corrected all the writings and commented on the students' errors,
providing direct and indirect feedback on the areas that needed to be corrected as shown
in Appendix B.
Subsequently, all the writings were presented on the wiki pages one by one so that the students of each group could view them and comment on each other's essays, modifying their own texts as well as their peers’ writings. In particular, the students were engaged in five stages of the writing process namely pre-writing stage for collaborative planning, drafting, peer-reviewing, peer proofreading and editing (giving comments, editing, or creating a text together), and individual revising and publishing. The researcher encouraged the students to return to the history page of the wiki and review the points mentioned by the researcher and their peers. It was also emphasized that the information on the history page could be used as a reference for their subsequent writing. This process continued for one month until the students provided four writings throughout the sessions.

It is worth mentioning that there was no training on the wiki for the participants in the control group. The participants in the control group were required to take just a pretest and posttest and they did not experience any wiki collaborative writing course. However, they were taught through conventional methods of writing. In that conventional and face-to-face writing course, the students were required to write four essays during the course like the practices assigned for the participants in the experimental group. The students were provided with some writing samples and models on the board and paper. They practiced the samples in the class and were monitored by the teacher. Similarly, they were provided with explicit feedback from their teacher. In particular, through mostly written feedback, the instructor wanted them to seriously focus on all aspects of their writing, including the vocabulary, grammar, organization, content, and mechanics. Their writings were all corrected and scored in the next session and direct feedback was provided on the mentioned aspects. Their writing scores made them more motivated to write better and ameliorate their writing skills (such as developing better topic sentences, paragraphing, summarizing, evaluating, and recognizing irrelevant information). They were also asked to rewrite their essays using the feedback they had received and hand in their revised essay to the instructor to see if the changes were implemented.

At the end, the same writing test, which was administered at the pretest stage to the students, was re-administered to compare the groups’ score gains and figure out whether or not their writing performance improved. The next week, another post-test was run, in which the students were asked to write an essay about a subject that was similarly selected from the IELTS academic writing test task 2 (Cambridge ESOL, 2005). In addition, a semi-structured interview was conducted, whose results paved the way to provide precise answers to the qualitative question of the study.
3.4. Data analysis

This study used a mixed methods research design, more precisely “a sequential QUAN-QUAL type of mixed methods, denoting the sequence and dominance of the method constituents” (Dornyei, 2007, p. 169). First the quantitative data were collected, then after analyzing the results; the qualitative data were collected and analyzed. The data obtained from the pretest and posttests were analyzed using descriptive statistics and Analysis of Covariance (ANCOVA) by means of the Statistical Packages for the Social Sciences (SPSS), version 21 (IBM Corp, 2012). Prior to running the ANCOVA, the normality assumptions of the tests were examined. Since two raters had scored these writings, the Pearson product moment correlation coefficient was used to measure the inter-rater reliability to determine the extent to which the raters were in agreement. Furthermore, in order to explore the merits and demerits of using the wiki tool in the writing instruction, the researcher tabulated the learners’ responses from the semi-structured interview, and provided the frequency and percentage through frequency count descriptive statistics. The methods used to analyze the qualitative data were Content and Thematic Analysis. According to Riazi (2016), content analysis is used by researchers to analyze concepts and written and spoken texts.

4. Results

4.1. The impacts of the wikis on ESP students' writing performance

In order to test the null hypothesis to do with the first research question, correlation analysis was employed. Since all the writing scores of the participants in both groups were rated by two raters, all these ratings in both groups in pretest and posttests, even the writings of the experimental group in the treatment sessions, were correlated to check inter-rater reliability. All these correlation coefficients indicated that there was, on the whole, high agreement between the raters because the great majority of them were above 7. For rating scales, “an interrater reliability coefficient of 0.70 or higher is considered acceptable” (Ary, Jacobs, Sorensen, & Walker, 2014, p. 233). Later, the average scores of the two raters were computed and included in the main analysis.

After ensuring inter-rater reliability, the descriptive statistics of the two groups in terms of their writing scores were computed (Tables 1 and 2). It should be noted that the experimental group also had 5 sessions of treatment (one for getting a good orientation to wikis and 4 sessions for practicing writing through wikis), whose descriptive statistics were also computed.
The findings represent the writing improvement trend for the experimental group across the pretest, treatment sessions, and the posttest. This trend indicates improvement in writing; however, in order to see whether this improvement is significant compared with that of the control group, the posttest of the two groups were compared via Analysis of Covariance (ANCOVA). The reason for running ANCOVA was that, it was not clear whether the groups were equal in terms of mean writing scores on the pretest, so the probable pretest differences between the groups were taken into account by employing analysis of covariance (i.e. covariate effect).

In order to run ANCOVA, several assumptions need to be checked initially. The first of these is the assumption of normality, which was found met based on the skewness and kurtosis ratios, which were not beyond - 1.96 (indicating normality). The next assumption is to do with the homogeneity of variances, which was found met according to the results of Levene’s test in Table 3 ($p>.05$).
Table 3: Levene’s Test of Equality of Error Variances

<table>
<thead>
<tr>
<th>Dependent Variable: posttest</th>
<th>F</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.18</td>
<td>1</td>
<td>43</td>
<td>.66</td>
</tr>
</tbody>
</table>

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

*a. Design: Intercept + pretest + group*

Table 4 below demonstrates the results of the check on the assumption of homogeneity of regression slopes and the main ANCOVA results. The first row indicates that the assumption of homogeneity of regression slopes is met; Interaction $F(1,44) = .47, p > .05$. The second row shows that the groups were indeed different on the pretest; Pretest effect $F(1,44) = 11.37, p < .05$, and finally the third row demonstrates that the groups are significantly different on the posttest; Group $F(1,44) = 6.64, p < .05$, eta squared = .13 small to medium effect size.

In other words, there are statistically significant differences between wiki and non-wikis users’ writing performance in an ESP collaborative writing class. Specifically, the wiki-based group outperformed the control group.

4.2. The merits and demerits of the wikis

Regarding the advantages and disadvantages of using the wikis in ESP collaborative writing classes, generally, all of the students agreed that the experience of writing ESP essays using the wiki is useful and enjoyable; none of them believed that the wikis were not appropriate. They also believed online collaboration helped them to improve their writing skills.
The advantages of the Wikis mentioned by the students in the experimental group are presented in the following extracts. The first excerpt is taken from one of the participants' transcriptions.

*Participant 7:* The first time I started to write by using the wiki, I found it very difficult to do so, but after one or two writings; it helped me a lot in improving my sentences.

According to another interviewee:

*Participant 2:* It was a very good experience for me to use the wiki in order to learn how to write in English. This way, I feel that I could be able to learn how to write; I got on the track and learned a lot of things.

Regarding another advantage of the wiki in ESP classrooms, learning the grammatical skills was also mentioned. Below is an excerpt from one of the respondent's transcriptions.

*Participant 5:* Wikis corrected my grammatical mistakes and helped me and other students to learn the parts of the speech, "Nouns", "Verbs", and "Adjectives". Wikis helped us learn the "Structure of the sentences" and it also aided us to know our mistakes and correct them.

As another element which is considered as a positive point about the wikis in ESP classrooms, we could refer to cost-effectiveness. According to one of the participants:

*Participant 8:* Wikis were very useful for the students who lived far away from the teacher and the classmates, so he/she did not need to pay a lot to just go to the class or university, Wikis helped them save and learn a very good way.

Among other assets of the wiki in ESP classrooms, time-effectiveness and accessibility are cases in point. Below you can find the excerpts from the interviewees concerning the above mentioned points.

*Participant 2:* As far as Internet is available everywhere now-a-days, we can access it wherever we are willing to and I think this is one of the most important positive points about Wikis.

Another interviewee was concerned about the time:
Participant 3: I think that the wikis give us more time to think about our writings and write them in an academic way.

Among other profits, one could refer to the use of wikis as an element which makes the writing process easier for the students. The following excerpt is taken from one of the participants’ transcriptions:

Participant 6: After writing one or two writings, we found that how much this software could be useful for us to learn how to write.

Increasing the level of creativity is another advantage mentioned by the students. Below a part of a student's transcription is provided.

Participant 1: Wikis let us find various models in academic writing. By following such models, we learn a lot then step by step we could be able to create our novel way to write academic articles in our own words.

On the other hand, decreasing the level of anxiety is considered as another advantage by some of the students. The following is an extract from a student's transcription:

Participant 5: The first time I was about to start a writing, I got very anxious but after experiencing the wiki once or twice, I could control myself better and then become more confident in learning how to write.

Another asset mentioned by the students is collaboration among the peers and the teacher that helped them a lot in learning how to write. The following is taken out of a student's transcription.

Participant 7: This collaboration was so much helpful in learning writing, because it let me know what my mistakes are then I could compare them with other students' texts and see what the differences are between us. This way, I could learn how to write more correctly.
Figure 2 below sheds light on the advantages of Wikis in ESP classrooms from interviewees' perspectives, by percentage.

![Chart showing advantages of Wikis in ESP Classrooms]

**Figure 2: Advantages of Wikis in ESP Classrooms**

As shown in figure 2, accessibility, improving writing, learning the grammatical points, and collaboration are the core advantages of the wiki which have been reiterated by 100% of the interviewees. In addition, increasing creativity and helping in learning how to make new sentences are the second most important components mentioned by 88% of the interviewees. Likewise, making writing easy and cost-effectiveness were mentioned by 63% of the interviewees. Finally, half of the participants considered decreasing anxiety, time-effectiveness, and donating more time as the most significant advantages of the wikis.

The second part of the question focused on the factors which manifest the disadvantages of the wiki in ESP classrooms. Table 5 below gives us a classification and percentage of these disadvantages as mentioned by the interviewees.
As shown in table 5, the most important disadvantages of wikis in ESP classrooms, as mentioned by the interviewees (50%), was the point that wikis cannot take the place of real and face to face interaction. Likewise, some other factors, like getting the possibility to cheat and copy the texts from the internet as well as not being efficient for some students, were mentioned by 38% of the interviewees. In addition, not having any disadvantages, making students addicted to the computer, and making the students lose their self-confidence were equally pointed out by 13% of the participants. The following excerpt is on the most important factor, manifesting the most significant disadvantage of using the wikis.

*Participant 4: I think that wikis cannot take the place of face to face and real interaction. Writing on the paper helps me more in learning how to write in English and I feel more comfortable with that.*

### 5. Discussion

Based on the analysis of the results, using ANCOVA, it was revealed that there are statistically significant differences between wiki and non-wikis users’ writing performance specifically, the wiki-based group outperformed the control group. That is to say, the null hypothesis having to do with the first research question was rejected. This finding is consistent with those suggesting wikis as a perfect means to promote students’ writing performance (Kennedy, 2010; Lin, 2005; Xiao & Lucking, 2008) and various aspects of writing such as writing accuracy (Kuteeva, 2011) and students’ writing quality (Alshalan, 2010; Miyazoe & Anderson, 2009). This improvement in writing scores can be as a result of writing in a collaborative environment since through wikis the participants can freely discuss and exchange various notions, share

<table>
<thead>
<tr>
<th>Disadvantages of using Wikis in ESP classrooms</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. It cannot be used instead of real and face to face interaction.</td>
<td>50%</td>
</tr>
<tr>
<td>2. The students could copy the writings from the Internet.</td>
<td>38%</td>
</tr>
<tr>
<td>3. It cannot help us like writing on the paper.</td>
<td>38%</td>
</tr>
<tr>
<td>4. It makes me addicted to the computer.</td>
<td>13%</td>
</tr>
<tr>
<td>5. It makes me lose my self-confidence.</td>
<td>13%</td>
</tr>
<tr>
<td>6. It does not have any disadvantages.</td>
<td>13%</td>
</tr>
<tr>
<td>7. Typing is a very difficult task.</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 5: Disadvantages of Wikis
works, and provide feedback to other members (Reo, 2006). This finding is also in resonance with that of Warschauer (2010), revealing that the wiki increases the quality of writing, develops confidence in the writing skill, and makes writing more motivating. Neumann and Hood (2009) observed that the wiki could assist the students in the writing process by facilitating interaction among the students and engaging them in the classroom. Further, Cesteros and Lacorte (2014) reported the wiki helped the learners consolidate their writing fluency, motivating them to think of the audience more and produce a more qualified learning.

Such a significant change was really expected since the instructor/researchers provided the students with written feedback on their writings and posted their comments on the learners’ wiki pages. Therefore, the students could easily find out their errors in writing an academic text and enhance their writing performance. One important point is that, at the beginning, their errors were mostly grammatical and there was no trace of cohesion and coherence in their texts; thus, these areas were the most noteworthy parts that the instructor/researchers worked on. As time went by, the number of grammatical mistakes decreased and their texts turned to become more cohesive and coherent. Some of the students posted a comment and mentioned that by having the wiki class, they learned how to generate an English academic text correctly; they also stated that they loved this method and hoped to continue it again in the future (see Appendix C). By the same token, in the quantitative phase of the study, a statistically significant difference was found between wiki and non-wikis users’ overall writing performance.

Concerning the qualitative results and research question on the advantages and disadvantages of Wikis in ESP classrooms, some elements such as accessibility, improving writing, learning the grammatical skills, as well as collaboration were found as the most important advantages of the wikis in ESP classrooms. Pursuant to a study done by Chu (2009), the importance of the factor of collaboration is supported. Chu (2009) demonstrated that the wiki facilitates collaborative authorship, provides a free atmosphere in the class, and allows no dictatorship. Furthermore, Shelly and Vermaat (2011) pointed out that the wiki provides secure access for the selected group of qualified members to read the entries and write about them. Adekunle and Olla (2015) also added that wikis provide accuracy and depth to the students; thus, these tools have the capability to identify and correct more errors than the time they write on their own (as cited in Tella, 2015).
More significantly, the results of the study are in accord with Wei, Maust, Barrick, Cuddihy, and Spyridakis (2005), who concluded that the most significant advantage of the wiki is providing the situation for the students to produce co-authored writings; creating a social environment, sharing, and exchanging information. Another advantage of the wikis is that it can be live and provide a shared space where all team members can have writing and editing privileges. Thus, this feasibility of collaboration in a wiki can make it a powerful tool for project management and collaborative writing. Koschmann (1999) claimed that through collaboration, which requires social interaction between team members and dialogic processes, the text is produced through.

The findings of this study revealed that the wiki assisted the students in learning how to form new sentences. This finding is in compliance with the study of Marzec-Stawiarska (2015), who observed that after applying the wiki, the students could add to their ideas, edit the texts, amend, and expand them. They concluded that the students became more creative at the end of the project and could write out in the way they liked.

Cost-effectiveness was mentioned as the other advantage of the wiki in ESP classrooms. This finding is in line with the research studies conducted by Hunsinger and Senft (2014). They suggested that creating a website is much easier and less expensive than creating a printed pamphlet. In addition, Biella, Luther, and Pilz (2004) asserted that the wiki provides the situation for the students to have access to less expensive materials, than borrowing books from the electronic libraries or buying books on the net which is in resonance with the finding of the current study. The last two advantages are time-effectiveness of the wikis and the role of such software in reducing the anxiety of the students. Hereupon, Reio Jr and Hill-Grey (2012) found that wikis can be useful for the learners who study English online. Further, they discussed that time could be saved in the learning process by the facilities provided by the wikis. Regarding the students’ anxiety, Aitken (2014) proposed that technologies such as the wiki and NiCenet could help students reduce their anxiety because they can do their homeworks and submit them even from their homes. The learners also believed that since they get the teachers and peers’ feedback online, they get more confidence in using the writings so that their level of anxiety decreases.

This study also found some disadvantages in the use of the wikis. The first one to indicate is that this tool cannot be used instead of the face to face and real interaction. In fact, none of the studies done so far are in resonance with this finding since there are many researches whose
results manifest that the wikis provide face-to-face and real interaction, so the students do not feel the need to have the traditional and real classrooms (Castaneda Vise, 2007; Mesquita, 2012). The second disadvantage that was indicated by the students was that the students can easily copy their materials from the internet by using the wiki; therefore, the validity of the produced materials is not ensured.

This finding is consistent with the outcome of a study done by Wheeler (2010), who recognized that when the students use the wikis, they tend to copy and paste the texts from the internet and Wikipedia then they put them on the wiki page (Booth, 2008; Murugesan, 2010). Besides, a few participants emphasized that the paper-based writing could make them more successful in writing than the wiki-based writings. This finding is in strong and sharp contrast with the findings of other related studies. On the contrary, it has been evinced that the information displayed in the wiki style is much more persistent than the paper-based version (Jesson & Peacock, 2012; McKay, 2014). Regarding the last two disadvantages that the wiki makes the students addicted to the computer and the students' difficulty in typing, no related study was found.

Overall, the quantitative data analysis showed that applying the wikis has had a high positive impact on the learners’ writing performance. Further, the students highlighted some of the advantages and disadvantages of using the wikis in learning how to write an essay. All in all, the findings revealed the beneficial effects of the wikis on the students’ writing performance and perceptions, which were also discussed considering the previous studies done in this area.

6. Conclusions and Implications

The first question of this study investigated the differences between the experimental and control group in terms of their writing performance. After analyzing the data, the results of ANCOVA test evinced that the students’ writing performance on the posttest was considerably higher than the pretest and the results of the study displayed a statistically significant difference between the wiki-oriented courses, compared to the one that did not apply such software, and the students' writing performance in the ESP class ($p<$0.05). Thus, the null hypothesis formulated based on this research question was rejected.

Regarding the qualitative phase of the study, it should be noted that the learners valued the wiki and believed that it offered them great advantages to improve their writing skills. Almost
all the students mentioned that the wiki helped them learn the grammatical structures. Further, they became far more collaborative than before since the wiki was so accessible that they found the opportunity to write anywhere at any time. According to Duffy and Bruns (2006), the wiki provides more time and accessibility to the students; therefore, it offers the students easier ways to work collaboratively and consolidate their writing abilities. It is interesting to note that they called the wiki "a careful teacher at home". Moreover, the vast majority of the learners claimed that the wiki assisted them in learning novel idioms and expressions; it also helped them learn how to construct new sentences. Additionally, they believed that the wiki made more creative in writing in English. Besides, they found that the wiki was cost-effective and made the writing process easier for them. Finally, the learners declared that the wikis helped them decrease their anxiety because it provided them with more time and a situation, which made them more motivated to write essays.

However, they agreed that there were some disadvantages in using the wikis. Half of the learners believed that the wikis could not be replaced by face to face and real interaction. They also claimed that they are more used to traditional methods and think that the main method of teaching should revolve around the traditional ones. Further, they approbated that the wiki environment was not very safe; it enabled them to cheat and copy some texts from internet. They also believed that although the wiki has a lot of advantages, it could not help them improve like writing on a paper. They were on the opinion that typing on the computer was a difficult task that made learning through computers much harder for them. Interestingly, they expressed that such software made them addicted to the computer. Whenever they were about to write an essay, they felt dependent on the computer; if a computer was not there, they felt they would not be able to write anything; therefore it lessened their self-confidence. In general, the learners regarded the wiki as a beneficial and practical method for promoting the learners’ writing whose advantages surpassed its disadvantages.

This study contributes to writing instruction. For instance, by using wikis, the teacher and students can discuss the written text together, exchange comments over their writings, and follow a more interactive writing process. In other words, the teachers would be able to find novel ways to provide feedback and pass their comments to the learners. More importantly, they would get to know how to apply this software in their instruction so as to cover the learners’ needs properly. Another practical implication of the findings is that it is profitable for the learners to learn a novel method using technology such as the wiki, to be applied for writing essays in their specified field. This technological tool would also help them improve the quality
of their writings by learning to use new idioms and expressions as well as many grammatical structures.

The findings of the study also provide the syllabus designers and materials developers the opportunity to design new syllabuses and develop electronic materials to be used in the classroom. Further, syllabus designers and materials developers can design some tasks and activities that should specifically be done through the wikis. Another area in which the wiki tool can be efficiently used is language testing, particularly informal language testing. Teachers can make maximum use of the wiki in self and peer assessment of the students’ writings, since this software provides them with a history page as a checklist in order to guide the learners and their peers to understand their language use and problems better.

Although the findings of the study revealed that writing in a collaborative environment using the wikis is a fruitful pedagogical technique, the current study suffered from some limitations and delimitations. Since the participants were informed about the purpose of the study and the procedure, they could have altered their behavior in response to their awareness of being observed. However, in order to overcome the Hawthorne effect, the researchers and instructors constantly monitored the students’ performance and pursued a rather long-term approach. Moreover, since the data collection and analysis for the writing skill are very demanding and tough and the raters do not cooperate mostly when you employ an analytic scale, focusing on writing quality, accuracy, and meaning-focused writing skills, the researchers just focused on the overall writing performance of the ESP learners.

Last but not least, every research presents some other aspects and areas that have not been examined yet. Research on wiki-mediated language program and its roles in ESP essay writing is a novel subject that has not been extensively studied by the language specialists. Ergo, other fields of studies, such as humanities and medicine along with various levels of proficiency are required to be investigated to figure out whether or not the wiki would be considered as beneficial in those areas. In addition, future studies can concentrate on investigating the differences between learners of various university fields of study using the wikis, in terms of the quality of essay writing. It would be great if future researches examine the effects of this means on various writing features such as lexical use, accuracy, complexity, and density.

Further, examining the effect of individual differences, such as personality factors, different learning styles, and strategies, on the use of the wiki in writing classes would be interesting to be considered in future research studies. Another area of research is to focus on the effect of
using the wikis on other language skills, such as learners’ speaking, reading, and listening skills. Finally, a very interesting avenue for research would be the analysis of cyber discourse through the feedback and comments posted on the wiki. Reflective-thinking and critical thinking are also very significant variables to be considered in such research studies. Overall, the applications of wikis should be extensively inspected in various disciplines, mainly ESP writing courses.

References


Statistical Packages for the Social Sciences (Version 21) [IBM Corporation]. Armonk, NY: USA.


Appendix A

Interview Questions

1. Briefly explain your experience in using wikis for writing assignments.
2. Do you think your English writing skills have improved through online collaboration with your peers? Why?
3. Do you think that the collaboration in the wikis helps you learn better how to write?
4. How much do you think exchanging the comments via the Internet could be useful in the process of learning how to write?
5. Can you name some of the advantages of using wikis? Or tell me the most valuable and interesting part of wiki writing and why.
6. Can you name some of the disadvantages of using wikis? Or describe the most difficult part of the wiki writing and why.
7. How does the use of the wiki help you achieve your writing goals?
   a. Do you think that wikis improve your creativity and writing knowledge?
   b. Has wiki made the writing process easier for you?
   c. Does wiki help you organize your ideas for writing?
   d. Does wiki help you write faster in a shorter amount of time?
   e. Do you think that the history page used to review the changes you had had in writing helps you improve your writing skills?
   f. Do you think that the discussion page plays a positive role in posting your comments and communicating with the others?
   g. Do you think that editing information in the wiki is easy?
   h. Does wiki lessen the level of your anxiety while writing?
   i. Does wiki help you learn from your own mistakes?
8. Overall, tell me how the experience of using wikis as a collaborative writing tool changed your perspectives on L2 writing.
9. Do you have any suggestion for the future use of wiki technology?

Appendix B

A Sample of Researcher’s Feedback on a Student’s Writing
Our writings have been improved a lot in your class.

Many Thanks and Good Job 😊
Investigating Saudi Medical Students’ Attitudes Towards English-Arabic Code-Switching in Classroom Instruction

Mohammed Qurait Alenezi

College of Art, Law and Education, University of Tasmania, Australia

Dr Paul G Kebble

National Institute of Education, Singapore, and an adjunct academic with the University of Tasmania

Biodata

Mohammed Qurait Alenezi is a Ph.D research scholar at the Faculty of Education, University of Tasmania, Australia. His research thesis focuses on the ways and strategies (conscious and unconscious) used by Saudi Arabian youths while constructing their different identities online as well as for being (im)polite. The present paper is a part of this research study. He has attended various international conferences and presented papers on different aspects of the research which he is currently carrying out. His major areas of research interest include identity construction, online communication, language and Saudi Arabian society.

Email: mohammed3062@hotmail.com

Dr. Paul G. Kebble has over 30 years of international English language teaching, teacher training and academic research experience and has lived and worked in eight countries: Australia, Barbados, Brunei Darussalam, Fiji, Malaysia, Portugal, U.A.E. and U.K. His research generally focuses on language learning and communication within an online environment, culture and language learning and teaching, and the support and assessment of English for general and academic purposes. Paul has recently had 2 apps published with Apple, the ‘IELTS predictor’ and ‘How good is my English’, both available as free downloads.

Email: Paul.kebble@utas.edu.au
Abstract

The present study aimed to investigate a group of monolingual Arabic-speaking Saudi Arabian medical students and their attitudes towards the medium of instruction and code-switching within their classroom. A quantitative analysis of research data collected from 189 students (male and female) through the use of questionnaires, revealed there was a strong preference for using code-switching over a monolingual medium of instruction. Although the majority of the students strongly agreed that using one language had certain benefits, they suggested code-switching was more desirable for course content comprehensibility. The data showed students disagreed that code-switching led to any confusion in teaching and learning and the students described their increased respect for the lecturer if s/he condoned or practised code-switching themselves. These findings suggest managers of learning and teaching should consider revising their monolingual language policies to embrace the positives within learning that code-switching can provide.

Keywords: code-switching, medium of instruction, monolingual classrooms, medical students, Saudi Arabian learners, EFL

1. Introduction

Medium of instruction plays vital role in effective imparting of subject knowledge and thereby achieving set teaching and learning goals. Thus, any decision regarding the medium of instruction can have a direct impact on whole teaching and learning process and on all those related with these processes including teachers, learners, policy makes and quality controllers. This is the case for all subject-specific learning, and medical sciences equally, if not more so than others. Analysis of student feedback is essential for improving learning and teaching in context, and for developing the linguistic medium for achieving desired outcomes.

The use of English as a medium of instruction in many Gulf-countries, where it is not the main language, can sometimes be problematic both for the teachers and students. In such bilingual classrooms, code-switching is an often-observed phenomenon as invariably all learning and teaching participants are able to fluently use the first language, Arabic. As the phenomenon of code-switching is common within bilingual and multilingual societies, research on the topic (Giancaspro, 2015; MacSwan, 2016; Ribot, Hoff &Burridge2017) has also been increasing. Particularly in recent years, the phenomenon of code-switching has become the centre of research interest and has generated extensive arguments and counterarguments regarding the practice of code-switching inside bilingual classrooms.
With this background, the present study investigated the language position and attitudes of Saudi Arabian students at the medical college of Northern Border University, Saudi Arabia, towards code-switching in classroom teaching involving both Arabic and English. The study revolved around the central research question: What is the students’ attitude towards using one or two languages in code-switching used in the medical courses at Northern Border University, Saudi Arabia? Studying students’ attitudes towards medium is important as medium used for instruction can affect whole process of teaching and learning and the set aims of the whole instruction programme.

2. Literature Review

2.1 Code-switching and code-mixing

There are many definitions of code-switching offered by various scholars and there has yet to be consensus, particularly as it is implemented differently in different contexts. These codes can be two distinct languages, or dialects derived from the same base language. For example, Gumperz (1982) explained that code-switching was “the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems or subsystems” (p.59), while Cook (2001) described the process as requiring two agents able to use both codes when code-switching was moving “from one language to the other in mid-speech when both speakers know the same languages” (p.83). Numan and Carter (2001) defined code-switching as “a phenomenon of switching from one language to another in the same discourse” (p. 275), whilst it was defined by Myers-Scotton (2006) as “the use of two language varieties in the same conversation”(p. 239).

In addition to code-switching, “code-mixing” is a term that was used within the learning environment explored in this study, and therefore requires further elucidation in order to avoid confusion. Bokamba (1989, p.278) stated that code-mixing is “the embedding of various linguistic units such as affixes (bound morphemes), words (unbound morphemes), phrases and clauses from two distinct grammatical systems or sub systems within the same sentence and speech event”. This implies that code-mixing arises in the intra-sentential level as opposed to code-switching which arises in the inter-sentential level. Myers-Scotton (1993) added that code-switching occurs when bilingual people alternate between two languages during one interaction with another bilingual person, while code-mixing is the use of words, affixes, phrases and clauses from more than one language within the same sentence. However, according to Muysken (2000), code-switching is a term that is used for cases in which the two
codes maintain their monolingual features, while code-mixing is used for cases where there is some convergence between the two languages. In the learning context of this research, spoken Arabic can often be interspersed with technical and scientific phrases emanating from their English usage (although sometimes Latin-based), with the occasional use of prefixes as modifiers. For this study, code-switching is defined as the ability to shift from Arabic to English within a conversation, discussion or utterance, and when both learners are extensive users of both languages. This also extends into the context of the language classroom, and includes the alternate use of the first language and the target language as means of communication and clarification by the lecturer, when the need arises.

2.2 Language position in the Kingdom of Saudi Arabia

Language position or positioning relates to how each language is perceived within the societies that utilise them (Abdi, 2011 & Kayi-Aydar 2014). For example, the use of English in French is often derided and has negative social connotations, whereas in UK English, being able to use French phrases (code-mixing) is seen as having a superior command of language and an indicator of quality education. In the case of Saudi Arabian society, there are different factors which can be attributed to bilingualism wherein the prestige forms the highest. That is, the Saudi middle, upper and ruling classes choose English vocabulary and expressions in their daily interaction and prefer to use English in every facet of their lives. Professionals make it a matter of personal prestige to use English extensively in their interaction with people, primarily to show others that they are fluent in the language and obviously well-educated. To meet the need of the situation is another reason for the proliferation of bilingualism in Saudi Arabia. It is important, however, to note here that many bilingual Saudis often utilise code-switching as they need to fill their conversation gaps in Arabic with English words, or vice versa, particularly for vocabulary that is absent either in Saudi Arabic, or in English.

2.3 Attitudes towards code-switching in learning and teaching

Attitudes to code-switching in the classroom are subject to the level of perception of its use as good practices by the lecturer or the institution, with research having identified various attitudes towards demonstration of this communication behaviour (Kachru, 1978; Grojean, 1982; Gumperz, 1982; Keh and Stoessel, 2016; Balam and Prada Pérez, 2017). These attitudes vary from a belief that there is no intrinsic linguistic benefit from accepting or utilising its
practice, to a belief that code-switching can enhance and accelerate language comprehension and hence learning.

2.3.1 Code-switching enhancing learning and teaching

Baker (2006) listed twelve main purposes of code-switching, including being used to emphasise a particular point, to substitute a word in place of an unknown word in the target language, to express a concept that has no equivalent in the culture of the other language, to reinforce a request, to clarify a point, to express identity and communicate friendship, to ease tension and inject humour into a conversation. In some bilingual situations, code-switching can also occur when certain topics are introduced, providing a shortcut to the understanding of a concept or lexical item which, in the medical setting of this research, appeared to be prevalent. Skiba (1997) stated that code-switching should be regarded as an opportunity for language development, since it serves as a signal to tell the listener the need for providing samples from another language. Although language switching may sound disruptive for the listener at times, if the listener understands the meaning of the code-switching language, then s/he is provided with an opportunity for language learning and development. Learning and developing activities will take place as translation into the second language is provided. This, in turn, will allow for a reduced amount of switching and less subsequent interference as time progresses. These principles may also be applied in the second language classroom.

Duran (1994) suggested that code-switching should be seen from the perspectives of interlinguistic phenomena specific to bilingual people, and that the relationship between code-switching and interlanguage should be taken into consideration. The notion of interlanguage is associated with the earlier developmental period of bilingual people, while code-switching is regarded as occurring during the later phase of bilingual acquisition. More specifically, Duran (1994) recognized interlanguage as the language constructed before the ideal forms of the target language is achieved, while code-switching may occur during or after the interlanguage stage. Duran (1994) also stated that in order to perform code-switching, competence in both languages is required, even if the speakers have not fully achieved fluency in both languages. She even further explained that code-switching must serve important functions for the language learners/users, in order for it to happen naturally in the scheme of bilingualism (Duran, 1994).

However, to use or not to use code-switching inside the classroom is contentious among research scholars. Those supporting its use in learning vouch for its usefulness as a teaching tool. For example, Rollnick and Rutherford (1996) believed that code-switching assists learners
in exploring their ideas. In the context of a science classroom, they perceived code-switching as a tool used by learners to reveal their alternative thoughts on the subject matter being taught. Code-switching to the students’ mother-tongue also enables them to employ sense-making resources (Amin, 2009). Hornberger (2005) also argues that bilingual or multilingual learning is enhanced when students are permitted to use their resources in their existing language skills in one or two languages as opposed to being confined to monolingual instructional behaviour and practices. The ability to move from one language to another is not only quite “normal” but also often “highly desirable among learners” and, no matter how it might be disruptive to the listener during a conversation, it still provides an opportunity for language development (Cook, 2001, p. 105).

There are a number of studies which have investigated positive attitudes of both educators and learners towards the use of code-switching inside the classroom. A study by Ariffin and Husin (2011) found bilingual instructors functioning with learners with the same two languages frequently code-switched and code-mixed between these languages in the classroom in order to facilitate what was believed to be more effective teaching and learning, in particular as a shortcut to clearer interpretations and understanding. Jingxia (2010) also reported that teachers’ code-switching between Chinese and English existed in the English as a Foreign Language (EFL) classrooms of Chinese universities. All of the teachers and students reported that there was switching to Chinese “sometimes” or “occasionally” in their English-language classes, both consciously and unconsciously. However, most of the teachers (80%) and students (66%) held a positive view with regard to teachers’ code-switching to the first language (L1).

Regarding learners’ positive attitudes towards code-switching, Macaro’s (1997) earlier study reported that most students expected their bilingual teachers to speak the L1 sometimes to facilitate their understanding, with many also indicating they could not learn if they could not understand their teacher. Additionally, research conducted by Arthur and Martin (2006), with students in Malaysia having high English proficiency, found that code-switching communicative behaviour could be off-putting and does not help in improving linguistic competencies in English. Rolin-Ianziti and Brownlie (2002) also reported that the use of the learners’ first language was conducive to the correct understanding of the newly input target language for the students. Similarly, in research conducted in Ormoc city in the Philippines, on students’ attitudes towards English and Fil-English code-switching, Durano (2009) reported that the respondents had a positive attitude towards English and Fil-English code-switching.
In further research, Alenezi (2010) investigated students’ language activities in the context of Arabic and English code-switching which was being used as the medium of instruction of a science subject in the Human Development for Occupational Therapy course at the Allied Health Science College in Kuwait University. The findings of the study showed students’ strong preference toward a specific medium of instruction that is Arabic-English code-switching. In another study from the Saudi Arabian context, Alenezi (2016) reported that Saudi Arabian English for Specific Purposes (ESP) students at Northern Border University agreed that ‘code switching was more desirable and believed that it made the course easy to understand’ (p. 154). Thus, the findings of these studies show the positive attitudes of learners from different bilingual contexts towards code-switching.

2.3.2 Code-switching as a detractor to learning and teaching

Those with a belief that code-switching can have a negative impact on learning relate the process to negative language habits (Shin, 2005). In this respect, Martin (2005) asserts that the practice of code-switching in many teaching situations is either condemned as unprofessional or considered to be an institutionally unrequired practice. In many cases, the practice of code-switching in teaching is attributed to the bilingual teacher’s lack of competence in the English language and possibly lack of classroom management skills in preventing it happening between students. A study conducted by Payawal-Gabriel and Reyes-Otero (2006) reported that the practice of code-switching by Filipino mathematics teachers in their classroom instructions had a negative impact on learning. The findings revealed that teachers’ code-switching confused students and thus affected their lesson comprehension. Through early research conducted at the University of California, Los Angeles, Duff and Polio (1990) suggested teachers using their first language (Spanish) were depriving students of many opportunities to be exposed to and deal with the target language (English) and concluded that in the process of learning the second language (L2), L1 should not be used.

In accordance with previous views, Halliwell and Jones (1991) claim that in order to learn L2 successfully, learners should take the risk to practice using L2 in both speaking and understanding L2. They believe that using L2 as a normal mean of communication is possible. To support their claim, Halliwell and Jones (1991) proposed that learners can understand the content of the message even though they do not fully understand the exact meaning of words or structures. Furthermore, in support of this theory, Macdonald (1993) believes that the focus on L2 can activate the conscious and unconscious learning of L2. The use of L2 can enhance
the students’ communication skills, thus giving learners the confidence and challenge to communicate in L2 even with limited knowledge of L2. Macdonald (1993) even advises teachers that, “If you get stuck in the middle of a lesson, try to communicate your message by some other means, such as mime or demonstration” (p. 23).

The opinions and methods of avoiding switching between L1 and L2 in class are based on two assumptions: that L1 and L2 learning processes are similar, and the previous L1 learning experience and process should not be linked to L2 (Cook, 2001). Cook (2001) believes that L2 should be developed with no reference to L1 due to language compartmentalisation, and the reasoning behind this recommendation is to avoid L1 interference. One example of language interference would be an L1 negative transfer that would result in an L2 language error. The next section of this paper will review selected arguments against these assumptions and discuss how code-switching can be implemented in the English as a Second Language (ESL) and EFL classrooms.

2.3.3 Functions of code-switching in the classroom
Mattson and Burenhult (1999) describe four functions of code-switching which may be beneficial in L2 learning environments, whether performed consciously or subconsciously. These code-switching functions are as follows: topic switch, where the teacher shifts from L2 to L1 to explain a particular grammatical item so that the new content and meaning can be directly and easily transferred; affective functions, where code-switching serves as expression of emotions and is used to build solidarity and relationships with the students, whether consciously or subconsciously; socialising functions, when the teachers signals connectedness and solidarity by using L1; and repetitive functions, where clarifications of meaning are offered using L1 after L2 has been used.

3. Research Methodology
This is a quantitative study with a survey approach. In order to measure the students’ language attitudes towards code-switching, a questionnaire was administered to 230 Saudi Arabian medical students studying at the faculty of medicine in the Northern Border University of Kingdom of Saudi Arabia out of whom 194 returned completed questionnaires. The questionnaires were administered by the researcher himself after visiting the research site and requesting the participants to complete it for the study purpose. The process was voluntary. Five of these questionnaires were excluded from the analysis as they contained too many
unanswered questions. Therefore a total of 189 questionnaires were analysed. All the formal permissions were obtained from the university administrations to conduct the study and participation in study was voluntary for the students. The data collected were analysed using SPSS to determine the quantitative results gained from the questionnaire. According to Creswell (2008), the results from the quantitative research method have the potential to be generalised to larger populations if an appropriate sampling design had been utilised; if the questionnaire was properly constructed, it could have high measurement reliability, and high construct validity if proper controls were implemented.

3.1 Participants

The participants in this study were medical students at the Northern Border University in Saudi Arabia. The total number of students who participated in the study was 230 (127 male and 103 female students) with ages ranging from 18 to 23 years and they were studying in different years of medical education. The details are tabulated below:

<table>
<thead>
<tr>
<th>Academic Institute</th>
<th>The Faculty of Medicine, Northern Border University, Kingdom of Saudi Arabia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender/Year</td>
<td>Male</td>
</tr>
<tr>
<td>Second Year</td>
<td>50</td>
</tr>
<tr>
<td>Third Year</td>
<td>42</td>
</tr>
<tr>
<td>Fourth Year</td>
<td>35</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
</tr>
</tbody>
</table>

3.2 Data collection instrument

The main instrument for data collection was the questionnaire (see Appendix A). Cohen, Manion, Morrison, and Morrison (2007) explain that a questionnaire is a highly effective instrument for the collection of information, especially as it can be administered in the absence of the researcher. In the present study, the questionnaire was adapted from Olugbara’s (2008) study to measure students’ attitudes towards code-switching. The questionnaire was divided into two major sections. The first section collected the demographic information of the students, such as gender, language taught in previous school and language use as a medium of instruction in the class. Section two of the questionnaire contained 10 items asking for specific
information in relation to attitudes and understanding of code-switching within their learning environment. Other than the demographic questions, all of the survey questions used the Likert scale format, in which a four-point scale (strongly disagree-disagree-agree-strongly agree) was used. 10 items were finalised as they covered the aims of the study and were enough to get research related data. The questionnaires were distributed on the campus by the researcher and collected by hand on the same day.

4. Data Analysis

Data analysis concerns analysing the data collected from participants through the instrument. The researchers used the digital Statistical Package for Social Sciences (SPSS) version 16 to analyse the quantitative data that had been extracted from the completed questionnaires. Descriptive statistics were used to explore, summarise and describe the data. In this regard, Pallant (2007) states that descriptive statistics are aimed at depicting the different attributes of data, verifying any violation of the principal assumptions for the statistical methods to be used in the study, and addressing particular research questions. In this study, the descriptive statistics were undertaken using central tendency and variation statistics such as frequency, means, ranges, and standard deviation.

4.1 Pilot study

A pilot test was conducted on a randomly chosen group of 10 students (both male and females) of faculty of medicine in order to increase the accuracy and consistency of the data collection methodology and its measurements, as recommended by Cohen, Manion, Morrison and Morrison (2007). The test was done in the month of December, 2015, prior to the distribution of the questionnaires to the participants of the study. The test was performed with the purpose of assessing test face validity, i.e. did the questions appear to those tested to be suitable for the task, as well as conducting an initial reliability analysis. Each of these is discussed in the following sections.
Table 2: Cronbach’s Alpha Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>1-2-3-4</td>
<td>0.798</td>
</tr>
<tr>
<td>L1 and L2</td>
<td>5-6-7</td>
<td>0.871</td>
</tr>
<tr>
<td>Teacher’s image</td>
<td>8-9-10</td>
<td>0.801</td>
</tr>
<tr>
<td>Results</td>
<td>11-12-13</td>
<td>0.750</td>
</tr>
<tr>
<td>Code-switching</td>
<td>5 to 13</td>
<td>0.819</td>
</tr>
</tbody>
</table>

4.2 Validity and Reliability

A panel of four academic peers at Northern Border University examined the instrument and provided feedback. They were chosen based on their teaching experience and higher qualification in the area of the research study. The valuable suggestion included making the language of the questions simpler for better understanding of the respondents as they were medical students; reducing the number of questions to 10 so that the respondents did not feel burdened to answer; inclusion of the statement that there is no right or wrong answer and they should express their views honestly. The revised and final pilot testing assessment of face validity revealed the questions did not cause problems for students in terms of language and clarity. The results of this pilot study (shown in Table 2) revealed that the reliability, as a measure of stability and consistency in which the instrument measures the concept and assesses the integrity of the measurement instrument (Sekaran & Bougie, 2010), was acceptable. All items for Attitude (alpha = 0.798) and Code-Switching (alpha = 0.819) met the conditions set for consistency and reliability.

Table 3: Cronbach’s Alpha: Scale Reliability [Pilot Test]

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor</th>
<th>Number of Items</th>
<th>Cronbach’s Alpha</th>
<th>Overall Cronbach’s Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>Positive attitude towards code-switching</td>
<td>3</td>
<td>0.798</td>
<td>0.798</td>
</tr>
<tr>
<td>Code-Switching</td>
<td>First language and second</td>
<td>1</td>
<td>0.781</td>
<td>0.819</td>
</tr>
</tbody>
</table>
4.3 Findings

This study employed an initial sample of 230 students from Northern Border University, of whom 194 returned completed questionnaires. Five of these questionnaires were excluded from the analysis as they contained too many unanswered questions. Therefore a total of 189 questionnaires were analysed and, from the responses, the following recapitulation frequency table was constructed (Table 3), presented as a table of percentages.

Table 4: Students’ Attitudes Towards Code-Switching

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>SD (%)</th>
<th>DA (%)</th>
<th>A (%)</th>
<th>SA (%)</th>
<th>M</th>
<th>Ratio % Dis - Ad</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Attitude</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Teaching the course only in one language is beneficial to me.</td>
<td>9.5</td>
<td>12.2</td>
<td>49.2</td>
<td>29.1</td>
<td>2.9788</td>
<td>21.7 -78.3</td>
</tr>
<tr>
<td>2</td>
<td>Teaching the course in Arabic and English is desirable to me.</td>
<td>0</td>
<td>0</td>
<td>69.8</td>
<td>30.2</td>
<td>3.3016</td>
<td>0 -100</td>
</tr>
<tr>
<td>3</td>
<td>Teaching the course in Arabic and English makes it easy for me to understand.</td>
<td>0</td>
<td>0</td>
<td>69.3</td>
<td>30.7</td>
<td>3.3069</td>
<td>0 -100</td>
</tr>
<tr>
<td>4</td>
<td>It confuses me when course instructor teaches in Arabic and English at the same class period.</td>
<td>22.2</td>
<td>70.4</td>
<td>7.4</td>
<td>0</td>
<td>1.8519</td>
<td>92.6 -7.4</td>
</tr>
<tr>
<td></td>
<td><strong>Opinion of the instructor based on the use of languages in teaching</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>I respect an instructor more when teaching in Arabic and English.</td>
<td>0</td>
<td>0</td>
<td>50.8</td>
<td>49.2</td>
<td>3.4921</td>
<td>0 -100</td>
</tr>
<tr>
<td>6</td>
<td>I respect an instructor more when teaching in Arabic.</td>
<td>7.4</td>
<td>9.6</td>
<td>46</td>
<td>37</td>
<td>3.1270</td>
<td>17 - 83</td>
</tr>
<tr>
<td>7</td>
<td>I respect an instructor more when teaching in English.</td>
<td>7.4</td>
<td>7.9</td>
<td>45.5</td>
<td>39.2</td>
<td>3.1640</td>
<td>15.3 - 84.7</td>
</tr>
<tr>
<td></td>
<td><strong>Opinion on academic results based on language used in the classroom</strong></td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Teaching the course only in Arabic increases my chances of passing the exams.</td>
<td>0</td>
<td>18</td>
<td>43.4</td>
<td>38.6</td>
<td>3.2063</td>
<td>18 - 82</td>
</tr>
<tr>
<td>9</td>
<td>Teaching the course only in English increases my chances of passing the exams.</td>
<td>2.6</td>
<td>14.3</td>
<td>41.8</td>
<td>41.3</td>
<td>3.2169</td>
<td>16.9 - 83.1</td>
</tr>
<tr>
<td>10</td>
<td>Teaching the course in Arabic and English</td>
<td>0</td>
<td>9</td>
<td>43.9</td>
<td>47.1</td>
<td>3.3810</td>
<td>9 - 91</td>
</tr>
</tbody>
</table>
This study aimed to explore Arabic-speaking medical students’ attitudes towards the use of code-switching between Arabic and English in learning and teaching. Overall, the results of the questionnaire showed positive attitudes towards the use of code-switching by the majority of students, consistently indicated through all elements of the collected data (Table 3), with one anomaly. Item one in the table clearly indicates that these students believed teaching the course in only one language is beneficial, however, which language is not specified. The researchers speculated this response might indicate that the respondents believed the use of English only in learning and teaching would be beneficial, particularly as the questionnaire itself was conducted in English.

Through further examination of the presented results, items 2, 3 and 5 (Table 3) indicated the greatest accord. Items 2 and 3 were closely aligned and the researchers suggested respondents were stating that code-switching in learning and teaching was beneficial because it enhanced understanding. Item 5 perhaps indicated deeper respect through both cultural and professional understandings, a lecturer who is confidently able to move between languages demonstrates deep understanding of the topic and in relation to the cultural setting of the students. Items 4 and 10 also showed a very high accord, with item 4 obviously in reverse whereby the respondents indicated a lack of confusion when engaging in code-switching. Item 10 related directly to academic success, with respondents believing code-switching enhances examination success, through a deeper understanding of the learning materials provided through code-switching, it is postulated. Items 6, 7, 8 and 9 also showed strong agreement ratios, however, in the cases of items 6 and 7, the indication was that much respect was shown to the lecturer, whether using Arabic or English, and this would seem to be at odds with item 5. However, it was hypothesised that students within the learning culture of Saudi Arabia demonstrated much respect for their lecturers, regardless of the medium of instruction. It was also believed by the researchers that the questions themselves could have been better worded to investigate more deeply the subject of respect and language usage. Finally, items 8 and 9 again showed perhaps that the respondents appreciated the learning process and equated success to whichever language of instruction is utilised, however, in comparison to item 10, it was seen the latter, code-switching, was believed to be the most beneficial medium of instruction.
4.4 Discussion

The results from this research, corroborating the real benefits in learning and teaching of moving between languages, correspond well with the findings of a number of studies previously discussed (Cook, 2001; Jingxia, 2010; Rolin-Ianziti & Brownlie, 2002; Macaro, 1997; Durano, 2009; Alenezi, 2010). However, the findings of this study did not justify those of Payawal-Gabriel and Reyes-Otero (2006) who reported that the practice of code-switching by mathematics teachers in their instructions negatively affected learning. Payawal-Gabriel and Reyes-Otero’s (2006) findings revealed that teachers’ code-switching confused students and thus affected their lesson understanding. It is postulated by the researchers of the present study, based on their professional experience that mathematical language, both lexically and syntactically, is quite specific, and direct translations might lead to confusion and not clear comprehension.

When comparing the students’ attitudes towards using one language (either Arabic or English) in teaching through Arabic-English code-switching, the findings of this study indicated a preference for using code-switching rather than using one language as a medium of instruction. Although the majority of the students strongly agreed that using one language is still beneficial to them, they found it more desirable and believed it makes the course material more easily understood if code-switching is utilised.

5. Conclusion

This study aimed to describe a group of Saudi medical students’ attitudes towards the practice of code-switching for instruction purposes inside the medical-course classrooms. The participants’ attitude towards code-switching as a medium of instruction was affirmative. They discussed it as having a positive impact on academic performance, and was seen as being an influential teaching tool to facilitate learning and increase student comprehension and hence, academic success. From the findings obtained, it can be concluded that the Saudi Arabian medical students at the Northern Border University, Saudi Arabia had positive attitudes towards the practice of code-switching between Arabic and English for instruction purposes as was seen to facilitate understanding and help them in passing exams. Although overall reverence for lecturers was evident, the students also demonstrated greater respect for the lecturers who practised code-switching during the class. This can be put further into context by considering that English is taught as a foreign language in Saudi Arabia and it is not easy for many students to comprehend difficult concepts in medical science purely in English without
any supporting explanation in their mother tongue, Arabic. Therefore, it is recommended that educational decision makers and managers at programs, department, colleges, and university levels in Saudi Arabia should consider revising their language policy in order to incorporate code-switching in the planning of syllabi.

At present, medical departments are applying English-only as the language of teaching and learning, and this is demonstrated in the language policy held at the Northern Border University (as per the 2009–2010 hand book). Whilst English is the medium of textbooks, assignments, and examinations, in reality, Arabic-English code-switching is the dominant medium of classroom communication. Also, educators and teachers of medical subjects at colleges where English is used as a foreign language might want to consider the students’ language preferences and attitudes towards medium of instruction. This research also suggests teachers and lecturers should be encouraged to make adequate use of code-switching in classrooms when explaining concepts to students so that the students will be able to actively participate in classroom lessons and hence increase achievement.

The present study included the participants only from the Northern Border University and only from the faculty of medicine. More studies are required with more participants from different universities and from different parts of Saudi Arabia to get more diverse and more reliable results.

References


APPENDICES

Appendix A: Questionnaire

Introduction

This questionnaire is designed to find out your honest views about the language of teaching at your current course. Please respond to all the questions below carefully and honestly. This is not a test and there are no right or wrong answers. Your responses will be kept strictly confidential, and will only be used for the purpose of this study. Your answers will not prejudice you in any way.

Section A: Biographical information:

Please, answer the following questions.

1. What is your gender?
   ( ) Female.
   ( ) Male.

2. In what language(s) have you been mostly taught in your previous schooling?
   ( ) Arabic.
   ( ) English.
   ( ) English and Arabic.

3. What language(s) do you use in communicating with your classmates, teachers, and staff at the college?
   ………………………………………………………………………………………………………

Section B: Learners honest views about the teaching language.

Please read each of the following statements very carefully and tick the answer which best describes your degree of agreement or disagreement. The following abbreviations are used: SA - Strongly Agree; AG - Agree; DA - Disagree; SD - Strongly Disagree.
<table>
<thead>
<tr>
<th>NO</th>
<th>ITEMS DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Teaching the course only in one language is beneficial to me.</td>
</tr>
<tr>
<td>2</td>
<td>Teaching the course in Arabic and English is desirable to me.</td>
</tr>
<tr>
<td>3</td>
<td>Teaching the course in Arabic and English makes it easy for me to understand.</td>
</tr>
<tr>
<td>4</td>
<td>It confuses me when course instructor teaches in Arabic and English at the same class period.</td>
</tr>
<tr>
<td>5</td>
<td>I respect instructor more when teaching in Arabic and English.</td>
</tr>
<tr>
<td>6</td>
<td>I respect instructor more when teaching in Arabic.</td>
</tr>
<tr>
<td>7</td>
<td>I respect instructor more when teaching in English.</td>
</tr>
<tr>
<td>8</td>
<td>Teaching the course in Arabic increases my chances of passing the exams.</td>
</tr>
<tr>
<td>9</td>
<td>Teaching the course in English increases my chances of passing the exams.</td>
</tr>
<tr>
<td>10</td>
<td>Teaching the course in Arabic and English increases my chances of passing the exams.</td>
</tr>
</tbody>
</table>
Customized EAP Program for Novice Researchers in Engineering: Focus on Progress in Use of Cohesive Devices

Soo-Hyun Koo & Min-Chang Sung

Seoul National University, Korea

Biodata

**Soo-Hyun Koo** is a doctoral student (ABD) at the Department of Foreign Language Education, Seoul National University, Korea. She has been teaching English in colleges in Seoul and its vicinity. Her research interests include speech perception, speech production, and EAP speaking and writing.

Email: soohyun.koo@gmail.com

**Min-Chang Sung** holds a Ph.D. in English Language Education from Seoul National University, Korea. He is teaching in colleges in Seoul and its vicinity. His research interests include academic writing, construction grammar, corpus linguistics, and grammar teaching.

Email: minchang.sung@gmail.com

Abstract

This study reports on the development and evaluation of an academic writing course customized to postgraduate EFL learners at a university in Korea. The curriculum was tailored to the learners based on the results of learner writing diagnosis, which identified an urgent demand for textual cohesion. Therefore, the instruction focused on cohesive devices such as conjunctions, references, and lexical cohesion. The improvement in the use of cohesive devices was assessed by analyzing types and functions of cohesive devices in pre- and post-writings. The results found that the instruction helped the learners expand their repertoire of cohesive devices and avoid ambiguous references. The learners, however, had trouble understanding the discourse features of the definite article *the* and thus made many errors even after the instruction. These findings may imply that, while a diagnostic analysis of learner writings is a prerequisite for customizing academic writing courses to target learners, a multi-faceted
pedagogical approach which examines linguistic, pragmatic, and cognitive aspects is requested to address problems that learners of academic writing are facing.

**Keywords**: academic writing; customization; learner writing analysis; cohesion; consciousness raising

1. Introduction

English for academic purposes (EAP) is a major domain of English for specific purposes (ESP) that focuses on the specific communicative needs and practices of academic experts (Hyland & Shaw, 2016; Johns & Dudley-Evans, 1991). Provided that the core principle of ESP is “tailoring instruction to specific rather than general learning purposes” (Hyland & Hamp-Lyons, 2002, p. 2), EAP researchers and instructors have placed special importance on academic writing competence, which is most needed for postgraduate students — a major beneficiary of EAP programs — to excel in their research and academic careers. A variety of components in academic writing, such as vocabulary, register, and style, have been intensively investigated, and the results have helped EAP practitioners develop finely customized instruction (e.g., Hu, 2007; Xudong, Cheng, Varaprasad, & Leng, 2010).

Although many of these customization-oriented approaches have been found to be effective, a marked gap exists with regard to the exhaustive investigation of academic texts written by EAP learners, which would provide valuable information for the development of a customized academic writing program and the measurement of substantial gain or qualitative improvements. Instead of analyzing genuine features of EAP learners’ writings, EAP instruction studies have relied on indirect measurements of academic writing competence, such as standardized English test scores, academic status, or band scores. When these indirect methods are used, it is very difficult to identify specific difficulties of a certain learner group and estimate learning gains for individual instructional focus (Leung, Lewkowicz, & Jenkins, 2016).

Accordingly, the purpose of the present study is to develop an EAP writing course for Korean postgraduate students based on the analysis of their writings. This customization process has led the instructor to implement a dual instruction mode (i.e., lecture plus conference) and adopt the consciousness-raising approach for teaching a variety of cohesive devices (i.e., conjunction, referencing, and shell noun). In addition, classroom materials have been tailored to the target learners as texts directly extracted from their writings or academic journal papers in their
discipline were often used as samples in the class. The effectiveness of this customized instruction is measured through a comparative analysis of pre- and post-instruction writings.

2. Previous Studies

2.1 EAP writing instruction

The primary goal of EAP programs is to help novice researchers acquire academic literacy, which is distinguished from general literacy and broadly defined as the linguistic and social competence to comprehend and articulate academic texts (Hyland, 2013; Wang, 2017). Academic literacy includes a complex set of language skills or cross-cultural insights that are required for success in academic communities, yet EAP education and research have focused primarily on academic writing because postgraduate students — the main beneficiary of EAP programs — are in great need of writing skills. First, they are often asked to write academically as course requirements (Woo, 2015). In addition, postgraduate students, as novice scholars, need to acquire strong academic writing competence to present research designs and findings in a logical, comprehensive, and persuasive manner (Flowerdew, 1999a). Moreover, academic writing skills are essential for publishing research papers and monographs, which play a critical role in the academic job market and research projects (Ganobcsik-Williams, 2004). Noting the significance of academic writing, researchers, educators, and policy makers in higher education have endeavored to provide a variety of EAP writing courses in their institutions (Cargill, 1996; Casanave & Hubbard, 1992; Storch & Tapper, 2009).

These EAP writing courses have primarily been guided by two different approaches: the general approach and the specific approach. The general approach understands EAP as “a common core of universal skills or language forms” (Hyland & Hamp-Lyons, 2002, p. 5), thereby making EAP courses across different regions and institutions more uniform and generic. In contrast, the specific approach gears the instruction towards the specific needs of certain academic communities and frequently follows their nomenclatures such as ‘research article’ and ‘lab report’ (Johns, 2003).

Although the general approach has notable logistic advantages such as finding capable instructors and administrating college-level interdepartmental programs, the specific approach has been argued to be better in accommodating the genuine characteristics of target learners (e.g., stages in academic pursuit, majors, and English writing proficiency) and tailoring the instruction and material to accurately mirror their educational needs. This is a very important advantage of the specific approach because the success of an EAP writing course is heavily
dependent on the degree to which the course addresses the problems and learning needs peculiar to the target students; therefore, many studies have noted that the specific approach is a more appropriate framework for EAP writing courses (Benesch, 1996; Flowerdew & Peacock, 2001; Hinkel, 2003; Reid, 2001).

Therefore, many EAP researchers have adopted the specific approach to develop EAP writing courses, and much effort has been exerted to customize the courses to specific learning needs. One form of effort is genre-based method, which, focuses on teaching lexical and grammatical resources for specific academic genres (e.g., Cheng, 2008; Cunningham, 2017; Hyland, 2004). Storch and Tapper (2009) developed such EAP writing program where international postgraduates students learned academic linguistic conventions and applied the knowledge to composing fundamental academic genres such as summaries, critical reviews and research proposals. Another form of customization effort is to design EAP writing courses to be more process-oriented. When an EAP writing instructor follows the writing processes of their students, the instructor is able to identify both common and individual difficulties in composing a certain type of text and provide timely and dialogic feedback by using multiple modes of draft discussion, such as student annotation, teacher scaffolding, peer reviewing and editing, and writing conferences (Badger & White, 2000). Lastly, many studies on customized EAP writing programs have shown the effectiveness of raising learners’ awareness of academic writing practices (Harmer, 2004; Silva & Brice, 2004; Swales, 1990). This consciousness-raising method often requests EAP students to analyze texts from their own disciplines and explore multiple features including textual patterns, authors’ intentions, rhetorical functions, and expectations from the discipline, both holistically and implicitly. This exploratory experience is known to promote both sensitivity and autonomy among the students (Hyland, 2013).

Despite these meaningful findings, salient limits exist when customizing EAP writing courses to the target student. In many studies, course development and material design were based on instructors’ personal insights and prior experiences, consequently rendering the EAP writing courses implicitly teacher-centered, rather than learner-centered. As a result, students become less satisfied with and have little reliance on EAP writing courses. For instance, Jin (2015) found, in her study of lexical verb use by three L1 Chinese novice researchers in Engineering, that all the participants questioned the effectiveness of university writing courses, evaluating them as providing “broad introduction to academic writing in the science discipline” (p. 25).
The participants, instead, put more trust towards alternative sources such as their supervisors or peer students in the lab.

Even when students’ levels and learning needs were taken into consideration for course development, little attention has been given to analyzing their writing samples and identifying recurring problems. Instead, previous studies have heavily relied on indirect measurements of academic writing competence, such as general/holistic evaluation and learners’ reports (Flowerdew, 1999b; Gosden, 1996; Hu, 2007; Storch & Tapper, 2009; Xudong et al., 2010). These general evaluations, however, are inappropriate for addressing complex and multidimensional difficulties that L2 English-speaking learners, who are the major beneficiary of EAP writing programs, face while producing academic writings.

Hinkel (2003) reveals that L2 learners’ academic writings “frequently rely on a limited lexical and syntactic repertoire that results in vague and less sophisticated prose relative to that of [L1 learners]” (p. 276). In addition, L2 English writers encounter cross-cultural dissimilarities in academic conventions (Leki & Carson, 1997) and have trouble abiding western academic writing practices, such as academic integrity (Currie, 1998; Hu, 2007; Sowden, 2005) and genre conventions (Bitchener & Basturkmen, 2006). Even after the EAP writing instruction, L2 English writers show a slow development rate (e.g., Knoch, Rouhshad, Oon, & Storch, 2015; Read & Hays, 2003). Although some areas, such as vocabulary, rhetorical expressions, and text structure, displayed measurable development, areas revolving around linguistic skills like fluency and grammatical accuracy showed little or no improvement (Shaw & Liu, 1998; Storch & Tapper, 2009; Xudong et al., 2010). Noting these unique and diverse difficulties that L2 learners have, due attention needs to be paid to designing EAP writing programs based on more comprehensive and diagnostic information of participating learners (Johns & Price-Machado, 2001).

Another limitation in addressing specific difficulties that EAP learners have is found in the measurement of instruction effects. Many studies employed a test–retest design, where writing development is gauged by using composition/band scores (e.g., Hu, 2007; Sasaki, 2007, 2009, 2011; Shaw & Liu, 1998; Storch & Tapper, 2009; Woo, 2015; Xudong et al., 2010). The problem with band scores — regardless of their scope — is that they tend to coarsely mix up several features of writing under a single rubric (Purpura, 2004). Considering the complex nature of writing competence, simple increases or decreases in band scores offer limited insights into which components of academic writing competence have improved, making it difficult to measure how effective each instructional component is (Goulden, 1994). To date,
few studies on EAP writing instruction have attempted to analyze pre- and post-instruction learner writings based on the instruction contents. If such in-depth analyses, which are already common in the body of research on genuine features of academic texts such as logical moves, rhetorical conventions, and metadiscourse markers (e.g., Hyland, 2005), had been more frequently implemented when evaluating EAP writing courses, EAP professionals could have better understood important issues in EAP writing pedagogy, such as specific difficulties for L2 English writers, effective teaching and learning techniques, and developmental sequences of EAP writing competence.

This study addresses these research gaps — a) absence of EAP course design based on the in-depth analysis of learner performance and b) indirect measurement of improvements in target learners’ academic literacy — by analyzing the participants’ academic writings and applying the results to development as well as the assessment of an EAP writing program. To be more specific, the present study identifies text cohesion as one of the most problematic areas found in the writings that novice researchers in the civil engineering produced, introduces the development of a customized curriculum on text cohesion for the target learners, and presents their improvements measured by analyzing structural and functional features of each and every cohesive marker in their pre- and post-instruction writings.

2.2 Cohesion in academic writing

Structures of written texts have been analyzed in terms of two important constructs: coherence and cohesion. Although text coherence and text cohesion contribute to each other in a variety of ways (e.g., Lorenz, 1999), the former is distinguished from the latter by the degree of concreteness and the range of scope. In a broad definition, text coherence is related to discourse-level unity where “the elements of the message are seen to be connected, with or without overt linguistic connections between those elements” (Brown & Yule, 1983, p.224) and defined as “the degree to which concepts and relations that underlie the surface text are mutually relevant” (Kern, 2000, p. 80). On the other hand, text cohesion is more concerned with linguistic markers (Brown & Yule, 1983), which refer to “surface-level patterns like referential pronouns and demonstratives” (Tardy & Swale, 2009, p. 568).

Text cohesion has been of great relevance in the EAP discipline, as a single academic paper involves a number of cohesive domains “where the INTERPRETATION of some element in the discourse is dependent on that of another” (Halliday & Hasan, 1976, p. 4). Building these interpretational links that organize a lengthy text in a connective manner, cohesive devices
guide the reader to arrive at a certain interpretation intended by the author, “pointing out topic shifts, signaling sequences, cross referencing, connecting ideas [and] previewing material” (Hyland & Tse, 2004, p. 158). Therefore, the process of writing academic papers requires the author to unceasingly consider “the range of possibilities that exist for linking something with what has gone before” (Halliday & Hasan, 1976, p. 10) and to determine whether and which cohesive devices to use.

According to the pioneering work by Halliday and Hasan (1976), cohesion is achieved by five major types of cohesive devices — conjunction, reference, lexical cohesion, substitution, and ellipsis, yet many EAP studies have been conducted on three of them, namely, conjunction (e.g., Lee, 2004; Lorenz, 1999), reference (e.g., Oh, 2009; Petch-Tyson, 2000), and lexical cohesion (Aktas & Cortes, 2008; Gray, 2010). Conjunctions create cohesion by “[expressing] certain meanings which presupposes the presence of other components in the discourse” (Halliday & Hasan, 1976, p. 226). An exhaustive list of these discourse structuring meanings is provided in Halliday and Matthiessen (2014, p. 612). The authors discretely and semantically categorized the meanings of conjunctions into three major semantic types — i.e., elaborating, extending, and enhancing — which are further branched into nine sub-types: appositive and clarifying; additive, adversative, and varying; matter, manner, spatio-temporal, and causal-conditional. Alongside this functional semantic classification, which focuses on conjunctive meanings, structural classification has been also influential wherein conjunctions are categorized by structural properties of connected components (Celce-Murcia & Larsen-Freeman, 1999), namely, coordinate conjunctions (e.g., and), subordinate conjunctions (e.g., when), correlative conjunctions (e.g., either ... or ...), and conjunctive adverbs (e.g., however). Both types of classification have been considered in the present study because they provide a comprehensive basis of conjunctions on which a variety of difficulties that L2 learners experience can be addressed.

Another contributor to textual cohesion is reference devices, which link to a preceding or following notion, with one such device being textual references (Halliday & Hasan, 1976). When the author wants to mention once again an element that has been previously mentioned and thus has a given-information status, there are three possible types of textual reference — namely, personal pronouns (e.g., it), demonstratives (e.g., this/that), and the definite article the (Reid, 1992; Swales & Feak, 2004). The choice of a particular reference pertains to several important aspects in academic writings. For example, the choice between proximal (i.e., this and these) and distal demonstratives (i.e., that and those) is often related to the writer’s two-
fold evaluation of the referent: “1) the relative amount of information that the [writer] presumes the [reader] to have with respect to the referent and 2) the relative importance of the referent itself to the [writer]” (Strauss, 1993, p. 404). Such evaluative and interactive functions of textual references guide readers to give selective attention to novel and important notions and ultimately “grasp the significance of particular information in the way the writer intends” (Hyland, 2005, p. 76).

Along with conjunctions and references, lexical cohesion — i.e., text continuity established by the choice of certain words — has been a central issue in EAP research. In particular, the focal attention has been placed on shell nouns, which “enclose or anticipate the meaning of the preceding or succeeding discourse” (Aktas & Cortes, 2008, p. 3). The following excerpt depicts how the shell noun “This process” encloses the information in the preceding sentence.

(1) A t-test is applied to test for a difference in the mean degree of risk reduction. This process is conducted separately for each risk proxy.

(Adopted from Aktas & Cortes, 2008, p. 11)

The importance of shell nouns has been acknowledged in many EAP studies (e.g., Aktas & Cortes, 2008; Petch-Tyson, 2000; Schmidt, 2000). Since academic writings often contain complex information developed over a stretch of discourse compared to other written genres, it is essential for the writer to “[condense] the content of previous propositions into a nominal phrase which can then be included in new propositions, thus creating a rhetorical effect of brick-building” (Petch-Tyson, 2000, pp. 45-46). When this process of “encapsulating or packaging” (Francis, 1994, p. 86) is absent or too general, textual cohesion becomes obscured, as in the following “sloppy use of this” (Petch-Tyson, 2000, pp. 61-62):

(2) A lot of people are enrolled in a political party because that party is “the one who could help them”, it is always difficult to know exactly who believes in their party and who expects to profit by it. This is also made clear very early to the people and many political parties gain a lot of votes thanks to that situation. (French-speaking learner)

(3) Consider scientists lacking any source of imagination whatsoever. This consideration is completely out of the question. (Swedish-speaking learner)

The aforementioned frame of cohesive devices has been extended to the analysis of academic texts written by L2 learners of English. This line of research has identified idiosyncratic
features in their academic writings, including the limited repertoire of cohesive devices (Hinkel, 2001; Lu, Li, & Ottewell, 2016); the overuse of certain devices (Green, Christopher, & Kam Mei, 2000; Shaw, 2009); and semantic and syntactic deviations from native norms (Gardezi & Nesi, 2009; Lee, 2004; Oh, 2009). As will be noted later, the participants in the present study displayed similar problems. The present study, however, aims to further this line of research by applying the diagnosis into an actual EAP program and examining the improvements in the use of cohesive devices via the comparative analysis of pre- and post-instructional writings.

3. METHOD

3.1 Participants

An EAP writing course, entitled Technical Writing Course for Engineering Graduate Students, was developed for graduate students in the department of civil engineering. The class consisted of four MA students and two Ph.D. students, but the present study focuses only on the four MA students for the following reasons. First, the MA students paid special attention to the design of the instruction; therefore, the EAP writing course was more customized to the MA students. Second, the MA students had received little or no EAP writing instruction before and thus had a clean slate when learning the instructional contents. Therefore, whatever improvement was observed during and after the course, the instruction was most likely a deducible cause for that progress. Finally, the four MA students showed homogenous demographics, i.e., L1 Korean speakers in their 20s.

3.2 Instruction

3.2.1 Preparatory stage: learner writing analysis

The course objective was to help the students enhance academic writing competence and produce a research paper that most suits the professional norm of the civil engineering academia. To this aim, the instructor first analyzed the students’ written samples to categorize frequent errors and identify the deficits in their academic writing competence. The writing samples were three- to five-page research paper which reported their recent research or provided an overview of their research areas. Students handed in these works in February, one month before the course started. As the writings were redrafted by the instructor, it was observed that many corrections occurred around textual cohesion. While every student had
little trouble writing individual grammatical sentences in English, they displayed biased over-
or underuse of certain cohesive markers:

- Overuse of certain conjunctions (e.g., and, but, so, therefore)
- Overuse of sentence-initial coordinate conjunctions (e.g., And the researcher …)
- Underuse of sentence-medial conjunctions (e.g., The results, however, revealed …)
- Underuse of demonstrative pronouns and shell nouns (e.g., this approach, this method)

These unnatural usages of cohesive devices are detrimental to academic writings in the target discipline, i.e. civil engineering. Hyland (2013, p. 106) identified that a major component of academic writing in science and technology is “activity-based skills” such as describing procedures, defining objects, and planning solutions. This convention applies to academic writings in civil engineering. For example, research in civil engineering often suggests a mathematical model that makes the best fit to solve identified problems. This modeling is an intricate process, involving frequent references to previously mentioned procedures, identification of each symbol in equation, and validation rationale. These activities can be successfully performed only when cohesive devices are effectively employed, as shown in the following except from a work of civil engineering experts:

The state of $E_{s,i}$ is defined as $E_{s,i} = 1$ if \{E_{s,Pa(i)} = 1 \cap \{C_i = 1\} = 0$

Otherwise where $E_{s,Pa(i)}$ defines the state of the SPE node that is parent to $E_{s,i}$; $E_{s,i}=1$ indicates that the node is in the survival state and $E_{s,i}=0$ indicates its failure (we use this Boolean notation throughout this paper). Thus, for a series system, the BN formulation takes the form shown in Fig.8a. The state of node $E_{s,1}$ is equal to the state of node $C_1$. $E_{s,2}$ is in the survival state only if $E_{s,1}$ is in the survival state and $C_2$ is in the survival state. This pattern continues such that $E_{s,N_c}$ is in the survival state only if both $E_{s,N_c-1}$ and $C_{N_c}$ are in the survival state. Consequently, the state of $E_{s,N_c}$ describes the state of the SPS (i.e., it indicates whether all components in the MLS have survived) and, therefore, that of the series system. The state of node $S_{sys}$ is equal to the state of $E_{s,N_c}$ in Fig.8a (Bensi, Der Kiureghian, Straub, 2013, p. 204).

This one paragraph-long excerpt contains a number of cohesive devices such as conjunctions (and, thus. only if, both X and Y, consequently, therefore), references (the, its, this, that), and
other cohesive devices (semi colon, i.e.). In addition, other expressions (e.g., is parent to, is equal to, indicates, in Fig.8a) also contribute textual cohesion. Given this important role of cohesive devices in civil engineering, a variety of cohesive features were instructed under a specific course module and teaching methods.

3.2.2 Course organization: alternation of two instructional modes

During the instruction period, two different teaching modes were complementarily used: a bi-weekly lecture session and a monthly individual conference. A single phase consisted of two lecture sessions and one individual conference in-between. Such a dual mode was intended to conduct formative evaluation of the students’ progress in a repetitive and personal manner and (re)design the forthcoming class to be more customized to their unique problems and improvements. The major objective of the lecture mode was to teach academic conventions for cohesion while individual conference sessions aimed to provide dialogic and timely reaction to students’ emerging strengths and weaknesses.

This dual mode revolved around the monthly written assignment that the learners handed in throughout the semester. It was a three- to five-page semi-research paper on major topics in their discipline such as annual bridge maintenance prioritization, lifeline networks against natural hazards, and Bayesian parameter estimation. The instructor analyzed the assignment to identify cohesion-related errors that the learners commonly and frequently produced. Some notable errors were presented as materials for group- or whole-class discussion in a lecture session, in attempt to train students to notice the problem and collaboratively develop possible solutions. During the conference sessions, the instructor provided more customized feedback to each learner by explicitly identifying the actual errors that the learner repeatedly produced in the assignment drafts and highlighting relevant EAP knowledge or skills that had been taught in the lecture sessions. This helped the learners to become aware what their problems are and how to resolve them.

3.2.3 Teaching method: consciousness-raising approach

The aforementioned problems that the learners had in academic writing — i.e., overuse or underuse of certain cohesive markers — are, in fact, common even among advanced L2 learners of English (Crewe, 1990). This problem has been frequently attributed to lack of awareness: not only are L2 learners unaware that there are multiple, competing ways to express a particular cohesive meaning, but they are also insensitive to genre- or domain-specific features in selecting the most appropriate one. Therefore, the consciousness-raising approach
(Swales, 1990) was employed as the underlying principle of the instruction, and a variety of consciousness-raising tasks were developed from the written assignments and journal article samples.

These consciousness-raising tasks were expected to “promote learner awareness and autonomy” (Hyland, 2013, p. 107) and to induce learners to explore many cohesive devices under certain discourse contexts. This effect seems significant to the teaching of textual cohesion in academic writings, given the following two. First, academic writing is a “non-linear, exploratory, and generative process whereby writers discover and reformulate their ideas” (Zamel, 1983, p. 165), which demands the author’s conscious and constant efforts to improve the text. Second, L2 learners unconsciously, and thus repeatedly, make similar types of cohesion-related errors (Yoon, 2006). Only when they become aware and conscious of appropriate selection among a number of cohesion markers, the repeated errors can be avoided.

Consciousness-raising was guided through the two phases: awareness of problems and awareness of solutions. First, the learners were provided a text which had been written by one of them. Then, they were told that the text had a problem in cohesion and asked to identify what the problem is. Exploring diverse aspects of textual cohesion and referring to scaffolding cues (e.g., types and locations of errors), the learners usually succeeded in figuring out the problem. Second, the learners were requested to correct the identified problem. In this task, they were encouraged to examine various alternatives for enhancing textual cohesion, which was intended to increase their awareness of multiple ways to organize ideas and concepts with the propositional meanings maintained. Figure 1 provides an example of consciousness-raising activities.

[Exercise] Change the function of conjunction: from additive to spatio-temporal.

We need to introduce some set operation rules such as union and intersections, and also need to understand the operations of probabilities in dependent and independent situations.

- Step 1. Split the sentence into two.
- Step 2. Take out also from the sentence.
- Step 3. Insert a more appropriate conjunction in the right location.
Figure 1: Consciousness-raising Activity on Conjunctive Function

The sample sentence, which was extracted from a student’s assignment, has several errors in
textual cohesion. The instructor asked the learners to detect and correct the errors in-class.
Presenting examples from the written assignments that the students handed in, instead of those
from ESL/EFL writing textbooks, rendered course contents more relatable and engaging to the
students and led them to pay a focal attention to the consciousness-raising tasks.

3.2.4 Instructional contents

The instructor provided four lecture sessions on cohesive devices under three lecture themes,
namely smooth transition, inter-paragraph transition, and old information reappearing
 technique (See Table 1).

Table 1: Curriculum Organization and Topic Coverage Overview

<table>
<thead>
<tr>
<th>Date</th>
<th>Theme</th>
<th>Lesson content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 26th</td>
<td>Smooth transition 1</td>
<td>• Structural category of conjunctions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(coordinate, subordinate, correlative, and adverbial)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Functional category of conjunctions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(adversative, causal, additive, manner, etc.)</td>
</tr>
<tr>
<td>Apr 9th</td>
<td>Smooth transition 2</td>
<td>• Connection level of conjunctions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Frequently occurring errors regarding connection levels</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conjunction location (initial, medial, and final)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Conjunction function: usage practice</td>
</tr>
<tr>
<td>Apr 30th</td>
<td>Inter-paragraph transition</td>
<td>• Definition of new and old information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Examples of smooth transition between new and old information</td>
</tr>
<tr>
<td>May 14th</td>
<td>Old information reappearance</td>
<td>• Shell noun: definition and types</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• [this/that+ shell noun] combination: usage patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Pronoun: types and usage patterns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Peer review exercise</td>
</tr>
</tbody>
</table>

The first lesson on cohesion, conducted on March 26, focused primarily on introducing the
structures and functions of conjunctions. These two subtopics were taught to address the
problem of limited conjunction repertoire. The instructor offered a range of alternative options
to the students, illustrating detailed usage patterns including location, connection level, and
function. This structural-functional approach classifies conjunctions into four groups:
coordinate conjunctions, subordinate conjunctions, correlative conjunctions, and conjunctive
adverbs (Celce-Murcia & Larsen-Freeman, 1999; Hacker, Sommers, Jehn, Rosenzweig, & Van
Horn, 2004). For each conjunction type, its structural properties and examples were provided
as a referral resource that the learners can draw out to escape the narrow loop of repertoires
while drafting or editing their papers (See Table 2).
After conducting two subsequent lecture series on conjunction, the instructional focus was moved onto referring device usage, which is directly related to tackling the underuse of the demonstrative pronoun and shell noun (e.g., *this approach* and *this method*).

### Table 2: Structural-functional Classification of Conjunctions

<table>
<thead>
<tr>
<th>Type</th>
<th>Coordinate conjunctions</th>
<th>Subordinate conjunctions</th>
<th>Correlative conjunctions</th>
<th>Conjunctive adverbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural-functional property</td>
<td>• Used between two independent ideas within the sentence (S1 and S2)</td>
<td>• Used between a main idea and a subordinate idea within the sentence (S1 and S’1)</td>
<td>• Two features must appear in a sentence structure</td>
<td>• Used in <em>compound, complex, compound-complex, and simple</em> sentences (i.e., having a single independent clause)</td>
</tr>
<tr>
<td></td>
<td>• Used in <em>compound</em> sentences (i.e., having two independent clauses)</td>
<td>• Used in <em>complex</em> sentences (i.e., having subordinate clauses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>and, but, or, nor, for, so, yet</td>
<td>after, although, as, as if, because, even though, if, in order that, …</td>
<td>either (a) or (b), neither (a) nor (b), both (a) and (b), not only (a) but also (b)</td>
<td>accordingly, also, anyway, besides, certainly, consequently, …</td>
</tr>
</tbody>
</table>

### 3.3 Data collection

The researchers collected two essays from each of the participating learners over the course of the semester — one before the instruction and the other after the instruction — to determine the instructional effects on the learners’ use of cohesive devices. The former was a three-page paper explaining their field of interest to non-majors, but the latter was a 13- to 17-page research paper that each student wrote on the research project conducted in their laboratory. Eight essays in total were collected from the four students and subjected to analysis. The pre-instruction written sample were 3,903 words, while the post-instruction written sample was 11,113 words.

It should be acknowledged that the pre-instruction and the post-instruction written sample did not exactly correspond in genre. Such discrepancy seems inevitable because the learners did not have L2 academic literacy to handle a 10-page research paper in the beginning stage of the instruction. As complementary measures for this discrepancy, individual interviews between the instructor and the learners were conducted to delve deeper into the intention of the novice writers in the selection of particular cohesive devices. The interview was semi-structured
according to the results of the writing analysis. The instructor focused on evident improvements and/or lingering problems, asking questions such as:

(a) Were there any conjunctions you tried to avoid using in the post-instruction essays?
(b) On what basis did you choose to insert the cohesive device?

3.4. Data coding and analysis

Cohesive devices in the learners’ writings were manually coded under the following criteria, which were adapted from Halliday and Hasan (1976) and Halliday and Matthiessen (2014):

- Expressions used as cohesive devices: e.g., *the*, *him*, and *however*
- The type of cohesive devices
  - Conjunctions: coordinate (e.g., *and*), correlative (e.g., *not only ... but also* ...), subordinate (e.g., *when*), and conjunctive adverbs (e.g., *however*)
  - References: definite article *the*, demonstratives (e.g., *this* and *that*), and personal pronouns (e.g., *he* and *it*)
  - Shell nouns: nouns which lexicalize their immediate context (e.g., *interregional income disparities ... have surged only in the past two centuries. This trend ... [Gray, 2010, p. 170]*)
- Error description: *only for inappropriate use of cohesive devices*

For conjunctions, additional coding was conducted to note their location and function, which was highly relevant to the lessons on conjunctions:

- Location: sentence-initial (e.g., *However, the man revealed that*...), sentence-medial (e.g., *finds the weakest structure, and analyzes*), and sentence-final (e.g., *I like him though*.)
- Function: appositive (e.g., *in other words*), clarifying (e.g., *in short*), additive (e.g., *moreover*), adversative (e.g., *but*), varying (e.g., *instead*), matter (e.g., *in that respect*), manner (e.g., *likewise*), spatio-temporal (e.g., *finally*), and causal-conditional (e.g., *therefore*)

Both of the researchers in the present study participated in the coding process to ensure that every writing sample went through the inter-rater analysis. When the two rates differed in
categorizing certain cohesion devices, they discussed the issue to arrive at a mutual agreement. This cross-coding procedure identified 311 non-error and 117 error instances of cohesive devices in the pre-writings and 735 non-error and 167 error instances in the post-writings.

For a comprehensive and multi-dimensional analysis, the coding data were input into MS Excel (ver. 2013) spreadsheets and analyzed primarily via the pivot table function, which allowed the researchers to easily compute absolute frequencies and percentages of different types and subtypes of cohesive devices. The relative frequency of each cohesive device was then computed in terms of parts per thousand (ppt) by using the total number of words in the pre-writings (N=3,909) and the post-writings (N=11,113). This normalizing process allowed the researchers to examine which (usages of) cohesive devices the learners more or less frequently produced in the post-writings.

4. Findings

As previously mentioned about the diagnostic phase, the researchers identified the following cohesion-related problems in the pre-instruction writings:

- Overuse of certain conjunctions
- Overuse of sentence-initial coordinate conjunctions
- Underuse of sentence-medial conjunctions
- Underuse of demonstrative pronouns and shell nouns

In what follows, it is examined whether and to what extent the instruction, which was developed to address cohesive devices in academic writing, was effective.

4.1 Conjunctions

The comparative analysis of non-error conjunctions between the pre- and post-instruction written accounts revealed that the learners used conjunctions less frequently in the post-writing. The relative frequency of conjunctions in the pre-writings was 40.23 ppt, compared to 25.56 ppt in the post-writings (see Table 3). The Chi-square test conducted based on the total word tokens also confirmed this gap as a significant decrease in the learners’ use of conjunctions: \( \chi^2(df) = 21.656, p < .001, \text{ odds ratio} = 1.60. \)
Table 3: Frequency Distribution across Subtypes of Conjunctions in Pre- and Post-writings

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre-writing (N=3,909)</th>
<th>Post-writing (N=11,113)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Abs.</td>
<td>Rel.</td>
</tr>
<tr>
<td>CRD.</td>
<td>53</td>
<td>13.58</td>
</tr>
<tr>
<td>SUB.</td>
<td>45</td>
<td>11.53</td>
</tr>
<tr>
<td>CAD.</td>
<td>58</td>
<td>14.86</td>
</tr>
<tr>
<td>CRR.</td>
<td>1</td>
<td>0.26</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td>40.23</td>
</tr>
</tbody>
</table>

Note. Abs = Absolute frequency; Rel = Relative frequency; CRD = CooRDinate conjunction; SUB = SUBordinate conjunction; CAD = Conjunctive ADverb; CRR = CoRRelative conjunction.

For subtypes of conjunctions, significant decreases were observed with coordinate conjunctions (from 13.58 to 5.40 ppt: \( \chi^2[df=1]= 25.788, p < .001, \text{ odds ratio} = 2.53 \)) and conjunctive adverbs (from 14.86 to 9.99 ppt: \( \chi^2[df=1]= 6.113, p < .05, \text{ odds ratio} = 1.49 \)), while the frequency changes of the other types of conjunctions were found to be insignificant (for subordinate conjunctions, \( p = .45 \); for correlative conjunctions, \( p = .44 \)).

Regarding the significant change in the frequencies of coordinate conjunctions, the most noteworthy pattern was the drastic decrease of sentence-initial coordinates (see Table 4). The relative frequency of sentence-initial coordinates in the pre-writings was 4.09, while that in the post-writings was 0.45 (\( \chi^2[df=1]= 27.495, p < .001, \text{ odds ratio} = 9.13 \)).

Table 4: Frequencies of Sentence-initial and Medial Conjunctions in Pre- and Post-writings

<table>
<thead>
<tr>
<th>Location</th>
<th>Pre-writing</th>
<th>Post-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Initial</td>
<td>Medial</td>
</tr>
<tr>
<td>CRD.</td>
<td>16</td>
<td>4.09</td>
</tr>
<tr>
<td>SUB.</td>
<td>14</td>
<td>3.58</td>
</tr>
<tr>
<td>CAD.</td>
<td>47</td>
<td>12.02</td>
</tr>
<tr>
<td>CRR.</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>19.70</td>
</tr>
</tbody>
</table>

In the pre-writing, the learners frequently placed coordinate conjunction (e.g., so, but) at the initial position of a sentence, as in (4) and (5):

(4) … is inevitable. So we introduce one of a method … (Pre-writing; Learner A)
(5) … has calculated. But if it becomes the problems … (Pre-writing; Learner C)
This usage pattern is hardly the best lexical choice, especially for the genre of academic writing, as these conjunctions list different ideas in a simple linear fashion, without coherently specifying the logical relationship among the ideas. However, after the instructional treatment, this problem was fairly solved: the relative frequency of initial coordinates significantly decreased. The use of academically less appropriate coordinate conjunctions seldom appeared, and most of the coordinate conjunctions in the post-writings were sentence-medial, as in (6) and (7):

(6) … not as same as my assumption so one can may say … (Post-writing; Learner A)
(7) … stable declining tendency as it should be, but the declining speed was not always uniform (Post-writing; Learner C)

This finding was corroborated by the interview data. The following excerpts demonstrate that the learners have raised awareness towards their less effective use of initial coordinates:

(8) Learner A: Since the instructor told me that I used this kind of expression (i.e., initial coordinate) too often, I tried not to use it when writing articles.
(9) Learner D: After taking this course, I tried to avoid using conjunction and start with simple sentences. [Both translated by the researchers]

Both (8) and (9) indicate that the instructor’s constant feedback helped the learners notice the erroneous usage of conjunctions and become aware of the appropriate solution. Consequently, the learners tried a variety of conjunctions (or other cohesive markers) when connecting clauses and sentences.

Thanks to their increased awareness and follow-up efforts to consciously substitute the non-academic coordinates with alternative expressions, the type frequency of conjunctive adverbs significantly increased from 26 to 42, as 28 conjunctive adverbs that were not used in the pre-writings started to appear in the post-writings. In sum, the instruction led the learners to use coordinate conjunctions less frequently whereas their repertoire of conjunctive adverbs seemed to increase. This substitution pattern was found to be more evident for certain functions. Table 5 shows absolute frequencies and percentages of coordinates, subordinates, and conjunctive adverbs for the five most common functions — namely, causal-conditional, spatio-temporal, additive, adversative, and appositive.
Table 5: Absolute Frequencies and Percentages of Subtypes of Conjunctions for Five Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Pre-writing</th>
<th>Post-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CRD</td>
<td>SUB</td>
</tr>
<tr>
<td>Causal-conditional</td>
<td>16 (29.1)</td>
<td>26 (47.3)</td>
</tr>
<tr>
<td>Spatio-temporal</td>
<td>4 (16.7)</td>
<td>10 (41.7)</td>
</tr>
<tr>
<td>Additive</td>
<td>31 (79.5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Adversative</td>
<td>2 (13.3)</td>
<td>6 (40.0)</td>
</tr>
<tr>
<td>Appositive</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>53 (35.8)</td>
<td>42 (28.4)</td>
</tr>
</tbody>
</table>

Note. The first number in each slot is the absolute frequency, while the number in the below parentheses is its percentage to the total frequency of the function.

* Since there was only one case where a correlative conjunction used for these functions, that subtype was excluded from the table for clear demonstration, though included in the sum of the additive conjunctions in the post-writings.

It is noteworthy that the most frequent function, i.e., causal-conditional, made greater use of subordinate conjunctions (from 47.3% to 58.3%) and less use of coordinate conjunctions (from 29.1% to 12.5%) in the post-writings. A similar pattern was observed for the second most frequent function, i.e., spatio-temporal: subordinate conjunctions increased (from 41.7% to 52.8%), but coordinate conjunctions decreased (from 16.7% to 8.3%). For example, the absolute frequencies of the causal-conditional subordinates *since* and *if* increased by 6 and 7 tokens respectively, while that of the causal-conditional coordinate *so* decreased by 10 tokens. Likewise, the absolute frequency of the spatio-temporal subordinate *when* increased by 18 tokens, while the sole spatio-temporal coordinate (i.e., *and*) did not show such drastic increase, with its absolute frequency increasing only by two tokens. This finding reveals that the learners used a more diverse repertoire of conjunctions which display very specific functions rather than relied on generic meanings of coordinate conjunctions that broadly describe the relationship between phrases or sentences. This may indicate that the learners began to reflect their blossoming awareness toward a variety of inter-sentence relationships, beyond simple and visible ones.
4.2 References

The comparative analysis of references, including the definite article *the*, personal pronouns (e.g., *it*), and demonstratives (e.g., *this*), identified that the definite article was used much more frequently in the post-writings. The relative frequency increased from 17.91 to 25.56 (see Table 6). The Chi-square test confirmed this increase as significant: $\chi^2(df=1) = 7.351, p < .01$, odds ratio = 0.70.

Table 6: Absolute and Relative Frequencies of References

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre-writing</th>
<th></th>
<th>Post-writing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Abs.  Rel.</td>
<td>%</td>
<td>Abs.  Rel.</td>
<td>%</td>
</tr>
<tr>
<td>Definite Article</td>
<td>70  17.91  51.9</td>
<td>284 25.56  73.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Pronouns</td>
<td>37  9.47  27.4</td>
<td>45  4.05  11.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demonstratives</td>
<td>28  7.16  20.7</td>
<td>60  5.40  11.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>135 34.54 100</td>
<td>389 35.01 100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Another interesting finding was that, as the use of the definite article increased, the use of the other types of references decreased. The relative frequency of personal pronouns decreased from 9.47 to 4.05 ($\chi^2(df=1) = 15.625, p < .001$, odds ratio = 2.35), and that of demonstratives decreased, although not significantly so, from 7.16 to 5.40 ($\chi^2(df=1) = 1.545, p = 0.213$, odds ratio = 1.33). These results indicate that, when referring to a previously mentioned concept, the learners become more reliant on the definite article rather than personal pronouns and demonstratives. This change should be viewed as appropriate because the pre-writings showed many problematic cases where the reference of a personal pronoun or a demonstrative was not clear:

(10) To improve prediction and inference, first you have to know and study the variety of methods to make predictive model. There are already lots of tools however this subject is start with the advent of computers, in other words it is a recently developed area (Pre-writing; Learner A)

(11) And then from the failure probabilities of the systems like pier, deck and bearing joint etc., we can finally draw the probability of the whole bridge. This is the basic concept of probability based analysis and it is foundation rule throughout various application of reliability engineering (Pre-writing; Learner C)

In (10-11), it is unclear which entity the underlined references, *it* and *this*, refer to. In contrast, the construction of *the* + NP does not evoke such a problem, as the noun phrase clarifies which
constituent is being referred to and provides a clearer connection than personal pronouns or demonstratives. However, the heavy reliance on the definite article brought about other side effects: the learners produced a number of errors regarding the use of the in the post-writings (see Table 7). When compared to the other types of references, which had few errors in the post-writings, the frequency of erroneous the was still considerable.

Table 7: Absolute Frequencies of Legitimate and Erroneous Uses of References

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre-writing</th>
<th>Post-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-error</td>
<td>Error</td>
</tr>
<tr>
<td>Definite Article</td>
<td>70 (17.91)</td>
<td>66 (16.88)</td>
</tr>
<tr>
<td>Personal Pronouns</td>
<td>37 (9.47)</td>
<td>9 (2.30)</td>
</tr>
<tr>
<td>Demonstratives</td>
<td>28 (7.16)</td>
<td>6 (1.53)</td>
</tr>
</tbody>
</table>

Note. The first number in each slot is the absolute frequency, while the number in the next parentheses is its relative frequency.

The prevalence of the-related errors might suggest that instruction on cohesive devices was of little effect in helping learners use the definite article in a grammatically correct way. Most errors with the definite article were related to adding an unnecessary the to a concept that appeared for the first time, as in (12), and to a concept in which the referent is unclear, as in (13):

(12) Another difficulty arises from the multiple conflicting objectives in optimization problems. (Post-writing; Learner B)

(13) Using Bayesian parameter approach, however is not necessary to use to express the probabilistic model considering the given condition at the research. (Post-writing; Learner A)

This problem was not really unexpected, as a number of studies on second language learners of English have presented the definite article the as one of the most difficult units in English (Dulay, Burt, & Krashen, 1982; Liu & Gleason, 2002). In fact, the definite article the is not easy either to learn or to teach. First, this linguistic unit is not restricted to a single semantic and/or pragmatic feature. According to Hawkins (2015), the definite article the is associated with at least six representative usage types: (a) anaphoric use (e.g., I bought a book. I want to give the book to my mom); (b) associative anaphoric use (e.g., Kate was driving a car, but the engine suddenly broke down); (c) immediate situation use (e.g., Pass me the bucket, please); (d) larger situation use (e.g., the town clerk [in a local newspaper]); (e) noun phrases with explanatory modifiers (e.g., Bill was amazed by the fact that there is so much life on earth);
and (f) noun phrases with non-explanatory modifiers (e.g., *We share the same secrets*). As the examples show, only the first two usage types — anaphoric and associative anaphoric use — are relevant to textual cohesion, whereas the other four usage types are far less relevant. Therefore, the instruction on textual cohesion alone might have played a very limited role for teaching the definite article *the*.

Another difficulty for using the definite article *the* is found in applying the concept of definiteness or identifiability to (virtual) writer-reader interaction. The decision as to whether or not to use the definite article in front of a noun phrase should be based on both the writer’s and readers’ ability to identify what the noun phrase indicates. If the writer wants to use *the*, it should be ensured that readers are also able to identify the referent of the noun phrase. However, the awareness of readers seemed to be lacking when the learners used the definite article, as shown in the following responses to an interview question on the use of the definite article:

(14) Learner C: I use *the* when mentioning a word that has been mentioned once beforehand, but I do not put an awful amount of deep thought besides that.

(15) Learner D: I use *the* when I feel that the expression seems original and specific, and when I re-mention a term. [Both translated by the researchers]

This phenomenon highlights an important aspect of academic writing: academic writing is a highly interactive process where the writer should be aware of readers’ existence. The instruction in the present study, however, was limited in addressing this discourse feature of academic writing since it focused on providing linguistic resources that the learners can refer to when writing academic texts. This instructional limitation may suggest the need for a new dimension of customization: when teaching discourse-oriented linguistic units such as *a* and *the*, EAP writing courses should go beyond teaching generic academic norms and involve learners in interactive processes of writing by examining whether and to what extent students are discourse-oriented.

**4.3 Shell nouns**

It should be noted that references are used not only for previously mentioned nominal elements, but also for clausal or beyond-clausal contents. This function was frequently expressed in forms of “definite article/demonstratives + shell noun” (e.g., *this assumption*).
Table 8 shows the absolute and relative frequency of shell nouns preceded by either the definite article *the* or a demonstrative (e.g., *this* and *these*).

**Table 8: Frequencies of Shell Nouns for Its Preceding References**

<table>
<thead>
<tr>
<th>Type</th>
<th>Pre-writing</th>
<th>Post-writing</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>the</em> + Shell Noun</td>
<td>7</td>
<td>1.79</td>
</tr>
<tr>
<td>Demonstrative + Shell Noun</td>
<td>10</td>
<td>2.56</td>
</tr>
<tr>
<td>Others + Shell Noun</td>
<td>1</td>
<td>0.26</td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>4.60</td>
</tr>
</tbody>
</table>

Although the small increase in the relative token frequencies of shell nouns, from 4.60 to 4.86, was found to be insignificant ($\chi^2[1] = 0.0392, p = .843, \text{ odds ratio } = 0.95$), a drastic change was observed in the type frequency of shell nouns. The type frequency of shell nouns increased from 14 to 45, as the post-writings were much lengthier than the pre-writings. The list of shell nouns in student samples are shown below:

- **Shell nouns extracted from pre-writings:** analyses, area, criteria, decision, impact, kind, mechanism, method, model, modeling, phenomenon, process, suspicion, technologies
- **Shell nouns extracted from post-writings:** context, algorithm, analysis, application, approach, assumption, candidates, case, chronic ailment, comment, concept, declining speed, discrepancy, drawback, flexibility, fluctuation, form, idea, inaccuracy, incorporation, issue, issues, measure, method, methodology, mode value, model selection, observations, point of view, poor assumption, prior description, problem, procedure, process, results, sense, spectrum, suggested constraint, system-failure-sequence, tendency, tragedy, value, variance, work

In addition to the quantitative change, a qualitative change was observed in the use of shell nouns. The underlined shell nouns in the list above (e.g., *drawback* and *tragedy*) display evaluative and interpretive connotations and thus carry the writer’s subjective characterization of the preceding notion, as shown in the following excerpts.

(14) However such equivalent limit-state surface tend to be highly non-linear which makes FORM or SORM ineffective. To avoid *this problem*, in the original
paper of Lee and Song, authors introduced a dummy index. (Post-writing; Learner C)

(15) However, even advanced models may show lack of accuracy no matter how complicated procedures and how advanced techniques they may use. To overcome these drawbacks, research efforts have been made to develop probabilistic shear strength models (Post-writing; Learner A)

This qualitative change may indicate that the learners began to express their authorship as their repertoire of academic devices expanded. This may also mean that, after the customized instruction, the learners appeared to be more competent in academic writing — enough so to go beyond the mode of observation or description and step toward the mode of evaluation or validation.

5. Conclusion

The aim of this study was to develop an EAP writing program wherein the teaching of cohesive devices is customized to the context of L2 English-speaking postgraduates in civil engineering. The customization process was based on an in-depth analysis of pre-instruction writings. The results revealed marked improvements in the post-instruction writings, such as an expanded repertoire of cohesive devices, diverse structural patterns, and unambiguous references. Learners became more sensible in selecting the cohesive devices most appropriate for the context. This improvement allowed them to exert their authorship and make a meaningful transition from observer to evaluator. These findings highlight an important role of in-depth writing analysis that provides diagnostic information of the target learners and guides the instructor to design a tailor-made EAP writing course. When rendering an EAP writing course focused on specific problems that a target learner group shares, it is common to supply appropriate linguistic and rhetorical resources that the learners can use to remedy their problems. However, this supply-based approach is often inappropriate, especially when teaching L2 English writers an EAP component related to a variety of linguistic systems. For example, it was argued that the learners in the present study had trouble learning the definite article the because its usage pattern is multi-dimensional. Accordingly, EAP writing programs should be based on a more comprehensive understanding of linguistic properties and interlanguage systems. The present study also suggests that consciousness-raising is an effective teaching method for addressing specific problems among learners. Step-wise guidance using excerpts from learner essays was found to enhance the students’ awareness of
both problems and solutions. Nevertheless, additional set of effort should be made to help them aware of readers.

The present study, however, has several underlying concerns that need to be addressed in future studies. First, the limited number of the participants — although it allowed the researchers to conduct a thorough investigation — made it very difficult to generalize the findings to other teaching and learning contexts. The results would have been more reliable and generalizable if a greater number of participants from different academic disciplines had been included. Second, an emic perspective (i.e., the perspective of insiders) was not fully addressed as both researchers are professionals in applied linguistics, not civil engineering. It is advisable for further research to invite experienced scholars from a particular field to assess research papers written by novice writers in the same field. Finally, it would be interesting to track the long-term development of academic writing competence. Provided that improving EAP writing skills and acquiring a membership in certain academia are often life-long processes, the longitudinal investigation of the relationship between experiences of learning and practicing EAP writing skills, on the one hand, and EAP writing competence and academic achievements, on the other hand, would make a meaningful contribution to the academic writing research.

References


The Catalysts and Barriers of Learning Transfer in ESAP Writing Programs: Assessing Learners’ Perceptions via the LTSI

Zohreh Gooniband Shooshtari, Somaye Biparva Haghighi

English Language Department Shahid Chamran University of Ahvaz

Reid Bates

Louisiana State University, USA

Biodata

Zohreh G. Shooshtari is an assistant professor at the department of English language and Literature of Shahid Chamran university of Ahvaz, Iran. Her area of research interest includes Instructed second language acquisition, academic writing, and learning transfer. She has presented and published nationally and internationally on issues related to her main area of research interest.

Email address: zshooshtari@yahoo.com

Somayeh Biparva Haghighi has a PhD in Applied Linguistics and is an ESP/ESAP lecturer at Jondi Shapur University of Medical Sciences. She has published couples of papers in her areas of interests including SLA, Psycholinguistics, learning transfer, and ESP practices. She has also participated in several national and international language conferences and presented more than 15 research articles.

Email address: biparva_somayeh@yahoo.com

Reid Bates is the Jones S. Davis Distinguished Professor of Human Resource & Organization Development and is the Greater Houston Alumni Chapter Endowed Alumni Professor. He has won a number of research awards and has published over 150 manuscripts including peer-reviewed journal articles, book chapters, and technical reports. Reid Bates is a developer of
the Learning Transfer System Inventory (LTSI), a tool designed to improve the job application of workplace training.

Email address: rabates@lsu.edu

**Abstract**

This paper investigates how students learning English for Specific Academic Purposes (ESAP) assessed the four constructs of ability, motivation, work environment, and trainee characteristics that might inhibit or facilitate the learning transfer in discipline-specific academic writing programs. Following the current learner-centered approaches to learning transfer, we examined a comprehensive account of disciplinary specifications through a practice of collaborative planning. Following nonrandomized, purposive sampling techniques, 59 post-graduate students majoring in four different medical sciences were selected to participate in this research. As a diagnostic tool to identify the barriers and the catalysts to the act of learning transfer, the Learning Transfer System Inventory (LTSI) was administered. The analysis of the data revealed that transfer of writing outcomes will be enhanced if more consideration of work-related factors is embraced in higher education. The four groups of participants reported personal capacity, resistance to change, and supervisor sanction as the major impediments induced by the work-related construct. Learners’ positive assessments of all motivational factors and three ability factors suggested that a promising foundation for future educational planning exists if more institutional grounding is prearranged.

**Keywords**: academic writing; collaborative planning; discipline-specificity; learning transfer; the LTSI

**Introduction**

Academic writing has been a major focus for university students (Bacha, 2002; Shrestha & Coffin, 2012). Current trends in language teaching regard writing the hub of teaching and learning in higher education as it fulfills a range of purposes according to the various contexts in which it occurs. However, as Lillis and Turner (2001) argue, post-graduate students are sometimes supposed to write effectively even before starting the preliminary courses. In fact, two common beliefs have permeated language practices in English for Specific Academic (ESAP) contexts: students will acquire academic writing skills quite easily, and they will do it according to the expected norms (Whitehead, 2002). These assumptions are not always
observed because "most students find writing difficult and standards confusing" (Gimenez, 2008, p. 151).

To increase pedagogic effectiveness, professional practitioners have recently been encouraged to apply a range of theoretical and practical ideas to base their instruction and evaluations not only on generic and discoursal features and communicative skills of learners, but also on practices that address discipline-specific needs and expertise of students. Normally, such teaching and testing cases aspire to embrace the notion of specificity that emphasizes the literacy skills applicable to the principles and considerations of particular academic and professional communities (Hyland, 2002; Wardle, 2009).

Evolving specializations in jobs, organizations, and education have called for more specificity in academic literacy and hence in academic writing. Therefore, students need to have a greater discipline-specific linguistic and rhetorical flexibility, different writing tools and strategies, to obtain certain degrees of visibility in their professions and institutions via the specialization of writing (Bjork, et al. 2003). Within the domain of ESAP studies, there has been extensive research on the linguistic features of academic writing in recent decades (Bowler, 2009; Hyland, 2002; Hyland & Tse, 2005; Levy & Ransdell, 2013). Apparently, these studies share a crucial goal that is “to facilitate students’ successful navigation through an academic program in their given discipline” (James, 2010: 183). To achieve this goal, students must apply what they have learned beyond such ESAP courses; in other words, they must transfer their learned knowledge, which entails “prior learning affecting new learning or performance” (Marini & Genereux, 1995, p. 2). Thus, to evaluate how an ESAP course results in learning transfer is a serious concern.

There are few topics more fundamental to education than learning transfer. Transfer of learning involves an effective and ongoing practice of the skills and knowledge obtained through training by learners to other settings. Transfer may incorporate both maintenance of the same conduct and its generalization to new contexts (Larsen-Freeman 2013). Transfer occurs when the existing knowledge or skills affect the learning or performance of new skills or tasks. Research has sought to answer the question why learners often fail to engage with their instructed knowledge; however, there is little agreement among scholars about the nature of transfer, the extent to which it may occur, and its underlying mechanisms (Barnett & Ceci, 2002; James, 2014).
Promoting learning transfer from ESAP instruction poses a substantial challenge. A vast body of research findings indicates that learning may not predictably transfer and that its stimulation can be complicated (e.g., see reviews by Detterman 1993 and Haskell 2001). This complication is recurrently reflected in learners’ needs assessments that have identified numerous impediments faced by non-native speakers of English in English academic contexts (Bacha & Bahous, 2008; Evans & Green, 2007). Despite the complexity of learning transfer, evidence does exist to suggest that learning can transfer from ESAP instruction to other courses (James, 2006, 2010; Terraschke & Wahid, 2011).

Many current approaches on promoting learning transfer focus on structural, pedagogical and learner-centered elements (Holton, 2005; James, 2009; Marini & Genereux, 1995). In their overview of the main factors facilitating transfer of learning, Leberman, McDonald and Doyle (2006) assess three factors: the learner characteristics, the course design, and the workplace characteristics (or transfer climate). In a more comprehensive approach to evaluate the factors that influence learning transfer, Holton, Bates, and Ruona (2000) developed the Learning Transfer System Inventory (LTSI) to examine the specific issues affecting the transfer of learning process. Grounded in the Human Resource Development Research and Evaluation Model (Holton, 1996), the LTSI embraces sixteen factors that either assist or constrain learning transfer. These factors are organized in four sets: motivation factors, environment factors, ability/enabling factors, and trainee characteristics. The motivation, ability, and environment factors have a direct impact on individual performance, but the trainee characteristics first influence motivation and next individual performance.

Research studies done using the LTSI has validated the 16-factor structure of the questionnaire (Devos et al. 2007; Holton et al. 2000; Zamani et al. 2016), and presented evidence of the instrument’s criterion-related validity. Although the bulk of research employing the LTSI has refined the validity and psychometric stability of the subscales across different settings, few studies have examined whether the obtained results from the LTSI correlate with actual learning transfer.

Given the significance of academic writing practices and the diagnostic values of the LTSI in terms of revealing factors that influence learning transfer, our study sought to assess how the participants’ states of knowledge and skills were affected by the current collaborative approach toward discipline-specificity; secondly, a comprehensive understanding of individuals' perceptions of transfer catalysts and barriers was pursued via the LTSI.
Methodology

This study tended to conduct a detailed investigation of learning transfer from collaborative ESAP courses in medical sciences to authentic tasks that involved writing in professional contexts. We aimed to assess the relationship between students’ final writing performance and their perceptions of the influential factors that affected the transfer of learned academic writing skills; moreover, the facilitative or impeding factors to the transfer of instructed skills were scrutinized based on the introspective merits of the LTSI. Hence, our study tried to shed light not only on the descriptive facets of learning transfer but also on the explanatory factors. Accordingly, we posed the following research questions:

1. How did the collaborative approach toward discipline-specificity affect the process of learning transfer in postgraduate students of medical sciences?

2. To what extent do learners’ perceptions of the LTSI leaning-specific and learning-general constructs reveal the catalysts and barriers of learning transfer in academic writing practices?

Design

To answer the research questions, we set up a quasi-experimental study to check the facilitators and impediments that the students perceived for learning transfer from ESAP courses to authentic tasks. Through multiple sessions of discussion and consultation with specialized lecturers in these disciplines, a variety of writing tasks were selected to foster general and discipline-specific writing skills based on the schemes of Bailey (2006), Swales and Feak (2012), Stuart (2007), and Taylor (2011). These four references seemed to be congruent with the purpose and the status of current study as they openly address non-native students engaged in English academic writing. They include chapters that explain the writing process, from the heading to proof-reading. Furthermore, the textbooks are quite adaptable for both short and extended courses. However, we adopted some modifications to improve the fit of the frameworks to the education and sociological issues of this study.

Participants

This research was conducted in 2015-2016 at Jondi Shapur University of Medical Sciences (JSUMS), Ahvaz, Iran. Following nonrandomized, purposive sampling, we selected four groups of postgraduate students majoring in Dentistry, Pharmacology, Virology, and Speech
Therapy to participate voluntarily in this experiment (15 Pharmacology, 16 Dentistry, 15 Virology, and 13 Speech Therapy students). To decide on the disciplines of the participants, the documentation of Vice President of Research and Technology Development of JSUMS within the two last academic years was taken into account; the four nominated disciplines were the leading ones in publishing research articles in high impact journals worldwide.

All the participants had acquired around 15 credits of general and discipline-specific English courses in their undergraduate programs so we assumed that they were ready to take a voluntary structured writing course in English. The age range of the students and their gender are summarized in Table 1.

The second group of participants comprised specialized lecturers of each discipline; these lecturers were considered as a reference of collaboration through the procedures of material selection and were mainly selected according to their academic status by the departments and the postgraduate students. Through discussion and consultation sessions with the specialized lecturers, we designated a variety of writing topics and tasks to foster general and discipline-specific writing skills.

<table>
<thead>
<tr>
<th>Disciplines</th>
<th>Age range</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virology</td>
<td>24-37</td>
<td>6 men, 9 women</td>
</tr>
<tr>
<td>Dentistry</td>
<td>25-43</td>
<td>4 men, 12 women</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>20-22</td>
<td>7 men, 8 women</td>
</tr>
<tr>
<td>Speech Therapy</td>
<td>23-32</td>
<td>4 men, 9 women</td>
</tr>
</tbody>
</table>

Materials

To create a list of learning outcomes for the sessions of writing instruction, we drew on four textbooks (Baily, 2010; Stuart, 2007; Swales & Feak, 2012; Taylor, 2011). The books were selected according to their relevance to the context of our study and due to the fact that they are among the most commonly used resources for academic and medical writing. Furthermore, the four books adopt nearly the same rhetorical organization and the authors and editors have mutually admitted that their textbooks are designed to address people who are nonnative
speakers of English yet are studying at both Master's and doctoral levels through or partly through the medium of English. All these traits were relevant to the setting of this experiment.

For the purpose of this study, we drew up a list of writing outcomes based on the above resources; the process of material selection was completed through sessions of discussion with specialized lecturers of each discipline so that the content validity of the selected rhetorical patterns and the writing themes was observed; the lecturers were reassured that they had sufficient time to examine the materials so that they could confidently mark their preferred discipline-specific writing practices, the ones regularly practiced and encountered throughout students’ postgraduate programs and in their future careers.

**Instruments**

To analyze students’ writing paragraphs, we followed James' (2009) checklist of 15 writing outcomes that target three categories of organization (items 1-7), content (items 8-12), and language use (items 13-15)\(^1\). The reason for this decision was due to the similarity of the objectives of our study and James’ research in 2009, emphasizing the instruction of domain-specific writing skills and examining the act of learning transfer in academic settings. To assess the use of each of these learning outcomes, James (2009) developed a four-point scale (i.e., 0 = no use of learning outcome; 1 = minimal use of learning outcome; 2 = moderate use of learning outcome; 3 = extensive use of learning outcome).

To check the reliability of James' (2009) checklist, we invited another EFL writing researcher who had experience with qualitative data analysis to score 20% of pre-test transcripts (12 random samples) using James’ (2009) checklist. The raters independently scored each of the essays for use of the 15 learning outcomes. To check the reliability of this analysis procedure, Pearson correlation coefficient was calculated for the raters’ scores as they were measured on an interval scale. The magnitude of the Pearson correlation coefficient determined the strength of the correlation. Although there are no hard-and-fast rules for assigning strength of association to particular values, some general guidelines are provided by Cohen (1988) in Table 2.
Table 2: The Strength of Pearson Correlation Coefficient

<table>
<thead>
<tr>
<th>Coefficient Value</th>
<th>Strength of Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 &lt;</td>
<td>r</td>
</tr>
<tr>
<td>0.3 &lt;</td>
<td>r</td>
</tr>
<tr>
<td></td>
<td>r</td>
</tr>
</tbody>
</table>

A comparison of the other rater’s scoring decisions with the researcher’s decisions over the learning outcomes for pre-test, post-test, and delayed post-test resulted in an intercoder reliability value of 0.942, 0.903, and 0.858, respectively (n = 12, p < 0.01).

As a diagnostic tool to identify impediments to the act of learning transfer and to demonstrate the relationship between LTSI measures and transfer of writing skills, we administered the LTSI in the four groups. Learners’ responses were measured on a five-point Likert-type scale ranging from one (strongly disagree) to five (strongly agree); all the answers were compiled to calculate the mean scores for each factor, in a range of 1 to 5. In effect, mean scores below 2 are deemed extremely negative, between 2 and 2.4 are negative, 2.5 to 3.4 are neutral and 3.5 to 4 positive, and above 4 extremely positive (Table 5).

The LTSI items are arranged into two parts. The first part evaluates eleven factors concerning the specific training program the trainees attended (training-specific scales). Constructs encompassed in this part assess learners’ readiness, motivation to transfer, positive personal outcomes, negative personal outcomes, personal capacity to transfer, peer support, perceived content validity, transfer design, supervisor support, supervisor sanctions and opportunity to use. The second part covers five factors that are estimated to influence training in general (training-general scales). In this part, constructs appraise transfer effort-performance, performance-outcomes, openness to change, performance self-efficacy, and feedback-performance coaching.

Data Collection Procedures

Testing and instructional sessions

For this study, we gathered data through the following six phases: a pre-test of writing skills, instruction in writing skills, a post-test of instructed writing skills, a delayed post-test on authentic writing tasks (generalization and transfer of instructed skills)\(^1\), and the LTSI questionnaire (Learning Transfer System Inventory). Each procedure is explicated in details below.
To evaluate how much participants were aware of the essential writing models for their disciplines and to indicate to the students their initial learning levels, we held sessions of pretest on writing skills separately for each major. To administer the pretest session, we were obliged to observe discipline-specific themes and writing tasks for each groups. Accordingly, the participants watched a video excerpt and read a text about international challenges of their fields of study and were then asked to answer two questions about their estimations of the same issues in Iran; the answers were intended to be open-ended, the first paragraph was expected to be descriptive as the participants were to describe the challenges they might encounter as dentists, pharmacists, virologists, and speech therapists in Iran; the second paragraph was expected to be explanatory since the participants were asked to explain the reasons for the current national and international issues specific to their disciplines.

A week later the participants attended the program to receive instructions on the collaboratively assigned writing skills. Overall, we designed ten training sessions for each discipline with the aim of instructing, practicing, and testing the selected writing tasks and skills; the training sessions continued for a whole semester-twelve weeks- and were administered one a week in due colleges where the students normally attended their core courses. For the first week, which was mainly preparatory, we attempted to provide participants an overview of the established standards of academic writing; over the next three weeks, the instruction dealt with paragraph organizing, essay planning, and familiarity with the overarching patterns in English expository prose: the movement from general to specific and from problem to solution. Then, through later sessions, the discipline-specific writing models were instructed, exemplified and analyzed through visual and printed aids. The selected writing models included description, case report, summary, cause-effect, compare-contrast, argumentation, formal letters, proof-reading, and explanatory rhetorical patterns; the two last models were specific to Virology students; in addition to these models, Dentistry students also received instruction on explanatory and formal letters as their collaborative professor suggested.

Following the session of rhetorical pattern instruction, a practice session was run in which a novel topic, suggested by the specialized lecturer, was introduced. Students watched a relevant video excerpt which familiarized them with the topic; the video excerpt was replayed if the students wished for the second time. As not all the students appreciated audio-visual inputs or still needed further information, a text on the same topic was displayed to all. The text was displayed on the screen for a few minutes, long enough to ensure that the students had definitely read it; however, it was closed after the due time so that the participants could not copy the
sentences and utilize them directly in their final writing papers of that day. The text was not meant to be the transcription of the video clip; instead, it explained the topic in more technical details. The procedures of material selection and modification were completed through hours of collaboration between language and specialized lecturers.

Ensuring that students were provided with sufficient information to start their writing, the language lecturer allowed them to put pen to paper. The papers were checked by the language lecturer- one of the researchers- and returned to the individuals in the following session so that they could note their writing mistakes and would be reminded of organization, diction, punctuation, and their structural problems. These phases recurred for all the selected writing skills to the end of the semester.

Parallel to the pre-test, a post-test session was arranged separately for each discipline to check the outcome of the collaborative program. We presumed the test to be closely linked to the participants’ received instruction during the training sessions. Analogous to the pre-test, the ESAP learners were asked to answer two questions; the answers to these questions were intended to be open-ended, in the form of an organized paragraph with a specific rhetorical pattern. To check the test reliability, we reiterated the same measures as in the pretest session.

The genuine intention of our study was to facilitate the act of learning transfer of medical students from the classroom to professional settings. Thus, it was important to scrutinize the participants’ forthcoming performance and to see how they could retrieve and implement their collaborative instruction. Therefore, they sat for another test of writing skills comparable to those of pretest and posttest two months after the training program to determine their retrieval of the designed course. Through this session, the participants watched a selected piece of video, read a pertinent text, and then were asked to develop well-organized paragraphs in response to two text-related questions. The only point that distinguished this session from the other testing sessions was the fact that it was conducted by the specified collaborative content lecturers in the format of English journal clubs where technical topics of disciplines were discussed in English. Hence, the context would resemble a professional setting where practice and test of the learning transfer could be more genuine.

**The LTSI: pilot test and sampling**

Just as the students took the delayed writing test on authentic tasks, the LTSI questionnaire was administered to evaluate students’ perceptions of the factors that might impede or facilitate the
transfer of learned skills. To establish the internal consistency of the version four of the Learning Transfer System Inventory (LTSI), Chronbach’s Alpha was run on the results obtained from a pilot study on 60 students of Pharmacology. The actual value for Cronbach’s alpha was 0.805, which indicated a high level of internal consistency for our scale with this specific sample; hence, the reliability of the questionnaire used in the present study was established.

**Data Analysis**

To arrive at plausible answers to the first research question, we attempted to see how the design of study affected the participants final outcomes; therefore, the state of variance from pretest to posttest and finally to delayed posttest was traced and statistically analyzed via one-way ANOVA. Next, to reflect on the debilitative or facilitative factors affecting the transfer of learning, a qualitative analysis of the LTSI results was run to see how each group of learners with specific set of perceptions was impeded or facilitated by the sixteen LTSI factors to transfer the instructed skills to later settings.

**Results**

To see whether the current approach to transfer of learning, affected learners’ academic writing skills, we used one-way ANOVA to determine whether there were any statistically significant differences between the means of the three sets of tests. Table 3 summarizes the average scores of the students in pre- and post-test sessions.

**Table 3: Summary of the mean scores of the students in pre-, post- and delayed post-test sessions**

<table>
<thead>
<tr>
<th>Mean scores of participants in pretest (1), posttest (2), and delayed posttest sessions (3)</th>
<th>Pharmacology</th>
<th>Speech Therapy</th>
<th>Dentistry</th>
<th>Virology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(1)</td>
</tr>
<tr>
<td>1. Introducing the topic</td>
<td>1.46</td>
<td>2.2</td>
<td>1.9</td>
<td>1</td>
</tr>
<tr>
<td>2. Using a conclusion</td>
<td>1.2</td>
<td>1.6</td>
<td>1.3</td>
<td>0.61</td>
</tr>
<tr>
<td>3. Using logical sequence</td>
<td>1.33</td>
<td>1.73</td>
<td>1.5</td>
<td>1.15</td>
</tr>
<tr>
<td>4. Using cueing statements</td>
<td>0.73</td>
<td>1.4</td>
<td>0.8</td>
<td>0.76</td>
</tr>
<tr>
<td>5. Using connectives</td>
<td>1.06</td>
<td>1.13</td>
<td>1.0</td>
<td>0.92</td>
</tr>
<tr>
<td>6. Using cohesive devices</td>
<td>0.86</td>
<td>0.93</td>
<td>0.6</td>
<td>0.38</td>
</tr>
</tbody>
</table>
To arrive at plausible answers to the first research question which focuses on the overall impact of the collaborative approach to transfer of learning, we calculated one-way ANOVA over the three sets of pretests, posttests, and delayed posttests. The results of each group performance are summarized below in Table 4.

**Table 4 One-way ANOVA: A Comparison of Groups’ Mean Scores on Pre-, Post-, and Delayed Post-test**

<table>
<thead>
<tr>
<th>Disciplines</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacology</td>
<td>2</td>
<td>.796</td>
<td>3.455</td>
<td>.041</td>
</tr>
<tr>
<td>Speech Therapy</td>
<td>2</td>
<td>.554</td>
<td>3.781</td>
<td>.031</td>
</tr>
<tr>
<td>Dentistry</td>
<td>2</td>
<td>1.234</td>
<td>6.586</td>
<td>.003</td>
</tr>
<tr>
<td>Virology</td>
<td>2</td>
<td>2.131</td>
<td>11.542</td>
<td>.000</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

To realize which constructs or factors hindered or expedited the learning and transferring processes, the results of the sixteen factors of the LTSI are summarized below in Tables 5, 6, 7, and 8. Table 4 illustrates how the mean score obtained for each factor was expressed in words in the result column based on Donovan, Hannigan, and Crowe (2001).
Table 5: Interpretation of LTSI Factor Scores

<table>
<thead>
<tr>
<th>Factor score</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1.9</td>
<td>Extremely negative</td>
</tr>
<tr>
<td>2-2.4</td>
<td>Negative</td>
</tr>
<tr>
<td>2.5-3.4</td>
<td>Neutral</td>
</tr>
<tr>
<td>3.5-4</td>
<td>Positive</td>
</tr>
<tr>
<td>&gt;4-5</td>
<td>Extremely positive</td>
</tr>
</tbody>
</table>

Accordingly, the following results were obtained; to clarify the results, each set is complemented by short yet illuminating comments.

Table 6: Mean Scores of the Reported LTSI Factors based on the Dentistry Students’ Perceptions

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Factors</th>
<th>Mean scores</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>Transfer design</td>
<td>3.64</td>
<td>Positive</td>
<td>To a certain extent, students became enabled to apply instruction to professional settings.</td>
</tr>
<tr>
<td></td>
<td>Content validity</td>
<td>3.6</td>
<td>Positive</td>
<td>It reveals that the instructional content apparently reflected discipline requirements.</td>
</tr>
<tr>
<td></td>
<td>opportunity to use</td>
<td>3.52</td>
<td>Positive</td>
<td>It shows that the students were supplied with resources and practices which enabled them to use learned skills.</td>
</tr>
<tr>
<td></td>
<td>Personal capacity</td>
<td>3.2</td>
<td>Neutral</td>
<td>It confirms that the students did not usually have the time to make prerequisite changes to transfer learning to their professional settings.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Transfer effort performance expectations</td>
<td>4.1</td>
<td>Extremely Positive</td>
<td>Students strongly believed that effort in transferring learning would end in changes in work-related performances.</td>
</tr>
<tr>
<td></td>
<td>Performance outcome expectations</td>
<td>3.64</td>
<td>Positive</td>
<td>Students thought that advances in career performance would yield valuable outcomes.</td>
</tr>
<tr>
<td></td>
<td>Motivation to transfer</td>
<td>3.54</td>
<td>Positive</td>
<td>Students show some tendency, concentration and persistence in applying learned skills and knowledge.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Personal outcome negative</td>
<td>2.51</td>
<td>Neutral</td>
<td>Students assumed that it would not be consequential if they failed to apply new skills.</td>
</tr>
<tr>
<td></td>
<td>personal outcome positive</td>
<td>3.55</td>
<td>Positive</td>
<td>Students perceived positive outcomes due to applying new skills and knowledge in professional settings.</td>
</tr>
<tr>
<td></td>
<td>Supervisor support</td>
<td>2.56</td>
<td>Neutral</td>
<td>It indicates that specialized lecturers did not usually react negatively to the practice of new skills by the students.</td>
</tr>
<tr>
<td></td>
<td>Performance coaching</td>
<td>3.77</td>
<td>Positive</td>
<td>It shows that students clearly receive comments or from the people in their workplace.</td>
</tr>
<tr>
<td></td>
<td>Peer support</td>
<td>3.35</td>
<td>Neutral</td>
<td>Classmates usually reinforced use of use skills. They indicated some appreciation when new skills were used.</td>
</tr>
<tr>
<td></td>
<td>Resistance to change</td>
<td>2.27</td>
<td>Negative</td>
<td>Students did not notice their workgroup to be willing to invest effort in changing ways of doing affairs.</td>
</tr>
<tr>
<td></td>
<td>Supervisor sanction</td>
<td>1.75</td>
<td>Extremely negative</td>
<td>It reveals that specialized lecturers reacted negatively to the use of new skills by the students.</td>
</tr>
<tr>
<td>Trainee characteristics</td>
<td>Learner readiness</td>
<td>2.62</td>
<td>Negative</td>
<td>In general, students were not prepared for training. Prior to the program, they did not know what to expect.</td>
</tr>
<tr>
<td></td>
<td>Performance self-efficacy</td>
<td>3.08</td>
<td>Neutral</td>
<td>Students were not sufficiently self-confident to change their performance if they desired to overcome setbacks that delayed the use of new skills.</td>
</tr>
</tbody>
</table>
### Table 7: Mean Scores of the Reported LTSI Factors based on the Pharmacology Students’ Perceptions

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Factor</th>
<th>Mean scores</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability</td>
<td>Transfer design</td>
<td>3.88</td>
<td>Positive</td>
<td>To a certain extent, students became enabled to apply instruction to professional settings</td>
</tr>
<tr>
<td></td>
<td>Content validity</td>
<td>3.63</td>
<td>Positive</td>
<td>It reveals that the instructional content apparently reflected discipline requirements</td>
</tr>
<tr>
<td></td>
<td>Opportunity to use</td>
<td>3.95</td>
<td>Positive</td>
<td>It shows that the students were supplied with resources and practices which enabled them to use learned skills</td>
</tr>
<tr>
<td></td>
<td>Personal capacity</td>
<td>2.52</td>
<td>Neutral</td>
<td>It confirms that the students did not usually have the time to make prerequisite changes to transfer learning to their professional settings</td>
</tr>
<tr>
<td>Motivation</td>
<td>Transfer effort</td>
<td>4.04</td>
<td>Extremely positive</td>
<td>Students strongly believed that effort in transferring learning would end in changes in work-related performances</td>
</tr>
<tr>
<td></td>
<td>performance expectations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performance outcome</td>
<td>3.52</td>
<td>Positive</td>
<td>Students thought that advances in career performance would yield valuable outcomes</td>
</tr>
<tr>
<td></td>
<td>expectations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motivation to transfer</td>
<td>3.81</td>
<td>Positive</td>
<td>Students show some tendency, concentration and persistence in applying learned skills and knowledge</td>
</tr>
<tr>
<td></td>
<td>Personal outcome</td>
<td>2.39</td>
<td>Negative</td>
<td>Students assumed that it would not be consequential if they failed to apply new skills</td>
</tr>
<tr>
<td></td>
<td>negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>personal outcome</td>
<td>3.83</td>
<td>Positive</td>
<td>Students perceived positive outcomes due to applying new skills and knowledge in professional settings</td>
</tr>
<tr>
<td></td>
<td>positive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supervisor support</td>
<td>3.11</td>
<td>Neutral</td>
<td>It indicates that specialized lecturers did not usually react negatively to the practice of new skills by the students</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work environment</td>
<td>Performance coaching</td>
<td>3.5</td>
<td>Positive</td>
<td>It shows that students clearly receive comments or from the people in their workplace</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peer support</td>
<td>4.11</td>
<td>Extremely positive</td>
<td>Classmates always reinforced use of skills. They indicated constant appreciation when new skills were used</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Resistance to change</td>
<td>2.4</td>
<td>Negative</td>
<td>Students did not noticed their workgroup to be willing to invest effort in changing ways of doing affairs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supervisor sanction</td>
<td>1.88</td>
<td>Extremely negative</td>
<td>It reveals that specialized lecturers reacted negatively to the use of new skills by the students</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Learner readiness</td>
<td>3.85</td>
<td>Positive</td>
<td>Overall, students were prepared for training. Prior to the program, they knew what to expect</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Performance self-efficacy</td>
<td>3.66</td>
<td>Positive</td>
<td>Students were self-confident to change their performance if they desired to overcome setbacks that delayed the use of new skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 8: Mean Scores of the Reported LTSI Factors Based on the Speech Therapy Students’ Perceptions

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Factor</th>
<th>Mean scores</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer design</td>
<td></td>
<td>3.72</td>
<td>Positive</td>
<td>To a certain extent, training enabled students to apply learning to professional settings and the instruction complemented university requirements</td>
</tr>
</tbody>
</table>

206
<table>
<thead>
<tr>
<th>Ability</th>
<th>Factor</th>
<th>Mean score</th>
<th>Results</th>
<th>comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td>Transfer design</td>
<td>3.6</td>
<td>Positive</td>
<td>To a certain extent, students became enabled to apply instruction to professional settings.</td>
</tr>
<tr>
<td>Ability</td>
<td>Content validity</td>
<td>3.77</td>
<td>Positive</td>
<td>It suggests that the instructional content clearly reflected university requirements.</td>
</tr>
<tr>
<td>Ability</td>
<td>Opportunity to use</td>
<td>3.5</td>
<td>Positive</td>
<td>It indicates that the students were provided with resources and practices which enabled them to use learned skills.</td>
</tr>
<tr>
<td>Ability</td>
<td>Personal capacity</td>
<td>2.5</td>
<td>Neutral</td>
<td>This suggests that the students did not usually have the time, energy, and mental space in their work lives to make prerequisite changes to transfer learning to their professional settings.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Transfer effort performance expectations</td>
<td>4.19</td>
<td>Extremely positive</td>
<td>Students strongly believed that effort devoted to transferring learning would lead to changes in work-related performances.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Performance outcome expectations</td>
<td>3.88</td>
<td>Positive</td>
<td>Students believed that improvements in career performance would yield valuable outcomes.</td>
</tr>
<tr>
<td>Motivation</td>
<td>Motivation to transfer</td>
<td>3.63</td>
<td>Positive</td>
<td>To a certain extent, training enabled students to apply learning to professional settings and the instruction complemented university requirements.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Personal outcome negative</td>
<td>2.27</td>
<td>Negative</td>
<td>Students assumed that it would not be consequential if they failed to apply new skills.</td>
</tr>
<tr>
<td>Work environment</td>
<td>personal outcome positive</td>
<td>2.97</td>
<td>Neutral</td>
<td>Students perceived a few positive outcomes due to applying new skills and knowledge in professional settings.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Supervisor support</td>
<td>3.22</td>
<td>Neutral</td>
<td>It indicates that specialized lecturers did not usually react negatively to the practice of new skills by the students.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Performance coaching</td>
<td>3.8</td>
<td>Positive</td>
<td>It shows that students clearly receive comments or from the people in their workplace.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Peer support</td>
<td>3.63</td>
<td>Positive</td>
<td>Classmates reinforced use of use skills. They indicated constant appreciation when new skills were used.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Resistance to change</td>
<td>1.8</td>
<td>Extremely negative</td>
<td>Students never noticed their workgroup to be willing to invest effort in changing ways of doing affaires.</td>
</tr>
<tr>
<td>Work environment</td>
<td>Supervisor sanction</td>
<td>1.78</td>
<td>Extremely negative</td>
<td>It reveals that specialized lecturers reacted negatively to the use of new skills by the students.</td>
</tr>
<tr>
<td>Trainee characteristics</td>
<td>Learner readiness</td>
<td>3.36</td>
<td>Neutral</td>
<td>To some extent, students were prepared for training. Prior to the program, they knew a little what to expect.</td>
</tr>
<tr>
<td>Trainee characteristics</td>
<td>Performance self-efficacy</td>
<td>3.52</td>
<td>Positive</td>
<td>Students were sufficiently self-confident to change their performance if they desired to overcome setbacks that delayed the use of new skills.</td>
</tr>
</tbody>
</table>

Table 9: Mean Scores of the Reported LTSI Factors Based on the Virology Students’ Perceptions
## Discussion

In assessing the significance of the induced results of the first research question, it appears that team-teaching played an influential part. In the light of collaboratively designed syllabus the participants appeared to be more focused as their attention to the information was closely tight to the specificity of their disciplines. This finding is generally in line with the study of Mayer and Sims (1994) who observed when related information is not presented, learner attention is split and the brain has more work to do to integrate the disparate sources of information. Research suggests that precious brain resources should be focused on essential information aligned to instructional goals (Issa, Schuller, Santacaterina, Shapiro, Wang, Mayer, & Da Rosa, 2011).

A point that researchers in the domain of transfer studies are usually warned against is to avoid redundant information in training and testing sessions so that the genuine traces of transfer can be more reliably checked (James, 2009). With the help of the specialized lecturers, instructional materials applied in this study presented novel discipline-specific issues. In the follow-up discussions after each training session, nearly all the ESAP participants expressed their
gratification toward the novel topics embraced in the learning materials. Thus, it can be inferred that the significance of the results in terms of learning transfer may by some means be due to the novelty factor. This finding is in agreement with the studies by Kalyuga, Chandler and Sweller (1999) and also Mayer (2003) who find that students learn more when redundant information is excluded.

Concerning the second research question, as the results indicated in Tables 5, 6, 7, and 8, although the learners’ perceptions of some factors differed between groups, considerable similarities emerged particularly with reference to ability and motivation constructs where participants’ reported assumptions revealed almost the same values. Generally, these finding suggested that the training program proceeded efficiently and the learners were willing to accept new learning design; in detail, qualitative analysis of the data revealed that there were some positive and negative factors that expedited or constrained the act of learning transfer. It was inferred that identification of these factors might lead to refined considerations for future empirical studies. To illustrate these issues, pertinent specifics are presented and discussed below.

Within the four groups of the participants, nearly all the individuals appeared to maintain the same conceptions for eleven out of sixteen factors included in the LTSI; these factors comprised four ability, three motivation, and four work environment factors. About ability factors, the four groups positively appraised transfer design, content validity, and opportunity to use. This implied that the training design, the instructional materials, and the provided resources enabled the post-graduate medical students to use instructed writing skills. Thus, these three ability factors appeared to function as catalysts for the students’ to transfer the academic writing abilities to their professional practices.

However, regarding personal capacity, the fourth common ability factor, almost all learners affirmed that they did not generally have the time, energy, and mental space in their professional lives to make required changes to transfer their newly acquired skills. In tandem with this restrictive finding, Clarke (2002) and Gitonga (2006) also observe that inadequacy of resources, time pressures, and prior heavy workloads emerge as major constraints critical to transfer process. Concurrently, considering time as a worthy yet problematic factor throughout applied linguistics and pedagogical research, Sachs and Polio (2007) and Truscott and Hsu (2008) express their doubt about the extent to which improvement in academic writing can be seen as a predictor of improved accuracy in new contexts over time. These states of affairs
often lead to feelings of frustration which sequentially affect students’ motivation to engage in higher academic practices. Thus, personal capacity might be labeled as a learning transfer barrier to the regular use of the learned skills. When the learners could not afford to allocate sufficient time and practice, the newly acquired knowledge and skills would gradually fade away in the long run.

Concerning motivation construct, the four groups exhibited extremely positive attitude toward transfer effort performance and took positive stance in performance outcome expectation and motivation to transfer. In other words, they valued their persistence in utilizing learned academic writing skills and believed that the devoted efforts might improve their career performances and bring about worthy outcomes. To argue about the seminal role of motivation, Noe (2002) suffices to say that motivation to transfer is the construct that mediates the path between learning and performance change. In their systematic review of the roles of motivation on learning transfer, Gegenfurtner et al. (2009) maintain that research allows to conclude that pre-learning motivation to learn predicts post-learning motivation to transfer. Hence, these three motivation factors can be marked as catalysts to the act of transfer in the current discipline-specific writing context.

In respect of the shared concepts related to work environments, the groups viewed four factors in the same way. They assessed performance coaching positively which means they clearly received feedback and instructional indicators during the training program. Regarding supervisor support, the groups remained neutral and admitted that their content lecturers would not acknowledge the newly learned skills appropriately. Also, related to personal outcomes (negative), students thought that failure to apply new skills would not result in negative outcomes. Finally, concerning the last shared factor, supervisor sanction, nearly all the individuals held extremely negative attitude toward the way content lectures generally reacted to the use of new techniques. Concerning the leading role of supervisors (content lecturers for this study) on the likelihood of transfer success, Lim and Johnson also (2002) notice that ensuring a supportive climate between the trainees and supervisors is among the strongest mediating factors affecting transfer, especially in professional settings that require high levels of interactions. Thus, participants’ extremely negative assessment of supervisor opposition suggested another transfer barrier in the context of this study.

Furthermore, among the work environment factors, resistance to change was appraised negatively by Dentistry and Pharmacology students and extremely negative by Virology and
Speech Therapy learners. This indicated that students did not perceive their workgroup to be open to, supportive of, and willing to invest effort in trying new ways of doing things, perhaps another barrier to learning transfer practices. As exacerbating work-related constraints, Clarke (2002) argue that resistance to change and lack of work-place reinforcement would lead learners to doubt the usefulness of the instructed skills and in long run impede practice of transfer.

Looking at the constructs that addressed trainee characteristics, i.e., learner readiness and performance self-efficacy, Speech Therapy and Virology groups shared similar status; they thought that they knew at least in part how training was related to their academic development prior to the training program. Yet, the two groups were self-confident and believed in their own ability to overcome obstacles that hindered the use of new learning. The Pharmacology learners reported themselves more positive compared to the other groups; in general, they assumed themselves prepared for training and efficient to change their performance if they wanted. In contrast, the dentistry group were skeptical about their readiness and self-efficacy and implied that they were neither prepared nor confident to use new learning.

At first, this skeptical attitude prevailing in the dentistry participants was unexpected since they demonstrated the highest initial and final scores in pre-, post-, and delayed post-tests of academic writing skills compared to the other groups; such negative appraisal was possibly germane to the exhaustive course outline of their specialty. As these students were first year dental residents, they were required to be presents in assigned clinics from 8 a.m. to 3 p.m. every weekday; it could be presumed that their laborious pedagogy had negatively influenced their perceptions of self-efficacy and learning readiness in their educational environment. In her thorough examination of students’ attitudes toward academic skills, Wolfe (2009) concludes that when students feel increasing demands on their time and workload, they would depreciate their performing proficiency. Hence, as the reported judgments of trainee characteristics seemed to be in little agreement with the actual performance, it might be concluded that the findings in reference to trainee characteristics should be cautiously interpreted.

**Conclusion and Pedagogical Implications**

Based on the findings of this investigation, we may conclude that transfer of writing outcomes would be enhanced if more consideration of work-related factors is embraced in higher
education. Among the three detected barriers to the transfer process—personal capacity, resistance to change, and supervisor sanction—only personal capacity was considered as an ability factor yet again influenced indirectly by the work environment construct; it was inferred that when the learners believed they did not have the mental space and sufficient time to transfer their learning, it meant their education program had failed to allocate adequate time and effort to address the importance of academic writing practices as a necessary means for internationalization of the university research products. In other words, the three barriers can be judged as institutional impediments. Considering the learners’ positive assessments of all motivational factors and three ability factors, we can infer that there exists a promising foundation for future programs and educational planning for cultivated progress if more institutional considerations are prearranged. Continuing research on other faculties and in larger populations appears fully justified before generalizing the findings. Also, more investigation is needed to see how supervisors’ observations correlate with students’ perceptions over the institutional barriers and motivation/ability catalysts reported in this study; in this way, most of the analyses would not be discussed by the reliance on self-report data from the learners, hence, best practical solutions may be offered.

**Acknowledgments**

We would like to express our gratitude to Dr. Mark Andrew James, Associate Professor at the English Department, Arizona State University, for his thoughtful comments on an earlier version of the manuscript.

**References**


Wardle, E. (2009). “Mutt genres” and the goal of FYC: can we help students write the genres of the university? *College Composition and Communication* 60(4), 765-89.


Appendix

The writing tasks of pretest session specific to the Virology students

Read the following text within 15 minutes. Next, associate the main points raised in “The Importance of Virology” with the information displayed via the video excerpt to write your own text which describes the present challenges that affects the science of Virology in Iran. Please, explain why you think so.

<table>
<thead>
<tr>
<th>The Importance of Virology</th>
</tr>
</thead>
<tbody>
<tr>
<td>As we enter 2015, one needs to look no farther than the daily news reports to appreciate the ongoing burden of viral diseases. Last year, Ebola reemerged in West Africa, claiming thousands of lives and affecting many thousands more. Cases of Middle East respiratory syndrome (MERS) continue to be reported, with the possibility of a severe acute respiratory syndrome (SARS)-like epidemic ever present. Chikungunya virus has spread to the Western Hemisphere, and the infection is now epidemic in the Caribbean and southern United States. We are also living in a world in which hundreds of millions of people are chronically infected with hepatitis B and C viruses (HBV and HCV, respectively). The rate of new HIV infections has declined, but millions remain infected, and it, too, has already cut short far too many lives. Viruses account for up to 20% of all human cancers, and although a large percentage of new human papillomavirus (HPV) and HBV infections can now be prevented by vaccination, many are already infected, and the vaccines are not being used to their full potential. We are in the middle of our annual encounter with influenza virus, never knowing when the next strain to which there is little or no preexisting immunity will arise.</td>
</tr>
<tr>
<td>There can be no argument that humankind’s best hope of preventing and treating these diseases comes from a vigorous research enterprise. Vannevar Bush recognized this after World War II in the landmark report “Science, the Endless Frontier,” in which he convinced the U.S. government that investment in basic research at universities would yield tremendous dividends. Indeed, we have now almost eliminated polio due to the development of vaccines and have converted HIV infection from a certain death sentence to a largely manageable state, and, as mentioned above, we have our first anticancer vaccines by preventing some viral infections. The tremendous reduction in mortality from such diseases as variola, measles, and rubella came about only because the causative viruses were identified, cultivated, attenuated, and made into effective vaccines by biomedical research. In addition to having applied these practical findings, we have gained important fundamental insights into the biology not only of viruses but also of the cells that they infect, and that information is being applied to find cures against other diseases, such as cancer. All these advances, and more, have come about because of public trust in science and investment in scientific research.</td>
</tr>
</tbody>
</table>
| Despite all this good news, much remains to be done. It was recently estimated that there are 320,000 mammalian viruses (2), many of which may have the potential for human transmission. Even if only a small fraction of these viruses can jump into humans and cause disease, humanity is living under a tremendous threat from viral zoonoses. Less expensive drugs are needed for treating those with viral infections such as hepatitis C. While the HPV
vaccine can prevent many infections, there are viral types that are not covered by the vaccine, and many millions of people were infected before the vaccine came on the market. Infections with numerous other viruses are not treatable due to the lack of effective antivirals. Clearly, vaccines against HIV, hepatitis C, and Ebola, to name a few, would save countless lives. New pathogens continue to emerge, and existing nonviral pathogens become resistant to common antibiotics. Hence, we are living at a time of great need for the discipline of virology.

While we scientists cannot directly control funding or regulations, we can take charge of some aspects of the research enterprise in a way to ensure that it continues to benefit society. First, we can continue to advocate for better funding by the Federal Government. This requires engaging our elected officials both directly and indirectly by continuing to educate them and the public at large about the importance of fundamental research in infectious diseases. Second, we need to demonstrate to the public that we are being good stewards of their investment by working safely in the laboratory. There have been a number of high-profile biosafety lapses over the past year, and the negative publicity surrounding these events may lead to more regulation and less funding support for exactly the types of research that we most critically need. We therefore argue that each of us needs to pay special attention to biosafety in 2015 and the longer term. Third, in controversial areas, such as studies of transmissibility involving pathogens with pandemic potential, it needs to be clearly articulated why some types of experiments need to be done by vigorously engaging in scientific debate using the tools of science, all the while acknowledging that there are risks and taking every step to mitigate those risks. Overall, a little added effort on our parts will go a long way to ensuring continued public confidence in what we do to make their lives healthier.

Written by Michael J. Imperiale (2015)

Post-Test Session

The writing tasks of post-test session specific to the Virology students

Read the following text within 15 minutes. Next, correlate the main points of “Tumor Virology” with the information presented via the video excerpt to write an organized summary over “Tumor Virology”. Next compare and contrast the status of the international research trend in this domain to the one practiced in Iran.

Tumor Virology

The Research Program Applied Tumor Virology (ATV) focuses on the role of viruses in human cancer diseases, the mechanisms of virus-induced neoplastic transformation and host defense reactions against viral oncogenesis. Special interest lies in the relations of human papillomaviruses with genital, oropharyngeal and skin cancers, and of hepatitis B and C viruses with hepatomas. In particular, the regulation of viral gene expression by cellular factors and the interaction of virally encoded oncoproteins with cellular growth regulators are studied. This fundamental research is accompanied with the development of novel tools for the diagnosis, prevention and treatment of tumor virus infections and diseases. Innovative treatments include gene therapy approaches on which emphasis is laid in the ATV Program through the production and validation of new virus-based vectors and effector genes. Vector-oriented research concerns more particularly the assessment and optimization of the capacity of helper-dependent and independent parvoviruses, polyomaviruses, spuma viruses and lentiviruses for foreign gene transduction and expression. Attempts are also made at elaborating effector genes, the products of which can potentially be used to control papillomavirus, HIV and prion infections, or to sensitize cancer cells to radio-/chemotherapeutic agents.

The Tumor Virology Division has continued its research in the field of „biological antitumor strategies“. These strategies comprise: (A) the therapeutic use of parvoviruses, and (B) the specific blocking of cellular DNA repair mechanisms. (A) Helper-dependent and independent parvoviruses are being investigated to determine their potential as antitumor effectors and as vectors for gene therapy. Basic research in this direction is essential to maximize the tumor cellspecific parvoviral attack. In this respect the molecular mechanisms determining the intracellular oncotropism of autonomous parvoviruses as well as the cytototoxic functions of the viral proteins are of major interest. The applied research includes optimization of vector packaging systems as well as the analysis of certain antitumor genes for the production of recombinant parvoviruses with antineoplastic potential.

(B) Infection of various human tumor cells with adenov-associated virus (AAV) was found to increase the sensitivity of the tumor cells to cytostatic drugs and radiotherapy in vitro and in vivo, and may revert resistance to chemotherapy. The molecular mechanisms involved in this phenomenon have been characterized further and examined for their therapeutic potential. In addition, the infectiology of the natural infection with AAV is studied to gain information on
natural target tissues for these viruses and to assess potential pathological effects. Another method of sensitizing cells to the effects of DNA mutagens involves the expression of a dominant negative mutant of the poly (ADP-ribose) polymerase enzyme, which in its normal form recognizes DNA strand breaks and leads to the synthesis of protein-linked poly ADP-ribose. The mechanisms involved have been investigated and the results obtained provide a sound basis for further developing this approach towards anticancer gene therapy.

A major interest of the Division of Genome Alterations and Carcinogenesis concerns the molecular mechanisms by which human papillomaviruses (HPV's) transform and malignize cells, and aims at the development of strategies to diagnose, prevent and reverse this process. These strategies include therapeutic and preventive vaccines against HPV as well as ribozyme and antisense approaches for potential treatment and suppression of aberrant and pathogenic gene expression. Our further interest concerns the replication of HIV-1 with an emphasis on glycoprotein incorporation into HIV-1 particles and targeting of lentiviral vector particles.

(Source: Research Program Applied Tumor Virology, Coordinator: Prof. Jean Rommelaere)

Delayed Post-Test Session

The writing tasks of delayed post-test session specific to the Virology students

Read the following text within 15 minutes. Next, correlate the main points of “Marine Virology” with the information presented via the video excerpt to write an argumentative text about why there should be more funding to accelerate the pace of relevant discoveries.

Marine Virology

The field of marine virus ecology is less than 10 years old. The first reports that the marine food web included an abundant and active assemblage of native viruses (viroplankton) initiated numerous studies on the distribution and abundances of viruses, the production and fate of viruses and the role of viruses as predators in the plankton. Some evidence is now emerging for the presence of nonlethal viruses in the plankton. Most of our recent knowledge about marine viruses has been in relation to the marine bacterioplankton and the impact of viruses on the fate of the 'microbial loop'. Yet marine viroplankton are composed of both prokaryotic and eukaryotic viruses and can infect many types of organisms in the ocean. Furthermore, the role of viruses even within the microbial members of the planktonic community includes more than mortality effects alone.

A virus is a noncellular genetic element that enlists a living cell for its own reproduction. Prokaryotic viruses are termed bacteriophages (phages) while eukaryotic viruses are known as viruses. Bacteriophages and viruses have both an extracellular and an intracellular form; as extracellular particles, phages and viruses range in size from 18 nm in diameter for some eukaryotic viruses (Parvoviridae) to over 1900 nm in length for some filamentous phages (Inoviridae), have a variety of forms and are composed of either a protein coat or a cell membrane-like envelope surrounding the protein coat into which the virus genome is packaged. There are double-stranded and single-stranded DNA- and RNA-containing phages and viruses and viral genomes range in size from 3.5 kb to 220 kb. There are currently 50 virus families, each classified according to genome type, morphology and specific biochemical criteria. Hosts for these viruses are categorized into bacteria, algae, protozoa, fungi, invertebrates, vertebrates and plants. However, viruses are not restricted to hosts in one phylogenetic group. For example, viruses within some virus families can infect two or more hosts from different phyla. Ninety-five per cent of known bacteriophages are tailed, double-stranded DNA phages while most viruses are hexagonal, single-stranded RNA viruses.

The extracellular form - the phage or virus particle - is metabolically inert. To some extent, the extracellular form protects the viral genome from degradation. Perhaps more importantly, it provides a means for the viral genome to be introduced into a new host. In the intracellular form, a phage or virus can be lethal to the host by taking over the host metabolism to make copies of the viral genome and cause cell lysis or it can reside in the host in a symbiotic, semiquiescent state, the control of which depends on a combination of both virus and host factors. A lytic phage cycle results...
in the immediate synthesis and release of many mature phage while the nonlytic phage genome is carried from generation to generation until triggered to initiate a lytic cycle.

Although phages and viruses are diverse in their form and in their mode of replication, I will draw primarily from research on the well-studied tailed phages T4 and lambda as general models for a description of the replication cycle of a lytic phage and a temperate phage and the events which control the lytic/lysogenic decision. The characteristics described below are intended to be generally applicable to both prokaryotic and eukaryotic viruses. For the sake of brevity, I will not discuss replication cycles of eukaryotic viruses; instead the reader is directed to Fraenckel-Conrat et al. (1988) or Fields and Knipe (1991). Much of the following discussion is taken from Friedman et al. (1984), Ackermann and Dubow (1987) and the monograph on phage T4 by Karam (1994).

Exploring English as an Academic Lingua Franca: Insights from Iranian Non-native English Speaking Applied Linguistics Journal Editors and Reviewers

Mahnaz Mostafaei Alaei
Maedeh Hosseinpoor
Hasneh Gorjipour

Allameh Tabataba’i University, Tehran, Iran

Biodata

Mahnaz Mostafaei Alaei is presently the Head of English Language and Literature Department at Allameh Tabataba’i University, Tehran, Iran and the co-editor of ILT Journal. She holds a PhD degree in Teaching English as a Foreign Language (TEFL) and has been teaching various courses in applied linguistics since 1990. Her research interests focus on materials development, teacher education programs, and instructional issues in multicultural contexts.

Email Add.: mmostafai@gmail.com

Maedeh Hosseinpoor graduated from Allameh Tabataba’i University, Tehran, Iran in 2015. She holds an MA degree in TEFL and has been involved in research within the field of applied linguistics since 2013. Her research interests focus on Dynamic Assessment and English for Specific/Academic purposes.

Email Add.: hoseinpoor.maedeh@yahoo.com

Hasneh Gorjipour has graduated with a Master’s degree in Teaching English as a Foreign Language from Allameh Tabataba’i University, Tehran, Iran. She holds a BA in translation and an MA in TEFL. Her research interests focus on student and teacher assessment.

Email Add.: H87.Gorjipour@gmail.com
Abstract

The present research attempted to probe whether Iranian non-native English speaking Applied Linguistics journal editors and reviewers were familiar with the relatively new English as the academic Lingua Franca paradigm and whether they had any aspirations or preferences in this respect. The study involved 60 journal editors and reviewers. Data collection revolved around several general areas of interest, such as what models of spoken and written academic English the journal editors and reviewers preferred, what learning environments they considered to be conducive to learning academic English, and what they aspired to achieve in terms of correctness, intelligibility, and fluency. The mentioned constructs were measured using Likert scale statements and an adapted judgment task originally used by Dewey (2011). The findings indicated that the participants know about different varieties of academic English and that they recognize them as valid forms of the English language. Moreover, intelligibility, as opposed to grammatical accuracy, seemed to have a higher priority for the participants provided that deviant utterances would not impede international academic communication. However, the findings also revealed a contradictory tendency in participants’ aspirations; that is, despite their recognition of different varieties of English and their emphasis on intelligibility, the participants showed strong preferences for native-like pronunciation and lexical knowledge in written and spoken academic English. The obtained results are discussed in terms of their relationship with the extant literature and implications for TESOL, especially with regard to the role of English as the dominant academic lingua franca (Jenkins, 2014).

Keywords: English as the academic Lingua Franca, Global English, TESOL, World Englishes

Introduction

This study draws on the framework of ‘English as an International Language’ and focuses on the global spread of the English language from a historical perspective, which has precipitated the emergence of regional, nativized varieties of English, and which has been categorized by Kachru (1985) into his Three Circles model, namely the Inner, Outer and Expanding circles. Kachru refers to these variants as World Englishes, using the word English in its plural form to acknowledge these varieties as valid forms of the English language which possess their own specific grammatical rules and regularities. English as a Lingua Franca according to Kachru’s (1985) model comes about as a result the use of English in almost all areas of human activity. Along similar lines, Firth (1996) refers to English as a ‘contact
language’ and a lingua franca as a means of worldwide communication. It has been also mentioned that a serious challenge vis-à-vis the field of TESOL is the growing role English is enjoying as the language of global communication (House, 2002; Graddol, 2006; Jenkins, 2009, Kopperoinen, 2011; Cogo, 2012; De Costa, 2012). Various authors (Björkman, 2011; Dewey 2012; Jenkins, 2012; Wang, 2010) claim that nowadays, TELF (Teaching English as a Lingua Franca) has replaced TEFL (Teaching English as a Foreign Language), especially in academic contexts where English has become the medium of instruction.

These changes reflect the linguistic and discoursal developments within the English language. This in turn has brought about a further development known as “English as an Academic Lingua Franca”. Mauranen, Hynninen and Ranta (2016) refer to three of the central aims in research on academic ELF, which are as follows: a) Discovering the influence of English as a lingua franca in the world, b) understanding how the status of English as a global language may affect other languages as tools for communication and dissemination of information in research and higher education; that is, how ELF may influence multilingualism within academia, c) understanding the consequences of the present linguistic situation with regard to changing norms and conventions (e.g. genres) and the sites of norm regulation and practices relating to it, and finally d) coming to know how the enormous variety of language contact, cultural contact, and new centers of power and influence may have an impact on English.

**Literature review**

*The World Englishes Paradigm and the Field of English Language Teaching*

The inception of World Englishes as a field of inquiry dates back to the 1980s, when the field came about as a reaction against the prevalent (and, to some extent, still powerful) understandings of what constitutes language, its spread, and its learning and teaching (Mesthrie & Bhatt, 2008; Melchers & Shaw, 2013). Bolton (2006) rightly states that “the expression ‘World Englishes’ is capable of a range of meanings and interpretations” (p.240). Indeed, this expression has been employed by different scholars in different research fields, yet we can still ask what it really means. From a historical point of view, the origin of the term can be traced back to Kachru’s (1965) first published journal article, *The Indianness in Indian English*. This article also includes his arguments about how the English language has undergone indigenization in India under the influence of the unique sociological and cultural factors. The
term “Indian English” carries with it the sense that in spite of being a foreign language in India, it functions differently from Inner Circle varieties such as American or British English.

The term ‘World Englishes’ was not in use until 1984 when Kachru first introduced it in the TESOL conference (later published in TESOL Newsletter). This newly coined term was officially introduced by Kachru in his 1984 article titled ‘World Englishes and the teaching of English to non-native speakers: context, attitudes, and concerns’ together with his Three Circles model. According to this model, the global reach of the English language can be understood in terms of three concentric circles: The Inner, the Outer and the Expanding circle. These three circles “represent the types of spread, the patterns of acquisition, and the functional allocation of English in diverse cultural contexts” (Kachru, 1984, p.25).

On the other hand, World Englishes can be seen as a reaction against the dominant monolingual models of language learning undergirding formal linguistics and Second Language Acquisition (SLA) research that revolve around concepts such as interlanguage and fossilization (Kachru & Smith, 2008). As Kachru and Nelson (2006) explain, inquiry within World Englishes is focused on describing and understanding the “uses and functions of the language” (p. 81) rather than on learning of grammatical structures by language learners or the cognitive processes involved in such learning. In other words, how bilinguals or multilinguals who possess rich linguistic repertoires consisting both of distinct languages and different styles and registers use language is emphasized (Kachru, 1990). Consequently, depending on the circumstances, even those who are traditionally referred to as monolinguals can make use of and mix multiple linguistic codes.

World Englishes is also a reaction against Noam Chomsky’s (largely SLA-informed) definition of language competence as the “the ability of a speaker to understand an arbitrary sentence of his language and to produce an appropriate sentence on a given occasion” (Competence, 2015). According to Kachru and Nelson (2006), linguists’ fascination with grammar or the general “knowledge of language” (p. 51) drives the traditional notion of linguistic competence. However, in order to be able to communicate successfully one must also possess pragmatic and sociocultural competence. This means that, the communicative situation, the larger context, and the attitudes held by the conversational partners also influence one’s linguistic choices when chaining syntactic elements together. Hymes (1966) describes communicative competence as a pivotal concept within World Englishes, because it helps researchers, language teachers, and learners to transcend a view of language as simply a repertoire of
grammatical structures to choose from and move toward a model in which language is seen as a means of communication and negotiation of meaning (Butcher, 2005). Hymes’ view of communicative competence, as a “cornerstone” (Berns, 2009, p. 721) of World Englishes, has influenced many assumptions about and models of language and has made Smith and Nelson’s (1985) deconstruction and reinterpretation of intelligibility possible.

In a study which involved 127 non-native English speaking participants from 22 different European L1s, Groom’s research study (2012) explored the attitudes of the participants towards native and non-native varieties of English and whether these English L2 speakers considered ELF as a possible replacement for ENL in schools. It was discovered that there was not a significant difference between speaker A and speaker B (p = 0.17) for intelligibility; however, a majority of the participants (79.53%) preferred to be able to speak like native speakers. In addition, 80.16% of participants chose "strongly disagree or disagree" when asked whether European ELF rather than ENL should be the variety taught in European schools. On the other hand, the answers to questions about whether or not European ELF should be used between non-native speakers in most contexts were positive.

By the same token, Cogo (2010) elicited the perceptions of a group of young students from Hungary, the Czech Republic, and the United Kingdom regarding ELF. This study investigated participant’s views about what characterizes effective ELF communication and who counts as effective communicators in an ELF European context. With interactional discourse and negotiation of meaning in mind (Cogo & Dewey, 2006), the author transcribed and analyzed the data. Results indicated that where communication skills were preferred to correctness perceptions of ELF communication were positive. With respect to perceptions of different accents, the results were somewhat ambiguous since the participants showed a preference both for native and non-native English accents. In another study, Xu and Van de Poel (2011) looked into 69 second-year undergraduate English students’ perceptions of ELF in Flanders, Belgium. Data were collected through a questionnaire. It was discovered that the participants viewed English as an important tool for global communication and not for coming into contact with native speakers. The participants also revealed a mindset which emphasized a general recognition of the English as a diverse universal language and centered around tolerance and a willingness to utilize English for international interaction. However, on a smaller scale, the participants showed a tendency toward valuing grammatical accuracy measured against the native standard forms.
English as the Lingua Franca in the Academic World

The current standing of English as the dominant lingua franca in academia should not leave any doubts in our minds (see Hyland, 2006). However, it is more difficult to construe the implications of this. Linguistic research on academic ELF began in the first decade of the 20th century. Early studies include investigation into the pragmatic aspects of ELF (notably House 1999), and also the construction of the ‘English as a Lingua Franca in Academic Settings’ (ELFA) corpus. Although smaller corpora have also been constructed for personal research purposes (e.g. Björkman, 2013), ELFA can be regarded as the largest and most widely utilized corpus within TESOL. Therefore, corpus (e.g. Mauranen 2012; Ranta & Meckelborg, 2013) and discourse-analytical methodologies (e.g. Hynninen 2013) have been predominant in the field.

As ELF research originally focused on spoken language, only a small body of research into written ELF is available. Some of these studies include Owen (2011), Mur-Dueñas (2013), and Ferguson and Mauranen (2013). Owen’s (2011) research was about the treatment writings by non-native speakers received from journal reviewers and editors. It was discovered the bulk of the suggested corrections targeted perfectly comprehensible English. Based on his findings, Owen (2011) calls for ‘language consciousness-raising’ so that non-native researchers who use English as a second language for publication purposes are not put at a disadvantage. Similar conclusions were reached by Mur-Dueñas (2013) within her research into how literacy ‘brokers’ judged the English articles written by Spanish scholars: despite the fact that Spanish academics can write fluently in English, albeit with certain grammatical elements typical of Spanish users, following Standard English rules to the letter is an unnecessary burden. Other researchers have also referred to the shifting landscape of English publishing: For example, Flowerdew (2013) cites factors such as the level of professional expertise and academic seniority as determiners of publication and contends that the native versus non-native distinction is getting mixed up. Similarly, Connor (2011) argues against the traditional contrastive rhetoric model and proposes an alternative more complex perspective where expectations of interactions between native and non-native speakers are both culturally- and situationally-dependent.

Complementing the linguistic research into ELF as discussed above, there is another major area of inquiry, which is interested in the various stake-holders’ perceptions and linguistic ideologies about the kind of language appropriate for academic contexts (e.g. Airey 2012;
Jenkins 2014). For instance, Jenkins (2014: 158) distributed a questionnaire among university staff members whose responses revealed that they thought of English, which is currently the lingua franca of the academia, as the most appropriate language to be the medium of instruction in international study programmes. These findings once more highlighted perspectives which see ‘standard’ North American or British English as the norm and the non-native English varieties and intercultural skills as problems to be dealt with. Nevertheless, Jenkins (2014, p. 202) has also documented in her participants a receptive tendency which may help them develop what she calls ‘a genuine international perspective’ that may come about through the adaptation of their language use.

Similar studies have provided us with data about lecturers’ or students’ views of ELF. For example, some lecturers are concerned about their professional prestige when they deliver lessons in a variety other than the Standard English which is often considered to be the norm (e.g. Jensen et al. 2013). On the other hand, the linguistic ideologies of speakers is seemingly subject to variation relative to the person or people one compares oneself with (e.g. Pilkinton-Pihko, 2013), which means that Standard English should not always be regarded as a relevant norm in academic settings. In addition, local perspectives and inquiries into the nature of ELF, as Jenkins (2014) states, play a crucial role in enabling us to understand how English functions in global academia. However, she also maintains that we are far from arriving at a comprehensive understanding of academic ELF in different contexts and the attitudes different stakeholders have towards it should be explored further. Therefore, this study was an attempt to explore the perspectives of Iranian non-native English speaking Applied Linguistics journal editors and reviewers about the multiple roles that English as the academic lingua franca could play. Moreover, as regards the above issues, there has been no single systematic study to date in the Iranian context, and therefore, the data of the present study will be of use to understand how academic ELF, especially written, is perceived in an Expanding circle country with no history of colonization by the Inner circle countries and where the performance varieties of English are taught and learned. To investigate the issues mentioned above, this study relies on the following research questions:

1. What variety of written academic English (e.g. British, American, non-native) do Iranian non-native English speaking Applied Linguistics journal editors and reviewers aspire to for themselves?
2. What environments (native vs. non-native) do the participants consider to be most conducive for the acquisition of academic English?

3. Do the participants emphasize accuracy vs. intelligibility when it comes to academic ELF?

4. Is there a relationship between their aspirations and their preferences for accuracy and/or acceptability?

Method

Participants and Participant Recruitment

A total number of sixty Iranian non-native English speaking Applied Linguistics journal editors and reviewers were recruited for this study from seven leading journals published in Iran. They were between 35 and 56 years of age. Table 1 presents a summary of the participants’ biographical information. The majority of the participants (61.1%) either possess 4 to 7 years or more than 7 years of teaching experiences and publishing academic papers. However, the remainder of the participants (38.9%), were young reviewers themselves with 1-3 years of experience in academic publishing.

Table 1: Participants’ background

<table>
<thead>
<tr>
<th></th>
<th>Mean age</th>
<th>Gender</th>
<th>Mean Experience</th>
<th>Academic Degree Level</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Up to PhD</td>
</tr>
<tr>
<td>Participants</td>
<td>42</td>
<td>25</td>
<td>35</td>
<td>60</td>
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</table>

Instrumentation

Data collection revolved around several general areas of interest, such as what models of written academic English the participants preferred, what learning environments they considered to be conducive to learning academic English, especially with regard to English required for publishing in academic journals, and what they aspired to achieve in terms of correctness, intelligibility, and fluency in their written academic issues. It should also be
pointed out that, in order to measure these constructs, 14 Likert scale statements and an adapted version of a judgment task originally employed by Dewey’s (2011) were utilized in the present study. The items on the questionnaire were in the form of statements on a scale of 1 = Strongly Disagree to 5 = Strongly Agree and the participants were supposed to indicate their level of agreement. In order to gear the questions to the context of Iran, five specialists in the TESOL and Applied Linguistics programs were consulted and slight changes were made to the questionnaire based on their suggestions. The authors decided to determine the reliability of the questionnaire employed in the study. The choice was made to use Cronbach’s Alpha reliability measure as the criterion. Cronbach’s alpha is generally used to assess the internal consistency of a set of scale or test items or how closely a number of questionnaire items are related. It is most commonly used when there are multiple Likert type questions in a survey/questionnaire that form a scale. A sample of 60 participants completed the final version of the questionnaire. Table 2 below presents the Alpha Reliability estimates. The output gave a Cronbach’s alpha of 0.84, which suggests that the items comprising the questionnaire are internally highly consistent. According to Pallant (2007, p. 98), in the field of social sciences, “values above .7 are considered acceptable; however, values above .8 are preferable.”

Table 2: Reliability Statistics of Cronbach’s Alpha

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>No. of Items</th>
</tr>
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<tbody>
<tr>
<td>.842</td>
<td>.839</td>
<td>63</td>
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</table>

In addition, the instrument included an adapted version of Dewey’s (2011) judgment task which was composed of a sample of 7 sentences, obtained from academic papers written by non-native speakers, which were to be evaluated by the participants for accuracy, acceptability and intelligibility for international academic communication.

Data Analysis and Procedure

The participants who voluntarily accepted to take part in the present study were recruited through email, personal contact, and other colleagues.
Descriptive statistics, including frequencies and measures of central tendency, were calculated for the data. In addition, to see whether there is any relationship between the variables of this study, a total number of 3 dependent t-tests and a correlation analysis were conducted. Moreover, for our data analyses, we relied on the Statistical Package for the Social Sciences (SPSS) program version 21.

Findings and Discussion

The main purpose of this study was to explore whether Iranian non-native English speaking Applied Linguistics journal editors and reviewers were familiar with the English as the academic Lingua Franca paradigm and whether they had any aspirations or preferences in this respect. In this regard, the instruments were administered and the following results were obtained.

The Variety of English Iranian Non-Native English Speaking Applied Linguistics Journal Editors and Reviewers Aspire to Master for Themselves

Data were gathered through the first five statements in the survey. The frequency distributions are presented in Table 2. It is also worth mentioning that a consensus between the participants sometimes shows a preference for a native-speaker model and sometimes a non-native speaker model. These different interpretations hinge on the wording of each survey item. In addition, the ‘somewhat’ category has been used to help the participants who are undecided between the native and non-native options.

Table 2: Editors and reviewers aspirations towards a native or non-native model of academic English for themselves

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Somewhat Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1. It should not be ideal to be perceived as a native English speaker</td>
<td>21</td>
<td>9</td>
<td>18</td>
<td>9</td>
<td>3</td>
<td>3.60</td>
<td>1.25</td>
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<tr>
<td>when it comes to publishing papers. I just want to be intelligible, so</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prefer to talk to native speakers rather than non-native</td>
<td>0</td>
<td>9</td>
<td>9</td>
<td>18</td>
<td>24</td>
<td>2.05</td>
<td>1.09</td>
</tr>
</tbody>
</table>
S3. In academic papers, I understand non-native speakers of English better than I can understand native speakers.

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<tbody>
<tr>
<td>3</td>
<td>6</td>
<td>18</td>
<td>15</td>
<td>15</td>
<td>2.42 1.16</td>
</tr>
</tbody>
</table>

S4. I do not like it when I see people in academia write and want to publish in English with a strong non-native English variety.

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<tbody>
<tr>
<td>3</td>
<td>9</td>
<td>9</td>
<td>15</td>
<td>24</td>
<td>2.20 1.28</td>
</tr>
</tbody>
</table>

S5. I admire written academic English that sounds like that of educated native speakers.

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<tbody>
<tr>
<td>30</td>
<td>21</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4.20 1.10</td>
</tr>
</tbody>
</table>

*Note: S= Statement*

As displayed in Table 2, half of the responses (50%) for item 1 showed agreement among the participants. For Statement 2 the majority of the participants (70%) showed strong disagreement. In response to item 3, half of the participants showed disapproval. The answers to the fourth item, demonstrated that the majority of the participants (65%) were in disagreement with it. Item number 5 had the highest Mean (4.2) among the above statements. Thus, 85.0% of the participants showed approval. The first four statements in the survey revealed that the majority of the participants showed a preference for a non-native model of academic English. Nevertheless, item 5 documented a definite tendency towards a native speaker model of academic English. The mean score of 4.20 indicates that the participants are in favor of non-native speakers who can use English like educated native speakers in high regard.

**Views of Applied Linguistics Journal Editors and Reviewers about Native and Non-native Environments and Norms in Academia**

Regarding different environments for language use (i.e. native and non-native) and norms relating to the acquisition of written and spoken academic English, Table 3 displays the frequency distributions of participants’ responses in relation to statements 6-11. In relation to statement 6, the participants favored English speaking contexts since 36.8% of them agreed. However, as regards item 7, most of them (70%) thought non-native environments were beneficial for attaining a high proficiency in academic English. Item 8 asked the participants about the status of English as the international lingua franca of the academic world, especially in publishing; almost 52.% agreed. In response to item 9, 57.9% of the participants voiced their beliefs to the effect that academics from different parts of the world will speak and write their
own English variety. On the other hand, 31.6% of them somewhat agreed. Regarding statements 10 and 11 the overall trend was in favor of native English university lecturers and journal editors. Thus, 45% of the participants agreed with statement 10. There was also a similar trend in the frequencies belonging to statement 11, where 55% of the participants disagreed.

**Table 3: Frequency of responses for the most conductive environments for the acquisition of academic ELF**

<table>
<thead>
<tr>
<th>Statements</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>S6. I think that the best way to learn academic English is to live within an academic environment</td>
<td>12</td>
<td>10</td>
<td>22</td>
<td>6</td>
<td>10</td>
<td>3.16</td>
<td>1.34</td>
</tr>
<tr>
<td>S7. I think that one can acquire a high proficiency in academic English outside an English speaking country</td>
<td>21</td>
<td>21</td>
<td>12</td>
<td>3</td>
<td>3</td>
<td>3.90</td>
<td>1.12</td>
</tr>
<tr>
<td>S8. I think that because English has become a global language, native speaker standards should no longer be considered universal in academic environments (i.e. publishing papers)</td>
<td>12</td>
<td>19</td>
<td>19</td>
<td>10</td>
<td>0</td>
<td>3.58</td>
<td>1.02</td>
</tr>
<tr>
<td>S9. I believe that in the future, academics in different parts of the world will use their own English variety</td>
<td>19</td>
<td>16</td>
<td>19</td>
<td>6</td>
<td>0</td>
<td>3.79</td>
<td>1.03</td>
</tr>
</tbody>
</table>

231
S10. When I was learning English at the university, I preferred my classes to be taught by native English university professors. 

S11. When I was learning academic English at the university, I preferred my classes to be taught by non-native English university professors.

The participants of the present study thought of native English speaking contexts and norms as better-suited for learning academic English. The mean scores calculated for statements 6 and 10, which were above 3, supported this conclusion. It was also supported because the mean score for statement 11 was below 2.5. On the other hand, the participants’ responses to statements 7, 8, and 9, showed their recognition of the status of English as the lingua franca of the academic world, and the dwindling importance of native speaker norms in the academia.

Participants’ View of the Importance of Accuracy versus Intelligibility in Academia

Statements 12, 13, and 14 of the Likert type questionnaire were used to assess the participants’ views regarding the importance of accuracy vs. intelligibility when it comes to using English in the academic world. Table 4 shows the distribution of the frequencies of elicited responses. To answer statement 12, the majority of the participants (52.6%) agreed that they did not take academicians’ grammar mistakes in writing seriously. The answers to item 13 revealed that 35% of the participants consider the organization of ideas more important than grammatical accuracy. In relation to statement 14, 55% of the participants gave priority to fluency over grammatical accuracy.

Table 4: Frequency of responses for emphasis on accuracy vs. intelligibility

<table>
<thead>
<tr>
<th>Statements</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>S12. I am bothered when I see academicians, in their</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>6</td>
<td>13</td>
<td>22</td>
<td>9</td>
<td>2.74</td>
<td>1.33</td>
</tr>
</tbody>
</table>
S13. When I review or assess academic written papers, I give more weight to the development and organization of ideas than to grammatical accuracy.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Correctness</th>
<th>Acceptability</th>
<th>Intelligibility</th>
<th>Need for Correction</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterance 2</td>
<td>3.40</td>
<td>4.45</td>
<td>2.96</td>
<td>3.40</td>
<td>4.33</td>
</tr>
<tr>
<td>Utterance 3</td>
<td>2.20</td>
<td>3.45</td>
<td>2.96</td>
<td>2.20</td>
<td>3.13</td>
</tr>
</tbody>
</table>

The findings point to a consistent prioritization of fluency over accuracy while evaluating both speaking and writing performance. Such a prioritization with respect to speaking is evident from the mean scores for statements 14 and 12. The prioritization of fluency over grammatical accuracy was also documented in relation to academics’ written papers and writing performance.

**Participants’ Actual Judgments about Accuracy, Acceptability, and Intelligibility in Academic English**

The participants were presented with seven statements culled from academic papers written by Iranian Applied Linguistics non-native speakers which had embedded grammatical errors and they were asked to judge these sentences in terms of correctness, acceptability for international academic communication, intelligibility for international academic interaction, and the necessity of being corrected and giving writers feedback about them. These categories were measured on a five-point Likert scale. The calculated mean scores for these statements are presented in Table 5. As shown in this Table, the lowest mean scores belonged to the category of correctness, and the scores for the seven statements ranged between 2.20 and 3.40, and a mean correctness score of 2.96. Among the seven sentences, utterance 2 received the highest score, whereas utterance 3 received the lowest correctness score. In addition apparently the participants judged grammatical errors to be more serious than lexical errors. For example, item 7 which only contained a lexical error (significant instead of significance) received the highest mean scores, while the rest of the items received lower mean scores as they contained grammatical errors. The mean scores for the next criterion (i.e. acceptability for international academic communication) were much higher compared to those for correctness with means ranging from 4 to 4.45, and a mean acceptability score of 4.33. The most acceptable item according to the participants was utterance 2. The same utterance also received the highest
score for correctness. Moreover, the lowest acceptability score was observed for the same utterance (3) which is consistent with the correctness judgments.

Table 5: Participants’ judgments of accuracy, acceptability, and intelligibility

<table>
<thead>
<tr>
<th>Utterances</th>
<th>Correctness for International Academic Communication</th>
<th>Acceptability for International Academic Communication</th>
<th>Intelligibility for International Academic Communication</th>
<th>Importance for Giving Feedback and Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
<td>Mean SD</td>
</tr>
<tr>
<td>U1. Theory of Multiple Intelligences (Gardner, 1983, 1993, 2000) was designed <strong>comprising</strong> <strong>definition</strong> of the nine intelligences</td>
<td>2.90 2.14 4.25 1.62 4.95 1.47</td>
<td>3.45 1.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U2. Therefore, analyzing the Table for one of the will be <strong>applied</strong> for the two others.</td>
<td>3.40 2.06 4.55 1.35 4.90 1.52</td>
<td>3.65 1.72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>U3. As can be seen in the above Table, the same</td>
<td>2.20 1.73 4.00 1.72 4.30 1.83</td>
<td>4.45 1.93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ratio of intelligences are used for three grades of 1, 2, and 3.

U4. As reported in the literature, many studies have chiefly focused on the existence of both teacher’s and learners’ beliefs in ELT contexts.

<p>| | | | | | |</p>
<table>
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<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.85</td>
<td>1.81</td>
<td>4.35</td>
<td>1.50</td>
<td>5.00</td>
<td>1.30</td>
</tr>
<tr>
<td>3.90</td>
<td>1.83</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U5. Or in another research which was about the investigation of the comparison between athlete students and non-athlete students.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.25</td>
<td>1.88</td>
<td>4.30</td>
<td>1.69</td>
<td>4.80</td>
<td>1.64</td>
</tr>
<tr>
<td>3.80</td>
<td>1.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U6. A sample of 364 students participated in this study but when the questionnaires were completed and then gathered 44 participants (12%) of the questionnaires were excluded and discarded from the
statistical analyses because they were not complete.

U7. Another aspect that made this study significant is that the strategies it introduced for the improvement of learners’ pronunciation focused both on segmental and suprasegmental pronunciation features.

<table>
<thead>
<tr>
<th></th>
<th>3.45</th>
<th>1.93</th>
<th>4.45</th>
<th>1.54</th>
<th>4.55</th>
<th>1.54</th>
<th>3.75</th>
<th>1.86</th>
</tr>
</thead>
</table>

Among the four judgment categories, intelligibility for international communication gained the highest scores, with means ranging between 4.30 and 5, and the total mean score of 4.76. Utterance 5 was rated highest in terms of intelligibility as it received the score of 5. Utterance 3 was again the most harshly judged item since it received the lowest intelligibility score. The range of the means for the last category (i.e. importance to correct) was between 3.45 and 4.45, with an overall mean score of 3.88. The participants strongly believed that utterance 3 must be corrected. On the other hand, utterance 1 invoked the lowest amount of reaction from the participants in terms of the need for correction. In the next part of the analysis, 3 dependent t-tests were used to compare participants’ judgments of correctness, their judgments of acceptability and intelligibility, and importance to correct. The purpose of this analysis was to observe whether the judgments of correctness were significantly different from the judgments on the other criteria. Table 7 displays the results of the t-tests.
The first comparison, showed a statistically significant difference, $t (19) = -2.125$, $p = .047$, effect size $d = .47$. In other words, participants’ correctness scores were significantly lower than their acceptability scores. The next comparison was also highly significant, $t (19) = -5.56$, $p <.001$, effect size $d = 1.24$ and demonstrated correctness judgments to be significantly lower than intelligibility judgments.

The third comparison, showed no significant differences, $t (19) = -1.74$, $p = .097$, effect size $d = .38$. Although the mean correctness score was lower than the mean importance-to-correct score, this difference was not large enough to reach statistical significance. The greatest difference among these comparisons belonged to the correctness and intelligibility judgments. Following Cohen’s (2008) reference values of .2, .5, and .8 for small, medium and large effects, respectively, it can be concluded that the difference in judgments was not only statistically significant but also practically important since it revealed a high effect size value of 1.24.

The main aim of the present study was to explore whether Iranian non-native English speaking Applied Linguistics journal editors and reviewers are aware of the existence of the relatively new English as an academic Lingua Franca paradigm and whether they had any aspirations or preferences in this respect. In light of the theoretical and empirical literature on ELF in general and academic ELF in particular, a discussion of the main trends discovered through an analysis of the obtained results is presented.
Two divergent trends were identified in the participants’ views about their preferred variety of academic English (i.e. non-native or native varieties). On the one hand, it was clear from the results that they did not wish to be seen as native speakers in academic settings, preferred academic communication with non-native speakers rather than native speakers knew about the existence of different varieties of English and the role they play in international communication within the academia, and finally accepted non-native accents more. On the other hand, when it comes to academic encounters, the same participants favored native norms of proficiency, especially with regard to pronunciation and lexical knowledge. Furthermore, the native speakers in academia thought they were more intelligible, but non-native speakers of English who had native like proficiency were admired by most of the participants (85%). These findings were to some extent in line with the findings of other studies from around the world which have made it clear that in spite of an awareness of non-native academics’ English and intercultural skills, academics still prefer native norms, especially those of North American or British English (e.g. Airey 2012; Jenkins, 2014). Moreover, it is possible to draw on the terms ‘liberal’ and ‘traditional’ attitudes towards English introduced by Stanojević and Smojver’s (2011) to make sense of this contradiction. This study’s participants saw themselves as more ‘liberal’ English users in academia, accepted the validity of non-native academic English use, and desired to achieve native like proficiency in academic English. It is possible that because of their own status as L2 language speakers of English who also had experience in publishing academic papers in English, they were familiar with the challenges of achieving an academic native-like ability in another language, and were, thus, more receptive to different non-native varieties of academic English. Also, as they were Applied Linguists journal editors themselves, they had already been exposed to various non-native forms of English, and thus their considerations relating to a more global use of English and its importance for international academic communication can help is in understanding what characteristics make a speaker intelligible. On the other hand, because of their belief in native norms as a source of appropriate patterns of intelligibility in academic contexts, these participants could also be described as ‘traditional’.

Applied Linguistics Journal Editors and Reviewers’ Beliefs about the Most Conducive Environments for the Acquisition of Academic English
A similar kind of contradiction to the one mentioned above was discovered when the participants were asked about the most conducive environments for learning academic English. The participants made it clear that their preferences towards native norms were constrained to some specific domains. Nevertheless, the tendency towards non-native norms was overall greater. Upon being asked what environment they thought was the best context for learning academic English, they chose English speaking countries. They also pointed out that it may be possible to acquire a high level of academic English competence in non-native countries, which is in direct contradiction to the above statement. This dual trend was also present in their responses to questions regarding the status of English as the international academic lingua franca and the multiple uses it is put to worldwide. They knew about the spread of academic English around the world and the existence of different varieties of this language. The view that in the future scholars from around the globe will rely on their own variety of English shows the participants’ strong acceptance (89.5%) of emerging English varieties in the academia. Paradoxically though, only 15% of the participants, when asked whether they preferred native or non-native English professors, chose non-native ones. A similar dual orientation has also been reported by Pilkinton-Pihko (2013), suggesting that Standard English is not always considered as a relevant norm in academic publishing.

**Applied Linguistics Journal Editors and Reviewers’ View of the Importance of Accuracy versus Intelligibility in Academia**

Overall, with respect to the participants’ preferences for accuracy or intelligibility, the main trend was more towards intelligibility than accuracy. If we agree with what Jenkins (2014) calls ‘a genuine international perspective’ in academic English, then the emphasis placed by the participants on intelligibility rather than accuracy can be attributed to a view according to which achieving communicative competence in academic contexts, especially in oral academic presentations, is more important than achieving linguistic accuracy. This finding could indicate that the Communicative Approach (Widdowson, 1990, Canale & Swain, 1979), which emphasizes language functions over forms (Larsen-Freeman & Anderson, 2011), influenced the Applied Linguistics journal editors and reviewers’ views. Moreover, the participants’ preference for fluency and acceptance of grammatical errors can be viewed as metaphors of an evolutionary trend in favor of communication in the academic ELF perspective (see Kuteeva & Airey 2014; Jensen et al. 2013).
Participants’ Judgments of Accuracy, Acceptability, and Intelligibility

The participants were asked to rate seven sentences, adopted from academic papers written by non-native speakers, based on their accuracy, acceptability, intelligibility, and importance of giving feedback and correction. Their evaluations showed these statements to be highly intelligible and very acceptable for international academic communication. However, when compared with the scores for intelligibility and acceptability for interaction within international academia, the scores pertaining to correctness (M=2.96) were statistically lower. This finding suggests that although the participants realized there were grammatical mistakes in the utterances, they did not think that these errors would pose any threat to smooth academic communication. Moreover, no statistically significant difference was found between the scores for correctness and importance to correct. That is, the difference between the means for correctness and importance to correct was not large enough to reach statistical significance even though the mean correctness score was lower than the mean importance-to-correct score. This implies that while the participants knew about the existence of errors within the utterances, they still gave priority to intelligibility vs. accuracy. Likewise, they were moderately interested in correcting the errors. Matsuda and Friedrich (2011) explain the reason behind the acceptance of deviant forms for the purpose of academic communication as the desire to convey meaning between interlocutions in order to reach an agreement. The impetus for such agreements in academic ELF situations is the need to be successful. However, apart from identifying general trends in the total mean scores, including those relating to the seven utterances, we can draw additional insights from the descriptive statistics for each utterance. For instance, with respect to correctness, as opposed to the five utterances with grammatical errors utterances 2 and 7, which contained lexical errors, received the highest mean scores. Therefore, a closer look at the participants’ judgments of acceptability, intelligibility, correctness, and importance to correct and feedback seems to show a connection between their perceptions of the gravity of the errors and its implications for intelligibility. In sum, although the participants put a higher priority on intelligibility as opposed to accuracy, this preference is seemingly contingent upon their judgments of the seriousness of the errors. Unfortunately, this emerging trend was discovered through limited analysis, but it may provide an interesting starting point for future research and could be pursued in a more comprehensive and systematic way.
Conclusions

In order to understand the reason behind the ascension of English to the status of an academic international language, the expansion of academic English as a lingua franca of the world and its effects on the diversification of English into different varieties were investigated in the present research. It was discovered that Iranian Applied Linguistics journal editors and reviewers’ are to a large extent familiar with different varieties of English and that they accept them as valid forms of this language in academic contexts. Moreover, the participants ascribed more priority to intelligibility than grammatical accuracy in academic situations only on the condition that deviant utterances would not prove detrimental to international academic communication. The findings, however, revealed a contradictory tendency in participants’ aspirations; that is, despite their recognition of different varieties of English and their emphasis on intelligibility, the participants showed strong preferences for native-like lexical knowledge in academic English. Whether this contradiction will be resolved is a question of the future and is dependent on many factors, including the fate of English as the academic lingua franca as insightfully discussed in Jenkins (2014).

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A Systemic Ideational Analysis of Pharmaceutical Research Article

Abstract

Zheng Yaofei

Guangdong Pharmaceutical University, China/The Hong Kong Polytechnic University

Biodata

Yaofei Zheng is an Associate Professor of English at Guangdong Pharmaceutical University, China and she is currently a PhD candidate at the Department of English in Hong Kong Polytechnic University. Her major research area is the application of Systemic Functional Linguistics in language education. She can be reached at jennifer.zheng@connect.polyu.hk

Abstract

The present study models the construal of pharmaceutical RAA through a Systemic Functional Linguistics (SFL) framework highlighting ‘text in context’. Text data were collected from pharmaceutical top journals and a self-compiled corpus was established for analysis. At context level, the examination of the corpus reveals details about how the Genre is realized by two Field types—‘the field of research’ and ‘the field of object of study’. At text level, the in-depth qualitative analysis unveils the linguistic resources in construing Taxonomies and Activity Sequences for different Fields, particularly the arcane grammar of Ideation Metaphor in expanded nominal groups, a typical feature of science writing. These discourse findings are finally interpreted by discussing the potential of contextualizing SFL-informed genre analysis in the ESAP classroom.

Keywords: SFL; ideation; RAA; genre analysis
Introduction

The emergence of English as the Lingua Franca of the academia has made English abstract an important genre in English for Specific Academic Purpose. International journals publish RAs in English and well-written abstracts are important to attract readers’ attention.

Even non-Anglophone academics who write RAs in their mother tongue and publish their findings in their home countries are required to provide an extra version of the abstract in English. Many of these non-native writers resort to translating RAs or obtaining external translation service. However, the linguistic accuracy and texture coherence of translated texts are not always satisfactory and this situation has been a constant anxiety for academics who struggle to get their work published. It is therefore of practical significance for researchers to develop capabilities of writing abstracts instead of translating abstracts. In many countries like China, a potential pedagogic need is developing materials and pedagogies aiming at enhancing tertiary learners of various disciplines abstract writing skills. For the present study, the discipline being explored is pharmacy which is a relatively under-researched area. In reviewing literature concerning the genre of RA, the closely relevant disciplines that have been explored might be medicine and biology (Salager-Meyer, 1992; Varttala, 1999; Fryer, 2012; Hao, 2015). These previous research outcome has shed lights on the present investigation on pharmaceutical texts.

Over the past two decades or so, interactions between SFL genre analysis and English for Specific Purpose (ESP) genre school have been growing (Hyon, 1996; Swales, 2009; Flowerdew, 2014). SFL’s notion of ‘text in context’ is acknowledged to provide applied linguists with “a socially informed theory of language and an authoritative pedagogy grounded in research on text and context” (Hyland, 2002, p. 11). Inspired by the contextual notion of genre, the present study is designed to examine the language of disciplinary academic texts through a Systemic Ideational perspective. It offers a comprehensive understanding of the linguistic resources in the construal of disciplinary RAAs by analyzing data from a self-compiled corpus of authentic materials.

Literature review

Ideation system in SFL genre analysis
In SFL tradition, language exists in context which is stratified into ‘context of situation’ and ‘context of culture’ and a text is in essence a functional configuration of meanings involving simultaneously three metafunctions: ideational, interpersonal and textual (Halliday & Hasan, 1985). Ideational meanings refers to ‘meaning as a representation, a construal of some process in ongoing human experience ’; interpersonal meaning refers to ‘meaning as an exchange, a transaction between speaker and listener’ and textual meaning refers to ‘meaning as a message, a quantum of information’ (Halliday, 1994, p. 34). The three Metafunctions are realized in each clause through the corresponding linguistic choices from Transitivity, Mood and Theme systems at the Lexicogrammar stratum of language, but determined by the three Register variables: Field (the ongoing social activity or subject matter), Tenor (the relationship between text producer and text receiver) and Mode (the symbolic or rhetorical channel). In between Register and Lexicogrammar is the stratum of Discourse Semantics which relates meaning in context to linguistic realization. Following Halliday, Martin and his colleagues developed a framework (Fig. 1) for educational genre analysis in Australia where they implemented genre-based pedagogy in a series of language projects which began in 1980s (Rose & Martin, 2012). In this framework, Genre is theorized as ‘staged, goal-oriented social process’ (Martin & Rose, 2008:6). This working definition emphasizes the social purpose of Genre, embraces the three registerial parameters and implies that Genre is realized by Schematic Structure of ‘Stage and Phase’ corresponding to ‘move and step’ used in ESP genre school. As an additional stratum of analysis beyond Register, Genre is realized by Register and in turn realized by the tri-stratal linguistic system: discourse semantics, lexicogrammar and graphology. The present study locates the analysis from an Ideational perspective: Genre in terms of social purpose and Schematic Structure in framing Field; Register in terms of Field building by Taxonomy and Activity Sequence at Discourse Semantic level and finally lexicogrammar in terms of Transitivity.
Ideation Metaphor

Metaphor basically means an alternative of enacting meaning and the kind of metaphor Halliday illustrates is not lexical Metaphor but Grammatical Metaphor (GM) referring to the shifts in the relationship of meaning and structural element, i.e. creating stratal tension between discourse semantics and lexicogrammar. Halliday (1998) explains how modern science discourse develops into metaphoric realization based on a social semiotic linguistic analysis of the texts from scientific discourse at work in a variety of historical, contemporary, and cross-cultural sites. Ideation metaphor is a major kind of GM involving representation shift of meaning in the ideational metafunction. Fig. 2 demonstrates the mechanism of forming an Ideation GM: Process in the semantic domain is achieved congruently by verb at lexicogrammar stratum as italicized in ‘a’, or metaphorically as noun as italicized in ‘b’ through breaking the natural relationship between semantics and grammar by way of nominalization. The result of nominalization are three-fold. First, the transferred verb does not realize Process in a clause any more but become Participant, causing a syndrome which involves Rank-shifting from a clause to a nominal group (NG). Secondly, the transferred noun can be expanded by placing layers of modifiers before (adding ‘self’ before ‘healing’) and after (adding ‘of pores’ after ‘healing’) and the expansion can continue. Thirdly, Ideation Metaphor allows meanings of clauses to be compressed into NG so that the compressed meaning can join into new relationships. In Fig. 2, the nominalization ‘importance’ is the compressed form of clause ‘b’ and this compressed meaning enters into clause ‘c’ acting as an element of the Prepositional
Phrase ‘despite the importance of this phenomenon’. In this way, the textual flow is managed coherently with meanings related to one and other.

**Figure 2: An illustration of Ideation Metaphor**

The Metaphoric realization of Ideational meanings in science writing has been vigorously discussed in SFL literature (Halliday & Martin, 1993; Martin & Veel 1998; Hao, 2015). GM is the arcane grammar that evolves to serve the needs of scientific discourse in knowledge creation and transmission. It ‘opens up meaning potential for construing the world in uncommonsense ways, and is, thus, key to building academic knowledge in all disciplines’ (Hood, 2016, p. 385). It bridges directly to pedagogic contexts of EAP where the secret mapping of grammar and semantic can be unveiled to scaffold the development of academic literacy.

**Methodology**

**Research objectives**

The study set out to investigate how the subject contents of pharmaceutical RAAs are realized by language. The specific research question asked is:
How is meaning developed ideationally in the unfolding of original RAA from top pharmaceutical journals?

In order to achieve the research purpose, the following analytical framework (Table 1) is developed:

**Table 1: Framework for analyzing ideational elements**

<table>
<thead>
<tr>
<th>Genre</th>
<th>Field</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Discourse semantics</td>
</tr>
<tr>
<td>Social purpose</td>
<td>The ongoing social activity construed by Activity Sequence and Taxonomy</td>
<td>Activity Sequence: sequencing of activities/Figures</td>
</tr>
<tr>
<td>Schematic structure</td>
<td></td>
<td>Taxonomy: patterning of Entities</td>
</tr>
</tbody>
</table>

Note: The initial letters of SFL terminologies are capitalized.

**Data collection**

The present study was carried out on a small-sized self-compiled corpus containing 100 pharmaceutical RAAs with a total of 22,515 words. The following criteria for the creation of the corpus were taken into consideration:

A. Journal identification criteria: Writings from top journals are commonly believed to represent the latest trends and developments in the field and their writing styles are to be followed by RAA writers. To this end, impact ratios of journals with the discipline “Pharmacology & Pharmacy“ were derived, as far as practicable, from Journal Citation Reports published by the Institute for Scientific Information. Among the first 32 impact factor ranking journals, 10 journals were identified after eliminating review journals and SA journals.

B. Time span criteria: Language and genre evolve and change and RAAs are no exceptions. In order to offer a description of RAAS that reflect the most current writing trends, as far as the PolyU e-database can offer, 10 samples of latest published RAAs (mostly appear in the 2015 issues) from each journal were extracted for analysis.
Data analysis

Discourse analysis in this study was basically qualitative and quantitative examination was applied to supplement the qualitative inquiry. Based on the analytical framework in Table 1, the analysis went through 2 steps focusing on reporting results of qualitative analysis.

For quantitative examination, an overall description of the Genre and Field was provided based on close examination of the whole corpus. Schematic structure was annotated manually; Field types were generalized with reference to High Frequency Word List (HFWL) and Keyness Word List searched by AntConc3.2.1w with a reference corpus (http://rcpce.engl.polyu.edu.hk/RACorpus/default.htm) developed by the Department of English, The Hong Kong Polytechnic University in 2008 (Lin and Evans, 2012). This corpus is ideal for examining the keyness of the current corpus because it contains RAAs from 39 disciplines in which pharmacy is not included.

For qualitative analysis, the detailed exemplification of how Discourse Semantics connects Field to Language was conducted by analyzing a sample text selected from the corpus. The Ideation semantic units of Taxonomy and Activity Sequence are explored and both congruent and metaphorical realizations of these two domains are investigated at the lexicogrammatical stratum from below in terms of ideational grammar (Halliday, 1994). The taxonomy, and activity sequences construed were then categorized into patterns that fitted into the purpose-determined Genre structure and Field types.

---

**Sample Text**

Self-healing of pores in Poly(lactic-co-glycolic acid)s (PLGA) plays an important role in the encapsulation and controlled release of drugs from PLGA microparticles. Despite the importance of this phenomenon, neither the mechanics of the deformation nor the material properties that control it have been fully studied. In this study, the material properties of PLGA have been characterized using mechanical tests, and a finite-element model has been developed to predict how pores heal. This model assumes that the healing process occurs by viscous flow resulting from the deviatoric stress field induced by the interaction between the surface curvature and the surface tension of the PLGA. The simulations, which incorporate measured material properties, show good agreement with experimental observations. However, annealing processes that occur over prolonged times increase the viscosity and slow the healing times of PLGA films at intermediate temperatures above the glass transition temperature. These findings may be reasonably applied towards the prediction of healing processes in PLGA and in related biomaterials for important biomedical applications such as drug delivery.

*Source: Self-healing of pores in PLGAs, Journal of Controlled Release 206 (2015)20-29*
Findings and discussion

Genre

The social purpose of RAA can be viewed as establishing academic identity through reporting research. Ideationally speaking, this semiotic reporting is an abbreviated, accurate representation of knowledge construed in the corresponding RA. It takes several Stages mirroring real-life process in conducting research: Research space is first explored so that research aims can be set up and then methods are planned and implemented to obtain desired results for discussing the research aims and draw conclusions. In examining the present corpus we find clear pattern of Introduction^Method^Result^Discussion (IMRD) except that description of Method or Result might be embedded flexibly anywhere in the purpose description, process description or result reporting section (Table 2). This tendency might be explained by characteristics of the Field, i.e. pharmaceutical research are of empirical nature emphasizing disciplinary conventions such as precise instrumentation as Method and Results yielded from strict experimentation.

Table 2: Stages and Phases in the corpus

<table>
<thead>
<tr>
<th>Stage</th>
<th>Ideational phasal elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Background (82):</td>
</tr>
<tr>
<td></td>
<td>Research purpose (95)</td>
</tr>
<tr>
<td></td>
<td>Method involved (23)</td>
</tr>
<tr>
<td>Method</td>
<td>Method (86)</td>
</tr>
<tr>
<td></td>
<td>Result involved (20)</td>
</tr>
<tr>
<td></td>
<td>Discussion involved (3)</td>
</tr>
<tr>
<td>Result</td>
<td>Result (97)</td>
</tr>
<tr>
<td></td>
<td>Method involved (35)</td>
</tr>
<tr>
<td></td>
<td>Discussion involved (18)</td>
</tr>
</tbody>
</table>
In ESP genre tradition, the constituent part of ‘step’ in ‘move’ is neglected in the body of literature concerning RAA structural analysis. This might be explained by the fact that abstracts are short condensed form of information which do not allow for lengthy illustration. Moreover, the succinct nature of abstracts can even lead to the merging of moves and moves can sometimes be realized by phrases, not complete sentences. However, in the present corpus, certain patterns of Phases (steps) constituting Stage (move) can still be detected and generalized. While Stages are more stable in framing genre, Phases shows flexibility in building Stage. Table 2 shows that Phases might be varied, but a generic Stage often has a Phase that is central to it, and tends to be its nucleus (highlighted in bold in Table 2). While Method and Result have comparatively stable Phases, Introduction and Discussion display more variations of ideational meaning realized.

Another finding worth commenting on is the increasing tendency of including Background elements in Introduction Stage. This shows that pharmaceutical researchers have an alert awareness of being in an expert-expert research community. By situating their research through Background presenting, they anchor themselves to relevant fields claiming centrality to the topics discussed in the paper. This is in line with Hyland’s (2000, p. 63) proposal of abstract as promotional genre. They promote their work to other pharmaceutical researchers and attempt to get their finding perceived as relevant, professional and competent, gradually leading to establishment of academic identity. This is in agreement with the two types of abstracts that Loréz’s (2004) describes: informative and indicative. Informative abstract tends to adopt the IMRD structure and the CARS model (Swales, 1990) is employed in indicative abstract to stress promotional or persuasive purpose of abstract writing. In this sense, we are inclined to judge that the texts in the corpus are both informative and indicative fulfilling the twin tasks of attracting readers’ attention and presenting professional information.

<table>
<thead>
<tr>
<th>Discussion</th>
<th>Significance (78): Contribution (54), Application (24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Summary of findings (19)</td>
</tr>
<tr>
<td></td>
<td>Future research possibilities (9)</td>
</tr>
</tbody>
</table>

Note: the numbers in brackets indicate the occurrence times in the corpus
In sum, the Stage-Phase that make up the particular Genre of RAA are tendencies (or probabilities) representing the range of meaning potential that can be instantiated in any text of the Genre, rather than a rigid template that every text must fit in. While a Genre normally has a few obligatory Stages, Phase patterns in Stages are often variable.

Field

The social purpose of Genre as reflected by Schematic Structure is closely related to Field realization in the text. In SFL, Field is associated with discipline knowledge and realized by ideational meanings of language. Hood (2010, p. 121) identifies Fields in Introductions to RA and finds that the Taxonomies and Activity Sequences in this genre are oriented to two types of field: ‘field of object of study’ (FO) and ‘field of research’ (FR). To analyse the ways in which one Field relates to the other, Hood (2010, p. 132-135) indicates that the relationship of Projection in Clause Complex can be understood to function metaphorically at the level of the discourse semantics and register to refer to ‘one Field projecting another Field’. In the context of introductions to academic research articles, the FR is seen to project the FO. The present data show similar pattern of Fields construed in the texts, i.e. the FR reflects the FO. This pattern can be evidenced both quantitatively and qualitatively. Quantitatively, pattern of content words which play a major role in Field building were examined by drawing HFWL and Keyness from the corpus. HFWL demonstrates the academic nature and Keyness revealed the disciplinarity of the texts. The 10 most frequently-used content words are ‘study, cell, effect, drug, treatment, result, increase, patient, high and mouse’, showing that pharmaceutical RAAs are information about studies carried out to explore the effect of drug treatment delivered to patients with an emphasis of showing the result of experiments such as mouse experiments. The 10 most frequently-used key lexical words are ‘cell, drug, study, effect, treatment, mouse, result, dose, patient and increase’, showing similar result as that of HFWL with the exceptions of two words: ‘dose’ in Keyness and ‘high’ in HFWL. Actually, ‘dose’ is listed the 12th in the high-frequency word list and ‘high’ is listed the 20th in the Keyness. Another difference between the two word lists is the frequency order: Keyness tends to suggest the pharmaceutical nature of highlighting drug experiments (‘drug’ and ‘dose’) and the frequent use of mouse experiments in pharmacy. Viewed from an Ideational perspective, RAA represents the knowledge construed in the corresponding RA and the
knowledge construed in RA is basically knowledge obtained through researching, i.e. research projects knowledge. The field of Pharmaceutical RAA is reporting research in specialized journals concerning disciplines like pharmacogenomics, neuropsychopharm, neuropharmacology, nanomedicine, etc. under the umbrella discipline pharmacy & pharmacology. Research type are empirical and experimental in nature with processes such as simulation, model establishment, drug delivery, clinical testing, technology testing. In order to capture the goings-ons in pharmaceutical RAA, the Field can be seen as being constituted by both the FO as pharmaceutical phenomenon in science and FR as experimentation facilitated or enhanced by technology (Table 3).

Table 3: Two Field types in pharmaceutical RAA

<table>
<thead>
<tr>
<th>FR</th>
<th>key lexis in the corpus</th>
<th>FO</th>
<th>Generalization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>study, effect, result, increase, high…</td>
<td>cell, drug, treatment, mouse, dose, patient…</td>
<td>simulation, model establishment, drug delivery, clinical testing and technology testing.</td>
</tr>
<tr>
<td></td>
<td>Pharmacogenomics, neuropsychopharm, neuropharmacology, nanomedicine, etc. under the umbrella discipline pharmacy &amp; pharmacology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Qualitatively, a close investigation of the sample text demonstrates the interplay between the FR and FO. As the function of the ‘research statement’ in an RAA’s Introduction section is informing the readers about what the research is, the Field in the sample text is ‘In this study, the material properties of the PLGA have been characterized using mechanical tests and a finite-element model has been developed to predict how pores heal.’ This overall Field comprises two distinct types: using mechanical tests and developing finite-element model can be viewed as the FR indicating the major research behaviour construed; the material properties of PLGA that relates to pore-healing can be viewed as the FO indicating the central phenomenon being investigated. This distinction can also be found in other constituting sentences of the RAA as shown in Table 4.
Table 4: The interplay of two Fields in the sample text

<table>
<thead>
<tr>
<th>Genre</th>
<th>Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>FR</td>
<td>FO</td>
</tr>
<tr>
<td>1</td>
<td>plays an important role in 2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>This model assumes that 6</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>These findings may be reasonably applied towards 12 applications 13</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In summary, the field of pharmaceutical study concerns the development of devices and techniques for testing drugs with the relation being the former in the service of the latter. Based
on these findings, we proceed to the next step to examine how the linguistic system in the text construes the two Field types.

**Language: Discourse Semantics and Lexicogrammar**

This part of analysis is carried out by examining the linguistic patterns in the sample text. A first glimpse of the text shows the salient feature of expanded NGs taking up most space of the text. This obvious lexicogrammatical feature will be viewed at a discourse semantics level in order to reveal how lexis and grammar play roles in field building via Discourse Semantic systems of Taxonomy and Activity Sequence.

Taxonomy refers to Entities organised based on certain relations. Entities are things, people, places, time, activities and other semiotic constructs. At the level of lexicogrammar, Entities are congruently realized by Nouns or NGs. Thus, analysing the system of Taxonomy in the text goes in two respects: 1. identifying Entities types and their realizations; 2. Exploring Taxonomic relations.

Categorizing Entity types in the sample text (Table. 5) highlights two types of Entities: Thing Entity and Activity Entity. This is in accordance with previous findings that science features precision by developing technical terms to name things and activities while humanities are characterized with abstractions to refer to concepts and ideas (Halliday & Martin, 1993). Hao (2015, p. 135) analyses Entities in biology texts and finds that technical terms are generally realized by Thing Entities and Activity Entities while abstractions are generally realized by Semiotic Entities. Among the Thing Entities, the most frequently-occurring one is ‘PLGA’ which is the reduced form of ‘Poly(lactic-co-glycolic acid)s’. The lexical realization of this Entity is typically representative of English science language which favours technical terms morphologically derived from Greek and Latin to achieve precise categorisation. Once entities are classified they can form complex nominal with other non-vernacular or vernacular terms and create discipline-specific acronyms. After the acronym has been formed, it can not only act as Entity in discourse semantics but also serve as constituent elements in NG structure, eg. ‘PLGA’ acting as Classifier of ‘microparticles’ in ‘PLGA microparticles’.
Table 5:  Entity types in the sample text

<table>
<thead>
<tr>
<th>Type</th>
<th>Congruent realization</th>
<th>Metaphorically-distilled realization</th>
</tr>
</thead>
</table>
| Thing (12)  | Pore², PLGA⁴, drugs, microparticles, material properties², viscous flow, deviatoric stress field, surface curvature, films, intermediate temperature, biomaterials | glass transition temperature  
| Activity (5) | model², process³, tests, study, drug delivery                                             | findings                                               |
| Semiotic (4) | phenomenon, role, mechanics                                                              |                                                                                                     |
| Time (2)    | annealing times, healing times                                                           |                                                                                                     |
| Source (0)  | Implicit                                                                                 |                                                                                                     |

Note: The numbers at the upper right hand of the words indicates the occurrence times of the word.

Among the Activity Entities, ‘model’ and ‘process’ stand out showing the nature of the research as ‘building model to observe processes’. All the five Activity Entities are realized by ‘distilled’ type of GM also called “dead” metaphor (Halliday, 1998, p. 222). Martin (1993, p. 191) generalizes the process of turning a nominalisation into a technical term as a process of ‘distillation’. During the process of distillation, providing a definition (See example below) of the technical terms in a particular field is a critical step to ‘distil’ it as a technicality. Once a nominalisation such as “diffusion” is defined in this way, it is no longer necessary for it to be unpacked in the discourse because it does not involves stratal tension between semantic and grammar. Importantly, it functions now as a ‘technical entity’ in the discourse semantics and it can be further classified, described and measured.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffusion</td>
<td>Diffusion is the process whereby a substance in high concentration moves to a place of low concentration (adapted from Martin, 1993: 201)</td>
</tr>
</tbody>
</table>

In this text, verbs like ‘test’, ‘study’ and ‘deliver’ are nominalised and distilled into technical terms. While some nominalization processes has involved morphological changes such as ‘deliver’ turned into ‘delivery’, others has not such as ‘test’. Among these instances of distillation, some are further categorized by adding a classifier before the head noun, for
example, ‘controlled release’, ‘mechanical tests’, ‘finite-element model’, ‘healing process’, and “drug delivery”. All these Activity Entities construed by Distilled metaphor reflect a significant feature of science writing—distilling ideational metaphor into a technical term.

A further Entity type to be commented on is that of Source [people] Entities. People are configured in the goings-on alongside the things and activities throughout the text. However, their ‘presence’ is not explicit, but rather implied through the use of receptive and non-finite clauses, as shown in the sentence below:

In this study, the material properties of PLGA have been characterized (by the researchers/us) using (the researchers/we) mechanical tests, and a finite-element model has been developed (by the researchers/we) to predict how pores heal.

These implied people refer to the researchers who conducted the experiment. The omission of the source Entities has to do with the textual demand of metaphoric realization of Figures (Table. 7). While a lot of how-to books of academic writing advices learners to adopt passive voice to achieve objectivity by avoiding 1st person pronoun, we argue for the need of taking advantage of Theme recourses to pack more information within limited space. However, viewed from an interpersonal perspective, interacting with readers needs certain explicit author presence to enhance persuasiveness. In fact, the degree of author presence is showing an upward tendency rather than suppressing in contemporary research article writing and this is also evidenced in my data showing that 1st personal pronoun ‘I’ occurred 24 times and ‘we’ 79 times in the whole corpus.

Taxonomic relations organize Entities into Taxonomy. Field types in the discourse can serve as macro relations in organizing taxonomies. The Entities in the text can be divided into two taxonomies responsible for realising elements in the two Field types (Table 6).

Table 6: Two taxonomies in the sample text

<table>
<thead>
<tr>
<th>FO/science</th>
<th>FR/technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>pore, PLGA, drugs, films, material properties, surface curvature, biomaterials,</td>
<td>Semiotic</td>
</tr>
</tbody>
</table>
Another ideational aspect to be explored is Activity Sequence referring to the logical series of activities that are expected by a Field (Martin & Rose, 2007, p.101). In SFL framework, the discourse semantic terminology for activity is Figure referring to the configuration of elemental discourse units such as Events and Entities (Halliday & Matthiessen, 1999). While the Entity system which comprises the Taxonomies in the text is discussed above, the focus in this part is Event, the central element of the orbital structure in Experiential Discourse Semantics (Martin & Rose, 2007, p. 95). Thus, analysing the system of Activity Sequence in the text goes in two respects: 1. identifying Figures and their realization; 2. exploring how Figures pattern into different types of Activity Sequences.

At the level of Lexicogrammar, a Figure is congruently realized by a Clause and the system for analysing Experiential meaning of a clause is Transitivity comprised by Process, Participants and Circumstance. This congruent mapping between Discourse Semantic and Lexicogrammar can be represented as:

\[
\text{Discourse Semantic Figure : Entity Event \ldots}
\]

\[
\text{realized by}
\]

\[
\text{Lecicogrammatical Clause: Participant Process \ldots}
\]

\[
\text{Lexis: NG VG \ldots}
\]

However, the situation is far more complicated than this because of the metaphoric nature of science writing. Theoretically speaking, the manifestations of Figures can be varied by manipulating stratal mapping between semantic and grammar, i.e. Figures might be
metaphorically realized at group rank or within group through resources such as nominalization. Such theoretical insight is evidenced by the present sample text that there are 14 metaphoric Figures out of 31 Figures in the whole text. These metaphoric Figures need unpacking to facilitate bringing out the relations among going-ons. Table 7 offers the unpacking based on the mechanism of forming Ideation Metaphor we illustrate in Fig 2.

<table>
<thead>
<tr>
<th>Metaphoric</th>
<th>Congruent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self- healing ... // ...the encapsulation // and controlled release ...</td>
<td>Pores in PLGA heal themselves. This phenomenon plays an important role in drug delivery because people can encapsulate drugs in PLGA microparticles and let drugs release from PLGA microparticles in a controlled way.</td>
</tr>
<tr>
<td>...the importance ... // ...deformation ...</td>
<td>This phenomenon is important, but people have not fully studied the mechanics of how pores deform and the materials that controls how pores heal.</td>
</tr>
<tr>
<td>...interaction ... between ...... // ...the surface tension ...</td>
<td>When PLGA is heated, the surface becomes intense. This tension interacts with surface curvature of the pores and induce deviatoric stress field and then the stress field results in viscous flow and finally the viscous flow makes pore-healing happen.</td>
</tr>
<tr>
<td>The simulation ... // ...measured ... // ...good agreement ... // ...experimental observation.</td>
<td>We observed how pores heal by doing experiment before. This time, we measured material properties first then we simulate how pores heal incorporating the results of measuring. Finally, we find that result of the simulation agrees with what we observed in the experiment.</td>
</tr>
<tr>
<td>...the viscosity ...</td>
<td>Annealing processes occur over prolonged time and this makes PLGA become more viscous.</td>
</tr>
<tr>
<td>...the prediction of ... // ...biomedical application ...</td>
<td>People may apply these findings to predict how pores heal in PLGA and in related biomaterials. And then people may apply the results of the prediction for important biomedical technology such as drug delivery.</td>
</tr>
</tbody>
</table>

Note: ‘//’ indicates that the Figures appear within the same sentence.
The next outcome obtained from Identifying metaphoric Figures in the text is the clause pattern (NG1+Verb+NG2), which matches what Halliday (1998, p.193) describes as ‘the favorite grammatical pattern’ in science writing.

At surface level, the above sentence is a clause simplex of one Figure construed by the verbal group ‘may be reasonably applied towards’. However, the two NGs serving as Participants of the clause condense a great amount of information through GM: ‘Findings’ is distilled metaphor serving as Semiotic Entity summarizing the experiential meaning conveyed previously, i.e. the results of the simulation; ‘prediction’ is live metaphor serving as a Figure construing a process ‘People predict healing processes in PLGA.’. Thus this clause simplex actually realizes two Figures: one congruently at clause level (applied) and the other metaphorically at group level (prediction). There is always Process hidden in nominalization which is a common constitutive part of NG. There are three more clauses of this pattern within the 13 ranking Clauses in the text:

- Self-healing of pores in Poly(lactic-co-glycolic acid)s (PLGA) plays an important role in…
- The simulations show good agreement with experimental observations.
- Annealing processes increase the viscosity.

In these Relational clauses, the ‘lexical content’ is located within NGs serving as participants rather than within the verbal group serving as Process.’ (Matthiessen 2014, p. 156). It is worthwhile to examine the information packed in the Participants realized by NGs containing metaphoric Figure. This phenomenon of “the favorite grammatical pattern” shows that the compactness of pharmaceutical RAA attributes largely to Ideation Metaphor. Understanding the mechanism for forming metaphoric Figures is critical in discovering relations among Figures that form Activity Sequence of the Field.

In terms of activity sequencing, there is a distinction between an Expectancy Sequence in which one event is followed by another and an Implication Sequence in which one event is determined by the other (Fig.3). These two types of Activity Sequence can be made explicit in
language as Temporal which can be linguistically signalled by ‘and then’, and Causal which can be linguistically signalled by ‘if…then…’. Expectancy relationships occur typically in story Genres, such as narrative, recount, and procedure; whereas causal relationships are a significant feature in scientific writings. Wignell, Martin and Eggins (1993, p. 157) introduce the term ‘Implication Sequence’ for sequences involving if/then causal relations. They suggest that implication sequences contrast with what they call expectancy sequences since they ‘explain how things are, or come to be the way they are’; and they indicate ‘a more ordered connection among sequences’.

![Diagram of Activity Sequence]

**Figure 3: Types of Activity Sequence (adapted from Martin, 1992, p.324)**

Activity Sequence in the FO is of the Implication type, which is the generally-perceived sequence in construing causality in scientific phenomenon. We have demonstrated that the FO in this RAA is ‘Self-healing of pores in PLGA’ (4.1), an important phenomenon in drug delivery. The implicated causality of this happening can be proved in the analysis of Sentence 4 below.

<table>
<thead>
<tr>
<th>Projecting</th>
<th>Projected</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘This model assumes that (Process: mental)’</td>
<td>The healing process occurs by viscous flow (Process: relational)</td>
</tr>
<tr>
<td>( \text{(embedding) resulting from the deviatoric stress field} )</td>
<td>( \text{(embedding) induced by the interaction} )</td>
</tr>
<tr>
<td>( \text{(circumstance) between the surface curvature and the surface tension of the PLGA} )</td>
<td></td>
</tr>
</tbody>
</table>
While the Projecting Clause ‘This model assumes that…’ in this clause complex signals the FR, there is an Implication Sequence about the FO realized within the projected clause. First, the projected clause ‘…the healing process occurs by viscous flow…’ is an Identifying Relational Process construing a causal relation between Participant 1 (healing process) and Participant 2 (viscous flow) realized by the verbal group ‘occurs by’ which is of rare use. The following concordance lines from BAWA shows that such collocation only occurs in instances that are of biology and medical studies.

In CRA and in the self-compiled corpus used for the present study, no other such collocation can be found except this sentence. This suggests that ‘occur+by’ serving as relator might be of disciplinary feature that medicine-related scientists are seeking ways to construe causality linguistically in their convention of the static kind of writing. Secondly, in this clause, ‘healing process’ as the Token/Identified appears before the Value/Identifier, i.e. the ‘effect’ is before the ‘cause’, allowing layers of qualifiers to produce a reversed chaining of ‘cause & effect’ constituting an Implication Sequence. A strategy of tracing backward is needed to figure out the implied relations and put them in a forward congruent order as the following 5 clauses shows.

a. (If/when PLGA is heated,) the surface then becomes intense;

b. (If there is surface tension, then) this tension interacts with the surface curvature of the pores;

c. (If there is interaction, then) this interaction induces deviatoric stress field

d. (If there is deviatoric stress field, then) this field results in viscous flow;

e. (If there is viscous flow, then) the viscous flow makes pore-healing happen.

According to the above unpacking, we can draw a flowchart (Fig. 4) to demonstrate the Implication Sequence.

265
Figure 4: Implication Sequence in the FO of the sample text

Activity Sequence in the FR reveals the pattern of Expectancy in conducting research. The doing of science follows strict conventionalized ways and is captured in the writing by employing similar patterning of Figures, i.e. the pattern of doing research one step after another (Table 8). The IMRD structure can be viewed as Expectant Sequence in the FR and is basically the universal pattern in doing all kinds of experimentation in real life. However, this kind of expectancy is causal as well and the implied causality explains why we have such expectant structure to conduct, record and interpret our research.

Table 8: Activity Sequence in the FR

<table>
<thead>
<tr>
<th>Schematic structure</th>
<th>Expectancy Sequence</th>
<th>Implication Sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Present background information, (and then)</td>
<td>Research aim is determined by research space which is in turn determined by background information.</td>
</tr>
<tr>
<td></td>
<td>discover research space</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(and then) formulate research aims</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>(and then) design experimentation (models,</td>
<td>Method is determined by research aims.</td>
</tr>
<tr>
<td></td>
<td>tests or simulation, etc.)</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>(and then) present result 1 (and then)result</td>
<td>Results are obtained from the actualization of method, i.e. Method lead to results.</td>
</tr>
<tr>
<td></td>
<td>2…</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>(and then) discuss significance of the study</td>
<td>Results imply application</td>
</tr>
<tr>
<td></td>
<td>(application, contribution…)</td>
<td></td>
</tr>
</tbody>
</table>

Table 8 demonstrates that the Activity Sequence in pharmaceutical RAA is both temporal and causal. While Implication Sequence of the FO can be expectant at the same time, the
surface expectant research activities in the FR are causal by nature. Causality might be the real
nature of Activity Sequences construed in science writing.

In Summary, the Systemic Ideational account of pharmaceutical RAA reveals ‘Things and
Relations’ (Halliday, 1989) through the hierarchical constructs of Genre, Field, Discourse
Semantic and lexicogrammar. The genre is realized by two Fields: the FR projecting the FO
and the interplaying pattern is realized at Discourse Semantic stratum by distinguishable
Taxonomies and Activity Sequences that traverse the Fields. The most critical
lexicogrammatical resource for realizing the density of texts that meets the Genre purposes is
Ideation Metaphor: Taxonomy is made up of Entities construed by NGs that includes some
distilled metaphors and Activity Sequence is made up of Figures of which a large proportion
is metaphoric. Understanding the ideational world in these highly metaphoric texts requires
deep linguistic knowledge, relevant disciplinary information and applicable analytical
framework.

Conclusions

Through the above sample text analysis plus some other quantitative corpus data, the
conclusion can be drawn that the the experiential world of original pharmaceutical RAA is
divided up into two institutional areas of activity: the FR and the FO. While the FR is general
in academic fields of all kinds, the FO varies according to disciplines and foci of study within
disciplines. However different the content of the FO might be, there are patterns in field
building that can be revealed by investigating language across strata: Field is realized by
Taxonomy and Activity Sequence which are realized by Entities, Figures and Sequence in
Discourse Semantics and ultimately by lexis and grammar. In the case of science writing in the
pharmaceutical discipline, the linguistic realization of Genres shows great metaphoric nature
that requires deep linguistic knowledge to bring out things and relations construed. This is
especially important in pedagogic contexts where the language of science features Scientific
language is very different from everyday language and poses great difficulties for outsiders to
decode the meaning and even greater difficulties to encode and package meanings in a
discourse that fits the convention of science (Schleppergrell, 2013).

Like other genres, RAA is neither fixed nor prescriptive but evolving continually. The
present study investigated newest publications of original pharmaceutical RAAs in an attempt
to present a linguistic overview on the construal of this particular genre in contemporary time.
This kind of researching is necessary as practitioners need to present fresh and updated authentic materials to satisfy the needs of apprentice ESP/EAP writers. In the field of SFL, three levels of language education are commonly recognized as learning language, learning about language and learning through language (Halliday, 1993). While ‘Learning language’ involves basic skill training and ‘learning through language’ emphasize the instrumental function of language in construing knowledge, it is the second level ‘learning about language’ that this study is focused on. A thorough research on particular genre of particular discipline furnishes both teachers and learners with systematic knowledge about the writing convention of the living genre in related communities. This kind of linguistic knowledge is pivotal in building linguistic repertoire to realize ‘learning through language’ which is the ultimate pedagogic goal of ESP language education. Thus the significance of this study can be summarized in two respects. First, it has the potential to guide ESP curriculum design in terms of material development, pedagogy and learner text analysis. The small specialized corpus built for discourse analysis can serve as classroom teaching material, meaning ‘authenticating the data for classroom use to fit the students’ reality’ (Flowerdew, 2005, p. 329). Genre-based pedagogy can be applied with flexible teaching and learning cycles designed for scaffolding learners to handle specific linguistic difficulties revealed in discourse analysis. Furthermore, the analysis on expert discourse can be used as reference in student text analysis for detecting developmental language problems in language output. With the corpus and the analysis, pedagogy is likely to orient toward a socio-culturally language education.

Another significance of the study concerns the research method it adopts. It is of theoretical and practical significance to combine research findings in the ESP genre school and the analytical power of SFL framework. ESP genre tradition evolved out of down-to-earth pedagogic practice and has contributed rich study outcomes for ESP/EAP teaching while SFL which views language as meaning-making potential offers an overarching perspective on language in context. In reviewing literature, to the best of the present author’s knowledge, internationally published studies on RAA using SFL framework are few. Ghadessy (1999) provides an account of thematic elements in RAA and several publications in Chinese comparing Chinese and English RAAs. More SFL-informed studies on the abstract genre are expected to promote academic integration and collaboration to produce more and more sensible research outcomes.
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Reconstructing the EMI environment: The space for Chinese in English courses in sub-degree programs in Hong Kong

Bernie Chun Nam MAK

Hong Kong Baptist University, Hong Kong China

Biodata

Bernie MAK is a Lecturer at Hong Kong Baptist University. His research interests include bilingual education and workplace discourse analysis. He has a Ph.D. in Applied English Linguistics from The Chinese University of Hong Kong and currently teaches English for academic purposes and linguistics. He can be reached at bcnmak@staff.hkbu.edu.hk.

Abstract

The perception of EMI as an “English-only” approach makes Hong Kong local English teachers (LETs) have a tense relationship with the use of Chinese in post-secondary education. However, recent studies have proposed that the EMI environment is a setting where English is used as a lingua franca (ELF), not as a restricted code to replace the shared first language. This Hong-Kong-based action research aims to explore the roles of Chinese in freshman English courses where EMI is expected. One hundred sub-degree students were allocated into two groups, one given a lecture on academic writing in English only while another given the same lecture in English supplemented by Chinese. The students were asked to complete a questionnaire on their learning experience afterwards. Independent samples t-tests suggest that the latter might 1) enhance students’ understanding of academic contents, 2) create more space for students to express complicated ideas, 3) motivate them to participate more actively, and 4) help them integrate into collaborative learning. The findings were supported by interviews with the student representatives.

Full University address: Room 1206, Hong Kong Baptist University Shek Mun Campus, Shatin, N.T.
This study argues that it is possible to follow the EMI principle and simultaneously adopt code-switching between English and Chinese in sub-degree programs. Such openness will create an authentic context benefiting mediocre students who are unconfident in English. It also suggests that LETs should avoid completely banning the use of L1 in class to reinforce a monolingual culture, which deviates from the multilingual practices in actual social interaction.

**Keywords**: EMI, ELF, LETs, bilingual education, code-switching

1. **Introduction**

This action research aims to explore the possible role(s) of Chinese in a sub-degree course that is supposed to be conducted in an environment where English is used as a medium of instruction (EMI). EMI has been part of the policy in tertiary education. Popular discourse of EMI often presumes the practice of using English solely in the classroom (Tung, Lam, & Tsang, 1997), while academic discourse of EMI has started to question whether the concept impractically emphasizes a monolingual setting that is no longer common nowadays (Lee, 2012). While students and frontline LETs are the most important stakeholders of EMI, the meanings or interpretations of EMI are often determined by the government and business world (Tsui & Ngo, 2017). Even applied linguists’ voices about EMI have seldom entered the policy-setting circle (Uys & van Dulm, 2011). In view of the complicated situation, this study aims to discover any possible spaces for embracing the home language in an EMI setting. It focuses on Hong Kong, a city where Chinese is often the mother tongue of local students and English is usually the medium of instruction (MoI) in high education, suggesting that it is possible to follow the EMI principle and simultaneously adopt code-switching between English and Chinese in sub-degree programs.

2. **English as a medium of instruction (EMI) in Hong Kong**

Hong Kong was under British rule for about 150 years. Before the transfer of sovereignty to the People’s Republic of China on July 1, 1997, English was the official language of most settings, especially governmental, legal, and business settings. The historical reality has made English not only an indicator of social status but also a reflection of economic opportunities (Evans, 2009). Its importance has supported the perception that students should master their knowledge and use of English in an effective way so that they can move upward in social hierarchy. In turn, this perception indirectly strengthens the prescriptive view that the
English-only setting is the best setting for learning English as a second language. This constitutes the dominant understanding of EMI in Hong Kong.

2.1. The understanding of EMI in Hong Kong

In the official circle, EMI is often prescriptively understood as speaking English only (Lin & Martin, 2005). However, people who support the prescriptive view have not reached any consensus on the rationale behind the view. According to Ferguson (2006), the interpretation of EMI is rarely determined by educational considerations but by the role of English in social mobility and the vested interests of the upper class, which often fluctuate across societies and cultures. As for Hong Kong, EMI is normally perceived and interpreted from the monolingualism and absolutism perspectives. Lee (2012) summarized the two views: The former claims that more input of the target language always results in better learning outcomes, and the latter claims that using the target language exclusively is superior to using it together with other languages, including the home language. The combination of them supports the views that use of English should be maximized for a better learning outcome in the second language classroom and that it should not be used with another language in such a classroom. The resulting conclusion is that EMI means “English only”.

The above prescriptive view has been officially legitimated in secondary education. According to The Curriculum Development Council (2004), “in all English lessons… teacher[s] should teach English through English [emphasis added].” (p.109) At the university level, the understanding of EMI as “English only” is even not debatable. As Hui (2015) pointed out, EMI is often emphasized for the sake of internationalization. He said that even The Chinese University of Hong Kong, whose founding mission was to promote Chinese education, adopts the prescriptive view. The underlying message is that Chinese is explicitly banned by the official policy. The official circle seemingly assumes that in an English lesson all spoken Chinese is destructive and inferior while all spoken English is constructive and meaningful (Hui, 2015; also see Hancock, 1997). In the Hong Kong classroom, there is virtually no partial English environment that is officially recommended.

In academic discourse, EMI does not necessarily mean that all spoken language must be produced solely in English (Ljosland, 2011). Nevertheless, the prescriptive view is hardly questioned by LETs. As Saxena (2009) observed, despite lacking scientific evidence to support the prescriptive view, “many teachers associate the use of L1 in the classroom with
underachievement and enforce ‘L2/English-only’ policies” (p.168). On the other hand, students and parents accept the prescriptive understanding of EMI as it implicates proficiency and an elite background though it may not be conducive to effective learning (Choi, 2010; Evans, 2009; Lai, 2013). The government and business enterprises tend to construct a positive correlation between EMI and international competitiveness (Tsui & Ngo, 2017). Learning barriers resulting from the prescriptive view are seldom brought onto the agenda.

In the past, understanding EMI as an English-only environment was not a problem because higher education was for the elite only (Poon, 2004). Presently, however, universal secondary education (and now mass tertiary education) has brought a large number of mediocre students to the English-only setting at the secondary and post-secondary levels (cf. Lin, 1996). Linguists have critically discussed the effectiveness of the English-only environment in Hong Kong, suspecting that it has led to a lower quality of learning outcomes (Yip, Tsang, & Cheung, 2003) and a decline in motivation to learn (Salili & Tsui, 2005). Notwithstanding, scholarly voices and realities of the classroom barely win the hearts of upper class or enter the policy-setting community (Choi, 2003; Probyn, 2009). Hong Kong is no exception (Sweeting, 1997), leaving the problems with EMI aside, let alone considering English as a lingua franca (ELF) in education.

3. **English as a lingua franca**

Proponents of ELF support the view that English should be considered a common functional language that is shared by everyone in the world (Jenkins, 2009). Whether it is used or not and how it is used mainly depend on the goal of communication in context. In an educational setting, ELF closely pertains to communicative language teaching (CLT), which proposes that the classroom had better simulates real-world interaction and concentrates on meaning to be communicated (Lee, 2012). The reality in today’s world is that more and more people have become bilinguals who speak a L1 and an English variety as L2. It is common for these bilinguals to shift between them in daily conversation. If the CLT view is taken, the EMI environment should be considered an intercultural setting where English is a tool for teaching and learning, not a restricted code to replace any shared L1 (Jenkins, 2017; also see Lee, 2012). To put it forward, if the LET and the vast majority of students share a first language, using it with English when appropriate should be considered normal and acceptable in the classroom (Baker, 2016; Ljosland, 2011). This mindset allows teachers and students to choose the code that better suits the meanings they wish to express, thereby constructing meanings together in
a natural manner on the spot (Lehti-Eklund, 2012). While tertiary institutions have started to consider MoI from an ELF perspective (Björkman, 2011), it directly challenges the prescriptive view of EMI as using English only and disregarding code-switching in the classroom.

5.1. Classroom code-switching

The benefits of classroom code-switching have been well-documented in recent studies on ELF and translanguaging. The discursive event has been considered a pedagogical strategy from an applied linguistic perspective. It is a mirror of language use in hybrid offline and online contexts in the multicultural age (Blackledge & Creese, 2010). From the teacher’s perspective, it facilitates explanation of tasks (e.g., Adamson & Coulson, 2015; Li, 2008), signals topic changes and activity shifts (Lin, 2013; Rose & van Dulm, 2006), maintains students’ attention (Uys & van Dulm, 2011), enhances teacher-student interaction (e.g., Baoueb & Toumi, 2012), indicates their affiliation with students (e.g., Lin, 1996), develops students’ bilingual competence (e.g., Heugh, 2009; Lee, 2012), and initiates their metalinguistic thought (López, & González-Davies, 2015). From the student’s perspective, it reduces anxiety among nervous students (e.g., Lasagabaster, 2013; Liebscher & Dailey-O’Cain, 2005) and responds to or negotiates with the symbolic domination of English (Lin, 1996; Saxena, 2009).

Just like code-switching in other contexts, classroom code-switching has been deemed a learning and communicative strategy instead of an indicator of linguistic dysfunction (MacKenzie, 2014); however, it unavoidably violates the prescriptive view of EMI, especially in a post-colonial society like Hong Kong where English used to be the official language. Since the 21st century, code-switching between Chinese and English has become frequent in the Sino-community (Wang & Jenkins, 2016). But still, as Heugh (2000) ventured, LETs who switch to L1 in class will be considered to be unprofessional in using L2 to teach L2. This is likely the perception permeating in Hong Kong: When it comes to the English subjects, explicit use of Chinese in class is (politically) incorrect.

Notwithstanding, there is often a gap or conflict between the paradigm and actual practice in secondary schools (Willans, 2011) and universities (Tsui & Ngo, 2017). In the case of Hong Kong, many secondary school LETs have perennially used code-switching underground though it is officially disregarded (Evans, 2009; Lin & Morrison, 2010; Tung, 1990). Consequently, as Evans (2011) mentioned, many students have got used to the covert switch to Chinese in the English classroom at upper secondary levels; some of them have
heavily relied on the extensive use of Chinese in cram schools. These students tend to have difficulties in understanding the contents of lectures or tutorials when they are suddenly required to learn in English only (Mulligan & Kirkpatrick, 2000). However, almost all universities in Hong Kong are strongly attached to the prescriptive view of EMI (Choi, 2010). The struggles may demotivate students to pursue their academic or career paths in the long run; as Hui (2015) regretted, “the current trend in promoting EMI in universities does not necessarily produce its intended learning outcomes.” (p.260)

4. Summary of the literature review and research questions

The above brief review has shown the historic and pragmatic importance of English in Hong Kong. In the post-colonial context, the official circle of language policy still tends to perceive EMI as using English only in class, which can cause different teaching and learning problems especially when there are many non-elites brought to post-secondary education. While other developed societies have begun to consider code-switching between the home language and English in tertiary education, there are few Hong-Kong-based studies on the role of Chinese in the English classroom in higher education. In view of the knowledge gap, this action research aims at addressing the following questions:

- What are the affordances of using a little Chinese to teach an English course at the sub-degree level?
- How do students at the sub-degree level perceive an English lecturer who will occasionally use Chinese to teach an English subject?

5. Methodology

The action research was divided into two stages: Stage I addressed the research questions by quantitative research; Stage II interpreted the results of Stage I and put them forward by qualitative research.

The research site was a non-government-funded tertiary institution in Hong Kong (the college hereafter). The college offered full-time sub-degree programs for secondary school leavers whose results in the Hong Kong Diploma of Secondary Education Examination (HKDSE) were insufficient to yield a degree offer. This study focused on the associate degree students in the college. They had to take two compulsory courses, College Writing I and
Both courses taught English academic writing in APA (6th ed.) style. The college followed the prescriptive EMI principle and expected the English lecturers to teach both courses in English only.

5.1. Quantitative procedure

In Stage I, 92 students from College Writing I were invited to participate in this study, with 48.9% of them being males \( (N = 45) \) and 51.1% females \( (N = 47) \); 89.1% of the participants \( (N = 82) \) obtained Levels 2 or 3 in the HKDSE English exam, and 62% of them \( (N = 57) \) graduated from a secondary school where Chinese was used as the official MoI. All the participants were allocated into two groups. Group 1 (the control group; \( N = 48 \)) was given a 120-minute lecture in English only, while Group 2 (the experimental group; \( N = 44 \)) was given the same lecture by the same lecturer in English supplemented by Chinese. The lecturer could use Chinese whenever he thought it was appropriate for Group 2, but he was required to strictly follow the principle that what he would do in Chinese to Group 2 students should be performed in English to Group 1 students as well. The topic of the lecture was writing an introductory paragraph and a thesis statement. The lecture for each group was audio-recorded, and four Group 2 students were invited to a semi-structured interview afterwards (see Section 5.4).

After the lecture, all the participants were asked to complete a questionnaire on their learning experience. The themes and items were modeled on and extended from the college’s official teaching evaluation form that they would complete at the end of the course. They were asked to a) report their learning experience in that lecture in a 7-point Likert scale and b) give a mark to different aspects of teacher-student and peer interactions in that lecture. This article will focus on their perceived learning experience. A sample of the questionnaire is shown in the Appendix.

Stage I of the action research aimed to examine whether the students who had learnt in an English only environment (i.e. the prescriptive view of EMI) would perceive different learning experience from those who had learned in an English environment supplemented by Chinese (i.e. the ELF view of EMI). It follows that:

- \( H_0 \) = The two groups perceive the same learning experience in the lecture.
- \( H_a \) = The two groups perceive different learning experience in the lecture.
5.2. Descriptive statistics

For Group 1 ($N = 48$), who was given the lecture in an English-only environment, 52.1% of students ($N = 25$) more or less agreed (37.5%, $N = 18$), agreed (10.4%, $N = 5$), or strongly agreed (4.2%, $N = 2$) that they “understood the lecture contents”; 48% of students ($N = 23$) more or less agreed (43.8%, $N = 21$) or agreed (4.2%, $N = 2$) that they “could express complicated ideas in class”; 37.5% of students ($N = 18$) more or less agreed (29.2%, $N = 14$) or agreed (8.3%, $N = 4$) that they “enjoyed the in-class discussions”; 45.9% of students ($N = 22$) more or less agreed (41.7%, $N = 20$) or agreed (4.2%, $N = 2$) that they “learnt by teamwork”. Nobody strongly agreed that they “could express complicated ideas in class”, “enjoyed the in-class discussions”, or that they “learnt by teamwork”.

For Group 2 ($N = 44$), who was given the lecture in an English environment supplemented by Chinese, 70.4% of students ($N = 31$) more or less agreed (38.6%, $N = 17$), agreed (18.2%, $N = 8$), or strongly agreed (13.6%, $N = 6$) that they “understood the lecture contents”; 59.1% of students ($N = 26$) more or less agreed (29.5%, $N = 13$), agreed (27.3%, $N = 12$), or strongly agreed (2.3%, $N = 1$) that they could “express complicated ideas in class”; 63.6% of students ($N = 28$) more or less agreed (27.3%, $N = 12$), agreed (22.7%, $N = 10$), or strongly agreed (13.6%, $N = 6$) that they “enjoyed the in-class discussions”; 59% of students ($N = 26$) more or less agreed (29.5%, $N = 13$), agreed (25%, $N = 11$), or strongly agreed (4.5%, $N = 2$) that they “learnt by teamwork”.

Descriptive statistics suggest that there may be differences between the two groups in the four aspects of learning experience. The data were further computed to assess whether the differences were statistically significant.

5.3. Independent samples t-test

Group 1 ($N = 48$) was associated with a score of agreeing to understand the lecture contents = 4.48 ($SD = 1.130$), to be able to express complicated ideas = 4.35 ($SD = .838$), to enjoy the in-class discussions = 4.33 ($SD = .808$), and to learn by teamwork = 4.23 ($SD = 1.016$). By comparison, Group 2 ($N = 44$) was associated with a larger score of agreeing to understand the lecture contents = 5.02 ($SD = 1.210$), to be able to express complicated ideas = 4.77 ($SD = 1.075$), to enjoy the in-class discussions = 4.95 ($SD = 1.311$), and to learn by teamwork = 4.70 ($SD = 1.231$). To test the hypotheses that the two groups were associated with statistically different scores of agreeing to these four aspects, four independent samples $t$-tests
were performed consecutively. Except for the data associated with learning by teamwork, the group-1 and group-2 distributions were sufficiently normal for the purposes of conducting a *t*-test. The following report the results separately.

For the scores of agreeing to understand the lecture contents, the assumption of homogeneity of variances was tested and satisfied via Levene’s *F* test, \( F(90) = .023, p = .880 \). The independent samples *t*-test was associated with a statistically significant effect, \( t(90) = 2.228, p = .028 \). Students who learnt in an English environment supplemented by Chinese were associated with a statistically significantly larger mean of agreeing to understand the lecture contents than those who learnt in an English-only environment. Cohen’s *d* was estimated at 0.47, close to a medium effect based on Cohen’s (1992) guidelines.

For the scores of agreeing to be able to express complicated ideas, the assumption of homogeneity of variances was tested and marginally satisfied via Levene’s *F* test, \( F(90) = 3.691, p = .058 \). The independent samples *t*-test was associated with a statistically significant effect, \( t(90) = 2.092, p = .039 \). Students who learnt in an English environment supplemented by Chinese were associated with a statistically significantly larger mean of agreeing to be able to express complicated ideas than those who learnt in an English-only environment. Cohen’s *d* was estimated at 0.44, close to a medium effect based on Cohen’s (1992) guidelines.

For the scores of agreeing to enjoy the in-class discussions, the assumption of homogeneity of variances was tested and not satisfied via Levene’s *F* test, \( F(90) = 9.298, p = .003 \). The independent samples *t*-test was associated with a statistically significant effect, \( t(90) = 2.761, p = .007 \). Students who learnt in an English environment supplemented by Chinese were associated with a statistically significantly larger mean of agreeing to enjoy the in-class discussions than those who learnt in an English-only environment. Cohen’s *d* was estimated at 0.59, a medium effect based on Cohen’s (1992) guidelines. Since the homogeneity of variances was not satisfied, a robust Welch *t*-test was further performed. The Welch *t*-test was associated with a statistically significant effect, \( F(90) = 7.239, p = .009 \). The statistical significance was confirmed.

For the scores of agreeing to learn by teamwork, the assumption of homogeneity of variances was tested and satisfied via Levene’s *F* test, \( F(90) = 3.252, p = .075 \). The independent samples *t*-test was associated with a statistically significant effect, \( t(90) = 2.027, p = .046 \). Students who learnt in an English environment supplemented by Chinese were associated with
a statistically significantly larger mean of agreeing to learn by teamwork than those who learnt in an English-only environment. Cohen’s $d$ was estimated at 0.43, close to a medium effect based on Cohen’s (1992) guidelines. Since the assumption of normal distribution was not satisfied, a robust Welch $t$-test was further performed. The Welch $t$-test was associated with a statistically significant effect, $F(90) = 4.041$, $p = .048$. The statistical significance was confirmed.

In summary, the quantitative data analyses have indicated that the students who learnt in an English environment supplemented by Chinese were associated with a statistically significantly larger mean of learning experience than those who learnt in an English-only environment. The former seemed to have better understanding of the lecture contents, more space for expressing complicated ideas, more pleasurable experience in in-class discussions, and more constructive learning by teamwork.

5.4. Qualitative procedure and data analysis

Stage II of the action research focused on Group 2. Stage I had found statistically significant differences between the two groups, but it did not indicate what had exactly happened in the lecture of Group 2 and how the students had perceived the environment with both English and Chinese. Thus, Stage II aimed at analyzing a) when the lecturer code-switched in the lecture for Group 2 and b) how students from Group 2 thought about the classroom setting where both languages were used by the lecturer. It drew data from the audio-recordings collected from the lecture and the semi-structured interviews with the four student representatives from Group 2.

Analysis of the lecturer’s code-switching for Group 2 demonstrated that he had switched into Chinese to conduct the following moves in the two-hour lecture:

- Recapping an important point (four times in total);
- Borrowing a Chinese concept to explain a relevant or corresponding English term (twice in total);
- Giving a quick mini-response to a student’s answer to a question (three times in total);
- Providing back-channeling to acknowledge receipt (four times in total); and
Signaling departure from a formal discussion to small talk (three times in total).

In short, the lecturer tended to use Chinese as a tool to enhance the students’ understanding of something important, acknowledge their in-class participation, and mark the topical boundary between academic contents and non-academic contents. The code-switching seemed to be adopted for repetition of key points and management of classroom discourse. This consolidates the existing understanding of classroom code-switching.

Two weeks after the lecture, four students from Group 2 were invited to a semi-structured interview conducted in Cantonese. Each of them was asked two questions. The first question asked them to evaluate the use of Chinese in that lecture. They seemed to be positive about using the home language:

- “可能剩係聽英文都明明地既，但用中文再講多一次明好多，咁應用起上黎就有自信啲。” (Free translation: Maybe I somewhat understood his English explanation, but it was far better when he repeated in Chinese. I would be more confident in using the knowledge.)

- “佢一轉用中文講多次，我就feel到果個point重要，咁都間接令我知道邊啲係學習重點。” (Free translation: Once he used Chinese to repeat a point, I feel that it would be important. This indirectly helped me identify the key learning points.)

- “連佢都肯轉用少少中文，咁我地小組討論果時用中文都放心啲，講到多啲野，大膽啲答佢野。” (Free translation: Even he [the lecturer] would use a little Chinese, so we were more comfortable with using Chinese in the discussion. Then we were able to share more and spell out our thoughts.)

- “我覺得今日上堂有啲怪，但學習氣氛明顯好左，啲人留心左，可以用下母語壓力冇咁大。” (Free translation: I think today’s lecture was weird, but obviously the learning atmosphere was better, and students paid more attention to class. We were under less pressure in an environment where our mother
tongue was allowed.)

The second question asked them to share how they felt about the lecturer, who had used Chinese in class. They appeared to have mixed feelings about Chinese in the English classroom:

- “唔知佢係咪犯規，不過今堂佢肯咁樣教，都算係明白我地難處，算係咁。” (Free translation: I do not know if he violated EMI, but his being willing to teach in this way this lesson showed his understanding of our learning difficulties. That is not bad.)

- “其實真係好少英文老師肯咁樣解釋，但我又唔明咁樣有咩問題。” (Free translation: Actually few English teachers are willing to explain in this way, but I cannot understand why this is not recommended.)

- “我真心覺得佢英文講完用中文複述一次，先顯得佢係為大多數學生既老師，否則佢只係教緊勁人，犧牲緊啲渣人。” (Free translation: He used Chinese to repeat what he had said in English. I really think only this could show that he is our teacher. Otherwise, he is only teaching the elite, sacrificing the mediocre.)

- “可能會縱壞部分學生，訓練唔到佢地既listening skills，但無可厚非既，個course唔關listening事。” (Free translation: This may spoil some students, failing to train their listening skills, but this should be tolerated. After all, the course is not about listening.)

In short, the student representatives appreciated the use of Chinese in the lecture, but simultaneously they probably noted that it might be not recommended in some ways. They seemed to be in a dilemma between accepting a little Chinese and not accepting any Chinese in the English classroom. Additionally, use of Chinese appeared positively correlated to confidence, understanding, participation, and attention. This align with the findings from Stage I.
6. Discussion and conclusion

Findings from Stages I and II of this action research indicated that in Hong Kong using a little Chinese to teach an English course at the sub-degree level could make a difference by benefiting the L2 learners. This might allow them to have better comprehension of the lecture contents and better expressions of complicated ideas. The bilingual environment might also motivate them to actively participate in class and to learn by teamwork. Although students remained attached to the prescriptive view of EMI, they would at least understand that such a strategy was directed at their learning, especially weaker students’ learning.

While English is still expected to predominate in learning English as a second language, accepting a little home language in the spoken context may facilitate more intellectual and emotional engagement in class. The perceived attractiveness of an English-only monolingual environment may have its influence on people who are ignorant of second language learning, but it is unlikely to prepare students for the actual communication nowadays. After all, English has no longer existed in isolation but has become part of multiculturalism (Baker, 2016). The English-only setting hardly supports or involves weaker students in class (Swain & Lapkin, 2000). By contrast, the space for some L1 constitutes and validates true multilingualism where spontaneous code-switched dialogue is normal.

Back in 1953, UNESCO reached the conclusion that the home language should be the most effective MoI. When it comes to English learning, the issue is surrounded by controversies again. But still, more than three decades ago, Johnson (1983) already said that:

I am not convinced that there is anything intrinsically wrong with code-switching in bilingual classrooms. At the very least, the teaching strategies identified here are capable of greater sensitivity to differences amongst learners and groups of learners than the separation approach (p.282).

This view was echoed by Vygotsky (1986), who proposed that the L2 learner “uses… the native language as a mediator between the world of objects and the new language.” (p.161) The space for the home language is particularly reasonable when the ultimate goals of second language learning for university are to create competent bilinguals (Liebscher & Dailey-O’Cain, 2005) and to emphasize internationalization (Sung, 2016). More and more university students are not native English speakers (Jenkins, 2014). In turn, code-switching between English and the home language has been gradually accepted even in the university lecture or
tutorial (Lee, 2012; Ljosland, 2011; Shartiely, 2016). Hong Kong seems to lag behind. Hence, there is the need to change from “instruction in the target language only” to “instruction in the target language mainly” (López & González-Davies, 2015, p.76), at least in the transitional period before full immersion into the English-only setting (cf. Lo & Macaro, 2012). This change should also be put forward officially; as Willans (2011) suggested, switching to the better code of learning should be “conducted publicly, rather than being carried out covertly and shamefully.” (p.36)

In conclusion, this action research proposes that it is virtually possible to follow the EMI principle and adopt code-switching practices in sub-degree programs, where many students are weak or unconfident in English. The openness may create a constructive, authentic context that reduces teaching load of explaining difficult contents and that simulates the multilingual practices in actual interaction. The bilingual context indirectly promotes learner autonomy for using the individually-preferred code to learn, through which reconstructing the prescribed EMI environment in Hong Kong. Any blind prohibition of using the shared L1 will reinforce the outdated monolingual culture, which may be not beneficial to the majority of students in the age of mass tertiary education. However, this study was limited by several issues of research design. Due to administrative reasons, Stage I did not stream the participants based on the MoI of their secondary schools, which might have influenced their perceptions of language. It did not take into consideration the subtle difference between Level 2 and Level 3 in the HKDSE English examination. Further studies should control the effects of these covariates. In addition, the independent samples t-test and Welch’s t-test were used to test the mean differences between the dependent variables measured on an ordinal scale (i.e. Likert scale). The methods might remain controversial in statistics. Further studies should measure the variables on an interval scale for a more convincing result.

Acknowledgement

I offer my deep appreciation to students participated in this study. I would like to thank Dr. Rae Lan from National Taipei University and Dr. Lopez-Ozieblo from The Hong Kong Polytechnic University for their detailed feedback on the oral presentation of an earlier draft of this paper in the International Conference on ESP, New Technologies and Digital Learning in December 2017. I would also like to thank the editors and reviewers for the excellent feedback that has greatly improved this article. I am solely responsible for the content and any inaccuracies.
Appendix

**College Writing I Survey**

This evaluation survey is conducted by Bernie C. N. MAK. The objectives of this survey are to assist me in 1) evaluating the effectiveness of my classroom teaching and 2) identifying areas for improvement and recommending strategies for enhancing the EMI environment. Your participation is voluntary, which means you can choose whether or not you want to participate. Your answers to any and all questions will be treated in the strictest confidence. By finishing the questions and submitting the survey, you are giving your consent to participate in this study.

**Background information**

*What is your gender?*

<table>
<thead>
<tr>
<th>M</th>
<th>F</th>
</tr>
</thead>
</table>

*What grade did you get in the English subject in the HKDSE public examination?*

| 5** | 5* | 5 | 4 | 3 | 2 |

*Did you graduate from a CMI or an EMI secondary school?*

| CMI | EMI |

*Please indicate if you Strongly Agree (7); Agree (6); More or Less Agree (5); Neutral (4); More or Less Disagree (3); Disagree (2); or Strongly Disagree (1). Please select one response for every item.*

*I understood the contents covered in today’s lecture.*

| (7) | (6) | (5) | (4) | (3) | (2) | (1) |

*I could express complicated ideas in today’s lecture.*

<p>| (7) | (6) | (5) | (4) | (3) | (2) | (1) |</p>
<table>
<thead>
<tr>
<th>I enjoyed the in-class discussions in today’s lecture.</th>
<th>(7)</th>
<th>(6)</th>
<th>(5)</th>
<th>(4)</th>
<th>(3)</th>
<th>(2)</th>
<th>(1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learnt by teamwork in today’s lecture.</td>
<td>(7)</td>
<td>(6)</td>
<td>(5)</td>
<td>(4)</td>
<td>(3)</td>
<td>(2)</td>
<td>(1)</td>
</tr>
</tbody>
</table>

End of survey – Thank you for your participation!

References


Sweeting, A. (1997). Education policy and the 1997 factor: the art of the possible interacting with the dismal science. In M. Bray, & W. O. Lee (Eds.), *Education and political transition: Implications of Hong Kong’s change of sovereignty* (pp.25-39). Hong Kong: The University of Hong Kong.


Teaching English to Geologists: Developing a Good Syllabus

Olga Kopiatina

Novosibirsk State University, Russia

Biodata

Olga Kopiatina is an English lecturer at Novosibirsk State University, Novosibirsk, Russia. Her research interests include curriculum design, autonomous learning, and teaching methodology. She has a Master’s degree in TESOL from the University of Maryland, Baltimore County and currently teaches English to the students of Geology and Geophysics department. She can be reached at o.kopiatina@nsu.ru.

Abstract

In September 2016 I started teaching English classes to third-year students of Geology and Geophysics Department at Novosibirsk State University, Russia. For almost two academic years, I have been trying various combinations of tasks to target general, academic and professional language, trying to prepare my students for the career in geology. I have faced several challenges: 1) being a linguist, not a geologist myself, 2) trying to fit an enormous amount of information into one class per week, and 3) adjust my lessons to various levels of English in the classroom. What helped me most in overcoming these challenges is a balanced syllabus that included a variety of tasks, including a sufficient amount of independent work with portfolios and audiovisual materials, strict rules concerning attendance, and several creative tasks involving critical thinking and problem solving. In the article, I will show an example of ESP syllabus designed specifically for these groups of students and will provide explanation of what worked effectively for their language learning, based on the survey with 93 students.

Keywords: syllabus, ESP, geology, autonomous learning, formative assessment
Introduction

This study attempts to create and evaluate a syllabus for the students of Geology and Geophysics department of Novosibirsk State University. According to QS University Rankings and THE World University Rankings\(^1\), Novosibirsk State University is one of Russia’s top universities. There are approximately 7000 students, 2000 lecturers, 85 programs and courses at 9 departments and institutes\(^2\).

English has become an increasingly important subject at Novosibirsk State University, which was selected by the Russian government for the the federal program called “The 5-100 Project\(^3\)”. The goal of this project is to maximize the competitive position of 21 leading Russian universities in the global research and education market. The knowledge of English is required for improving the positions in the world rankings through publications in the journals that are indexed in Scopus and Web of Science, as well as through the growing number of international students, lecturers and English-taught Master’s and PhD programs.

As a part of the 5-100 project, we have received an opportunity to have English classes during the entire period of undergraduate and graduate courses, even at non-linguistic departments. This was a challenge both for students and instructors. Students have to perform well in English and show a good level of proficiency no matter what their second language at school was, whereas instructors were not prepared to teach English for four years and add professional English to the general language course. To solve these problems, Geology and Geophysics department where I work, like all other departments of Novosibirsk State University, had to rethink the concept of teaching English throughout Bachelor’s, Master’s and PhD programs, update the existing curriculum, and take a closer look at English for specific purposes.

English for Specific Purposes (ESP) developed in the mid-late 1960s as a result of the increased use of English as the international language of science, technology and business (Dudley-Evans and St. John, 1998; Swales, 2000). Currently English is the dominant language in many scientific fields, including geology.

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\(^1\) More information on the position in the rankings can be retrieved from: [https://english.nsu.ru/about_NSU/rankings/](https://english.nsu.ru/about_NSU/rankings/)

\(^2\) See more statistics on the university website: [https://english.nsu.ru/](https://english.nsu.ru/)

\(^3\) More information on the program 5-100 in Russia is available at: [http://5top100.com/](http://5top100.com/)
Since I teach English to third-year students, I had to face the need to combine general, academic and professional English in my lessons, taking into account that students often have different levels of proficiency: from zero (those who studied French or German at school) to upper-intermediate and advanced. I used syllabus as a tool to structure the new course that was offered to my students on the third year of their studies, incorporating topics and tasks for skill development, emphasizing professional English, and clarifying the assessment procedures to make it feasible for student with any level of proficiency.

**Literature review**

The definition and functions of the syllabus have been examined by various researchers since 1970s. Wilkins (1976) argued that it is a “device for public planning, but for teaching not learning. It generates a set of units of work, and implies particular methodologies. It should be negotiable during use and after, but constraints will be needed as support for some students; however, it may be considered a retrospective record rather than a prospective plan.” In his book *Notional Syllabus*, Wilkins raised the question of the relationship between syllabus and curriculum. Curriculum is often seen as a standardized prescriptive document created by policy makers and administration of educational institutions, whereas syllabus is more descriptive, specific and variable depending on the teacher and the subject.

Penny Ur (1991) defined syllabus as “a comprehensive public document that specifies all the things that are to be taught in the course, including course objectives, content items, process items (tasks and methods), a time schedule, and recommended materials.” In her *Course in Language Teaching* (1991), Penny Ur mentioned ten types of syllabus, such as grammatical, lexical, grammatical-lexical, situational, topic-based, notional, functional-notional, mixed, procedural and process syllabus types. These types give us an idea of the items that can be included in the syllabus. Personally, I prefer a mixed type of syllabus that contains course objectives, materials, a timeline, grammar and vocabulary for each class, and grading procedures.

The mixed type of syllabus solved several problems in my course, such as reflecting the needs of both students and the department in the course objectives and content, preparing students to work both in class and autonomously, and introducing Russian students to the concept of formative assessment that serves more as a learning tool rather than as a score that is to be reported to the university administration.
**Needs Analysis**

Hutchinson and Waters (1987) argue that needs analysis is the key point in ESP because it answers a simple question: Why does this learner need to learn a foreign language? Hyland (2006: 73) provides a definition of needs analysis as “the means of establishing the how and what of a course in a continuous process, since we modify our teaching as we come to learn more about our students.” Basturkmen (2010) notes that the analysis of learners’ needs makes ESP courses narrower in focus that any general English course. Hodell (2015) also states that needs analysis is the starting point of any instructional systems design.

In the syllabus, I made an attempt to reflect the needs of the students whose interests and career paths may be different: some choose to become scholars who can operate professional terms and participate in professional events, others will only need the diploma to start working in a completely different area, where general or even business English may be a requirement.

Based on the updated curriculum of our department and the needs of my students, the course objectives were the following:

- To learn the key terms and vocabulary for geologists, geophysicists and geochemists;
- To expand the knowledge of grammar structures for academic writing;
- To become more fluent in reading, writing, listening and speaking;
- To improve pronunciation of English words and sentences;
- To develop translational skills for written texts in geology, geophysics and geochemistry.

**Instructional and Autonomous Learning**

Second, the syllabus reflected the instructional and the autonomous parts of the course. The role of self-instruction has become greater in Russian higher education. With shrinking resources and increasing competition, autonomous learning is often seen as a way to cut down on contact hours and reduce staffing costs (Fernandez-Toro, 1998). However, autonomy means a lot more than students working on their own, “it emerges when students play a significant part in choosing their own direction, discovering their own learning resources, formulating
their own problems, deciding their own course of action and reflecting on the outcome of that process” (Hughes, 2001, 5).

Learner’s autonomy is generally seen as the “ability to assume responsibility for one’s own affairs” (Holec, 1979, p. 3). Macaro (1997) places emphasis on autonomy as a way of developing learner’s potential. According to Field (2007), true learner empowerment consists of the freedom to learn outside the teaching context and the ability to continue learning after instruction has finished, which largely depends on learners’ motivation and opportunities for learning outside the classroom. That is why I encouraged my students to read articles on their topic of research and watch more professional videos independently and attend various local speaking clubs to improve their English.

Instructional and autonomous learning often seen as opposites, however, they do not contradict to each other. Independence is not the absence of guidance, but “the outcome of a process of learning that enables learners to work with such guidance as they wish to take getting there needs considerable insightful planning and action” (Knight, 1996: 35). Field (2007) states that autonomous learning can be promoted in the language class, for instance, through employing learning strategies, negotiating content, understanding the teacher’s goals, achieving a deeper language awareness, reflecting on the process of learning, recognizing one’s own learning style, and outside school through self-assessment, general study skills, and managing learning.

Third-year students of Geology and Geophysics department have classes only once a week. Considering the lack of time, academic reading and writing activities were predominantly done autonomously, whereas general listening and speaking were emphasized in class. A typical lesson included 45 minutes of general and academic vocabulary and 45 minutes of grammar. Professional and academic English were present in monthly course projects with audiovisual materials and discussions, professional books and articles, essays, portfolios, guest speakers, and out-of-class events.

**Formative Assessment**

Finally, the syllabus introduced Russian students to the concept of formative assessment. In many university courses, students are still assessed summatively: instead of weekly quizzes and regular assignments, such as course projects, students take one final oral or written exam that determines the final grade. However, syllabus introduced them to another
concept of assessment, where their attendance, participation, score on portfolio, weekly quizzes and monthly course projects are taken into account as well as the midterm and final test score.

Rita Berry (2008) in her book *Assessment for Learning* presented three approaches to assessment: assessment of learning, assessment for learning and assessment as learning. Assessment of learning is usually related to summative evaluation of student performance, whereas assessment for learning and assessment as learning focus on helping students learn better. The latter also emphasize the importance of feedback and the role of a teacher as a facilitator of learning success.

To make my classes more effective, I used regular quizzes since the first day of the course and motivated students to repeat and reinforce information that was presented in the previous classes. Course projects and portfolio tasks were also assigned since the very first day of the course. This way students could prepare for them well and plan ahead of time.

In addition to weekly and monthly assessment procedures, there were midterm and final tests that included the lexical and grammatical information that had been presented in the course so far, together with translation of professional texts and listening exercises based on audiovisual materials related to earth sciences.

Formative assessment procedures included:

1) Weekly pop-up quizzes that give extra points
2) 40% Midterm and final tests that include listening, speaking, grammar, vocabulary and written translation
3) 30% Course projects with presentations and discussions of the geological videos, interviews with guest speakers, creative tasks
4) 20% attendance and participation *more than 6 absences = no grade
5) 10% geological portfolio **no portfolio = no grade

Grading: 90-100% - A, 80-89% - B, 70-79% - C, less than 69% - F.

Sample Syllabus
Table 1: *Syllabus for the Fall Semester*

**Course Syllabus**

**Group 15501**

**Time and place:** Room 2102, every Wednesday, 2.30-4.05 pm

**Teacher:** Prof. Olga Kopiatina (MA Sociology, MA TESOL)

**Course objectives:**

- To learn the key terms and vocabulary for geologists in English
- To expand the knowledge of grammar structures for academic writing
- To become more fluent in reading, writing, listening and speaking
- To improve the pronunciation of English words and sentences
- To develop the translational skills for written texts in geology

**Textbooks:**

- New English File Advanced Student’s book
- The History of the Atlantic & Yellowstone Park
- Articles of your choice (extra credit)

**Grades:**

40% Midterm and final tests
30% Course projects
20% Attendance and participation

10% Portfolio

90-100 – A, 80-89 – B, 70-79 – C, less than 70 – F

Note 1: more than 2 absences – B or less, more than 4 absences – C or less, 6 absences – F.

Note 2: no portfolio – no grade

<table>
<thead>
<tr>
<th>Date</th>
<th>Classroom activities</th>
<th>Portfolio tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep. 6</td>
<td>Introduction</td>
<td>1 – Essay “Why do I want to become a geologist?”</td>
</tr>
<tr>
<td>Sep. 13</td>
<td>Course project #1: Being a geologist (individual and group presentations)</td>
<td>Course book “The History of the Atlantic”: reading and all exercises</td>
</tr>
<tr>
<td>Date</td>
<td>Activity</td>
<td>Course book Details</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Oct. 18</td>
<td>MIDTERM TEST: geological terms, reading comprehension, translation Submit your portfolios: no portfolio = no grade</td>
<td></td>
</tr>
<tr>
<td>Oct. 25</td>
<td>Course project #2: watch the video “100 Greatest Discoveries of Earth Sciences” and be ready to discuss it.</td>
<td>Course book “Yellowstone Park”: reading and all exercises</td>
</tr>
<tr>
<td>Nov. 22</td>
<td>Course project #3: watch the video “Planet Earth 100 Million Years In The Future” and be ready to discuss it.</td>
<td>Course book “Yellowstone Park”: reading and all exercises</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
<td>Notes</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>Nov. 29</td>
<td>Test preparation. Guest speakers.</td>
<td>Course book</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Yellowstone Park”: reading and all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>exercises</td>
</tr>
<tr>
<td>Dec. 6</td>
<td>Test preparation</td>
<td>Course book</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Yellowstone Park”: reading and all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>exercises</td>
</tr>
<tr>
<td>Dec. 13</td>
<td>FINAL TEST - listening, speaking,</td>
<td>Submit your portfolios: no portfolio</td>
</tr>
<tr>
<td></td>
<td>grammar, vocabulary, translation</td>
<td>= no grade</td>
</tr>
<tr>
<td>Dec. 20</td>
<td>New Year celebration. Grades.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: *Syllabus for the Spring Semester*

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**Course Syllabus**  
*Group 15502*

**Time and place:** Room 2147, every Wednesday, 12.40-2.15 pm

**Teacher:** Prof. Olga Kopiatina (MA Sociology, MA TESOL)

**Course objectives:**
To learn the key terms and vocabulary for geochemists in English

To expand the knowledge of grammar structures for academic writing

To become more fluent in reading, writing, listening and speaking

To improve the pronunciation of English words and sentences

To develop the translational skills for written texts in geology and geochemistry

**Textbooks:**

New English File Upper-Intermediate Student’s book & 5 articles of your choice

**Grades:**

30% **Final test**

Covering all materials of this school year (vocabulary, grammar, translation, listening, and speaking)

30% **Course projects:**

#1: St. Valentine’s Day. Songs and poems about love.

#2: Record a video in English “A day in geologist’s life”

#3: The presentation of your research: a ppt and a speech.

20% **Attendance and participation**

2 absences are allowed, 3 absences – B, 4 absences - C, 5 absences – F.

20% **Portfolio:**

1) read and translate five articles on your topic of research;

2) write a 5-page article in English, including a title, an abstract, a professional bio, an introduction, literature review, method, and results/discussion, references.
No portfolio – no grade

**Grading:** 90-100 – A, 80-89 – B, 70-79 – C, less than 70 – F

The results will be summed up with the previous semester

<table>
<thead>
<tr>
<th>Date</th>
<th>Classroom activities</th>
<th>Portfolio tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb.14</td>
<td><strong>Course project #1:</strong> St. Valentine’s Day. Songs and poems about love. Dependent prepositions.</td>
<td>1) print out, read and translate 5 articles</td>
</tr>
<tr>
<td>Feb.21</td>
<td>New English File Upper-Intermediate. Grammar: Passive voice, 3A, page 136. Vocabulary: Body, p. 152.</td>
<td>2) write your own 5-page article on the topic of your research, add these five articles in the references</td>
</tr>
<tr>
<td>March 7</td>
<td><strong>Course project #2:</strong> Record a video. Irregular verbs. P. 173.</td>
<td></td>
</tr>
<tr>
<td>March 28</td>
<td><strong>Course project #3:</strong> The presentation of your research.</td>
<td></td>
</tr>
<tr>
<td>April 4</td>
<td>New English File Upper-Intermediate. Grammar: Past modals, 4B, page 137. Vocabulary: Business, p. 156.</td>
<td><strong>Portfolios are submitted:</strong> 5 articles that you read and your article on the topic of your research.</td>
</tr>
<tr>
<td>April 11</td>
<td>New English File Upper-Intermediate. Grammar: Verbs of</td>
<td></td>
</tr>
</tbody>
</table>
Syllabus Evaluation

Syllabus evaluation was conducted using an open-ended questionnaire that looked like a course feedback form. Together with the implicit course evaluation throughout the course, the explicit course feedback at the end provides an opportunity to evaluate the effectiveness of the course. 93 students from eight study groups participated in the survey that included questions about the importance of syllabus, practical tasks, content, and selected materials. To make the feedback anonymous, student responses were numbered and sorted by their content.

Questionnaires are known to be the most frequent and efficient method for identifying students’ learning practices (Chamot, 2004). The limitations are that students may not remember the practices they have used in the past, may claim to use practices that in fact they do not use, or may not understand the descriptions in the questionnaire items. All items in the questionnaire were in English in order to provide additional practice.

Findings and discussion

Attitude To Syllabus

The majority of students has shown positive attitude towards syllabus for several reasons. First of all, it was useful to know about the timetable and deadlines: “It is fantastic to have the timetable and structure for one of the most important subjects” (R. 13), “I like that we always know about all deadlines” (R. 27).

Second, it was useful for learning about homework, textbooks and additional materials: “It helps to understand the structure of the course and find different materials for test
“preparation” (R. 19), “We can see our homework and books for classes” (R. 25), “You can always see what grammar information to learn or to read” (R. 40).

Planning time is important both for teachers and for students: “Syllabus allows me to do some tasks at a convenient time and everyone has a chance to do hometasks in advance” (R. 56), “You can plan studies for several months; you know what you should do from the very beginning” (R. 51), “It is useful to plan your work” (R. 71).

Some students, however, confessed of not using the syllabus properly: “Syllabus is a good idea, but I rarely used it because I’m lazy” (R. 5), “It’s a good idea, but I didn’t use this information, my mistake” (R. 17).

The idea of flexibility and transparency in all course documents also prompted me to create the course assessment report in Google sheets, where I added information about attendance, task completion and course progress after each class. This way students could get a clearer picture of deadlines, tasks and their assessment in real time: “You can control your progress” (R. 28), “Anytime I could check if something is not completed” (R. 34). Also, formative assessment kept them busy with tasks and motivating them to take control over their studies: “I can’t forget English language and I can’t relax” (R. 61).

The syllabus in each group could be edited throughout the semester, predominantly in class, after the suggestions that students made about the course structure and deadlines. For this reason the syllabus was posted in Google docs for instant viewing and editing. Students could view all changes in the document, but could not edit it.

Disadvantages of the Course

Since the questionnaire was anonymous, some students made suggestions or even expressed disagreement or criticism with the items in the course. One student pointed out the absence of severe punishments for missing homework: “Course projects are a good idea, but it will be better if the teacher punishes us when we don’t work. We need the discipline” (R. 15). My idea was not to punish with the low grades, but to establish certain attendance and assignment submission rules that allowed me not to be strict with students.
Several comments were related to the points that seemed challenging for me since the very beginning, but could not have been changed because of the rules of our department, such as dividing students into groups by levels or having more classes per week: “Good course. I liked it, but it is better to divide groups by levels” (R. 2), “I think there are not enough hours per week, we need more to make more progress” (R. 9), “I want more classes per week, but it’s impossible” (R. 16).

Student suggested watching movies and playing games in class: “I would suggest watching more English movies and subtitles in class. I think it would help me to understand English speech better” (R. 73), “I want to play more games in English” (R. 41). Taking into account the lack of time even for basic things like grammar and vocabulary, I assigned all videos as homework and left discussions for in-class activities. We played some communicative games, but academic and professional English at the university level cannot be employ the games and fun exercises to the extent of private language schools.

There were several reasonable complaints about having too many tasks that were assigned for homework: “We can do some tasks in class” (R. 44), “It was very hard to understand the words” (R. 51), “So many tasks, hard to understand what to do” (R. 76), “I have some problems understanding geochemical texts” (R. 88), “Maybe it’s better to check the portfolio by parts?” (R. 90). I decided to collect portfolios only once or twice per semester so the students could manage their own time and divide a large amount of work into parts.

Having a lot of homework provided some students with the opportunity to get a lot more information out of the course, whereas students who did not intend to work hard could simply do a minimum of required exercises. This was also reflected in student responses: “I’ve got new skills of this language because of a plenty of homework and work in class. I don’t want to change anything in the lessons and course projects” (R. 17), “We had a lot of homework during the course and we wanted to do it on time because we wanted to do well on the final test” (R. 61), “We learned a lot of new terms for our profession, read some articles and translated them. I did my resume and CV - I think my English is improving!” (R. 78).

Opinions on the professional course books, such as “The History of the Atlantic” and “Yellowstone park” were also different: “Good books, they helped me” (R. 3), “My reading improved more than other skills” (R. 47), “Strange books, terms are very strange” (R. 58), “They are so old and not very interesting” (R. 89), “We’ve known this information already”
Some tasks were not useful, they should be replaced” (R. 6). These course books were written specifically for our department, so they have been used at my department for years and included in the curriculum. I could have used something different, maybe pick a book by their specialization, i.e. geophysics, geochemistry, geology, or oil and gas geology.

Even though I tried to balance the amount of general, academic and professional English in the course, students expressed some concerns about not studying enough ESP: “In the next course we need to leave grammar and concentrate on professional English” (R. 8), “Maybe we need more special terms. Also, translating articles was hard” (R. 12).

Advantages of the Course

Positive feedback showed the match between student needs and course objectives and content: “I wanted to study geological terms, and course projects helped me to do this” (R. 13), “It is a very good course. The most interesting parts of lessons were speaking and watching documentaries. I’ve learned a lot of new words on different topics. I could understand lessons and course projects, even if they were very hard” (R. 6), “It was difficult a little bit because there were a lot of course projects, but they were always interesting” (R. 29), “I learned a lot of new words and grammar structures. Also I improved my speaking skills” (R. 63), “Documentaries made my learning better and more interesting. Course projects may become even more interesting if we make different mini-documentaries ourselves” (R. 33). The latter seems to be a good idea for a course project.

Students also emphasized the balance between useful, interesting and fun activities in the course: “English classes were perfect: useful (grammar, vocabulary), interesting (course projects) and sometimes fun (New Year)” (R. 20), “I learned a lot of words and grammar rules. Learning in class with other students make it more interesting and fun” (R. 39), “I like this system and methods of our English learning. We need the same system of learning in other classes for geologists” (R. 17).

The most important feedback for me showed that the students are ready to take charge of their own learning and to continue their studies independently out-of-class: “It is impossible to be a good scientist without knowing English” (R. 7), “I started talking in English and met a lot of friends who speak English too. I changed my opinion about English: it’s not just a subject,
it’s an interesting tool to connect with other people” (R. 19). Also, one respondent noted that individual approach to each student helped to succeed them in the course: “Your attention to everyone helped us in the course” (R. 71).

Conclusion

In this article, I have presented theoretical frameworks, practical suggestions and samples of syllabus that can be used in the ESP course design and evaluation. The study has certain limitations: it may be difficult to extrapolate the results on other systems of higher education or even on other institutions within the system of higher education in Russia. However, instructors who teach ESP at the university level will certainly benefit from sample course structure as well as practical suggestions for formative assessment and tasks that could be assigned for autonomous learning.

I strongly agree with Bengston et al. (2017) and Bovill et al. (2011) that developing syllabus in a student-teacher team can significantly affect the results of the course. My students have experienced an increase in motivation and confidence, took greater responsibility for learning, and improved their academic performance by explaining their goals and needs and making their adjustments to the structure of the course, topics and assessment procedures. In the ESP context, students could also give a unique perspective of how their English course connects to the rest of the geology education. I recommend all instructors to benefit from seeing the learning process from students’ perspectives and make relevant changes in the syllabus that can improve both learning and student–teacher relationships.

References


Regular Expressions and Annotation Design for ESP Corpus Compilation – Compilation of Veterinary Nursing Medical Chart Corpus

Yukiko Ohashi  
*Yamazaki Gakuen University*

Noriaki Katagiri  
*Hokkaido University of Education*

Katsutoshi Oka  
*Yamazaki Gakuen University*

Biodata

**Yukiko Ohashi** and **Katsutoshi Oka** are lecturers of Yamazaki Gakuen University in Tokyo Japan. **Noriaki Katagiri** is an associate professor at Hokkaido University of Education in Asahikawa Japan. Their research interests include corpus compilation and L2 language acquisition. Ohashi can be reached at (y_watanabe@yamazaki.ac.jp).

Abstract

This study presents an annotation design and regular expressions that can be repeatedly utilized to compile large-scaled corpora, especially in the field of English for Specific Purposes (ESP). We used veterinary medical charts and compiled a Veterinary Nursing Medical Chart (VNMC) Corpus, with appropriate tags to extract the data necessary with Perl scripts for the creation of wordlists or materials for English education. Also, the authors made a frequency-based wordlist using the words included in the VNMC Corpus, which were not included both in General Service List (GSL) and Academic Word List (AWL). In this study, in addition to the sample wordlist comprised of the words extracted from the compiled corpus, we have included directions for using regular expressions for compiling a corpus.

**Keywords:** corpus, regular expressions, wordlist, veterinary medicine
Introduction

A large amount of ESP (English for Specific Purposes) vocabulary research has presented the case for the validity of using specialized corpora. A variety of corpus-driven data ranging from the use of words in professional contexts to specific lexical items that are not included in some basic word lists, has supported ESP education (Coxhead, 2014). The compilation of a specific corpus enables teachers to identify the specific lexical items to be taught in their classes through the use of online tools. Thanks to the wide range of availability of specialized corpora, a number of specific lexical items for specialized fields have been presented; however, there are some challenges in compiling a corpus, which have not yet been solved. In this paper, we discuss the challenges of compiling a corpus, focusing on the possibility of using regular expressions to avoid the complexity of entering annotations manually.

Review

The use of corpora is becoming increasingly commonplace in the teaching of ESP. Different corpus-based studies are based on specific corpora. For example, through the use of the Adolescent Health Email Corpus, Atkins and Harvey (2010) identified discursive patterns in young people’s email in the field of health communication, pointing out the importance of corpus-based evidence. In the medical field, Staples and Biber (2014) focused on the use of grammatical stance markers observed in a corpus of nurse and patient interactions. Coxhead (2014) also emphasized the possibility, as well as the importance, of creating vocabulary materials based on various kinds of specialized corpora. As Nesi (2013) argues that exploratory corpus research may lead ESP practitioners to new discoveries about the language used in the target situations of ESP students, the outcomes of corpus-driven research can be seen as valuable for ESP education.

Corpora with detailed tags, which enable teachers to extract necessary data, will be more useful for the wider application of material creation. As for creating specified lexical word lists, the range of frequency varies according to the extent of the data. Creating a variety of word lists focusing on smaller fields requires a detailed corpus comprised of a vast array of data classified by accurate annotations. The more tags that are attached, the more detailed the data that can be extracted will be. A large amount of data with appropriate tags for its specialized context allows the users of the corpus to extract more specific data according to their needs.
Despite the necessity of detailed corpora with accurate annotations, there are relatively few available for the field of ESP. One possible reason is that attaching detailed tags requires manually checking each document entry one by one, which is time consuming. Additionally, an entire corpus’s data could be imprecise due to human error caused by manually attaching tags. Thus, we replaced manually attaching tags with automated work through the use of regular expressions to address the challenges of compiling a corpus with a variety of tags for data extraction.

In this paper, we will show how we compiled the Veterinary Nursing Medical Chart (VNMC) Corpora, focusing on regular expressions as well as Perl scripts available for data extraction. Also, we conducted a sample case study, creating a wordlist using the VNMC Corpus.

**Procedures for Compiling the VNMC Corpus**

This section describes how we created the VNMC Corpus in the following order: 1) Digitizing the medical charts through OCR, 2) cleansing the OCR text, 3) annotating the text using regular expressions and extensible markup language (XML), and 4) synthesizing the annotated text to mark the compilation of the VNMC Corpus. Figure 1 summarizes these four steps. We will explain these steps in more detail in subsequent sections.

---

*Figure 1. Processes of compiling the VNMC Corpus.*
Digitizing the medial charts

We obtained permission to utilize medical charts and digitized 460 medical records; 240 medical charts the VDM documented and 220 treatment records the veterinary nurses wrote. Since the original records could not be moved from the VDM’s office, we photocopied the medical charts and then OCR-ed the hard copies using Adobe Acrobat Pro DC (version 2015.006.30416).

Cleansing the OCR-ed texts

We had two main types of garbled characters. The first type resulted from the similarity of the shapes of the literal characters to geometric figures. For example, uppercase Os turning into circles (⊙) was a problem. The second garbled character type was caused by hand-written text. The VDM added hand-written notes on the formatted medical charts, which can be digitally recorded. The manuscripts sometimes were not easily identifiable by the OCR, resulting in garbled text. We had to refer to the original medical charts to correct such garbled characters. By completing these processes, we cleansed the OCR-ed data, converting it into text files. We annotated these text files as explained in the next section.

Annotating the texts

This section describes how to annotate the text files made from the veterinary medical charts mentioned in the preceding sections. First, we will display the tag set, and then explain the regular expressions we used in the tag set.

Veterinary medical records

The aim of annotating the VNMC Corpus was to create an ESP corpus example that could serve versatile pedagogical needs as well as linguistic research purposes. We examined the format of the veterinary medical records the VDM and the nurses wrote and designed the corpus structure. We used the extensible markup language (XML) to design the VNMC Corpus structure. We classified the corpus elements in a hierarchical order that would serve our study’s needs.

The veterinary medical charts we obtained consisted of the following sections: 1) Patient information, such as the name of the patient, date of birth and age, and the name of the patient’s owner; 2) vital signs; 3) chief medical complaint; 4) allergies; 5) the subjective diagnosis by
the DVM and the objective diagnosis based on the physical exam; 6) assessment of the ailing part by the DVM; 7) treatment plans; and 8) hand-written memoranda. We classified these information fields and defined them in the XML elements. Figure 2 shows the overview of the VNMC Corpus in a tree diagram, and Figures 3 through 6 supplement the diagram for the descendant elements. The VNMC Corpus has individual files that consist of the head elements and the body elements (Figure 2). Each body element is the equivalent of the veterinary medical documents (i.e., either a medical chart that the VDM wrote or a medical record that the nurse wrote). The element chart, nurse, or letter distinguishes who made the veterinary medical document. These elements include child elements, such as table, word, memo, and text (Figure 2). These child elements below the chart elements, for example, hold the text data that we need to compile the VNMC Corpus. Figures 3 through 6 show these child elements in detail.
Figure 2. Tree diagram of the VDM Corpus. The element *chart* holds veterinary medicinal information, such as names of the species (in the element *species*), and the name of the breed (in the attribute *breed*) and the ailing part (in the attribute *part*). The element *unit* represents the unit of measurement (e.g., pounds) and the quantity and the dosage of medicine prescribed for treatment. The element *abbr* represents the inline elements shown in abbreviations, such as *lbs* (pounds) and *Temp* (body temperature of the animal). The element *table* shows the vital signs of the animal shown in table. The elements *word*, *memo*, and *text* hold text content for these elements.

Figure 3. Child elements of the element *table*. The element *abbr* represents the inline elements shown in abbreviations such as *lbs* (pounds) and *Temp* (body temperature of the animal). The elements *word*, and *memo* hold text content in these elements.
Figure 4. Child elements of the element word. The elements text and memo hold text content for these elements. The element abbr represents the inline elements shown in abbreviations, such as lbs (pounds) and Temp (body temperature of the animal).

Figure 5. Child elements of the element memo. The element abbr represents the inline elements shown in abbreviations, such as lbs (pounds) and Temp (body temperature of the animal). The element span holds the Japanese translation of the English veterinary medical term inserted in the handwritten memo. Its attribute lang is set to represent into which language it is translated. (In this case, it is translated into Japanese).
Figure 6. Child elements of the element text.

XML Schema of the VNMC Corpus

Figure 7 shows the structure of the annotation scheme of the VNMC Corpus.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="file">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="head"/>
        <xs:element ref="body"/>
      </xs:sequence>
    </xs:complexType>
    <xs:attribute name="id" type="xs:string" use="required"/>
  </xs:element>
</xs:schema>
```
<xs:element name="body">
    <xs:complexType>
        <xs:sequence>
            <xs:element ref="chart" maxOccurs="unbounded"/>
            <xs:element ref="nurse" maxOccurs="unbounded"/>
            <xs:element ref="letter"/>
        </xs:sequence>
    </xs:complexType>
</xs:element>

<xs:element name="chart">
    <xs:complexType mixed="true">
        <xs:sequence>
            <xs:element ref="species" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element ref="unit" minOccurs="0"/>
            <xs:element ref="abbr" minOccurs="0"/>
            <xs:element ref="table" minOccurs="0"/>
            <xs:element ref="word" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element ref="memo" minOccurs="0" maxOccurs="unbounded"/>
            <xs:element ref="text" minOccurs="0" maxOccurs="unbounded"/>
        </xs:sequence>
    </xs:complexType>
</xs:element>

<xs:attribute name="author" type="xs:string" use="required"/>
<xs:attribute name="species" type="xs:string" use="required"/>
<xs:attribute name="breed" type="xs:string" use="required"/>
<xs:attribute name="part" type="xs:string" use="required"/>
Figure 7. XML schema sample of the VNMC Corpus. See the Appendix for the entire schema.

Based on the XML schema above (Figure 7), we annotated the cleansed files. We used Microsoft Expression Web 4\textsuperscript{1} to add tags to the corpus. When we annotated the text, we used regular expressions to modify the cleansed text data so that the corpus would be more usable for pedagogical and research purposes. The next section will describe the regular expressions we used.

**Using regular expressions**

Tables 1 through 3 show examples of annotating the cleansed data that are considered to be inline elements. We annotated the data based on the following categories: (1) Abbreviations (Table 1), (2) categories such as sex and units of measurement (Table 2), and (3) whether the species is canine or feline and names of the species (Table 3). These inline elements are mostly abbreviated in the medical documents. For example, blood pressure is expressed as \textit{BP} and the body temperature is expressed \textit{Temp} (Table 1). We substituted such abbreviated terms for complete representations of the abbreviations using regular expressions and the Perl script. We made lists of abbreviated character strings (in the first columns of Tables 1, 2, and 3), set them in the search arguments (in the second columns of Tables 1, 2, and 3), and substituted them for the complete representation annotated with XML tags (in the third columns of Tables 1, 2, and 3).

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>List of Inline Element Abbreviations (Step 4)</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Regular expressions in Perl script</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strings</strong></td>
</tr>
<tr>
<td>SYS</td>
</tr>
<tr>
<td>DIAS</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>BP</td>
</tr>
<tr>
<td>Lo</td>
</tr>
<tr>
<td>Pos</td>
</tr>
<tr>
<td>Meth</td>
</tr>
<tr>
<td>Resp</td>
</tr>
<tr>
<td>BSA</td>
</tr>
<tr>
<td>BCS</td>
</tr>
<tr>
<td>Temp</td>
</tr>
</tbody>
</table>

**Table 2**

*List of Inline Element of Sex and Measurement Units (Step 4)*

<table>
<thead>
<tr>
<th>Regular expressions in Perl script</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strings</strong></td>
</tr>
<tr>
<td>Sex M</td>
</tr>
<tr>
<td>Sex F</td>
</tr>
<tr>
<td>Sex N</td>
</tr>
<tr>
<td>Sex S</td>
</tr>
<tr>
<td>LBS</td>
</tr>
<tr>
<td>Strings</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>canine</td>
</tr>
<tr>
<td>Shiba Inu</td>
</tr>
<tr>
<td>German )?Shepherd(,)?( Australian</td>
</tr>
<tr>
<td>Labrador</td>
</tr>
</tbody>
</table>
We replaced the abbreviated inline elements with their complete word representations expressed in the XML annotations. After taking all the digitized medical documents in text files through Steps 1 through 3, we combined all the files into one text file, marking the completion of the VNMC Corpus. The VNMC Corpus is thus equipped with self-explanatory XML annotations that serve to extract necessary text data by pinpointing the annotation elements such as species, types of breed, ailing parts, and treatments that follow the medical diagnoses. The next section explains how to extract data with Perl script.

### Extracting the data from VNMC Corpus

This section illustrates how we extract intended data from the VNMC Corpus. Having a well-structured annotated corpus enables us to extract data by accessing the VNMC Corpus using Perl scripts. The Perl script constitutes two steps: (1) linking the files, and (2) extracting the text data, and (3) eliminating the annotated tags from the text. Figure 8 shows these two steps, and Figures 9 through 11 illustrate the execution sample results.
my $ele, $attr, $filename, $data, $count; # Declare five arguments.

# Define the first argument, $ele.

$ele = $ARGV[0]; # Set the first argument from the standard input in $else.

# Define the third argument, $filename.
$filename = $ARGV[@ARGV - 1]; # Set the final argument from the standard input, i.e., the file name in $filename.

if (@ARGV == 2) { # If there are two arguments, no attributes exist.

    # Define the second argument, $attr.
    $attr = "[> ]"; # Thus, set “>” or “ “ in $attr.
    } elsif (@ARGV == 3) {
        # If there are three arguments from the standard input, an attribute exists.
        $attr = $ARGV[1]; # Set the attribute in $attr.
        if ($attr eq "=") { # If the second argument from the standard input equals “=",
            $attr = ">";
        } else {
            if ($attr =~ /=/) { # If the second argument includes “=",
                $attr =~ s/==/="/;
                # Add a double quote and an unquote.
                $attr .= "";
            } else {
                $attr =~ s/==/="/; # Add =" to the end of the attribute name.
            }
        }
        $attr = "[^>]*?\s+\$attr; #
} else {  # If there is no more than two arguments from the standard input,
    die "Usage: xml_drip01.pl [element] (attribute(=string)) [XML file]\n";
}  # Show the usage through the standard output, and terminate the process.

# Step 1: Concatenate the files.
open( IN, "<$filename" ) or die("Error: $!");

# Define the fourth argument, $data.
$data = do {  
    local $/ = undef;  # Nullify the linefeed characters in the input files.
    <IN>
};
close(IN);

# Step 3: Extract the text data.
$count = 0;
while($data =~ /(<$ele$attr.*?<$ele>)/gs) {
    print "$1


$count++;
}
print "Total: $count\n"

Figure 8. Perl script, xml_drip.pl which extracts text data from the VNMC Corpus. xml_drip.pl uses five arguments; $ele, $attr, $filename, $data, and $count. The first three arguments, $ele, $attr, and $filename should respectively contain the element name, the attribute name (optional), and the file name. These are given through standard input. If no less than two arguments are given through the standard input, an error message “Usage: xml_drip01.pl [element] (attribute(=string)) [XML file]\n” will appear via standard output.

The Perl script, xml_drip.pl shown above should be kept in a certain directory, for example, on the Desktop. To extract the text attached with “canine” tags from the file named “total.xml,” which is also kept in the same directory, on the Desktop in this case, we feed the arguments
through the standard input by literally typing “xml_drip.pl” as the executing Perl script, text as the element name (the first argument), and 00001.xml as the file name (the third argument) that contains the text:

```perl
C:\Users\oka.YAMAZAKI\Desktop\perl>perl xml_drip.pl text 00001.xml

# scr_tag_only.txt     xml

C:\Users\oka.YAMAZAKI\Desktop\perl>perl xml_drip.pl text 00001.xml
<text>No main concerns. Has a skin rash on belly for about 6 <unit>months</unit>. Has been seen off base and been given injections.</text>

<text>Off base they said it was dust mites.</text>

<text>Because your pet was vaccinated today, you should monitor her/him closely over the next 24-48 <unit>hours</unit>. These vaccines sometimes cause adverse reactions. Normal reactions may include a decreased appetite, mild vomiting, and decreased activity. If you think your pet is experiencing a serious reaction (facial swelling, severe vomiting and diarrhea), contact a veterinarian immediately. If this occurs outside of our normal office hours, you may have to consult a civilian veterinarian.</text>

<text>Owner verbalized or demonstrated understanding of the above counseling or education and plan.</text>

<text>Electronically reviewed and signed by XXX. 15 <unit>minutes</unit> were spent with patient. Of this time, more than 50% was spent counseling or coordinating care.</text>

Total: 5
```

C:\Users\oka.YAMAZAKI\Desktop\perl>
**Figure 9.** Perl script execution result (only a file name as an argument) on the Windows command line. [perl xml_drip.pl text 00001.xml]

```
# scr_tag_with_attr.txt
xml

C:\Users\oka.YAMAZAKI\Desktop\perl>perl xml_drip.pl abbr title="History of Present Illness" vomiting.xml
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
Total: 8
```

**Figure 10.** Perl script execution result (with attribute, attribute name and value, and a file name as three arguments) on the Windows command line. [abbr title="History of Present Illness" vomiting.xml]

```
C:\Users\oka.YAMAZAKI\Desktop\perl>perl xml_drip.pl abbr title="History of Present Illness" vomiting.xml
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
<abbr title="History of Present Illness">HPI</abbr>
Total: 8
```
We can redirect the results (i.e., the extracted text to a new file) “file2.xml” by the script below:

C:\Users\yamazaki>cd Desktop> perl xml_drip.pl nurse species=canine total.xml >file2.xml

Figure 12 shows an execution example.

---

<table>
<thead>
<tr>
<th># file_redirect.txt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows [Version 6.1.7601]</td>
</tr>
<tr>
<td>Copyright (c) 2009 Microsoft Corporation. All rights reserved.</td>
</tr>
<tr>
<td>C:\Users\oka.YAMAZAKI\Desktop\perl&gt;perl xml_drip.pl text total.xml &gt; result.txt</td>
</tr>
<tr>
<td>C:\Users\oka.YAMAZAKI\Desktop\perl&gt;</td>
</tr>
<tr>
<td>Figure 12. Perl script execution result on the Windows command line with the standard output stream redirected to a file result.txt.</td>
</tr>
</tbody>
</table>
Figure 13. Perl script sample to eliminate tags, tag names, attribute names and attribute values.

This section showed how our Perl script extracted the intended data by designating the three arguments from the standard input: First, the element name used in the VNMC Corpus; second, the optional attribute name; and third, the file name. We redirected the extracted results and utilized them for our ESP purposes. The next section gives a sample corpus study using the processes we have demonstrated so far.

Case Study

Attaching tags that utilize regular expressions, as shown above, the VNMC Corpus (total type: 6287 / total token: 221077) was completed. As Coxhead (2014) suggested, specialized corpora allow us to develop a variety of ESP materials, such as vocabulary tests. A corpus with detailed tags will help us extract specified data based on our needs, which can be developed into classroom materials. For example, students majoring in veterinary nursing are expected to know a number of terms concerning animals and learning-specific words is required. Extracting
data from the VNMC Corpus, creating classroom materials, such as frequency-based word lists, is possible. As a case study using VNMC Corpus, we posed the following questions:

Research Questions:
1. Which vocabulary items are considered specific to Veterinary Nursing?
2. Which lexical items will be required to understand the documents concerning canines or felines?

To answer RQ 1, specific words included in the VNMC Corpus were examined using AntConc Version 3.4.3 (Anthony, 2014) through comparison with the lexical items included in the Standard Corpus of Present-Day Edited American English (Brown Corpus) (Francis and Kučera, 1964), which consists of one million words of American English sampled from fifteen different categories. AntConc automatically counts “keyness,” which demonstrates how specific each vocabulary item in the VNMC Corpus is when compared to the Brown Corpus. The larger the keyness value, the more specific the vocabulary item is. Table 4 shows a list of specific vocabulary items with keyness, which are considered specific to Veterinary Nursing.

A List of Specific Vocabulary Items Compared to the Brown Corpus

<table>
<thead>
<tr>
<th>Word</th>
<th>Frequency</th>
<th>Keyness (G²)</th>
<th>Word</th>
<th>Frequency</th>
<th>Keyness (G²)</th>
<th>Word</th>
<th>Frequency</th>
<th>Keyness (G²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>normal</td>
<td>5786</td>
<td>21175.954</td>
<td>pharynx</td>
<td>436</td>
<td>1690.668</td>
<td>heartworm</td>
<td>276</td>
<td>1070.239</td>
</tr>
<tr>
<td>abnormal</td>
<td>1113</td>
<td>4275.284</td>
<td>gland</td>
<td>456</td>
<td>1674.713</td>
<td>x-ray</td>
<td>276</td>
<td>1070.239</td>
</tr>
<tr>
<td>exam</td>
<td>989</td>
<td>3835.025</td>
<td>male</td>
<td>487</td>
<td>1632.458</td>
<td>weight</td>
<td>397</td>
<td>1068.558</td>
</tr>
<tr>
<td>finding</td>
<td>1039</td>
<td>3615.566</td>
<td>female</td>
<td>505</td>
<td>1619.983</td>
<td>dental</td>
<td>296</td>
<td>1050.11</td>
</tr>
<tr>
<td>plan</td>
<td>1209</td>
<td>3577.746</td>
<td>assessment</td>
<td>461</td>
<td>1609.723</td>
<td>abdomen</td>
<td>280</td>
<td>1029.37</td>
</tr>
<tr>
<td>patient</td>
<td>1015</td>
<td>3262.722</td>
<td>wellness</td>
<td>385</td>
<td>1492.907</td>
<td>murmur</td>
<td>269</td>
<td>1011.018</td>
</tr>
<tr>
<td>allergy</td>
<td>684</td>
<td>2637.586</td>
<td>complaint</td>
<td>408</td>
<td>1463.546</td>
<td>rables</td>
<td>263</td>
<td>1006.992</td>
</tr>
<tr>
<td>section</td>
<td>909</td>
<td>2555.921</td>
<td>mass</td>
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To answer RQ 2, extracting the texts pertaining to canines (type: 5638; token:190877) or felines (type: 2113; token:25835) using the perl script shown above, the authors used a tool called Range (Nation and Coxhead, 2002) and created frequency-based word lists included in both the canine and feline categories. Table 5 demonstrates frequency-based vocabulary items (top 100 words) observed in the canine category that were not seen in the feline category, and those observed only in the feline category are shown in Table 6. The frequency-based vocabulary items commonly observed in both the canine and feline categories are shown in Table 7. The list of the vocabulary items shown in Table 7 excluded words belonging to the General Service List (GSL) and Academic Word List (AWL), aiming to extract only specific vocabulary items that are not considered academic lexical items. Overall, to understand the documents concerning canine or feline, having the students learn the lexical items included in the tables 5, 6, and 7 is suggested because those words are specific to veterinary nursing and frequently appear in the documents pertaining to canines and felines.

Table 5

*Top 100 Frequency-based Vocabulary Items Pertaining to Canine*

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*Top 100 Frequency-based Vocabulary Items Pertaining to Feline*

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## Table 7

**Top 100 Frequency-based Vocabulary Items Observed both in Canine and Feline Categories**

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Discussions and Conclusions

We conclude by discussing the results of our ESP corpus compilation utilizing regular expressions, and the findings from the case study.

Attaching detailed tags for different categories helped the researchers procure the documents they needed. The annotated corpus enabled us to extract the specified data through perl scripts, which could be the source of specified word lists. We can also learn some specific features from the word lists generated via data categorization. For example, in our case study, we found the word “ERYTHEMA,” (with its frequency position at #97 in Table LLL) referring to spots seen in some canine species, such as pugs, and “CARPROFEN” (with its frequency at #36), a special antibiotic for canines. The frequencies are comparatively high; however, these words are not used for felines and are specific to canines.

Tables LLL, PPP, and MMM also included some abbreviated items that students need to learn. ESP students are expected to learn abbreviated terms because some frequently observed words include things like EHR (electronic health record) or URI (upper respiratory infection) observed in Table 6 (feline), which are considered specific to the field of veterinary nursing. “DX” in Table 7, which refers to “diagnosis,” is also one of the most important words that veterinarians frequently use; however, we had little opportunity to find specific vocabulary items, such as “DX,” in academic texts because abbreviated forms of words are not usually used in them. Our list of regular expressions (shown in Tables 1, 2, and 3) also shows examples of categorizing abbreviated vocabulary items, which allows for extraction of all the abbreviated items included in a corpus to be used as in-class material.

Chung and Nation (2003) investigated the accuracy of the meanings of terms provided by technical dictionaries, revealing a 73.9% accuracy rate. Supporting Chung and Nation’s findings, the accuracy of the specific meanings of some vocabulary items provided by dictionaries included in the VNMC Corpus was low. For example, the lexical item “DEBRIS,” observed in Table 7, refers to earwax or dirt inside an animal’s long, large ears or integument; however, the accurate meaning was not given in a dictionary. These findings point out the importance of identifying domain-specific technical vocabulary terms whose meanings might not be included in technical dictionaries so as to provide learners with the opportunity of learning these specific lexical items in a classroom.

There are also some specific items whose meanings are only made clear by mixing some vocabulary items. For example, “EXTERNA” (in Table 7) is frequently combined with another word (e.g., “OTITIS EXTERNA” or “OPHTHALMOPLEGIA EXTERNA”). Creating a
frequency-based phrase lists is also possible through the use of a corpus, which could help learners expand their field-specific knowledge.

As a whole, creating a specific corpus provides ESP teachers with the opportunity to use data-driven materials in class and extract data for their own research. Further research, in terms of vocabulary items, is also possible by utilizing the VNMC Corpus.

Utilizing regular expressions replaces the process of manually applying tags, leading to a reduction in human error. Compiling an original corpus has been an effective measure for creating a specific word list for ESP education, and this paper suggests adding some tags using regular expressions so as to extract data at any time. As Coxhead (2014) stated, more and more learners are involved in corpus building, through which they develop their vocabulary. We hope the regular expressions introduced above help them build a variety of specialized corpora and that these corpora can be made available to the public.

Acknowledgement

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Notes


References


Appendix

XML Schema of the VNMC Corpus

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The Influence of Lecturer’s Pedagogic and Professional Competences on Students’ Writing Proficiency at Maritime Education and Training

Sunarlia Limbong
Politeknik Ilmu Pelayaran Makassar
Jl. Tentara Pelajar No. 173 Makassar, South Sulawesi, Indonesia

Biodata

Sunarlia Limbong is an English Lecturer at Politeknik Ilmu Pelayaran Makassar. This school is under Ministry of Transportation Republic of Indonesia. She got her undergraduate in Hasanuddin University and postgraduate in Makassar State University. Her research interests are language learning strategies and applied linguistics. She can be contacted at Sunarlia26@gmail.com

Abstract

Foreign language teaching and learning, especially English language for communication as sea is a part of curriculum in all maritime colleges. This is because English has been used as the sea language in a whole world. As a foreign language in Indonesia, it requires more skills to be able to teach it because beside teaching the subject matters, the lecturer’s competence is necessary for the successful learning process. The aims of this research finds out (1) the profile of students’ writing skill at deck department of Politeknik Ilmu Pelayaran Makassar, (2) the influence of pedagogic and professional competence toward students’ writing proficiency at Deck Department of Politeknik Ilmu Pelayaran Makassar. The research will use quantitative design with applying the ex post facto method. The subject of this research consists of second semester of Deck (Nautical) department of Politeknik Ilmu Pelayaran Makassar. The data will be collected using the result of student’s writing proficiency and questionnaire. The quantitative data is first tabulated and then classify according to the given score ranges, and finally categorized in regard to the given criteria. The result of this research shows that (1) The profile of students’ writing skill is categorized into moderate category (2) Pedagogic and
Professional competence has positive and significant influence towards students writing proficiency.

**Keywords:** writing, pedagogic, professional, competence

1. **Introduction**

Science and technology have been developing in this world and many various efforts have been done in order to improve the quality of human resource. One of them is through education. Education is not a separate thing from human life and it is also a key to the success development. The quality of human resource is a basic element in the competence of globalization era. However, the increasing number of people year by year makes the competition tight. Therefore, education field is demanded to be able to create competitive human resources.

Politeknik Ilmu Pelayaran Makassar then would be mentioned as PIP is an example. It is one of the formal education institutions in Makassar that offers a diploma four degrees in field of shipping. It is a college under Badan Pengembangan Sumber Daya Manusia Perhubungan Laut, Kementerian Perhubungan Republik Indonesia which was established on 17th Oktober 1921. The education program at PIP aims to prepare the students, usually addressed as cadet, who are skillful to meet the needs of field of shipping, marine engineering and shipping management.

In seafaring, communication at sea is essential for the efficient and safe running of a ship. They take place within the ship herself – known as on board communication, and between the ship and other ships, between the ship and shore stations and sometimes between the ship and aircraft – known as external communication. Yakusheckina (2000:1) states “International Maritime Organization (IMO) requires every mariner to have adequate knowledge of English. The requirement emphasizes the importance of the English language proficiency in relation to safety at sea.

Since seafaring deals with international world and regulation, the use of English becomes much more crucial. People who involve in this field – in this case the seafarers – will need English for oral and/or for written communication. They use English for sending or receiving message when they are on voyage.
In relation to what have been mentioned above, the government policy about college or higher education develops extensively at this present time. It is not only about the curriculum but also about the lecturer. We may take a look from the lecturer certification program, in which the government tries to improve the lecturer's ability by that program. Students' standard value also increases year by year so that students must learn harder in order that the alumni can compete in this globalization era. But in fact, every university has different quality of students, facilities, and quality of lecturers. Of course the output must be different from other universities which have better facilities or quality of lecturers.

Being a lecturer is not an easy job. Some people even teachers think that being a lecturer is just the same as being a teacher. Even though both of those professions are educators in which they do not only transfer knowledge but also transfer ethic or norm in order their students have good attitude, but the main task of lecturer is heavier than teacher based on the definition of those professions in the law. Lecturer also teaches students with high way of thinking, so no wonder if we always see students sometimes discuss, share idea or even debate with their lecturer in university class in which we do not see such activities in school class. Therefore, the lecturers must have many preparations to support their performance in the classroom. Schunk et al (2012: 457) express there are many factors that influence the lecturers' performance such as aptitude, attitude, subject mastery, teaching methodology, personal characteristics, the classroom environment, general mental ability, personality, relations with the students, preparation and planning, effectiveness in presenting subject matters, relation with other staffs, self-improvement, relation with parents and community, poise, intellect, teaching techniques, interactions with students, teaching competence demonstrated, motivational skills, fairness in grading and lecturers' attitude toward students.

As a foreign language in Indonesia, English must be difficult to teach or learn. Therefore, it requires more skills to be able to teach it because besides teaching the subject matters, the lecturer's competence is necessary for the successful learning process that leads to increase students' achievement. Lecturers must be dynamic and creative in developing learning process in order the students do not get bored which is able to decrease students' achievement. With being taught by a professional educators or lecturers, students are expected to be able to understand the material taught and have good English skill.

Writing is taught as one of four language skills in English and it is one activity that the students do most in their study as well as in PIP Makassar. Through writing assignments, the
students can express their ideas, respond to the other ideas, tell stories, convey information, and they are expected to be able to compose well-organized writing. Writing skills can also be the ticket to better college grades and greater academic achievement. On the other hand, there are many students find difficulty when they are asked to write because they do not know how to start and what topic that they should choose. Besides, uninteresting topic and unsuitable teaching techniques can influence students' interest in writing English.

To figure out the problem, English teachers have to be more creative in choosing the materials and techniques which can make the writing class more interesting, exciting and enjoyable. It can be done by choosing an appropriate material and technique that students like based on students' level and background knowledge. Based on the background above, the researcher formulated the research questions as follows:

1. What is the profile of the students’ writing skill?

2. To what extent does pedagogic competence influence students'writing proficiency at Deck Department of Politeknik Ilmu Pelayaran Makassar?'

3. To what extent does professional competence influence students'writing proficiency at Deck Department of Politeknik Ilmu Pelayaran Makassar?

2. Literature Review

Long et al (2014) conducted a research to determine the impact of lecturers' competencies on students' satisfaction in a private college in Malaysia. The result of the research revealed that competencies such as knowledge on subject, clarity of presentation, interaction with students, teaching creativity, clarifying learning outcome, class activity, and lecturer notes are significantly relates to both students' satisfaction and performance positively. The findings of the research also shown that lecturers' knowledge of subject contributed most to students' satisfaction and performance.

Another research conducted by Sok-Foon et al (2012) to identify the factors and predictors of lecturer performance among undergraduate among private universities in Malaysia. There were 3 components of the lecturer performance is observed, those were course characteristics, tutorial characteristics, and lecturer characteristics. The findings of the study
indicated that lecturer and tutor characteristics remained the most important indicator explaining the variance of overall lecturer performance. In other words, the characteristics or qualities of the lecturers played an important role in determining lecturer performance which led to improve students' satisfaction.

In the perspective of national education policy, it has been formulated four kinds of competences which must be owned by an educator as it is written in the regulation of Republic of Indonesia government number 19 year 2005 about standard of national education section 28 that is pedagogic competence, professional competence, personal competence, and social competence. In *Buku Pedoman Sertifikasi untuk Dosen (Serdos) Terintegrasi; Buku I: Naskah Akademik* (2014: 22-27), it was explained the coverage of each competencies as follows:

a. **Pedagogic competence**

   Pedagogic competence is the ability to manage the learners' learning which includes understanding of learners, designing and implementing learning, evaluating learning outcome, and developing learners to actualize various potentials they have. There are four abilities to master in this competence as follows:

   1) Ability in designing learning
   2) Ability in conducting learning process
   3) Ability in evaluating learning process and outcome
   4) Ability in utilizing research result to improve quality

b. **Professional competence**

   Professional competence is the ability of mastering learning material broadly and deeply which enables him/her to guide the learners to fulfill the standard of competence which is determined in national standard of education.

   There are four abilities to master in this competence as follows:

   a) Mastering learning material widely and deeply.
   b) The ability of designing, conducting, and making research report.
   c) The ability of developing and disseminating innovation.
d) The ability of designing, conducting, and assessing the community service.

2. The nature of writing

a. Definition of writing

Writing is a complex process consisting of many constituent parts which must be considered. Heaton (1975: 127) states that in writing, the writers manipulate words in grammatically correct sentences and link those sentences to form a piece of writing which successfully communicate the writers' thought and ideas on a certain topic. It means that in writing, the writers try to express their ideas in written form using grammatically correct sentences for the purpose of communication.

b. Teaching writing

It is confessed that teaching writing is difficult and complex. Therefore, it needs the creative efforts from the lecturer to bring the writing class to be enjoyable.

Teaching writing has some pedagogic purposes. Byrne (1995) divides it into five purposes as follows:

1) The introduction and practice of some forms of writing enable us to provide for different learning styles and needs. Some learners feel more secure if they are allowed to write in the language, especially for those who do not learn easily through oral practice.

2) Written words serve to provide the learners with some tangible evidence that they are making progress in the language. It is not likely to be a true index of their attainment, but it satisfies a psychological need.

3) Exposure to the foreign language through more than one medium, especially if skills are properly integrated, appears to be more effective than relying on a single medium alone.

4) Writing provides variety in classroom activities, serving as a break from oral work and therefore a quieter and more relaxed time for both students and teachers.

5) Writing is often needed for formal and informal testing. In some cases, a written may even be appropriate, for example making notes while listening.
c. Process of writing

When we write, we do more than just put words together to make sentence. Good writers go through several steps to produce a piece of writing. Zemach and Rumisek (2003: 3) describe six steps of writing process as the components of the four main steps, namely prewriting, drafting, reviewing and revising, and rewriting.

d. Components of writing

In scoring the writing performance, it is used the analytic scoring. Wang (2009: 23) expresses that analytic scoring is a type of rating scale where a candidate's performance (for example in writing) is analyzed in terms of various components (for example organization, grammar, spelling, etc.) and descriptions are given at different level for each components. Cohen (1994: 328-329) points out that in analytic scoring, it has five components in writing to score, those are content, organization, vocabulary, grammar, and mechanics.

3. Research Method

The research used quantitative design by applying the ex post facto method. Ex post facto was a research method which referred to the treatment or manipulation of independent variable that has happened before, so that the researcher did not have to do the treatment anymore, but just observe the effect to the dependent variable (Sudjana, 2010: 56). Based on the method, this research was expected to elaborate the meaning of each variable investigated.

This research used variables, those are independent variable (X) and dependent variables (Y). The independent variable was the lecturer competences which consist of two kinds, those were pedagogy competence (X1), professional competence (X2), The dependent variable was students' writing proficiency (Y).

The population of the research was the second semester students of Deck Department Politeknik Ilmu Pelayaran Makassar who registered in academic year 2015/2016. Based on the data obtained from the Secretary of Deck Department Politeknik Ilmu Pelayaran Makassar, the number of students are 180 students which were divided into six classes and the sample were 45 students (25% of population). There were two instruments that used to collect the data in this research, those are questionnaire and writing test. The data analysis used in this research consisted of two stages. The first stage was to analyze the data for the items in the instruments.
In the first stage, it was also include requirement analysis which was to determine whether the data analysis obtained can be continued to the hypothesis testing which was the multiple regression analysis. The second was the analysis of the research questions. Techniques of data analysis that applied in this research are descriptive statistics and inferential statistics.

4. **Finding and Discussion**

**Finding**

1. **Descriptive statistics**

   a. Description of students' writing proficiency

   The frequency of each category of students' writing proficiency was displayed on the table 4.2 below:

   **Table 4.1 Frequency Distribution of Students' Writing Proficiency**

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<td>2.22</td>
<td>Very poor</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

   Table 4.1 displayed the data about students' writing proficiency in which there was 1 student or 2.22% in very good category, there were 14 students or 17.78% in good category, there were 21 students or 46.67% in moderate category, there were 8 students or 31.11% in poor category, and there was 1 student or 2.22% in very poor category. In line to the analysis of Table 4.2, it was concluded that the students' writing proficiency was moderate. It was because most of students were in moderate category.
b. Description of questionnaire

The questionnaire was distributed to the students to find out their perceptions about lecturer competence of their English Writing lecturer. The questionnaire contained two competences to observe, those are pedagogic competence and professional competence. The description of each of the competences was described as follows:

1) Pedagogic competence

The frequency of each category of pedagogic competence was displayed on the table 4.2 below:

<table>
<thead>
<tr>
<th>Score Interval</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 ≤ X &lt; 17</td>
<td>0</td>
<td>0</td>
<td>Very low</td>
</tr>
<tr>
<td>18 ≤ X &lt; 23</td>
<td>0</td>
<td>0</td>
<td>Low</td>
</tr>
<tr>
<td>24 ≤ X &lt; 29</td>
<td>5</td>
<td>11.1</td>
<td>Moderate</td>
</tr>
<tr>
<td>30 ≤ X &lt; 35</td>
<td>22</td>
<td>48.9</td>
<td>High</td>
</tr>
<tr>
<td>36 ≤ X &lt; 45</td>
<td>18</td>
<td>40.0</td>
<td>Very high</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.2 displayed the data about pedagogic competence in which there was 0 student or 0% chose very low category, there was 0 student or 0% chose low category, there were 5 students or 11.1% chose moderate category, there were 22 students or 48.9% chose high category, and there were 18 students or 40.0% choose very high category. In line with the analysis of Table 4.4, it was concluded that pedagogic competence was high. It was because most of students chose high category.

2) Professional competence
The frequency of each category of professional competence was displayed on the table 4.3 below:

Table 4.3 Frequency Distribution of Professional Competence

<table>
<thead>
<tr>
<th>Score Interval</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 ≤ X &lt; 13</td>
<td>0</td>
<td>0</td>
<td>Very low</td>
</tr>
<tr>
<td>14 ≤ X &lt; 19</td>
<td>1</td>
<td>2.2</td>
<td>Low</td>
</tr>
<tr>
<td>20 ≤ X &lt; 24</td>
<td>5</td>
<td>11.1</td>
<td>Moderate</td>
</tr>
<tr>
<td>25 ≤ X &lt; 29</td>
<td>13</td>
<td>28.9</td>
<td>High</td>
</tr>
<tr>
<td>30 ≤ X &lt; 35</td>
<td>26</td>
<td>57.8</td>
<td>Very high</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3 displayed the data about professional competence in which there was 0 student or 0% chose very low category, there was 1 student or 2.2% chose low category, there were 5 students or 11.1% chose moderate category, there were 13 students or 28.9% chose high category, and there were 26 students or 57.8% choose very high category. In line with the analysis of Table 4.6, it was concluded that professional competence was high. It was because most of students chose high category.

c. Requirement analysis

Before continuing to the multiple regression analysis, the requirement analysis was applied first. It was meant to ensure the multiple regressions that was done in inferential statistics had accuracy. The requirement analysis applied in this research consisted of three types, those are multicollinearity testing, normality testing, and linearity testing. In order to make the name of the variable efficient, the name of each variable was presented as XI was pedagogic competence, X2 was professional competence, and Y was students' writing proficiency.
1) Multicollinearity testing

2) Normality testing

3) Linearity testing

2. Inferential statistics

Because of all requirement analyses have been applied and fulfilled the criteria, the next analysis was to do the inferential statistics. It was done to examine all the hypotheses. There were five hypotheses to prove in this study. The criteria for those hypotheses was Ho was rejected and Hi was accepted if sig. or p <α at 5% of significance level. The first hypothesis was analyzed with multiple regression and other four hypotheses were analyzed with partial correlations.

a. The influence of pedagogic competence towards students' writing proficiency.

Based on the data presented on Correlation table, the partial correlation between pedagogic competence and students' writing proficiency was 0.783 at the level of significance (1-tailed) was 0.000. Because of the significance value was less than 0.05, it meant that H₀ was rejected and H₁ was accepted. While the value of the correlation showed a strong and positive correlation between pedagogic competence and students' writing proficiency. Positive meant that there was a unidirectional correlation between those variables. In summary, the students' writing proficiency will increase significantly as many as 78.3% if the pedagogic competence increases.

b. The influence of professional competence towards students' writing proficiency.

Based on the data presented on Correlation table, the partial correlation between professional competence and students' writing proficiency was 0.529 at the level of significance (1-tailed) was 0.000. Because of the significance value was less than 0.05, it meant that H₀ was rejected and H₁ was accepted. While the value of the correlation showed a moderate and positive correlation between professional competence and students' writing proficiency. Positive meant that there was a unidirectional correlation between those variables. In brief, if the professional competence increases, the students' writing proficiency will also increase significantly as many as 52.9%.
Discussions

1. The profile of the students’ writing skill

The students’ writing proficiency was obtained by scoring the students’ descriptive writing which used the analytic scoring rubric by Cohen. The result shows that there is one student or 2.22% in very good category, there are 14 students or 17.78% in good category, there are 21 students or 46.67% in moderate category, there are 8 students or 31.11% in poor category, and there is one student or 2.22% in very poor category. It was concluded that the students' writing proficiency is moderate. It is because most of students are in moderate category.

Writing proficiency as one of language’s skill, is considered as the most difficult skill to be mastered by most of people. Both students and lecturers think that writing activity is the complicated activity even it is done in Indonesian language. This even more harder to do in English.

As our findings tell that pedagogic and professional as independent variables simultaneously explain the writing achievement 55% as dependent variable then cause the category of students’ writing proficiency are in moderate level. However, there are some aspects which are considered as the invisible dependent variable.

During the activity of data collection, the writers did additional observation to ensure the statistical data result from the previous observation. The lack of vocabulary and students’ interest in writing are the two aspects that support the level of students’ writing proficiency in this research. Students’ weakness on vocabulary are most determined by errors in parts of speech and phrases usage. Students had difficulties to differ parts of speech accurately and use the phrases in their descriptive writing. For example in the sentence 1: “I have a house is big and clean.” and in the sentence 2: “My house beautiful is near the beach.”

Sentence 1 means the student wanted to describe that he/she has a house which is big and clean, however he/she may able to say: “I have a big and clean house” rather than the previous sentence. The same error happened in sentence 2 which means the student wanted to describe that his/her house is beautiful and located near the beach, however he/she may say: “My beautiful house is near the beach” instead of the previous sentence 2. If we analyze the sentences, both errors are on the adjective usage.
The second aspect is the lack of students’ interest in writing. The lack of students’ interest in writing is highly caused by the lack of students’ interest in reading. The people’s writing proficiency is sometimes affected by people’s reading habits. Leonhardt (2005:24) said that reading habits and writing ability are related each other. People who are interested in reading will have a written sense of the language, which flows into their writing. The same idea also delivered by Marahimin (2004:17) that to be able to write, we have to read more. In facts, the lack of students’ interest in reading at PIP is caused by the low of their reading habits.

2. There is a positive and significant influence of pedagogic competence toward students' writing proficiency

The result of partial correlation statistical analysis showed that the correlation between pedagogic competence and students' writing proficiency was 0.783 at the level of significance was 0.000. Because the level of significance was lower than 0.05, it meant that $H_0$ was rejected and $H_i$ was accepted. It can be deduced that pedagogic competence and students' writing proficiency denoted a positive and significant correlation.

Of the data description, it was also found that the most of second semester students (22 students or 48.9%) in Deck Department of Politeknik Ilmu Pelayaran Makassar defined the lecturer's pedagogic competence in high category in which the mean score is 33.82 out of 45. It is a good result for the lecturer's pedagogic competence, but it can be more increased to achieve the higher score. Because of the competence has significant and positive influence, it means that as the pedagogic competence goes higher, the students' writing proficiency will go higher as well.

The result of the data analysis states that pedagogic competence has positive influence toward students' learning outcome. It can be explained that the higher the pedagogic competence, the higher the learning outcome the students will achieve. It is because of the success of the learning in classroom is determined by the pedagogic competence the lecturer has. It can be concluded that lecturer's pedagogic competence is able to influence the students' learning outcome, although it is not the only factor which determines the learning outcome.

3. There is a positive and significant influence of professional competence towards students' writing proficiency
The result of partial correlation statistical analysis showed that the correlation between professional competence and students' writing proficiency was 0.529 at the level of significance was 0.000. Because the level of significance was lower than 0.05, it meant that Ho was rejected and H1 was accepted. It can be summarized that professional competence and students' writing proficiency denoted a positive and significant correlation.

Of the data description, it was also found that the most of second semester students 26 students or 57.8% in Deck Department of Politeknik Ilmu Pelayaran Makassar determined the lecturer's pedagogic competence also in high category in which the mean score is 28.93 out of 45. It is a good result for the lecturer's professional competence, but it can be more increased to achieve the higher score. Because of the competence has significant and positive influence, it means that as the professional competence moves up, the students' writing proficiency will move up as well.

The result above is asserted by Hamalik (2008) whom expresses that educational staff is an important component in conducting education which the duties are teaching, coaching, doing research, developing, managing, and providing service in education. Therefore, in order to improve the education quality, it is also supported by the improvement of quality and professionalism of teacher. It is also suggest that professionalism is not just knowledge of technology and management, but more of an attitude. It can be asserted that lecturer competences donated a moderate contribution towards students' writing proficiency. As the study conducted by Miguel and Barsaga in Kumar (2013: 13), they concluded that the teacher was the key factor in students' achievement. It was also supported by Chau in Kumar (2013: 13) whom stated that the quality of education depended on the quality of teachers, particularly in the initial stages of education when the pupils are at an early age and especially in the rural areas.

In line with the findings, the study of Al-Mutairi (2011) also indicated that although there exist several factors that influence students' academic performance, but lecturer competence remains one of the major determinants of students' academic achievement. In other words, the incompetence of lecturers in classroom interaction with the students could be responsible for the observed poor performance of students in the classroom (Cohen, 1981).

Based on the data description, most of the second semester students in Deck Department of Politeknik Ilmu Pelayaran Makassar in academic year 2015/2016 have moderate
proficiency in writing a descriptive text. While based on the students' perception, the lecturer competences are in high category. It means that the lecturer competences are able to be more improved which will be followed with the improvement of students' writing proficiency as well.

5. Conclusions and Suggestions

Conclusion

By referring to the research questions, hypotheses, and data analyses in this research, the writer provides some following conclusions:

1. The profile of the students' writing skill of second semester at Deck Department was moderate. There were 21 students or 46.6% categorized into moderate category.

2. Pedagogic competence has positive and significant influence towards students' writing proficiency. The correlation between the pedagogic competence and the students' writing proficiency is 0.783 or 78.3%. This positive correlation means that the higher the pedagogic competences, the higher the students' writing proficiency will be.

3. Professional competence has positive and significant influence towards students' writing proficiency. The correlation between the professional competence and the students' writing proficiency is 0.529 or 52.9%. This positive correlation means that the higher the professional competences, the higher the students' writing proficiency will be.

Suggestions

1. Considering the lecturer competences are able to help students to improve their writing proficiency, it is expected to the lecturers to do some real efforts to improve the competences. The goal of this effort was to gain the higher writing proficiency of the students.

2. It is expected to other researchers to conduct other studies for other skills or elements of English, so that the weaknesses of each competence can be covered by lecturer with the real efforts in the academic neighborhood atmosphere.
3. It is suggested to the lecturers to get the students involved in the researches as the member of researcher in their research project in order to enrich the students’ practices n experiences in writing.

6. References


Rhetorical Moves and the Functional Constituent of Process in Higher Education Institutions’ Promotional Materials

Cris Delatado Barabas

MA AEP Student, Institute of Education, Department of Curriculum, Pedagogy and Assessment, University College London

Correspondence: cris.barabas.17@ucl.ac.uk

Biodata

Cris Delatado Barabas is currently matriculated at the University College London’s Institute of Education, working on the degree Master of Arts in Advanced Educational Practice. He also heads the English Department of an IB World School in southern China where he teaches IGCSE English and the IBDP English Language and Literature course. He has an MA in Applied Linguistics and a BA in Linguistics and Literature. His research interests are at the intersections of language and literature teaching, corpus linguistics, teacher mentoring, and curriculum development. He has presented in conferences in Taiwan, Hong Kong, the Philippines, Japan and Mainland China.

Abstract

This paper is anchored on genre analysis to investigate the rhetorical moves and communicative functions of the brochures published by selected higher education institutions in the Philippines from 2014-2016. Drawing on the work of Swales (1990) in genre analysis and Fairclough (1993) in the textual analysis of university prospectuses, and Halliday (1994) in Systemic Functional Linguistics, the paper sought to identify the rhetorical moves and the functional constituent of process as realized by a verb or verbal groups in experiential meaning. The rhetorical moves in the twelve (12) brochures were identified following the guidelines in segmenting the moves set by Swales (1990). Rationalization on the presence of these moves was derived and the communicative functions were determined. Eight rhetorical moves were identified and in terms of transitivity type, material process was the most common in the
corpus. All rhetorical moves have utilized verbs in this process type to communicate certain ideas and to portray roles or relationships between the actors involved in the discourse event.

**Keywords:** rhetorical moves, genre analysis, linguistic elements in brochure, higher education promotion, transitivity, discourse analysis

1. Introduction

Genre analysis has become an interesting field of research in the line of applied linguistics inquiry. Since the publication of Swale’s (1990) *Genre Analysis: English for Academic and Research Settings* in which he proposed move analysis to analyze the discourse structure of texts from genre (Upton and Cohen, 2009), researches that identified rhetorical moves of different genres have flourished from almost all disciplines. Although there might be some modifications and innovations in terms of the methodological aspects, the primary aim is to analyze the rhetorical structures by identifying the structural moves in a specific genre. Primarily, Swales (1990) defines genres as collections of communicative events with shared communicative purposes which can vary in their prototypicality. With this definition, it is safe to assume that all types of text produced by an individual or an institution belong to a specific genre.

For one, the brochures produced by Philippine colleges and universities clearly conform to Swales (1990) definition of genre. The brochures have well-defined purpose and that is to inform prospective students and the public in general on what higher education institutions can offer. As Bhatia (2002) contends, not only the linguists, discourse analysts, cognitive scientists, or advertisers are attracted to the multi-disciplinary activity of genre analysis. Genre analysis is not confined to the academe since it has practical applications in all industries, for example in copywriting, mass media, scientific writing, and legal discourses.

The researcher believes that one of the best fields to investigate discourses is the language used in the advertising genre of Philippine colleges and universities, particularly the brochures that these higher education institutions produced and published. In the Philippines, the content of these brochures is written in English for the obvious reason that English is the medium of instruction in the universities and also to attract prospective international students who desire to study in the country. Hajibah (2006) considers brochures as promotional professional genre. The general communicative functions of the brochures therefore are to provide information in
order to entice prospective students to enroll in the college or university that produced the brochure.

The researcher is particularly interested in investigating the advertising language of the Philippine colleges and universities because of the recent internationalization thrust of higher education institutions. With the changes in the educational landscape in the country through the implementation of the K-12 program, and with the Association of Southeast Asian Nations (ASEAN) 2015 integration, colleges and universities are and will be in direct competition in persuading both local and international students to enroll in any of their curricular offerings. One of the significant issues is how these higher education institutions present themselves in different advertising genres, one of which is through the brochures. Thus, linguistic analyses to determine the features used by these universities and an investigation on the types of information that they have included have to be done.

2. Literature Review

2.1 Genre Analysis

There are very few literatures that involve a discourse analysis approach on the advertising language of universities. Prominent is Fairclough’s (1993) critical discourse analysis on the discursive aspects of marketization of public discourse in Britain with focus on higher education institutions. Fairclough (1993) argues that the recent changes affecting higher education are a typical case and are good example of processes of marketization and commodification in the public sector. He points out how discourse analysis has the capacity to be a resource for those engaged in struggle within institutions.

The scholar who laid down the foundation of genre analysis is Swales (1990). His examination of the introduction of forty-eight (48) natural and social sciences articles made him identify a sequence of three rhetorical moves. His schematic structure is called Create a Research Space (CARS) Model. The CARS Model schematic structure has not only been helpful to the academic community but has also been adopted by different disciplines. Following the Swalesian approach, Bhatia’s (1993) works have also been influential on the succeeding research in genre analysis and in identifying the communicative functions of a genre. Bhatia (1993) contends that there are sub-genres within genres that differ because of their communicative purposes and the different strategies that the writers might have used to accomplish these purposes. Some of his foundational works are on products and self-promotion
in business settings, research article abstracts and introductions, students’ academic writings, laboratory reports, and legal discourses.

An application of Bhatia’s (1993) model of applied genre analysis, an analysis on the discourse structure of the introductory pages of university prospectuses in the two culturally distinct institutional contexts of Hong Kong and the United Kingdom was conducted by Hui (2009). In the analysis which includes the Hallidayan (1994) functional grammar approach and a multimodal analysis, the paper argues that although there are variations shown in move structures, promotional strategies and linguistic and multimodal resources, both Hong and British universities tend to maintain a common institutional role and takes on Bhatia (1999) to explain that most irregularities are due to organizational differences.

Doing applied genre analysis of the promotional publications of universities, Askehave (2007) conducted both genre and in-depth linguistic analysis of university prospectuses. The genre analysis centered on four international student prospectuses from Finland, Scotland, Australia and Japan. Meanwhile, the in-depth linguistic analysis was conducted on a student prospectus from Stirling University, Scotland. The general structure, content and rhetorical moves of the international student prospectuses were determined using the principle of genre analysis. The study reveals that there is a highly conventionalized more repertoire that constitutes the core information offered to the potential students drawn upon by the universities.

Using the same genre and adhering to the principles of genre analysis, Hajibah (2006) investigated twenty brochures produced by Malaysian universities. The investigation centers on both structural and textual analysis. The structural aspect of her analysis determined the hierarchical schematic structures or more commonly known as ‘moves’. The textual analysis aspect of her study delved into the sentences of the brochures to identify the socio-cognitive strategies used. The paper points out that the structural construct and the socio-cognitive strategies in university brochures are very much affected by the consumer culture in that they appear to promote the university more than to inform about the university. This is true nowadays where marketization of the universities is one of the prime agenda of these institutions. With the tight competition in the market due to the mushrooming of different colleges and other learning institutes, the marketing aspect and even the branding of these universities cannot be taken for granted. In the Philippines for example, the recent decade saw the establishment of schools and institutes offering specialized courses. Aside from that, there
is the influx of foreign schools in the country, offering culinary courses and other related hospitality programs.

2.3 The Functional Constituent of Process

A school of linguistic thought developed by Halliday (1994), Systemic Functional Linguistics (SFL) describes ‘language in use’ rather than language as a ‘set of generalized rules detached from any particular context of use’ (Thompson, 2004). An aspect of SFL is transitivity which refers to how the discourse participants are represented as acting or not acting. In other words, it is simply the study of what people are depicted as doing and refers to who does what to who and how (Machin and Mayr, 2012). As further elaborated, this reveals who plays an important role in a particular clause and who receives the consequences of that action. Halliday (1994) emphasizes that the grammar of a language is a system of ‘options’ from which speakers and writers choose according to social circumstances, with transitivity playing a key role in ‘meaning making’ in language (Machin and Mayr, 2012). In studying transitivity, focus is given to verb processes. The following table taken from Machin and Mayr (2012) provides examples and explanations of the processes.

Table 1. Verb Processes

<table>
<thead>
<tr>
<th>Processes</th>
<th>Examples</th>
<th>Explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>The police arrested the burglar.</td>
<td>Actions that have material results or consequence. Represent abstract processes or metaphorical processes.</td>
</tr>
<tr>
<td></td>
<td>Prices have fallen.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>She demolished my argument.</td>
<td></td>
</tr>
<tr>
<td>Mental</td>
<td>I understood the story.</td>
<td>Processes of sensing and can be divided into three classes: cognition refers to verbs of thinking, knowing or understanding, affection refers to verbs of liking, disliking or fearing, and perception which pertains to verbs of seeing, hearing or perceiving.</td>
</tr>
<tr>
<td></td>
<td>Peter liked the film a lot.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>We saw many interesting buildings.</td>
<td></td>
</tr>
<tr>
<td>Behavioral</td>
<td>Verbs like <em>watch, taste, stare, dream, breathe, cough, smile, laugh</em></td>
<td>Denote psychological or physical behavior, semantically a cross between material and mental processes, in part about action that has to be experienced by a single conscious being.</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Verbal</td>
<td><em>The teacher explained the theory.</em></td>
<td>Expressed through the verb ‘to say’ or its synonyms. Has three participants, the sayer, receiver, and the verbiage.</td>
</tr>
<tr>
<td></td>
<td><em>The paper alleges there was a lot of violence.</em></td>
<td></td>
</tr>
<tr>
<td>Relational</td>
<td><em>A lot of people have worries about immigration.</em></td>
<td>Encode meanings about states of being, where things are stated to exist in relation to other things. Can be in the form of the verb ‘to be’ and other synonyms such as <em>become, mean, define, symbolize, represent, stand for, refer to, mark</em>, and <em>exemplify</em></td>
</tr>
</tbody>
</table>

In their functional stylistic analysis which focused on transitivity in English-medium medical research articles, Zheng et al. (2014) report that transitivity system plays an important role in the realization of stylistic features in the corpus. They further note that the application of different process types in the different sections may be associated with the purpose and style requirements of each section. The implication of their study is that the proper application of the process types from the perspective of the different style requirements may enable nonnative English medical research article writers to produce stylistically appropriate medical research articles and can eventually lead to the ultimate goal of successful publication. Moreover, using another genre, Liping (2014) focuses on experiential meta-function to analyze Winston Churchill’s speech on Hitler’s invasion of the USSR and in this political discourse analysis, the paper posits that more uses of material and relational processes can make the speech more powerful and persuasive.
3. Purpose of this Study

This paper aimed to identify and analyze the rhetorical moves found in the brochures published by selected higher education institutions in the Philippines within the academic years 2014-2016. Further, this study also attempted to investigate the linguistic features in each rhetorical move with emphasis on transitivity and verb processes. The verb processes being investigated are material, mental, behavioral, verbal, relational, and existential.

4. Methods and Data

This research is quantitative-qualitative in nature with the initial part involving a manual analysis of the corpus in terms of segmenting the rhetorical moves. The qualitative analyses extended into rationalizing the presence of each rhetorical move in the text and determining the communicative functions of the corpus in general. On the other hand, the quantitative aspect of this paper is the frequency count of the dominant linguistic features with emphasis on transitivity and verb processes with the use of concordancing software and validated manually.

4.1 Corpus Selection

In terms of brochure selection, the latest two brochures of the selected universities were utilized, particularly, those published between academic years 2014-2016. Only the general or institutionalized brochures were used and must not be program-specific; however, if both undergraduate and graduate programs were advertised in the brochure then it would be considered, but not graduate programs alone. These brochures were obtained via university websites, by mail, or personally requested from the universities. Also, some of the brochures were obtained from guidance offices of some high schools in the city. This study utilized twelve brochures published by nine selected universities in the Philippines.

4.2 Segmentation and Identification of Processes

The first step of the data analysis was the identification of the different rhetorical moves present in the local brochures. The researcher, together with an inter-rater who has a master’s degree in applied linguistics, identified the presence of the rhetorical moves. The next step was to account for the percentage of the presence of these rhetorical moves through simple frequency count. The researcher and the inter-rater then noted additions, differences, and deviations that gave the local universities an Asian or Filipino identity. One of the aims of this
stage of analysis was for the researcher to come up with a new framework that is distinctly local. Also, the general aim was for the researcher and the inter-rater to come up with an agreement in terms of categorization and the new framework conceptualization. In corpus building, all the phrases and sentences were extracted and manually encoded. The brochures were filtered, that is, irrelevant entries that should not be included in the corpus were excluded. For example, heading titles such as university vision-mission, address, and academic programs must not be included. When the relevant phrases and sentences were already extracted, each would be assigned a code for easier identification. However, when the corpus was fed into the Concordance software, the codes were not included. From the extracted phrases and sentences, the researcher identified the type of process used. A qualitative linguistic analysis was done after the simple frequency count of each verb process.

5. Results and Discussion

5.1 Rhetorical Moves in Philippine University Brochures

The coding of the rhetorical moves found in the brochures published by selected higher education institutions was done. A manual analysis of the corpus in terms of segmenting the rhetorical moves was done by the researcher and was re-checked by an inter-rater with applied linguistics concentration. The researcher has identified eight (8) rhetorical moves in the brochures. Under these eight rhetorical moves, there are several identified sub-moves that reinforce the content of the brochures. These dominant moves which are present in the brochures are Overview of the Service Provider, Presenting the Academic Services, Internationalism, Presenting University Achievements, Presenting Student Life, Presenting the Location of the Service, Validating the Effectiveness and Relevance of the Services Provided, and Special Notes.

Move 1: Overview of the Service Provider

This rhetorical move is found in all the brochures. Under this overarching move, there are six (6) identified sub-moves, namely, University Name, University Slogan or Motto, Brief History, Vision-Mission, Welcoming Message, and Management and Religious Affiliation.
As with other types of institutions publishing brochures, it is mandatory for universities to identify themselves first. In most cases, the university slogan or motto appears with the university name. Identifying the service provider through their university name or acronym, their slogan, and logo is a basic aspect of marketing. As university names are considered brands, this acronym is a very essential aspect to be included in any advertising genre. Eight (8) brochures or 66.67 percent of the data contains a brief history of the universities, supposedly to give credibility to the service provider. This history is also a useful marketing point especially for universities with long historical background in the Philippines as clients or consumers may have the perception that this equates to tradition, excellence, and time-tested pedagogical practices. The necessity of including the historical background of the universities is observed in the studies of Hui (2009) and Hajibah (2006). The following are examples of the sub-move University Slogan or Motto.

**Examples for Move 1C University Slogan or Motto**

*Ad Majorem dei Gloriam (ADMU 2015)*

*The future begins here (DLSU 2013)*

*Building Competence, Character and Faith/Via Veritas Vita (SU 2015)*

*Witness to the Word/Scientia Virtus Devotio (USC 2014 & 2015)*

*Ignite your dream. Blaze a trail. (UA&P 2014)*

*Witness to History, Custodian of Heritage, Vanguard of Progress (UST 2014)*

The phrases above show sample slogans or mottos from universities that are religiously affiliated. Most Catholic universities in the country adopt Latin slogan or motto, giving these universities a traditional touch and affluence. The reason for this is that these universities are administered by religious orders that originated from the Western world. Hence, the Jesuit Ateneo de Manila University’s motto is translated To God be thy Glory, Silliman University’s Latin motto is The Way, The Truth and The Life, and the University of San Carlos’ Science Virtue Devotion. The slogans have lexis in the semantic field of the Christian faith. These brief
and concise slogans give the universities an identity, adhering to the traditional values that they want to promote to their prospective clients.

The sub-move Brief History appears in eight of the brochures. This also appeared in both the frameworks of Hui (2009) and Hajibah (2006). The following sentences are examples from the current corpus:

**Examples for Move 1D Brief History**

*The Ateneo de Manila is proud of a tradition of excellence in academics and service that it has nurtured through the more than 150 years it has existed.* (ADMU)

*The Institute was founded as a private non-sectarian institute for higher learning pioneering in technical education.* (MIT 2013)

*We trace our beginnings to the Center for Research and Communication (CRC), which was established more than 40 years ago as a private think-tank conducting research and offering graduate courses in economics and management.* (UA&P)

*1595 Established as a school.* (USC)

*The University of Santo Tomas was founded which was first named as Colegio Nuestra Señora del Santisimo Rosario, and later renamed Colegio de Santo Tomas after the foremost Dominican Theologian, St. Thomas Aquinas.* (UST)

*CIT founded by the former mayor of Cebu City, the late Dr. Nicolas G. Escario, started in 1946 in F. Ramos St., then transferred to a bigger site in C. Padilla St., after a few years.* (CIT-U)

The first extracted clause in the above samples shows the use of the metaphor “nurture” which is under the semantic field “parenting” to elaborate on the motherly nature of the school, such that it aims to take care of the old tradition in academics and service. Worth mentioning as well is that in this phrase, the lexicon *service* is added in addition to the traditional responsibility of the school which is the academics. This could be interpreted as both services to the students or to the community at large. Another way of presenting the history of the school is through mentioning the number of years it existed. For example, the phrases *150 years ago, 40 years ago, 1595 established as a school,* and *started in 1946* The use of numbers would somehow resonate to the readers and may create a sense of reliability. In addition, it is also
worth noting that the phrases employ the use of the phrases *existed, founded, established,* and *started.* These words belong to the semantic field of “building” which may reinforce the old school projection that prospective students may equate to excellence and time-tested teaching and learning methods. Hui (2006) points out that these aspects of the brochure are ways of convincing prospective clients that a university has the capacity to satisfy students’ needs and has qualities that make it superior to its competitors.

The vision-mission of the universities is also included in the brochures, similar to the previous investigation of Askehave (2007) and Hajibah (2006), although the former has identified this only as an additional move. In the present study’s case, half of the brochures contain the service provider’s vision or mission. The vision-mission of the universities could be necessary as this gives additional input to the prospective clients on the directions or aims of the service provider, thus giving these students more confidence. Among others, in the Philippine and for most countries, it is mandatory for education institutions to have their vision, mission, and philosophy. The following sentences contain examples of some clauses extracted from the vision or mission of the identified universities.

**Examples for Move 1E Vision-Mission**

*As a University, the Ateneo de Manila seeks to preserve, extend, and communicate truth and apply it to human development and the preservation of the environment. (ADMU)*

*A leading learner-centered research university, bridging faith and scholarship in the service of society, especially the poor. (DLSU)*

*It shall always remain faithful to these foundation aims: to pursue, through world-class research an interdisciplinary synthesis of humanistic, professional, scientific, and technical knowledge, inspired by a Christian view of man and sense of life. (UA&P)*

*We envision the University of San Jose-Recoletos to be a premier Gospel and community-oriented educational institution committed to transforming individuals to become more responsive leader of the society through innovative integral formation. (USJ-R 2013)*

The clauses above manifest ways in framing the vision-mission of the schools. For instance, the first and the last clauses with the operational verbs “seeks” and “envision” show aims that
are yet to be fulfilled in the future, whereas, the declarative clause employed by DLSU shows the verb “bridging” which is progressive in nature. In the third extract, the adverb “always” is employed by UA&P and followed by the infinitives. What is common in these clauses is the reference to religious entities with the use of the words truth, bridging faith, Christian view of man, and Gospel. These phrases again reinforce the Catholicity and the preaching nature of the schools. As Scott et al (1993, cited in Browning, 2009) posited, values are the principles, the standards, and the actions that people in an organization respect and consider inherently worthwhile.

It can be noted that in the Philippine university brochures, the sub-move Management and Religious Affiliation is present. This sub-move is not present in the three referred frameworks. All brochures published by universities affiliated to a particular religious order contain this sub-move. This is deemed vital especially in a predominantly Catholic country like the Philippines, a country in which most elite universities are owned or operated by religious orders. This could also be a unique selling point as these universities are promoting Catholic values, an aspect of education that most parents in the conservative nation would want for their children. The following are examples of clauses referring to the religious affiliation of the universities.

Examples of Move 1F Management and Religious Affiliation

It is one of the oldest Jesuit administered institutions of higher learning in Asia. (ADMU)

De La Salle University in Manila the Philippines is an internationally recognized Catholic university established by the Brothers of the Christian Schools in 1911. (DLSU)

It was established on August 28, 1901, and is the oldest school in the country founded by American Presbyterian missionaries. (SU)

In this regard, we rely on Opus Dei, a personal prelature of the Catholic Church, to orient the students, as well as the faculty and staff, to a life that reflects Christian beliefs and values, and ensures the doctrinal and moral soundness of other aspects of formation imparted in the University. (UA&P)

Administered by the Society of the Divine Word, a religious-missionary congregation of priests and brothers working in at least 70 countries all over the world. (USC 2014)
Founded in 1947 by the Order of the Augustinian Recollects, the then Colegio de San Jose-Recoletos became a university in 1984. (USJR)

The University of Santo Tomas, the Pontifical and Catholic University of the Philippines, inspired by the ideals of St. Dominic de Guzman and guided by the teachings of St. Thomas Aquinas. (UST)

As can be gleaned from the examples above, first aspect that can be noticed is the apparent mentioning of the religious orders managing the schools. In the first clause, the superlative pre-nominal modifier “oldest” is employed to reinforce the university’s old age. This modifier is also employed in the third clause. It can also be inferred that the use of religious orders to advertise the universities is to give it an international touch. This is because most of these religious orders are also administering various higher education institutions in several countries.

Move 2: Presenting the Academic Services

This is a popular move in all brochures containing at least one of its six (6) sub-moves. These are Overview of the Schools/Colleges/Departments, Academic Programmes, Approaches and Philosophy of Teaching and Learning, Description of Faculty Credentials, Academic System and Academic Policies, and Research Culture and Areas. All of these sub-moves are not necessarily present in all the brochures, especially for single-page leaflets. The sub-move Academic Programmes is the only sub-move present in all the brochures. This is due to the limited space and the common notion that prospective students would immediately check what the available programs in the universities are. It could also be inferred that as most of the universities still target local students, it is assumed that prospective students already have ideas on the nature of the universities and that they are more interested in knowing if their desired programs are available in a particular college. On the other hand, the sub-move Overview of the Schools/Colleges/Departments is present in seven (7) brochures. This may have been included to give the students an overview of the home department or school of their chosen program. The following are some clauses taken from this sub-move.

Examples for Move 2A Overview of the Schools/Colleges/Departments

The School of Social Sciences is committed to equip individuals and communities with perspectives and skills for local, national, and global transformation. (ADMU)
With six colleges, it has continued to offer quality education and has maintained a continuing linkage with the industries, government and non-government agencies as well as other academic institutions. (CIT-U)

DLSU provides a comprehensive student program that engages students in relevant and creative undertakings. (DLSU)

The other five sub-moves are only evident in thicker brochures or technically called Viewbooks. The bigger and more popular Catholic universities in the capital publish this type of advertising genre. For example, the move Approaches and Philosophy of Teaching and Learning is only present in the viewbooks. The following table provides extracted clauses from the sub-move Approaches and Philosophy of Teaching and Learning.

Examples for Move 2C Approaches and Philosophy of Teaching and Learning

It is teaching that facilitates active participation and independent inquiry, and seeks to instill among students the joy of learning inside and outside the classroom. (ADMU)

Mapua is the first school in the country to fully adopt the OBE system, which basically zeroes in on outcomes. (MIT 2013)

It is the approach to learning that is encapsulated in its tri-logical ministry of teaching, healing, and preaching. (SU)

We are committed to the inculcation of Christian human values and attituded, and our academic programs always include courses in social and professional ethics. (UA&P)

In addition to the sub-move Approaches and Philosophy of Teaching and Learning is the sub-move Description of Faculty Credentials. These two sub-moves are deemed necessary especially for universities that are working towards inclusion not only in the national but also global ranking. For example, the Ateneo de Manila University and De La Salle University-Manila, usually two of the very few universities in the country included in the world university rankings, are particular in including their faculty force in the advertisement. The following contains clauses extracted from this sub-move.

Examples of Move 2D Description of Faculty Credentials
Many are nationally acknowledged experts in their respective fields, and the numerous prestigious awards that faculty members have received from external bodies and institutions over the years bear this out. (ADMU)

Our faculty members are backed by a rich well of experience drawn from extensive research. (DLSU)

The school’s faculty members are composed of highly trained professionals who have vast experience in their respective subjects. (MIT 2013)

Included in this description of faculty is their research expertise, thus the additional sub-move Research Culture and Areas. It has been perceived that excellent universities can produce good research outputs. Research is also what big universities require of their professors, which in turn adds to the school’s affluence. In the study of Hui (2009), the sub-move Teaching Staff is noted and in Askehave (2007) the sub-move Description of Teaching and Learning is only an additional move. There is no mention of this sub-move in the study of Hajibah (2006) in the Malaysian context.

This sub-move is likewise evident in the previous investigations of Hui (2009) under the move Offering Postgraduate Programmes; in Askehave (2007), as an obligatory move- Description of Courses/Degrees; and in Hajibah (2006) as Describing the Service.

**Move 3: Internationalism**

This move has two (2) sub-moves, namely, Description of Global Connections and International Students, and is evident in the brochures of bigger universities such as Ateneo de Manila University, De La Salle University-Manila, Mapua Institute of Technology, and University of San Carlos. This sub-move is deemed an important section of the brochures as this validates the international outlook that the universities are trying to portray especially in this era of globalization. In the sub-move Description of Global Connections, the universities cited their linkages with universities abroad. In fact, the Ateneo de Manila University implemented the August academic calendar shift to align with the school calendars of countries that are known for their excellence in higher education. To further attract local students who want to interact with international students, some brochures, for instance those of Mapua Institute of Technology and Ateneo de Manila University used these testimonials from international students as an effective marketing tool to attract more international students.
In the framework of Hui (2009), this move is a sub-move under Offering “Extra” Services, Description of Study Abroad Opportunities, which is an additional move in the paper of Askehave (2007). In Hajibah’s (2006) paper, this is the Endorsing the Value of Service Move that includes international recognition. The following are sample clauses from the rhetorical move Internationalism.

Examples of Move 3A Description of Global Connections

A student in Interdisciplinary Studies who went to Liverpool Hope University soaked himself in culture and the arts. (ADMU)

The Junior Term Abroad Program allows students to gain additional experience in their major fields. (ADMU)

With that, Mapua has partnered with different institutions, organizations, and companies, local and international, to give its students the best training ground before they set out to the real world. (MIT 2013)

With Mapua, one gets a feel of the world as he is presented with opportunities to get exposed to a multinational and multicultural academic work and work environment with the Institute’s international programs for internship, plant visits, student exchange, and research. (MIT 2014-2015)

Move 4: Presenting University Achievements

This rhetorical move appeared in the eight (8) brochures and has four (4) sub-moves, namely, Accreditation, National and International Ranking, Program and Departmental Awards or Distinctions/Flagship Programmes, and Board Examination Results. This overarching move and its sub-moves must be included in the brochures as these validate the claims of the universities. The board examination results is also a good marketing point since students are given an assurance that they will pass the board examinations easily if they finish their desired programs in that university. It would seem that the higher passing percentage in board examinations validates the claim of exceptional teaching methods in a particular higher education institution. Another sub-move that has been employed in seven (7) brochures is Accreditation. This guarantees that the university is at par with the best universities in the
country. These accreditations manifest that the accrediting body constantly checks the university, thus, quality is assured. The following are extracted clauses under this sub-move.

Examples of Move 4A Accreditation

_DLSU is the first university to be awarded Level 4, the highest accreditation given by the PAASCU._ (DLSU)

_DLSU is the first university to be awarded Level 4, the highest accreditation given by the PAASCU._ (DLSU)

_The three programs of the school were granted Level III Reaccreditation by PACUCOA and non-domestic accreditation by ABET-EAC._ (MIT 2013)

_The first higher education institution in the Visayas and Mindanao classified as Category A institution under the quality assurance system framework of the Institutional Quality Assurance through Monitoring and Evaluation._ (CIT)

_USJR is accredited Level 3 by the PAASCU making it at (sic) par with the best educational institutions in the country today._ (USJ-R 2014)

_Recognition of the Acta Manila as CHED accredited Category A-1 research journal._ (UST)

Move 5: Presenting Student Life

The rhetorical move _Presenting Student Life_ contains information on facilities in the university that students can use. Learning facilities, clubs and organizations are included in this overarching move as this information has a big impact on the students’ well being. Other support services are also part of this move as well as student traditions to constitute the sub-moves under this rhetorical move. _Facilities_ is present in fifty percent (50%) of the brochures being investigated, a necessary selling point, as prospective students will definitely look for comfort especially those students who came from the provinces or outside of the country. The following contains extracted clauses from this sub-move.

Examples of Move 5A Facilities

_The topnotch sports facilities in the campus stand as testament of Ateneo’s commitment to hone not just the mind but also the body._ (ADMU)

_The Intramuros campus is equipped with state-of-the-art facilities to aid its students in their learning and development._ (MIT 2013)
The University houses two libraries. (UA&P)

The UST Open Space/Football Field-site of the Guinness World Record’s Largest Human Cross participated by Thomasians. (UST)

On the other hand, the following extracts are sample clauses for the sub-move Support Services.

Examples of Move 5C Support Services

Driven by the Jesuit spirit of cura personalis, or care for the person, these offices are ready to support your every endeavor. (ADMU)

In line with its thrust to provide a well-rounded quality education, DLSU through the offices under the Student Affairs implements a comprehensive student development program. (DLSU)

The OSA is responsible for creating a campus environment that is conducive to the learning process, safeguarding student welfare, promoting healthy communication among students, faculty members, personnel... (MIT 2013)

Move 6: Presenting the Location of the Service

The location of the university is equally important as the university itself. Stating the exact address of the higher education institution is evident in all of the brochures; however, only a few (5) provided descriptions of the campus, getting into the campus, and description of the campus location such as the city or country. The move is essential in marketing the university as students would love to have a glimpse of their second home for the next four to five years of their lives. Some brochures have provided pictures of some important parts of the campuses.

Another aspect of this sub-move is the inclusion of the advantage of the location of the campus. For instance, some brochures included the nearby tourist spots and some included convenient ways to access the location of the school. The following are some extracts on the sub-move Description of the Campus.

Examples of Move 6A Description of the Campus

The Loyola Schools of the Ateneo is situated in the sprawling Loyola Heights campus of the University. (ADMU)
Entering the campus, one steps into gently rolling terrain with grassy and tall trees providing a favorable environment for disciplined inquiry, fruitful interaction, and quiet reflection. (ADMU)

The 17,996-square meter campus now houses architecture and design... (MIT 2013)

Located in Ortigas Center, Pasig City, Metro Manila, we have a population of... (UA&P)

Located in three different campuses, namely... (USC 2014)

Silliman is an ideal choice for students in search of the best of a laid-back environment. (SU)

Nature is at its best on the University’s 62-hectare campus. (SU)

Over 300 age-old acacia trees dot the sprawling campus that is cradled with views of the Bohol Sea to its East and the Cuernos de Negros Mountains to its West. (SU)

Evident in clauses 1, 2, 6, 7, and 8 is the use of nature semantic terms to advertise their campuses and entice prospective students to enroll. In the case of ADMU, the use of the terms “sprawling,” “rolling terrain”, “grassy”, and “tall trees” create a relaxing environment. This was reinforced with the word “reflection”, something that most people are craving for amidst the busy city life. It is also noticeable that the first clause employed the active phrase “one steps” to give a feeling of reality. In the case of the SU, it also employed the semantic field on environment such as the terms “laid-back”, “nature”, and “sprawling”. These terms go with a description of the geographical features of the locality. It can be recalled that this move appears in the frameworks of Hui (2009), Askehave (2007), and Hajibah (2006).

Move 7: Validating the Effectiveness and Relevance of the Services Provided

This rhetorical move focuses on providing proofs or confirmations on the claimed effectiveness of the services that the university has provided to its students. Three (3) sub-moves are identified: Student Testimonials, Alumni Stories, and Career Opportunities. The last sub-move is what most of the brochures have employed. Five (5) brochures utilized this technique. It is worth noting though that some brochures just indicated the possible careers in line with the program in word or phrase form. The following are sample extracts from this sub-move.

Examples of Move 7C Career Opportunities
Why a top US-based Filipino engineer raves about Mapua’s ABET accredited programs. (MIT 2013)

The knowledge and skills I gain at Mapua will empower me to help others when I return to my home country. (MIT 2013)

Employers attest that UA&P graduates distinguish themselves in the workplace as much by their work ethic and discipline as by their ability to learn quickly, handle a wide range of tasks, and communicate and interact well with people inside and outside the organization. (UA&P)

Move 8 Special Notes

This rhetorical move has three (3) sub-moves. These sub-moves are Procedures for Application, Scholarship and Financial Needs, and Contact Information. Seven (7) brochures have included the procedures for application, three (3) included Financial Needs and all the brochures have provided their Contact Information. The following contains extracted clauses from the sub-move Procedures for Application.

Examples of Move 8A Procedures for Application

Admission is determined by the applicant’s fitness and preparation for the college programs, ability to contribute toward the enrichment of the undergraduate school community, and potential to be of service to one’s fellowmen within the context of national development. (ADMU)

All applications for admission to DLSU are evaluated on an individual basis. (DLSU)

Applicants will be informed of the date and time of the examination upon their application at the Admissions Office. (MIT 2013)

Graduating high school students who wish to enroll as freshmen, and continuing college students enrolling as transferees, may take the qualifying entrance examination anytime throughout the year. (USC 2014)

The first clause manifests the desired qualities of prospective students seeking admission to the university to emphasize that the university adheres to certain standards of student admission. For instance, in the first clause, determining the applicant’s possible contribution to the society is taken into account. In the case of the second clause, DLSU underscores on the
evaluation of the student as an individual. In this case, the criteria may not be very clear and may be taken as a not-very-strict university when it comes to admission. However, this may also mean that the university takes into consideration the individual capacity of the prospective clients, and thus is more progressive and inclusive in nature as they take into consideration every aspect of the student applying for admission.

To summarize, this analysis came up with eight rhetorical moves in the brochures produced by selected Philippine universities. In the move Overview of the Service Provider, most of the universities provide their slogan or motto and this is part of the university brand. The Philippine university brochures have the sub-move Management of Religious Affiliation which is not found in the previous three studies in which the current paper is anchored to. This move reflects cultural practices of the nation specifically on the religious beliefs. It can also be inferred that most of the brochures published by Catholic universities have some preaching aspects on the Catholic values and faith.

Another salient point on some of the brochures is the addition of tourist destinations and the enticing descriptions of its campus. These brochures create an impression of laid-back environment by describing the natural scenery and famous tourist spots in the region. This makes the genre hybrid in nature.

It is worth noting that some of the brochures have elements of internationalism in the form of international linkages, study abroad programs, and testimonials from enrolled international students. Hence, these universities are geared towards internationalization. It can also be noted that one university emphasized its shift of academic calendar to align with the academic calendar of universities abroad. In the Philippines, the usual academic school year starts in June and ends in March. With the recent movement on ASEAN integration, some universities opted to re-align their academic calendars as well.

These rhetorical moves manifest the communicative functions of the brochures. Similar with Hui (2009), the possible ultimate communicative function of the brochures is to persuade the prospective students and parents to choose the university. This was achieved by showcasing the university’s brief historical background, religious affiliation, prestige due to accreditations and rankings, and career opportunities for each academic program. Moreover, a common practice in the recent times is the use of student testimonials to reinforce the common persuasion strategies to show the diversity of students on campus.
Another communicative function of the rhetorical moves, especially those brochures produced by Catholic universities, is preaching the Catholic ideals and faith, although this has been done subtly by including salient features of the Catholic values in the institution’s vision, mission, philosophy, or objectives. This is also manifested in the desired qualities of the prospective students, which has been embedded in the move *Special Notes* particularly in the sub-move *Procedures for Application*. The subtlety of preaching the Catholic ideals is also evident in some of the universities’ slogan or motto.

In addition, one feature of some of the brochures that gives it a hybrid nature in terms of communicative function is its inclusion of tourist destinations in the region or the country in general. Although not always exhaustive, this could be a cross-genre reference to tourism brochures. For the country like the Philippines whose one primary economy booster is its tourism industry, these brochures could actually be a form of contribution to the government’s tourism campaign.

### 5.2 Functional Constituent of Process

In this section, an investigation on the dominant processes employed in each identified rhetorical move in the Philippine university brochures was conducted. Through identifying the dominant processes employed in each move, the purpose and communicative function may further be revealed in addition to the stylistic devices that were used for the consequent realization of each move. The following table shows the distribution of the different process type in the different rhetorical moves.

*Table 2. Distribution of Verb Processes (%)*

<table>
<thead>
<tr>
<th>Moves</th>
<th>Total</th>
<th>Material</th>
<th>Mental</th>
<th>Behavioral</th>
<th>Verbal</th>
<th>Relational</th>
<th>Existential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move 1</td>
<td>286</td>
<td>43.71</td>
<td>22.72</td>
<td>1.40</td>
<td>3.14</td>
<td>9.09</td>
<td>19.93</td>
</tr>
<tr>
<td>Move 2</td>
<td>418</td>
<td>53.35</td>
<td>21.53</td>
<td>0.72</td>
<td>2.15</td>
<td>11.96</td>
<td>10.27</td>
</tr>
<tr>
<td>Move 3</td>
<td>34</td>
<td>58.83</td>
<td>17.65</td>
<td>0.00</td>
<td>5.88</td>
<td>11.76</td>
<td>5.88</td>
</tr>
<tr>
<td>Move 4</td>
<td>59</td>
<td>66.10</td>
<td>10.17</td>
<td>0.00</td>
<td>5.08</td>
<td>8.47</td>
<td>10.17</td>
</tr>
<tr>
<td>Move 5</td>
<td>108</td>
<td>68.52</td>
<td>30.56</td>
<td>0.00</td>
<td>0.00</td>
<td>0.54</td>
<td>0.00</td>
</tr>
</tbody>
</table>
The preceding table reveals that in the entire corpus, *material process* is predominantly employed, followed by the verbs in the *mental process* state, and *existential* and *relational* processes. Meanwhile, *verbal* and *behavioral processes* are least used in the corpus.

In **Move 1**, which refers to the overview of the service provider, the corpus shows that majority of the phrases employed by the educational institutions have material processes in terms of transitivity. As this move generally presents the status of the university and gives an overall impression to the readers, it can be inferred that concrete actions are the most suitable processes to be used, further describing the process of doing. Material processes are employed when referring to historical facts such as the establishment of the institution and other events that could help in its credible historical presentation.

The academic services being the main fabric of the existence of higher education institutions is always highlighted in the corpus. In this regard, several aspects of the services are presented and communicative functions are achieved through the evident use of material processes in the promotional materials. The usual actor of the clauses is dominated by the university and its substitute entities, and with occasional references to the students. The following table presents some extracts that employed material processes. In the corpus being investigated, it has been observed that there is a strong ownership of the actions since everything refers to positive points of the universities. This is true to all actors substituting for the universities: faculty members, degree programs, and the students. In some cases, mental processes are employed together with material processes to convey school aims for their studentry, such as: *to understand, learn, of pursuing*. Some of these processes are notably in the affective domain.

Material processes are also predominantly used in the clauses referring to the aspect of internationalism and university achievements of the institutions. In the following table, some extracts show the utilization of this process type to showcase the international features of the
universities, such as international and national accreditation and overseas education program for students. The actors are again explicitly stated although the goals may be implied. In the same manner, material process is also common in presenting the university achievements. As this highlights the accolades or awards that the universities have earned through the years, it is only fitting that there is a clear reference to the institution and its substitute entities as the grammatical subjects in the clauses. To some extent, there is a constant repetition of these actors in the campaign material, perhaps to reinforce the identity portrayals which may serve as a socio-cognitive aim to retain the brand in the reader’s mind.

The student life is one vital section of each brochure or of any promotional campaign materials as this part showcases the other aspects of university life that students can enjoy and benefit from. Along with the material process, the use of mental process is also evident in this move. Similar to the material processes, the university and the students are the dominant actors in the clauses. The more abstract verbs such as strive, promotes, and hone account for the presence of mental processes in this move.

The manner of presenting the service also entails creativity, and it can be noted in the previous analysis of this move in the previous section that there are distinct approaches and stylistic devices employed in order to achieve the desired communicative functions. The use of material processes in the clause is evident in this move as the campaign materials aim to create a vivid visual and auditory imagery of the campus and its location.

Along with other moves, these moves focus on validating the effectiveness of the services provided and special notes similarly employ material process in most of the clauses. With the use of the verbs chose, passed, met, and help, there is a clear reference to the actions being attributed to the students. This is an essential move as the concrete language used by the students in their testimonials may have some significant impact in university portrayals. The last move focusing on special notes with heavy reference to the admission procedures also utilized verbs in material processes. As the admission procedures are a prelude to a call for action on the part of the students, concrete verbs such as call and offers are used.

In summary, the investigation in this section focuses on the transitivity and verb processes that are commonly employed in the rhetorical moves that were previously identified in the preceding section. The prevalent use of the material processes is evident throughout the corpus. All the verb processes have certain communicative functions that helped in communicating the
desired portrayals of the actors in the campaign materials.

6. Conclusion

The different sections of the promotional campaign materials of the selected universities serve certain communicative functions which help in the transmission of ideas and at the same time reflect various social and cultural ideologies that are embraced by the discourse community. This includes the religious aspects of the text. Both traditional and modern discourse practices are employed in the campaign materials that give them the interdiscursive mix. This era that embraces the globalization process has significantly affected the way that universities position themselves in the society and this is evident in their advertising campaigns that resulted in the hybridization of such. On the other hand, the different communicative aims of the promotional campaign materials are realized with the use of transitivity and verb processes in the Systemic Functional Grammar approach. As the genre being investigated is promotional in nature, there is an explicit identification of roles among the social actors. The use of the verb processes also helps in realizing certain communicative functions of the text.

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English for Specific Purposes Modules in Listening and Speaking for Dentistry students

Nhung, Nguyen Thi Hong

*Thai Nguyen University of Medicine and Pharmacy, Vietnam*

**Biodata**

**Nhung, Nguyen Thi Hong** is a lecturer of English at Thai Nguyen University of Medicine and Pharmacy, Vietnam. She has always been interested in doing researches on how to motivate learners in English language learning, especially ESP, and effectively apply this language into their work and life. She has just received a Ph.D in English Language Education from Cagayan States University in the Philippines and currently teaches English. She can be reached at nguyennhungdhtn@gmail.com.

**Abstract**

This study was conducted to develop modules in ESP for Dentistry students based on their language needs as students and in their job in the workplace. The modules highlighted the development of Speaking and Listening skills, although other skills are integrated. These modules were validated by teachers and empirically tested to two sections of freshmen students of Dentistry. Module evaluation indicated that the ESP modules were acceptable in terms of format, objectives and content, examples and illustrations, and self-assessment questions. Results between the pretest and posttest scores of the students significantly differed – in the overall scores and the disaggregated scores in speaking and listening. The English for Specific Purposes modules for Dentistry students are valid and reliable for use in the development of speaking and listening skills to the students. Moreover, the use of task-based approach and natural approach in presenting language through modules is suitable for the students.

**Keywords:** English for Specific Purposes; Module; Speaking skill; Listening skill; Dentistry.
Introduction

This research was anchored to theories on English for Specific Purposes and modular instruction as espoused by educational psychologists and educators.

English for Specific Purposes (ESP), as described by Dudley-Evans and St. John (2005) intended to meet specific needs of the learners. They further asserted that ESP makes use of the underlying methodology and activities of the disciplines it serves. ESP is focused on the language appropriate to these activities in terms of grammar, lexis, skills discourse and registers. A variable characteristic given is that ESP may be designed for specific disciplines. ESP may use, in specific teaching situations, a different methodology from that of General English. On this regard, Strother (2005) mentioned that ESP includes dual purpose education – students learn about relevant content while they improve their English skills – and a high level of intrinsic motivation since students are studying subjects in which they are interested.

To make ESP relevant to students of a particular discipline, Hyland (2016) pointed out the importance of the need analysis approach to ESP which have been later studied by many researchers. Quoting several sources like Dudley-Evans and St. John, they underscore that needs analysis is a defining element of its practices and a major source of its interdisciplinarity. The use of systematic means to define the specific sets of skills, texts, linguistic forms, and communicative practices that a particular group of learners must acquire is central to ESP, informing its curricula and materials and underlining its pragmatic engagement with occupational, academic, and professional realities. It is a crucial link between perception and practice, helping ESP to keep its feet on the ground by tempering any excesses of academic theory-building with practical applications.

Ideas spreaded at the International Conference 2014 in India pointed out that the recent trends in ESP have expanded beyond the linguistic skills and knowledge required to perform competently in a target situation. ESP has moved to include learner needs, or what the learner must do in order to learn, incorporating both the learner’s starting point and his/her perceptions.

Describing the apparent advantage of ESP to students, Hutauruk (2015) expounds that ESP derives from the need to use language as a tool in facilitating success in professional life.
Such a combination is highly motivating because students are able to apply what they learn in their English classes to their main field of study, whether it be accounting, business management, economics, computer science or tourism. Being able to use the vocabulary and structures that they learn in a meaningful context reinforces what is taught and increases their motivation. The students' abilities in their subject-matter fields, in turn, improve their ability to acquire English. Subject-matter knowledge gives them the context they need to understand the English of the classroom.

Moreover, Hutauruk explains that in the ESP class, students are shown how the subject-matter content is expressed in English. The teacher can make the most of the students’ knowledge of the subject matter, thus helping them learn English faster. The term "specific" in ESP refers to the specific purpose for learning English. Students approach the study of English through a field that is already known and relevant to them. This means that they are able to use what they learn in the ESP classroom right away in their work and studies. The ESP approach enhances the relevance of what the students are learning and enables them to use the English they know to learn even more English, since their interest in their field will motivate them to interact with speakers and texts. ESP assesses needs and integrates motivation, subject matter and content for the teaching of relevant skills.

According to Kemp and Smelie (1989) as cited by Lim (2016), individualizing instruction plays a big role in modular instruction. Its main attributes include the individual assuming responsibility for their own learning, proceeding with activities and materials at their own level and studying at their own pace. This principle is in consonance with Thorndike’s law of readiness and law of effect where the law of readiness states that when a person is prepared to respond or act, giving the response is satisfying and being prevented of doing so is annoying.

Supporting this claim is Salandanan’s explanation (2009) of the benefits of modular instruction. She argued that self-instructional materials are those which are described to be self-contained and the manner of presentation is such that the learning activities can be undertaken individually or in small groups. These materials are most effectively used in individualized instruction programs. The self-instructional module helps in providing remedial instruction for slow learners and enrichment materials for fast learners. Topics can best be presented through these self-instructional materials. With the use of one, the student is allowed
ample time and assistance to finish the prescribed learning activity at his own pace. The lesson will surely be enjoyed and the experience gained will be satisfying.

With the preceding views, the conceptual framework of the study was set. It considers that ESP is a beneficial approach to teach Dentistry students to assist them understand not only the content of their discipline but also listening and speaking skills using the prevalent vocabulary and structure in the discipline. One way to attain this goal is presenting ESP through modular instruction. In addition, ESP materials can best serve their purpose if they are based on the language needs of the students. Identifying the needs of the students prior to the development of the modules.

Figure 1 illustrates the intent of the study as supported by the theories and concepts explained above. As viewed, it illustrates that before the instructional materials have been designed, the need for this should be analyzed first. The identified ESP learning and the difficulties that challenge students in learning English served as the inputs of the study. Such bits of information are needed for the substantive concerns or content, synchronized with the syllabus used in the college of the modules to be developed. The insights from the consultations with the experts in the field, informal interviews among the module users and review of the available instructional materials served useful in the process. Moreover, the developing the modules should follow the stages or processes, namely: design stage, writing or construction stage and testing the effectiveness of the module or the validation stage.

The results of the validation phase would provide the effectiveness of the ESP modules on listening and speaking. The empirical data gathered could evidence the effect or influence of the modularized ESP materials in meeting the needs of the Dentistry students.
Along Listening and Speaking

**DEVELOPMENT**
- Syllabus preparation
- Selection of materials
- Writing of the module

**VALIDATION**
- Use of the Modules
- Pretest vs. Posttest

**and Speaking for Dentistry Students**

Figure 1. *Conceptual Model of the Study.*

**Literature review**

**Advantages of Modular Approach**

According to Burden and Byrd (1994), the following are practical outcomes that can be achieved when high quality of instructional media are used as principle means of direct instruction

1. The content of a topic can be more carefully selected and organized.

2. The delivery of instructions can be more standardized.

3. The instruction can be more interesting.

4. Learning becomes more interactive when applying accepted learning theory.

5. The length of time required for instruction can be reduced.

6. The quality of learning can be improved.

7. The instruction can be provided when and where desired or necessary.
8. The positive attitude of individuals toward what they are learning and to the learning process itself can be enhanced.

9. The role of the instructor can be enhanced.

Based on the nine outcomes stated, it indicates that both efficiency of learning and positive attitudes towards learning may be enhanced through the use of media. The instructional material must be high quality, selected, produced and used as part of an instructional system.

**Effectiveness of Modular Instruction**

Reyes (1994) conducted a study on “Comparative Effectiveness of Modular Instruction and Traditional Type”. Instructional modules were designed covering lessons on parabola, ellipse and hyperbora. The modules’ content and face validity were derived by eliciting comments from faculty members who taught the subject. The readability was further validated by college students. A 40-point test was designed, validated and found to have 0.98 reliability. The material was then given out to 68 students of the college. This would be an ideal reinforcement and would serve as enrichment. It could also allow students to work at a rate, style, and levels suited to their learning ability. Empirical data also revealed that the students who were given the modules obtained higher scores in the posttest.

Tolbara (1993) conducted a study on the development and validation of modules in science and Technology at Nueva Viscaya. Using the pretest results, the students in the control group and experimental groups were found to have comparable abilities. Data further showed that the students exposed to modules had better performance than those who did not use any module.

**Stages Involved in The Production of Module Ready To Use**

A module writer for Physics at the Notre Dame University in Marbel in south Cotabato, Amonceda as cited by Francisco (1998) mentioned the following stages which are involved in the production of modules.

In the first stage, the development of self-instructional materials for the sections you want to cover in the class is introduced. This stage importantly results in the production of modules. In developing modules, four stages will be undertaken, namely: the design, construction, validation and revision.
In the design stage, the writer should carefully select the topics which will be included in the module. He/She can have varied criteria in selecting. One can be the most difficult topics identified by the students after the survey, or perhaps random topics.

The construction stage involves the actual writing of the module and construction of the test. After the modules have been written, the table of specifications should be prepared for the construction of the evaluation checklists.

The programs of learning will be carefully planned and prepared basing on the task analysis chart. This will include the setting up of the objectives, selection of teaching strategies, and the construction of the problem exercises and self-test for each module. Activities included for students’ task can be taken from some kinds of books relating to the field of Dentistry. Some modifications will have to be made to suit the needs of the students’ level and also the objectives of the module. The learning activities included in each module will be done individually, in groups or by pairs. Some modules can use actual activities outside or inside the classroom, the laboratory for dentists, or in a dental clinic and must be prepared by students themselves. This will facilitate better understanding of the contents of the particular module.

Validation stage is the step that students and teachers will be required to examine the constructed modules. The students will be asked to look into the features of the module like figures, stories, videos, table, dictionary used, etc. and the clarity of the presentation of the lesson. The assessment and validation of the modules is done with the use of the following:

**Methodology**

**Research Design**

This research made use of the descriptive and quasi-experimental designs to gather the needed data to answer the specific research questions. First, the descriptive survey and assessment techniques were used. These techniques were useful to identify the language needs of the Dentistry students as bases for the development of the ESP modules on listening and speaking. The same techniques were used to ascertain the qualities of the developed modules as perceived by the teachers and students.

In addition, the study used the quasi-experimental design; specifically the modified one group pretest and posttest design (Figure 2). One group of Dentistry students (consisting of
two sections) were involved. The modification was on the use of two sections using the same ESP modules, a case of one study with two replications to obtain more valid and reliable results.

\[
O_1 \quad X \quad O_2
\]

Figure 2. *The one group pretest-posttest design.*

where: \( O_1 = \) pretest

\[ O_2 = \text{posttest} \]

\[ X = \text{modular instruction (ESP material)} \]

As shown in the figure, the group was pretested before the experimental teaching commenced. After the completion of the experiment, a posttest was administered to the group. A comparison of the scores was used to indicate the effectiveness of the modules used.

**Research Instruments**

Two evaluation instruments were used in the study. The first was the listening and speaking proficiency test (Preliminary English Test for Schools) which was designed by Cambridge with the purpose of improving students’ ability of English language to reach level B1 (CEFR) as required by MoET (Ministry of Education and Training) to the students of universities throughout Viet Nam. This test was used as the tool to assess the students’ difficulties in Listening and Speaking skills.

Similar to the Speaking test, the Listening test is also created basing on the rubrics for Listening skill and scale of B1 level.

The other instrument was a module evaluation checklist for teachers of English, Teachers of Dentistry who were also the dentists, and the students of Dentistry. The Observation on students’ and teachers’ attitude and interests was also another technique to evaluate the effect of the module used. The students and teachers were asked to encircle the numerical equivalent of their responses, with a scale of 1 to 5, where 1 is Strongly Disagree and 5 is Strongly Agree. This questionnaire also included an open-ended item that sought the respondents’ suggestions on how to improve the modules.
Data Gathering Procedures

Pre-Experimental Phase

Language Needs Analysis. Initially, the researcher analyzed the results from the researches at the library of Vietnam National University and from the University of Medicine and Pharmacy in Ha Noi, the capital city, and Ho Chi Minh, the biggest city in Vietnam. The researcher explored the needs of not only the learners but also the teachers on this field of study.

In many unofficial interviews, teachers and students of Dentistry believe that the knowledge provided in the current textbook used is inadequate to support their major or motivate them in learning ESP. Prof. Cong, Dean of the Department of Dentistry at Thai Nguyen University of Medicine and Pharmacy, mentioned that 10 years now there have been a lot of international and national conferences offered for teachers and students of Dentistry; however, a few of them are able to participate. Simple daily talks can be managed but not the professional conversations. They seem to be familiar with the word “tooth - teeth” but are completely strangers with the word “dentition” (only about 5% of the Dentistry students know).

In addition, Low English Speaking and Listening proficiency negatively influences the quality of their job development. When being asked “Do you welcome foreigners to your clinic?” about 80 percent of the Dental clinics in Thai Nguyen city refused to give treatments to the foreigners if they do not have any translators. About 5 percent of these clinics accept this business because they have some very good students, who do the internships there and have good English communications. About another 5 percent welcome the foreigners since they are hiring a dentist who can communicate in simple English conversations.

Selection of Topics for the Modules. In choosing the topics included in the module, the existing textbooks for students of Dentistry in some other universities such as: Ha Noi University of Medicine and Pharmacy or Ho Chi Minh University of Medicine and Pharmacy, were reviewed to determine the common topics in the field of Dentistry, because there have never been any materials to teach English for Dentistry students at Thai Nguyen University of Medicine and Pharmacy.

Furthermore, other helpful references such as the hand-outs of some colloquiums of Odontology, or some textbooks coming from other countries, for instance, Inside Dentistry of...
Luisa F Acosta Ortega (Cuba), Oxford Dictionary of Dentistry (Robert Ireland), *Teaching oral disease prevention* (Garth Pettit), *Wheeler’s Dental anatomy, Physiology and Occlusion* (Stanley J. Nelson, 10th edition) were used.

**Module Development.** In this stage, the researcher considered the following characteristics of a modular material used by Lozada (1998), when she was developing her module, namely:

1. It is self-contained and independent instructional unit.
2. It contains a set of well-defined, systematically organized learning activities.
3. It clearly defines the objectives to be achieved.
4. It includes some means of evaluating the work.

On the other hand, the researcher adopted the following parts/features of a module:

1. Instructional objectives,
2. Discussion of the basic concepts,
3. Examples or illustrating the concept presented,
4. Activities and exercises,
5. Self-assessment questions

Furthermore, the study adopted the stages of the ADDIE Model of instructional materials development in the process of developing the module. ADDIE is an Instructional Systems Design framework which is now one of the most common models of designing instructional materials. This model strives to save time and money by catching problems while they are still easy to fix.

Although the researcher is much interested in using the structure called ADDIE which was first developed by the Florida State University in the United States of American, she and her supportive colleagues decided to make some modifications so that it would fit to the context and the background of students at her workplace.
Figure 3. *The ADDIE Model of Instructional Materials Development.*

1. **Analyzing phase**

At this very first step, the researcher gathered information related to the needs of learning English of Dentistry from the previous researches in Vietnam and at her university. Supplementing this information were the unofficial interviews with the students, colleagues and managers at her university. Her experiences of teaching and observation also contributed to the pool of information.

At this stage, the researcher also spent time discussing with her colleagues and some language experts whose major is training teachers of English from other universities about some different learning and teaching approaches. From the point of the researcher, students’ learning would be most effective if they are embedded in a learning and teaching environment which flexibly involves different methods of learning and teaching with interactive activities. For this reason, task-based teaching approach and natural approach were mostly adopted.
2. **Designing phase**

In this stage of the process, the researcher did a lot of reviews on the existing materials to improve her knowledge of the dental field through the course books used for students of Dentistry in Vietnam, dentistry magazines and journals. Then she started to design the learning objectives as well as the content to be included in the modules. The activities/exercises and subject matter analysis were prepared basing on interactive and communicative criteria which are very popular and effective in many communicative course books for learners of English language.

To best support the effectiveness of the module learning, some supportive media was selected suitably, but they are inexpensive and easy to use for both teachers and learners.

As stated earlier, the features of the modules were:

1. Instructional objectives,
2. Discussion of the basic concepts,
3. Examples or illustrating the concept presented,
4. Activities and exercises,
5. Self-assessment questions

3. **Developing phase**

In the development stage, the researcher began developing the content of the module which is relevant and within the understanding level of the learners. The materials then were reviewed to ensure the reliability and authenticity as well as avoid conflicting in the information use before moving to the pilot session.

After that, she prepared the tests after each topic. Prior to the construction of the test, the researcher prepared the table of specification as guide to ensure that the test would adequately measure the desired learning outcomes.

4. **Implementing phase**

After three stages above, teachers and students met together to use the modules for classroom instruction or as supplementary materials for learning. This section is explained further in the next section.
5. Evaluating phase

Normally, there are two kinds of evaluation used in the model of ADDIE: formative and summative, so in this study, these two kinds of evaluation were used. Formative evaluation was present at each stage of the ADDIE process and this is perfect for students to identify their strengths and weaknesses as well as target areas that they needed to deal with. Furthermore, by using this kind of evaluation, the teachers can recognize where their students were struggling and addressed problems immediately. This was very effective to enhance the process of knowledge transformation, but it needed to be combined with summative assessment to ensure the better results of student learning.

Summative assessment is generally used to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark. This type of assessment is highly considered to have a high point value since the frequent assessment, pretest and posttest… are included.

In addition, the assessment instruments used in the study included the checklist for both teachers and students and a set of pretest and posttest on Listening and Speaking for students. These kinds of tests were made based on the version of Cambridge tests for level B1.

For the module evaluation, 22 Dentistry teachers, 7 teachers of English and 62 students of Dentistry were asked to give their comments on some aspects of the modules in ESP for Dentistry students.

6. Revision phase

After all five ADDIE steps, the researcher and her colleagues agreed that a Revision step is essential for the enhancement of the instructional material; therefore, at this step, the modules were revised and improved.

Experimental Phase

Immediately after permission to conduct the study was granted by the Head of English and the Rector of Thai Nguyen University of Medicine and Pharmacy, the researcher proceeded to choose the subjects of the study, as described earlier. The two groups were given the pretest patterned after the Cambridge Test on listening and speaking.
Then, the classes were taught using the same ESP instructional modules. Section 1 was met from 5 pm to 7 pm and the other class from 7.30 pm to 9.30 pm every Tuesday, Thursday and Sunday. Each lesson was approximately conducted for 2 hours and 45 minutes. At times, there were disruptions of class schedule because of periodic examinations and faculty meetings. The experiment lasted for three months.

As the lessons progressed, observation was done naturally by the teacher/researcher aided with the camera at the researcher’s university. The students were unaware that they were being observed for a particular study. When all the lessons were completed, the posttest was administered to the students in both groups.

**Post-Experimental Phase**

After the experimental period, the English teachers and the subjects of the study were asked to evaluate the modules used in terms of the dimensions: format, objectives and content, examples and illustrations, and self-assessment questions. These were rated using a five-point scale. The information derived were used to further enhance the final form of the developed modules. In addition, the data gathered were cleaned and encoded ready for data analysis.

**Data Analysis**

The data were analyzed using the Statistical Package for Social Sciences software. Descriptive statistics (frequency counts, percentages, means and standard deviation) were computed to describe and categorize the groups. To evaluate the modules, the weighted mean was computed. The values were interpreted using the following scales:

- 1.00 – 1.79 Poor
- 1.80 – 2.59 Fair
- 2.60 – 3.39 Satisfactory
- 3.40 – 4.19 Very satisfactory
- 4.20 – 5.00 Outstanding

To determine the difference between the pretest and posttest in each group, the t-test dependent groups were utilized. All hypotheses were tested at 0.05 level of significance.
Findings and Discussion

Evaluation of the ESP Modules

Format of the Modules

Table 1 shows the evaluation made by Dentistry teachers, teachers of English and Students of Dentistry on the Format of the modules. Both the teachers and students strongly agree that the format of the modules is Very Good, the overall weighted means are 4.32 and 4.60, respectively.

Both groups consider the titles and sub-titles are clearly distinguished; the layout of the pages is attractive; the graphics are well laid out and easy to understand; and key concepts are well-highlighted to attract attention. The findings indicate that the format of the module appeal to both teachers and students. As the students who are the end-users gave a more favorable rating, the module format satisfies their likes and needs. As such the modules are attractive to them. The only variation in the responses of the two groups is on legibility of the type and font size used for the text. As the teachers just agree (4.17), the students strongly agree (4.54). Because they are young, the vision of the students is still clear, unlike the teachers whose eyesight has been weakened by age.

Table 1. Teachers and Students’ Evaluation on the Format of the Modules.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Rating</td>
<td>Description</td>
</tr>
<tr>
<td>1. The titles and sub-titles are clearly distinguished.</td>
<td>4.41</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>2. The layout of the pages is attractive.</td>
<td>4.41</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>3. The type and font size used for the text is easy to read.</td>
<td>4.17</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Objectives and Content of the Modules

As seen in Table 2, the teachers of English and Dentistry as well as the students of Dentistry strongly agree to all the assessment items to assess the objectives and content of the modules. Their overall weighted mean was 4.81 for teachers and 4.82 for the students. Both share the same view that the objectives and content of the modules meet the criteria in content selection like significance, relevance, usability, feasibility, and the like.

Specifically, the two groups consider the modules to state objectives that are simple and understandable, and these describe what students are expected to do after the completion. In addition, they rate all practice task questions to be unambiguous. The instructions were clear and easy to follow and the form is appropriate for the objective it is intended to assess. On the other hand, they commonly consider the explanation of the lessons as well-written in simple language that would help the learners to follow the lesson perfectly. Besides, the objectives and content of the modules designed are considered arranged in logical sequence and are well-stated.
Table 2. *Teachers and Students’ Evaluation on the Objectives and Content of the Modules.*

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Rating</td>
<td>Description</td>
</tr>
<tr>
<td>1. The instructional objectives are simple and understandable.</td>
<td>4.88</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>2. The instructional objectives state what should the learner be able to do after completion of the module.</td>
<td>4.72</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>3. The explanation of the lessons is well-written in simple language.</td>
<td>4.83</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>4. The contents are directly relevant to the objectives.</td>
<td>4.85</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>5. The contents have been arranged in a logical learning sequence.</td>
<td>4.80</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Overall Weighted Mean</td>
<td>4.81</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Legend:

- 4.20 – 5.00 Strongly agree
- 2.40 – 4.19 Agree
- 2.60 – 3.39 Uncertain
Examples and Illustrations of the Modules

In terms of the examples and illustrations contained in the module, the weighted mean scores for students (4.55) and teachers (4.32) indicate that both groups regard the examples and illustrations appropriate and useful to aid understanding of the content and in the acquisition of the skills (Table 3).

Table 3. Teachers and Students’ Evaluation on the Examples and Illustrations of the Modules.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Rating</td>
<td>Description</td>
</tr>
<tr>
<td>1. The illustrative situations or examples appropriately apply the concepts presented.</td>
<td>4.31</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>2. Exercises have been included in all necessary parts of the module.</td>
<td>4.41</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>3. The exercises are sufficient for attaining mastery of the skills.</td>
<td>4.17</td>
<td>Agree</td>
</tr>
<tr>
<td>4. The exercises are very useful in explaining and understanding the concepts and skills.</td>
<td>4.34</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>5. The examples/ exercises are practical.</td>
<td>4.37</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>
Both groups believe that the examples are appropriately applied to the concept discussed, that these are included in all necessary parts of the module, and that they are sufficient, useful and practical and authentic to their life. These are also useful in the mastery of the language skills.

**Self-Assessment Questions of the Modules**

With regard to the self-assessment questions contained in the module, the both teachers and students rate favorably the self-assessment questions, weighted mean scores being 4.58 for students and 4.37 for teachers (Table 4). It means that the questions and tasks are workable for them to accomplish independently. Because of that, the modules are effective supplementary learning materials for individualized learning.

Specifically, both groups rate well the questions/tasks because they enable the learner to learn by himself or herself; they are relevant to the objectives that ought to be mastered. In addition, the questions/ tasks guide the students to know whether he/she attained the mastery of the objectives. The exercises/ tasks are also very useful in attaining mastery of the skills. The self-assessment questions/ tasks motivate the learner in studying the lessons actively.

The findings point out that students perceive that the questions contained in the designed module are enabling them to learn by themselves and are useful in attaining the mastery of the lesson as well as motivate them to study actively.
Table 4. *Teachers and Students’ Evaluation on the Self-Assessment Questions of the Modules.*

<table>
<thead>
<tr>
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<th>Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean Rating</td>
<td>Description</td>
</tr>
<tr>
<td>1. The questions/ tasks enable the learner to learn by himself or herself.</td>
<td>4.31</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>2. The questions/ tasks are relevant to the objectives that ought to be mastered.</td>
<td>4.13</td>
<td>Agree</td>
</tr>
<tr>
<td>3. The questions/ tasks guide the students to know whether he/ she attained the mastery of the objectives.</td>
<td>4.44</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>4. The exercises/ tasks are very useful in attaining mastery of the skills.</td>
<td>4.741</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>5. The self-assessment questions/ tasks motivate the learner in studying the lessons actively.</td>
<td>4.55</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>Overall mean</td>
<td>4.37</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>

Legend:

4.20 – 5.00 - Strongly agree

405
2.40 – 4.19  -  Agree
2.60 – 3.39  -  Uncertain
1.80 - 2.59  -  Disagree
1.00 – 1.79  -  Strongly disagree

Suggestions to Improve the Modules

When being asked how the modules can be enhanced, the respondents expressed varied views. On the side of the students, most of them suggested that the module should be designed with more interactive and complex activities and exercises. Others remarked in opposition to the majority, saying that the modules ought to be simplified and made easier. Some respondents commented that the instructional aid should be printed in color.

The teacher-respondents really supported the researcher during the time of doing the research and suggested that the designed modules should include additional exercises and should emphasize more on the four macro language skill integration. Some of them commented that colored printed materials would be better for students’ motivation.

Both the teachers and students agreed that there should be more authentic audio recordings for the Listening tasks and the requirements for each task should be varied.

Comparative Performance of the Students Before and After the Use ESP Instructional Modules

The study hypothesized that there is no difference in the overall language performance of the students before and after exposure to the ESP instructional materials. Results of the t-test for dependent groups showed that the computed value of 11.364 has associated probability lower than the 0.01 level of significance (Table 5). Thus, the null hypothesis is rejected.

Before the conduct of the study, the performance of the students was measured at 20.069; it became 25.403 after the experimental study – there was an increase of 5 points in the score of the students. The findings indicate that ESP modules have significantly improved the overall language performance of the Dentistry students, particularly in speaking and listening. In her study, Nardo (2017) pointed out the benefits of using modules for instruction such as the acquisition of a better self-study or learning skills among students. Students
involved in the study engaged themselves in learning concepts presented in the modules. They developed a sense of responsibility in accomplishing the tasks provided in the modules. With little or no assistance from the teacher, the learners progressed on their own. They learned how to learn; they were empowered.

The finding affirms that when language tasks are authentic and natural (pertains to the activities related to the job, e.g., dentists), students find the lessons and activities relevant to their present studies and to their future job. Learning under this context becomes more meaningful and interesting.

Table 5. *Comparative Overall Language Performance of the Students*

<table>
<thead>
<tr>
<th>Time</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
<th>t-value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before (Pre)</td>
<td>20.069</td>
<td>6.201</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After (Post)</td>
<td>25.403</td>
<td>6.586</td>
<td>0.469</td>
<td>11.364**</td>
<td>0.000</td>
</tr>
</tbody>
</table>

** = significant at 0.01 level

**Comparative Performance of the Students in Speaking and Listening**

The study hypothesized that there is no difference in the performance of the students in the macro skills of speaking and listening. T-test results reveal all computed values with associated probabilities lower than 0.01. For this reason, the null hypothesis is rejected.

In speaking, the students obtained a mean score 10.972 at the start of the study and it increased to 13.931 after. The t-value of 14.232 indicates that the increase of three points in the score of the students was significant. The ESP instructional module enhanced their ability to speak because they were provided exercises to describe a picture or figure. With such stimulus they are guided on what to talk about by the features of the photo or illustration.
presented to them. For this reason, they could develop confidence to complete the speaking task.

On this regard, Burden and Byrd (1994) claimed that instructional materials like modules are carriers of information between a source and a receiver which facilitate and enhance student learning. They serve as scaffolds in learners’ accomplishing a language task.

Table 6. Comparison between the Performance of the Students in Speaking and Listening Skills of the Students Before and After the Experiment.

<table>
<thead>
<tr>
<th>Time</th>
<th>Mean</th>
<th>SD</th>
<th>Std. Error</th>
<th>t-value</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before (Pre)</td>
<td>10.972</td>
<td>4.409</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After (Post)</td>
<td>13.931</td>
<td>3.936</td>
<td>0.208</td>
<td>14.232*</td>
<td>0.000</td>
</tr>
<tr>
<td>Listening</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before (Pre)</td>
<td>9.097</td>
<td>3.224</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>After (Post)</td>
<td>11.472</td>
<td>3.875</td>
<td>0.4645</td>
<td>5.133*</td>
<td>0.000</td>
</tr>
</tbody>
</table>

** = significant at 0.01 level

Along listening, a significant difference was noted as revealed in the t-value of 5.133 (p = 0.000). It means that students benefitted from the use of the ESP modules. From a mean score of 9.097 at the beginning, the score increased to 11.472 after the students used the ESP modules. In the modules, student activities require them to listen to a recorded material or
watch a video clip. In some instances, they are guided by a cloze test; at times they discuss what they see and hear from the video. As they are focused to the text and to the audio material, they are concentrated to the purpose of the listening tasks. Concentration is possible because they were working individually or with a small focused group. The opportunity to discuss among the members of the group provide additional benefit of the use of the ESP modules. Words missed or misheard during the listening task could be supplied or corrected by other members of the group.

It is noted from the findings that apparently students’ acquisition of speaking skills was favored over their listening skills. This situation is brought about by the fact that when the students listen they have to perceive the meaning as the message is being heard and they have to anticipate forthcoming messages. When they miss significant portions of the message, they have difficulty responding to questions pertaining to the portion where their processing is inadequate or limited.

In contrast, the students when speaking, they are guided by the stimulus material presented. They can go over and over the material to discern the features, thus, enabling them to organize a revise their thoughts before they are to communicate them to others.

**Summary**

This study was conducted to develop modules in ESP for Dentistry based on their language needs. It assessed the modules in terms of format, objectives and content, examples and illustrations, and self-assessment questions; it compared the overall language performance of the students before and after using the ESP modules, as well as their listening and speaking performance.

The developed modules covered five topics, namely: general dental anatomy, dental organizations and campaigns, common dental problems, visiting a dentist’s dentistry and technology. Although the four basic skills integration are undeniably important, this study mainly focused on listening and speaking which are the two weakest skills among students of dentistry. However, reading and writing are integrated skills in the modules. In the validation phase of the modules, the assessment of the teachers and the Dentistry students were inputs to further improve the content and qualities of the modules. Moreover, the statistical results before and after the use of the modules were used to attest to their empirical usability.
The study made use of the descriptive and quasi-experimental designs to gather the needed data to answer the specific research questions. Data were obtained from the teachers and students of Thai Nguyen University of Medicine and Pharmacy, Thai Nguyen City. Two sections of the freshmen class served as replicates of the study. Data were analyzed by using descriptive statistics and t-test for dependent groups.

Findings revealed that Dentistry teachers, teachers of English and Students of Dentistry rated similarly that the features of the ESP modules in terms of format, objectives and content, examples and illustrations, and self-assessment questions were favorable to the users. When being asked how the modules can be enhanced, the respondents expressed varied views. On the side of the students, most of them suggested that the modules should be designed with more interactive and complex activities and exercises. Others remarked in opposition to the majority, saying that the modules ought to be simplified and made easier. Some respondents commented that the instructional aid should be printed in color.

The teacher-respondents really supported the researcher during the time of doing the research and suggested that the designed modules should include additional exercises and should emphasize more on the four macro language skill integration. Some of them commented that colored printed materials would be better for students’ motivation. Tests of hypotheses revealed that there were significant differences in the overall performance of the students in the whole language test. Similarly, significant differences were noted in speaking and listening performance of the students before and after the use of the ESP modules. The findings indicated the effectiveness of the modules used by the Dentistry students.

**Conclusion**

Based on the findings of the study, it is concluded that the English for Specific Purposes modules for Dentistry students are valid and reliable for use in the development of Speaking and Listening skills to the students. The modules are acceptable to the users as the format, objectives and contents, self-assessment questions are suited to their characteristics and needs. The use of task-based approach and natural approach in presenting language through modules is suitable for the students.
References

Books


Theses and Dissertations


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Website entry


A Study of Peer Assessment for EFL Academic Oral Presentations

Huei-Chun Teng, Ph.D.
National Taiwan University of Science and Technology

Biodata

Huei-Chun Teng is a Professor of the Department of Applied Foreign Languages at National Taiwan University of Science and Technology. She has served as the department chair and college dean. Her research interests include EFL listening instruction, oral communication, and language assessment.

Abstract

The present study examines peer assessment of EFL students for their academic oral presentations. The following research questions will be specifically addressed: (1) Are there significant correlation between EFL students’ peer assessments and the teacher’s assessments in terms of academic oral presentations? (2) Are there significant differences in EFL students’ perceptions of academic oral presentations before and after experiencing peer assessment? (3) What are EFL students’ perceptions about peer assessment for academic oral presentations?

The participants were 24 graduate students from a university in Taiwan. They were asked to fill out the pre-survey and the post-survey respectively at the beginning and the end of the semester. They need to deliver three academic oral presentations in class and also complete the evaluation forms for peer assessment. After each presentation, the participants were required to complete written reflections about their oral presentation experiences. At the end of the course, semi-structured interview were conducted. Results show that there is significant correlation between peer assessment and teacher assessment of oral presentations. There are also significant differences in EFL students’ perceptions of assessing oral presentations before and after experiencing peer assessment. By presenting empirical evidences, the study can facilitate our understanding on student involvement in assessing academic oral presentations.
and also provide pedagogical implications for using peer assessment in EFL oral presentation classes.

**Keywords:** EFL oral presentation, academic presentation, peer assessment

**Introduction**

Nowadays, the importance of oral presentation skills is widely recognized. Oral presentations have become a component of many undergraduate and graduate courses across fields in higher education. Coherent oral presentation of complex matters is often required in academic settings, but students often fail to perform well because of a lack of presentation training as part of university curricula (Mitchell & Bakewell, 1995). According to Hincks (2005), public speaking difficulties are magnified for second language learners, operating under a heavy cognitive load of planning lexical content and its articulation at the same time. Confidence in spoken English skills is a considerable obstacle for a large number of ESL/EFL students who have experienced feelings of inadequacy and frustration when giving English oral presentations for classes (Liu & Littlewood, 1997; Kim, 2006). Thus, the students have to get familiar with how to express themselves academically in English (Morton, 2009).

Educational experts generally agree that oral presentation will become ever more important over time and that higher education should provide more training in this area (Pribyl, Keaten, & Sakamoto, 2001). The development of oral presentation skills is a time-consuming activity. There is increasing pressure to optimize the instructional environment and teaching approaches in oral presentation classes. A critical issue in this optimization concerns the role the student can play, that is, how to make students more responsible for their learning with less input from the teacher (De Grez, Valcke, & Roozen, 2009). In recent years, student involvement in assessment has been increasing in higher education. Moreover, the research literature on assessment shows that student involvement is a world-wide phenomenon (Falchikov & Goldfinch, 2000). Student involvement in assessment typically takes the form of peer assessment or self-assessment by applying criteria to make judgments. In self-assessment, students judge their own work, while in peer assessment they judge the work of their peers (Falchikov, 2005).

Due to the current trend of internationalization in Taiwan, more and more professors, especially those teaching graduate courses, have started asking their students to give English oral presentations in class. Despite the prevalence of this type of academic activity, most of
Taiwanese students, who are English nonnative speakers, may still enter universities with little or no confidence and familiarity with academic presentations (Barrett & Liu, 2016). Thus, a critical issue of promoting EFL academic oral presentations in Taiwan is to explore the practice of student involvement in assessing their own presentations with the hope of facilitating the instructional effectiveness and further improving students’ EFL oral presentation skills.

The present research aims to examine student involvement in assessing academic oral presentations in an EFL context. The study will mainly explore peer assessment and self-assessment of EFL students for their academic oral presentations. The following research questions will be specifically addressed: (1) Are there significant correlation between EFL students’ peer assessments and the teacher’s assessments in terms of academic oral presentations? (2) Are there significant differences in EFL students’ perceptions of academic oral presentations before and after experiencing peer assessment? (3) What are EFL students’ perceptions about peer assessment for academic oral presentations?

As indicated by Lima (2016), oral presentations has become ubiquitous in higher education, and students should be offered training on public speech to help them relieve the fear of being misunderstood and become more effective presenters in the academic environment. Although the training of oral presentation skills is stressed in many college curricula, only a few empirical studies were conducted to explore the instruction and assessment for academic oral presentations (Campbell, Mothersbaugh, Brammer, & Taylor, 2001). Barrett & Liu (2016) also argued that the biggest challenge for researchers is to develop courseware which can teach students the linguistic and nonlinguistic features of academic oral presentations but also provide a space for collaboration, feedback, and assessment.

For the past decades, the various teaching methods of second languages have been mainly learner-centered. Thus, students also need to be encouraged and trained to participate in the assessment of their own learning. According to Huang and Hung (2010), teachers need to recognize the strengths and weaknesses of the new assessment approaches in order to integrate them with traditional assessment methods. As indicated by De Grez, Valcke, and Roozen (2012), the main problem in the assessment of oral presentations is the lack of empirical research directing innovative and specific practices of peer and self-assessment. The importance of learning oral presentation skills in tertiary education has been acknowledged internationally; however, there is limited research on how to evaluate these skills in a way that is student centered (Harris et al., 2016). Therefore, the present research is expected to make a
contribution toward addressing the gap of literature by providing specific insights into this critical issue and thus generate more effective suggestions for oral presentation assessment.

Literature Review

There has been increasing number of research into student involvement in assessment, specifically its application to oral presentations in higher education (Magin & Helmore, 2001). With regard to college students’ perceptions of oral presentation, Zareva (2009) found that the L1 presenters seemed to perceive the academic presentation as an opportunity to present information in an informal way, but also to interact with the audience. By contrast, the L2 presenters were preoccupied with the informational content of their presentations, seldom involved in the process of information negotiation with peers. A study by De Grez et al. (2009) examined the predictors of oral presentation performance by university freshmen. Results indicate the critical impact of motivational constructs, such as self-efficacy and goal orientation on the acquisition of oral presentation skills. Otoshi and Heffernen (2008) investigated the factors predicting effective oral presentations in EFL classrooms. The surveyed respondents were 304 undergraduate students at a large private university in Japan. The following three factors were identified as the major criteria for effective English oral presentations, i.e., clarity of speech and voice quality, correctness of language, and interaction with the audience.

Besides, Tsai (2010) developed ESP multimedia courseware for learning ESP on oral presentations in international business and technical settings and offers learning activities with on-line self-evaluation. He found that students with different English proficiencies have different concerns about giving a presentation. After students’ self-study for six weeks, regardless of level of proficiency, their learning effectiveness and satisfaction with the courseware integration were significantly improved. Pathak and Vasan (2015) conducted an experiment where students were given an opportunity to demonstrate their technical knowledge and integrate it with oral presentation skills. Results emphasize the development of a transparent assessment framework as well as the collaboration between the engineering faculty and the language teachers. Leichsenring (2015) conducted a teacher-led inquiry into learner language awareness and learner perceptions of oral presentations. Results show that learner perceptions include the acceptance of spoken errors when giving oral presentations and a sense of ownership of English among the participants.
Furthermore, Al-Nouh, Abdul-Kareem and Taqi (2015) explored EFL college students’ perceptions of the difficulties they face in oral presentation as a form of assessment. The participants were 500 female EFL college students from different grade levels in Kuwait. They found that participants experienced a number of difficulties mostly related to personal traits, including fear of evaluation, avoidance of the instructor’s eyes, and forgetting what they want to say. They also acknowledged other difficulties such as lack of oral presentation courses, technology-based equipment, a suitable environment, and ample time allowed for the presentation. McBain et al. (2016) evaluated the experiences of tertiary students learning oral presentation skills from online oral communications assessment tasks (OOCATs). Findings reveal that students’ engagement with the task was extremely positive but also highly varied. Five clear themes in relation to students’ experiences were highlighted, including relevance, capacity, technology, time and support.

Peer assessment can achieve relatively high precision and criterion validity if it becomes an integral part of course design and students receive training and feedback on their rating performance (De Grez et al., 2009). By providing feedback to their peers, students can improve their sense of accountability and become reliable raters. Peer assessment also has the potential to save teachers’ time and raise students’ awareness of the evaluation rubrics (Topping, 2009). Kwan and Leung (1996) claimed that the ability to judge peers’ performance critically and objectively is a skill that students should possess when they enter any profession. In recent years, there has been a growing body of research on the investigation of peer assessment for oral presentations. For example, Cheng & Warren (2005) explored the reliability and potential benefits of incorporating peer assessment into English language programs. The participants who were undergraduate engineering students from a university in Hong Kong were asked to assess the English language proficiency of their peers as exhibited in the seminar, oral presentation and written report of an integrated group project. It is found that students had a less positive attitude towards assessing their peers’ English proficiency. Students and teachers were different in their respective marking behaviors. Cheng & Warren (2005) sharing the view of Etheridge (1995) argued that peer assessment can only work effectively if the teacher is more concerned with the long-term, cumulative educational benefits rather than the immediate outcome of students’ attempts to supplement the assessment behavior of their teacher.

In addition, Magin and Helmore (2001) examined the reliabilities of peer and teacher summative assessments of engineering students’ oral presentation skills. Results show that
teacher ratings had substantially higher levels of inter-rater agreement than peer ratings. However, the estimates of intra-rater reliability for teachers were moderately low. They suggested that the reliability of summative assessments of oral presentations be improved by combining teacher marks with the averaged marks obtained from multiple peer ratings. A study by Langan et al. (2005) looked into the effects of student gender, university affiliation and participation in the development of assessment criteria. They found that males tended to grade other male speakers slightly more highly than female speakers. Marks from females were not affected by speaker gender. Students participating in the development of the assessment criteria did not achieve higher grades for their presentations, but these participants awarded lower marks than their peers when they were assessing. Peng (2009) investigated college students’ attitudes towards and possible language proficiency differences in peer assessment for oral presentations. Participants were 88 EFL learners and one teacher from a university in Taiwan. Results show that both high and low-intermediate students reacted positively to peer assessment. The high-intermediate students’ scores did not have stronger agreement with the teacher’s marks, while the low-intermediate students’ scores were averagely closer to the teacher’s. Chaqmaqchee (2015) examined students’ and teachers’ outlook on the use of peer assessment for oral presentation by collecting questionnaires from 60 students and 9 academic staff. Results indicated that students considered peer assessment for presentation depended on the quality of peers’ language accuracy and academic background. Staff viewed peer assessment as student involvement in learning practices and social development.

According to De Grez, et al. (2012), assessment of oral presentation skills reveals under-explored areas and diverging views. The use of different samples and various assessment instruments makes it difficult to compare the findings of research literature. These inconsistent findings indicate that more research is needed regarding peer assessment of oral presentation skills. Although a few studies in Taiwan investigated peer or self-assessment for EFL oral presentations (e.g., Cheng, 2010; Lin, 2012; Tien, 2012; Lee, 2013; Huang, 2013; Chen, 2016), their participants were undergraduate students and only Tien (2012) focused on academic oral presentations. As a result, the current study aims to help fill this void through investigating peer assessment for academic oral presentations by EFL graduate students. By providing empirical evidences and descriptions, the present study is expected to contribute to the limited body of literature on assessment for EFL academic oral presentations.
Methods

Participants

Participants in the study were 24 graduate students from a university in Taiwan. The participants pursued their Master studies in the Foreign Language Department. They need to take the required course *Speech and Presentation*, which is designed to prepare EFL graduate students for giving academic oral presentations in conferences, proposal hearings, and thesis oral defenses.

Instrumentation

In the present study, various sources of data were collected, including pre- and post-surveys, evaluation forms, open-ended questionnaires, and interview questions. The evaluation form of oral presentation based on Aryadoust (2015) was utilized to raise students’ awareness of the important elements of oral presentation, help them assess their peers’ oral presentation skills, and further assist teachers to provide students diagnostic feedback. The evaluation form is composed of three parts of 18 items on a five-point scoring scale (1: poor, 2: below average, 3: average, 4: above average, 5: excellent). The three oral presentation skill sets include *content and organization* with four items measuring the macrostructure of the presentation, *verbal communication* with eight items evaluating lexical properties of the talk, and *nonverbal communication* with six items assessing paralinguistic and nonverbal features of the presentations.

The pre- and post-surveys on perceptions of oral presentation adapted from previous research includes three parts of 40 items on 5-point scales of agreement. The first part is *perceptions of effective oral presentations* with 13 items from Otoshi and Heffernen (2008). The second part is *difficulties in delivering oral presentations* with 12 items from Stapa, et al. (2014). The third part is *usefulness of the rubric for assessing oral presentations* with 15 items from Gracia-Ros (2011). Moreover, semi-structured interview questions based on Peng (2009) are adopted to examine the participants’ overall impressions and summative comments on peer assessment of academic oral presentations.
**Procedures**

The study was conducted in the required course *Speech and Presentation* based on the timeline of data collection. First, the researcher, who was also the course instructor, explained the study purpose and details to the participants and got their permission. Then, the participants received the training of peer assessment and completed the pre-surveys. In the course, the participants were required to give three academic presentations related to their thesis studies. For each presentation activity, half of the students presented in the first week, and the other half presented in the second week. Every student had 8-10 minutes to deliver the presentation graded by their peers and the teacher. Both the peer assessment and the teacher assessment were based on the same evaluation form. After each presentation activity, the teacher collected all peer assessment forms. In the following week, the participants shared feedback on their presentation performances and peer assessment experiences, and then completed their written reflections. In the end of the semester, they answered the post-surveys. Finally, semi-structured interviews were held with ten volunteers from the participants to probe how they perceived peer assessment.

**Data Analysis**

Product-moment correlation was conducted to examine the correlation between teacher and peer assessments. Paired t-tests were also used to analyze the results of pre- and post-surveys to compare the participants’ perceptions before and after the peer assessments. These quantitative results were then triangulated with the qualitative data from semi-structured interviews, which were transcribed and categorized in terms of the research questions.

**Results**

The results of the study were presented as follows, including the scores given by the teacher and the peers for the participants’ academic oral presentations, the participants’ responses to the pre- and post-surveys on perceptions of oral presentation, the participants’ answers to open-ended questionnaires and interview questions.

**Scores for Evaluation Forms**

One of the study objectives is to investigate the correlation between peer assessment and teacher assessment for academic oral presentations. The results of evaluations forms with 5-
point Likert scale are presented in Table 1. For the academic oral presentations delivered by 24 participants, the average score of peer assessment is 4.30 while the average of teacher assessment is 4.28. The coefficient of Pearson product-moment correlation is 0.908 with a significant level of 0.000. That is, there is significant correlation between the scores given by the student peers and the scores by the instructor for the participants’ academic oral presentations.

Table 1. Correlation between Peer Assessment and Teacher Assessment

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>r</th>
<th>p</th>
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<tbody>
<tr>
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<td>0.25</td>
<td>0.908</td>
<td>0.000</td>
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<tr>
<td>Teacher</td>
<td>4.28</td>
<td>0.29</td>
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</tr>
</tbody>
</table>

Responses to Pre- and Post-Surveys

The pre- and post-surveys were conducted to examine the change of participants’ perceptions of oral presentation. Table 2 shows the results of paired t-test for the pre- and post-surveys. Among the three parts of the survey, there are significant differences in participants’ perceptions in the first and third parts. The students had significantly higher perceptions of effective oral presentations and usefulness of the rubric for assessing oral presentations after they had peer assessment of their classmates’ oral presentations. However, there are no significant differences in the second part of the survey, though the participants self-reported fewer difficulties in delivering oral presentations after conducting peer assessment. Overall, there are significant differences in participants’ perceptions of academic oral presentations before and after they experienced peer assessment.

Table 2. Paired t-test for Perceptions of Oral Presentations

<table>
<thead>
<tr>
<th>Category</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
</tbody>
</table>

421
Answers to Semi-structured Interviews

The semi-structured interview included six questions to probe the participants’ perceptions toward peer assessment for academic oral presentations. The answers elicited from ten interviewees were presented as follows.

1. What have you learned from observing and assessing classmates’ oral presentations?

According to the interview answers, the interviewees can learn how to evaluate other students objectively and also be able to learn good points from them to improve their own oral presentations. They have actually learned how to be better listeners of presentations. The process of observing and assessing simultaneously required them to listen for the contents related to the provided rubric and give comments at the same time. From observing their classmates’ oral presentations, they have learned everyone has her/his own style on giving a presentation. Hence, they have learned from the mistakes their classmates made and tried to avoid them. Meanwhile, they also have learned some good presentation skills used by their classmates.

2. Do you think you can fairly and responsibly assess your peers? Why or why not?

The interviewees think they can fairly assess their peers because the rubric is very clear, and they just simply followed it and wrote down the scores. Because the criteria were clearly described, they know that giving some useful suggestions can be helpful for the other students. Besides, they also hope to get some concrete and useful feedback, and in that case, they will do the same. They tried to do so; however, they consider it quite hard and almost impossible to be absolutely fair. They think they can responsibly assess their peers, but sometimes they are not sure whether they evaluate classmates with all their true reflections because they do not want to be rude or too critical to their peers. Sometimes, they would not write down every detail.
of their opinions. When the presentations were boring, they might be distracted and miss some important keys to evaluate their peers.

3. **What were some difficulties that you encountered during the peer assessment?**

The interviewees think the time limitation is a problem that they cannot think too much before rating. It is hard to give “verbal feedback” compared to “grading numbers. Besides, it is difficult to describe the presenters’ strengths and weaknesses. Attempting to assess pronunciation and word choice or vocabulary was sometimes difficult. The major challenge is to keep listening to the speaker, while they are grading and writing comments at the same time. Being fair was hard. Sometimes the presented topics also influence their evaluation. If they are attracted by the topic or already familiar with the content, it may positively affect their ideas about the presenter regardless of his/her real performance.

4. **According to your experience, what are the benefits of the peer assessment activity?**

Based on the interviewees’ responses, as a presenter, it is hard to notice one’s own fault. But after get the evaluation form from peers, it is a good chance for examining their own performance. Peer assessment can make the audience focus more on the presentation. Students will pay more attention to classmates’ presentation. If there is no peer assessment, some of the audience might be distracted. Moreover, they have learned how to be a judge who gave comments to the speakers for improving their presentation. They can observe their peers’ presentations to learn their strengths and improve their own weaknesses. Peer assessment is beneficial to both assessors and presenters. For assessors, they know what they should pay attention to if they need to present in the future. For presenters, they can get second opinions for their reference.

5. **What are the weaknesses of or concerns you have about the peer assessment activity?**

The interviewees’ biggest concern when scoring was whether they were consistent or not. Evaluation criteria might be different for individual assessors, and they were worried that they receive bad scores from some peers. Sometimes their classmate just gave a low score without any explanation, and so they do not know how they can improve their presentation skills. Some interviewees are worried to give simple comments which may not be helpful for their peers. Due to the fact that presentations were assessed in real time, they felt that some comments that they originally had for their peers’ presentations cannot be retrieved due to short-term memory.
loss. Perhaps a better way would be to provide video recordings for more in-depth peer assessment.

6. In your opinion, what are the differences between teacher assessment and peer assessment? Which one do you prefer and why?

Some interviewees think that teacher assessment is more correct than peer assessment. Since teachers are more knowledgeable than peers, they prefer teacher assessment. They prefer teacher assessment because teachers as experts can find out more important points that students do not detect. Teacher assessment may be more impartial than peer assessment and look more deeply into the presentation contents. However, other interviewee likes both because they can get suggestions from different viewpoints. Teacher assessment gives more useful advices and evaluation since the teacher is an expert, but peer assessment offers opinions from a different point of view. Both assessments are valuable because teachers can give more professional feedback while peers can provide their own experiences to compensate for the teachers’ feedback.

Discussion

In the study, the results show that there is significant correlation between peer assessment and teacher assessment of academic oral presentations. The study finding confirms some previous studies (e.g., Freeman, 1995; Campbell et al., 2001; Patri, 2002; AlFallay, 2004) indicating that peer assessment can be a relevant substitute for assessments by teachers. According to Topping (1998), an accurate calibration of oral presentation performance suggests that a sufficient level of reliability can be attained with comparable assessment results from teachers and students. Moreover, the participants’ scores for peer assessing oral presentations were slightly higher than that of teacher assessment, with lower standard deviation than the teacher’s. The results echo Langan et al. (2005) and De Grez et al. (2012) indicating that peers reported higher marks as compared to teachers, and also support Freeman (1995) finding that the standard deviation of marks given by peers was lower than that in scores given by teachers. It seems that students come to a stronger agreement than the teacher in the scores for peer assessment (Hafner & Hafner, 2003).

However, the study result is not consistent with some other research (e.g. Magin & Helmore, 2001; Cheng & Warren, 2005; Peng, 2009) which found no significant correlation between the scores given by peers and by teachers. Based on some researchers (e.g., Kwan and
Leung, 1996; De Grez et al., 2009), peer assessment can achieve relatively high criterion validity if students receive training and have the ability to judge peers’ performance critically and objectively. Chaqmaqchee (2015) also claimed that students were able to provide a reliable overall assessment but needed additional training to give reliable scores on specific criteria of oral presentations. As a result, the study participants who were English-major graduate students with higher EFL proficiency had more precise and reliable rating performance in EFL oral presentations than those study participants who were engineering or management undergraduates.

In the current study, there are significant differences in the participants’ perceptions of effective oral presentations and usefulness of the rubric for assessing oral presentations before and after experiencing peer assessment. The research finding supports Falchikov (2005) indicating that peer assessment can improve assessment quality by making procedures explicit and transparent. Topping (2009) also indicated that peer assessment has the potential to raise students’ awareness of the evaluation rubrics. By providing feedback to their peers, students can improve their sense of accountability and become reliable raters. Teachers can use the power of assessment to help students learn by involving them in the process. Peer assessment can result in students’ more active involvement in their own learning process (Ozogul & Sullivan, 2007).

With regard to students’ perceptions of peer assessment, it can be concluded that the study findings reflect positive attitudes towards peer assessment. That is, the actual process of carrying out peer assessment affects students’ perceptions in a positive way. According to Struyven et al. (2003), this is a promising finding in the light of the impact of perceptions on the learning outcomes of students. It can be assumed that student perceptions of peer assessments will influence their willingness to consider the feedback generated by peer assessment and to actually do something with the feedback (De Grez et al., 2012).

As revealed in the interview responses, EFL graduate students think peer assessment is beneficial to both assessors and presenters. For assessors, they can observe their peers’ presentations to learn their strengths and improve their own weaknesses. Thus, they will know what they should pay attention to if they need to present in the future. For presenters, they can get second opinions for their reference. Falchikov (2005) proposes that involving students in the assessment of presentations is extremely beneficial for developing self-regulated learning skills. Students are expected to analyze their peers’ behavior and develop a better
understanding of the nature of presentation criteria. Some researchers (e.g., Bourhis & Allen, 1998; Cheng & Warren, 2005) reported improved presentation performance due to peer assessment. Langan et al. (2005) and Sluijsmans (2002) argue that the benefits of peer assessment outweigh a certain degree of discrepancy between teacher marks and peer marks. Topping (2009) links peer assessment to the provision of immediate, individualized and richer feedback which is formative in nature and has a clear potential of fostering the subsequent learning process (Hattie, 2009). Boud (2007) also indicates the value of peer assessment found in the impact on the acquisition process of the complex oral presentation skills. Topping (1998) summarizes the benefits of peer assessment, including improvements in marks, perceived higher learning performance, higher presentation confidence, and the development of appraisal skills. Topping (2003) additionally mentions economic benefits for adopting peer assessment. That is, the teaching workload can be reduced by shifting part of the responsibilities for assessment and feedback from the teacher to the students.

With regard to the weakness of peer assessment, the participants’ biggest concern was whether their scoring was objective and reliable. Evaluation criteria might be different for individual assessors, and they were worried that they receive bad scores from some peers. The study conducted by Hanrahan and Isaacs (2001) reveals that students were concerned about their inexperience in scoring and felt uncomfortable criticizing others’ work. Cheng and Warren (2005) found a low level of students’ comfort in a peer assessment situation, and a low degree of confidence in their personal peer assessment skills. Thus, low self-efficacy levels for peer assessment skills may influence the nature and quality of peer assessment.

The interviewees think it is hard to give “verbal feedback” compared to “grading numbers.” In addition, it is difficult to describe the presenters’ strengths and weaknesses. Attempting to assess the presenters’ pronunciation and word choice or vocabulary was sometimes difficult. Besides, Langan et al. (2005) point out the obvious problem with anonymity when conducting peer assessment of oral presentations. Lack of anonymity may result in assessment bias.

In terms of improving the quality of peer assessment for oral presentation, previous research focused on the critical value of assessment training, the feasibility of student based assessment, the assessment criteria and the scoring approach. A number of researchers suggest that peers need training in view of peer assessment (Freeman, 1995; Campbell et al., 2001; Patri, 2002; Sluijsmans, 2002; AlFallay, 2004; Langan et al., 2005). Price and O’Donovan (2006) pointed out the importance of giving students sufficient practice and discussion to
develop a shared understanding of the explicit and tacit assessment criteria. In addition, Miller (2003) found that a larger number of items in the evaluation checklist resulted in an increase in score variance. However, this can also provide students with more detailed and better feedback. Besides, Langan et al. (2008) recommend adopting short sessions of oral presentation in order to diminish loss of concentration. In the study, the interviewees also mentioned that they felt that some comments that they originally had for their peers’ presentations cannot be retrieved due to short-term memory loss. Perhaps a better way would be to provide video recordings for more in-depth peer assessment.

**Conclusion**

Kwan and Leung (1996) claimed that the ability to judge peers’ performance critically and objectively is a skill that students should possess when they enter any profession. The present study echoes Magin and Helmore (2001) suggesting that the reliability of formative assessments of oral presentations be improved by combining teacher marks with the average marks obtained from multiple peer ratings. This study revealed some interesting findings about the peer assessment field of EFL academic oral presentation skills. The research findings can provide specific insights and generate effective suggestions for the critical issue of oral presentation assessment. Future research can focus on the social context of self-regulated learning in terms of the relationships between teacher, peer, and self-assessment for oral presentations.

**References**


Technology-Integrated ESP (English for Specific Purposes) Instructions: The Engineering Students’ Perspectives

Karmila Machmud

Universitas Negeri Gorontalo, Indonesia

Biodata

Karmila Machmud, Ph.D is an active faculty member in English Department of Universitas Negeri Gorontalo, Indonesia. She earned her master’s degree in applied linguistics from Sydney University, Australia, and doctorate degree in Curriculum and Instruction from Ohio University, USA. Her research interests are EFL instructions and technology in EFL instructions.

Abstract

The goal of this study is to investigate the engineering students’ perspectives towards English as a Foreign Language teaching in the Engineering Department and the importance of the integration of technology in English instructions to support their field of study. The engineering students have specific needs and purposes, and these should be addressed with an accurate and effective approach. Studies on the use of technology in language learning suggested that technology can help facilitate the teaching and learning of English, especially for specific purposes. Thus, integrating the use of technology in English instructions will address the engineering students’ need of specific English proficiency in their field of study.

Affiliation Address:

Universitas Negeri Gorontalo
Jl. Jend. Sudirman no.6
Kota Gorontalo, Indonesia
Introduction

The goal of this study is to investigate the engineering students’ perspectives towards the importance of English Instructions to support their field of study. This study is conducted in Universitas Negeri Gorontalo, Indonesia, where, despite the difficulties of teaching English to students other than English major students, it is inevitable to ignore the fact that English subject is compulsory in its higher education Institutions.

The challenge to teach English to engineering students emerged from their specific needs and purposes in learning English; thus, the pedagogical and instructional process should address these particular conditions with an accurate and effective approach. Studies on the use of technology in language learning suggested that technology could help facilitate the teaching and learning of English (Kessler, 2005, 2007; Warschauer & Healey, 1998; Fotos & Browne, 2004; Hegelmeimer, 2006), and this also applies to the teaching of English for specific purposes. In this case, integrating the use of technology in English instructions will also facilitate the English teachers in addressing the Engineering students’ need of specific English proficiency in their field of study.

Thus, this study is conducted to investigate the engineering students’ specific needs and purposes of learning English in a higher education context. This study also portrayed the possibilities of using technology to enhance the English teaching and learning process through the students’ perspectives.

Literature Review

Understanding the need of engineering students in learning English is significant in planning the competencies and performances that should be taught in English Instructions as a specific purpose. English skills are needed by the engineering students to keep up with the recent development in the engineering field. It might enable the future engineers to increase their competences in engineering areas, which in turn will widen their opportunity to compete in the international job market.

For many years we believed that engineering students need reading skills more than speaking skills. Study shows that reading skills have gained a special attention in teaching and learning English for a specific purpose including in engineering field of study (Gupta, 2013). Engineering students lack in vocabulary, speaking, and writing.

With the fast growing of information and technology in many fields; and with the change of the English skill need in engineering workplace, it is important to re-evaluate the engineering students’ need of what would be the most important language skill based on their
perspectives. Hucking and Olsen (cited in Gupta 2013) argue:

“Scientists and engineers may be technically brilliant and creative, but unless they can convince coworkers, clients, and supervisors of their worth, their technical skills will be unnoticed, unappreciated, and unused. […] from this perspective, communication skills are not just handy: they are critical tools for success, even survival, in “real world” environment”

This means that in order to be accepted, noticed, and used by international job market, engineering students should be equipped with the communication skill (Patil, 2014; Riemer, 2002).

**Methodology**

An online survey has been sent to Engineering students, and 96 engineering students from various departments in Universitas Gorontalo filled in the survey. The survey is used to gain the data to investigate which skills are mostly needed to support their study and their future career, and their perspectives towards the use of technology that would effectively helped them to achieve this goal. This survey was followed by in-depth interviews with two faculty members of Engineering Department, Universitas Negeri Gorontalo. Each interview was conducted for 20 to 30 minutes. The interview was then transcribed verbatim. The data was then interpreted and cross-analyzed with the result from the online survey to answer the research question.

**Findings and Discussion**

This study found that the majority of the respondents preferred speaking skill as the most needed English skills, which is important for their future career.

![Figure 1. Students’ respond on what skill is important for their future carrier](image)

Figure 1. Students’ respond on what skill is important for their future carrier
The above figure shows that 80% of the total respondents believe that Speaking is the most important skill needed for their future carrier.

In an in-depth interview, the faculty members argue that they wish that their students had rich technical vocabularies that will help students understand the textbook in English that is often used in the teaching and learning process. With that being mentioned, it is necessary to equip students with technical vocabularies, it means that vocabulary teaching should be given more attention. In contrast, the respondents of this research did not have similar opinion with the faculty member. Their answers show that vocabulary is the last three subjects they consider important; while speaking has the highest percentage of the answers.

![Bar Chart](image.png)

**Figure 2. Students’ responds on what subject that would help them in teaching and learning process.**

As shown in Figure 2, 75% of the total respondents believe that speaking is the most important subject to support their learning process in their major. Vocabulary, on the other hand, got only 19% of the total respondent, even though vocabulary is considered more important to support the teaching and learning process based on the arguments of the faculty members.

The students’ responds as the results of this research are in line with the arguments of Patil (2014), Riemer (2002), and Gupta (2013) about the importance of speaking English to support future engineers to fulfill the demand of international job market. Jansen (2000, as cited in Riemer, 2002, p.91) stated that employers demand “… a number of new competencies, with an emphasis on an increased ability to communicate … and a good foreign language skills”.

The use of technology integrated in language learning is one significant way to be considered to address the need of both teachers and students in engineering department.
Integrating CALL (Computer Assisted Language Learning) in language instruction is not aimed at just developing students with computer skills, instead, the objective of integrating CALL in the curriculum of language teaching is “associated with self-contained, programmed applications such as tutorials, tools, simulations, instructional games, tests, and so on” (Kern and Warschauer, 2000, p. 1). Students who are the respondents of this research are aware of the importance of integrating the use of technology into the teaching and learning process in their department. The next figure shows their opinion on this.

![Figure 3. Students’ opinion on the importance of the use of technology in English Instructions](image)

The figure shows the students’ responses on the survey question: “if the English teacher used technology in teaching and learning process, do you think you will learn better in mastering English?” As predicted, the majority of the respondents answered ‘yes’, it is 84 respondents, or 88.42% from the total respondents. However, there are 4 respondents who answered ‘no’. We need to conduct further investigation on this through an in-depth interview.

**Conclusion**

This study found that English is needed for technical communication, thus the most needed subject is speaking. To meet the demand of work places and international employers, students must be able to learn to communicate in English. This means that speaking subject should have more emphasize in EFL curriculum for engineering students.

Considering the highest percentage of the respondents believe that the use of technology will help them to learn better in mastering English, it is important for English teachers to integrate the use of technology in designing English curriculum for Engineering students.
References


