

Teaching Academic Vocabulary in Graduate ESL Writing Courses: A Review of Literature and Pedagogical Suggestions¹

Rui Ma, University of the Pacific²

Abstract

Based on a comprehensive review of relevant research, this study investigated graduate ESL writers' needs of explicit academic vocabulary instruction and how academic vocabulary is currently taught in ESL writing courses. The investigation revealed a discrepancy between students' needs and pedagogical practices. Although research studies have demonstrated that graduate ESL writers need academic vocabulary instruction, academic vocabulary has traditionally received (and continues to receive) little or no attention in graduate ESL writing courses. The conclusions from the review justify new initiatives of teaching academic vocabulary explicitly to graduate ESL writers, therefore research-based pedagogical suggestions and guidelines are proposed.

Resumen

Basado en una revisión minuciosa de investigaciones importantes, este estudio investigó las necesidades de escritores de posgrado de inglés no-nativos (ESL) en el aprendizaje de vocabulario académico y como se está actualmente enseñando este vocabulario en cursos de redacción para alumnos de ESL. La investigación reveló una discrepancia entre las necesidades de los estudiantes y las prácticas pedagógicas. Aunque los estudios de investigación han demostrado que los escritores ESL a nivel de posgrado necesitan instrucción en vocabulario académico, este vocabulario académico tradicionalmente ha recibido (y sigue recibiendo) poca o ninguna atención en los cursos de escritura de ESL al nivel de posgrado. Las conclusiones de la revisión justifican nuevas iniciativas para enseñar explícitamente vocabulario académico a escritores de ESL a nivel del posgrado y se sugieren y proponen lineamientos en investigación pedagógica.

Introduction

During the last decade, more and more ESL speakers are attending universities in English-speaking countries worldwide (Buckingham, 2008). Like their English-speaking peers, they are required to write reports, academic essays, theses, and dissertations. Some of them will also eventually write articles in English for publication in their chosen academic fields. Yet, research indicates that many of them lack an adequate academic vocabulary knowledge base with which they can effectively communicate in written academic English. As an integrated aspect of academic writing, academic vocabulary has traditionally received little or no attention in graduate ESL (English as a Second Language) writing courses (Cohen & Macaro, 2007; Hinkel, 2001), although research clearly shows that graduate ESL writers need instruction in this area (Biggs, et al., 1999, Hinkel, 2001). Thus, teaching academic vocabulary explicitly and systematically in graduate ESL writing courses becomes a new pedagogical territory to writing teachers and other professionals.

Key concepts

Two key concepts that will be used throughout this article are *graduate ESL writers* and *academic vocabulary in writing* and they are explained in the next sections.

¹ This is a refereed paper.

² rma@pacific.edu

Graduate ESL writers

Graduate ESL writers are those students attending English-medium³ higher education institutions all over the world, whose native language is not English and who are required to write academic papers, articles, theses, and dissertations in English. Usually they have already developed an immediate to high level of expertise in content knowledge in specific academic fields. In the context of the United States, they are predominantly visa students from countries where English is not their native language and they have usually obtained a Bachelor's degree in their home countries. For them, "writing in a second language (L2) is cognitively demanding because students not only have to develop writing strategies and skills but also have to acquire proficiency in the use of the second language" (Astorga, 2007, p. 252). International graduate ESL writers are distinct from resident graduate ESL writers, who have usually attended high school and college in an English-speaking country. In order to help graduate ESL writers with their English academic writing skills, many U.S. universities offer a graduate writing course for those ESL writers. Here, the discussion of the teaching of academic vocabulary is mainly situated in typical graduate ESL writing courses in U.S. institutions.

Academic vocabulary in writing

The conventions of academic writing demand that the writer must conform to the special language requirements of academic genres, and the basic component is academic vocabulary (Hyland, 2007). In other words, particular discourse types have special vocabularies (Coxhead & Byrd, 2007). They are words that are mostly used in academic writing instead of in everyday conversational English. Corson calls those academic words "lexical bars," which students need to "transcend" in order to move from everyday English into the realm of academic writing (cited in Coxhead & Byrd, 2007). A large number of studies have proved that learning to write formal academic papers in a second language requires the development of an "advanced linguistic foundation", which includes an academic vocabulary (Hinkel, 2001, p. 8). Generally, scholars acknowledge the importance of having a solid knowledge base in academic vocabulary, and of having an appropriate lexical repertoire (Astorga, 2007, Kaur & Hegelheimer, 2005).

Do graduate ESL writers need to be taught academic vocabulary?

In the last 25 years, the number of graduate ESL students keeps increasing in English-medium academic institutions in North America (Leki, Cumming, & Silva, 2008). Although they show enthusiasm in attending English-medium higher institutions, non-native students have encountered a number of difficulties in their studies at the post-undergraduate level in the United States (Hinkel, 2001). Those difficulties include their limited English proficiency. Dropout rates among nonnative English speaking students, even at the doctoral level, "are attributed directly to their not so good academic English skills" (Hinkel, 2001, p.4). As graduate ESL students are normally required to produce an enormous body of academic writing, their English writing skills are crucial to their academic success. Therefore their ability to use a relatively large, rich and sophisticated vocabulary repertoire also becomes significant. Nevertheless, scholars agree that second language learners, compared with native speakers, generally have a limited lexical knowledge base. Furthermore, they have limited lexical

³ An English-medium educational institution uses English as the primary language of instruction.

ability especially with productive processes, such as speaking and writing (Kaur & Hegelheimer, 2005). Generally, they can express ideas and opinions better in their mother tongue than in their second language (Kaur & Hegelheimer, 2005). The following sections discuss what literature reveals about whether graduate ESL writers need instruction in academic vocabulary in two different kinds of research studies: 1) surveys of ESL writers; 2) analysis of graduate student texts.

Surveys of ESL writers

ESL writers' explicit acknowledgement of their vocabulary problems has been documented in several studies. In an early descriptive study on ESL writers, Leki (1992) used students' own accounts to show how generally ESL student writers (including undergraduate and graduate) are troubled by a lack of vocabulary: some of them claimed that they could write "long and complex sentences" (p. 84) in their native language, but in English they must try much harder to find the right words and so often they just had to give up. Other students lamented that they did not know the connotations of words, the nuances in English, and the deeper meanings of certain words. Hinkel (2001) pointed out that: "a large number of studies have established that learning to write the formal academic prose in a second language requires the development of an advanced linguistic foundation, without which learners simply do not have the range of lexical and grammar skills required in academic writing" (p. 8). Charles (2007) reported that her graduate ESL students needed to finish essays of 1,000-3,000 words, research articles of 6,000 words and theses of 80,000 words. Allison and colleagues (1998) also calculated that a graduate dissertation often has over 80,000 words. The daunting size of the document to be produced alone puts an enormous demand on the vocabulary repertoire of the graduate writers, which, in the case of graduate ESL writers, is often not so extensively developed. Cohen and Macaro (2007) further confirmed that "the academic and interpersonal vocabulary needs of learners outpace their ability to learn and effectively integrate newly acquired vocabulary" (p. 252).

More structured empirical research confirms the writing difficulties of advanced ESL writers in the area of vocabulary. Yu Ren Dong (1998) conducted a survey of 137 masters and doctoral students at two U.S. institutions on their thesis/dissertation writing experience. Among those 137 graduate students, 106 were graduate ESL students from 25 different countries, with Mainland China and India being the two most frequently occurring countries. Yu Ren Dong (1998) also mentions that: "When asked what areas of English were most important in writing research articles, 100% of non-native graduate students indicated vocabulary, as compared with 40% of native graduate students who reported so" (p. 380). Thirty percent of ESL graduate students indicated problems with vocabulary, compared with 10% of native speakers. Regarding vocabulary, one student said: "If he (my advisor) could read and correct or even rephrase the whole thing, I would learn how the same thing could have been communicated in a rather effective manner" (p. 379). Many graduate ESL students surveyed expressed the need for proofreading or help with rephrasing from native speakers.

Even ESL writers who have finished their doctoral degrees still face problems with vocabulary in scholarly writing. In a more current qualitative study, Buckingham (2008)

interviewed 13 Turkish scholars who reported that they needed more time finding the right words and they struggled with the precision of words. One respondent also commented that writing in social sciences, compared with writing in fields like math or physics, demand more subtleties of language. Also, according to one non-native scholar interviewed, writing for publication requires more "conciseness" and "preciseness" (p. 6). If after earning a PhD and after publishing articles in English, those ESL scholars still suffered from a deficit of vocabulary, it should not be hard to imagine that ESL writers who are still in graduate school will encounter lexical problems.

Analysis of graduate student texts

The lack of vocabulary knowledge must lead to the phenomenon that Hinkel (2003) terms as "simplicity without elegance" (p. 275). After analyzing 1,083 academic texts produced by native and non-native students, Hinkel concludes that "advanced non-native-English-speaking students in U.S. universities employ excessively simple syntactic and lexical constructions, such as be-copula as the main verb, predicative adjectives, vague nouns" (p.275). He further points out that "syntactic and lexical simplicity is often considered to be a severe handicap" for ESL writing (p. 276).

More recently, computer-aided corpora⁴ analysis used in examining ESL writing also have reported the lack of productive knowledge of vocabulary. Hancioglu, Neufeld, and Eldridge (2008) have compiled and compared the vocabulary used in two corpora of thesis abstracts. The "target abstract corpus" was comprised of 174,093 running words of text compiled from 600 authentic theses abstracts; while the "learner abstract corpus" was comprised of 21,575 words from 100 abstracts written by Hancioglu's own ESL students. Although the learner corpus was smaller than the target corpus, the study still revealed that "what typified the learner abstracts was a limited range of vocabulary, and an apparently limited productive knowledge of the collocations and colligations of even relatively common items" (p. 473).

If students need to improve their academic vocabulary, can they acquire it on their own? Regarding the traditionally held opinion that students should acquire vocabulary on their own mainly by extensive reading, Carter (2001) provides a detailed account of the debate between the advocates of "implicit learning" and those of the "explicit learning." The "implicit learning" group believes that vocabulary is acquired implicitly from exposure to the language, such as reading; the "explicit learning" group holds that vocabulary must be explicitly learned. Carter (2001) then concludes that research supports the explicit-implicit vocabulary learning continuum, which indicates a combination of both implicit and explicit learning. This conclusion has indirectly supported the need of explicitly teaching vocabulary or vocabulary acquisition in the classroom. Biggs, Lai, Tang, and Lavelle (1999) maintain that a "didactic" teaching method is needed in teaching vocabulary. The pedagogical model of teaching academic writing developed by Astorga (2007) also includes both techniques. Moreover, Hinkel (2001) cites 27 articles to prove research support of the assumption that high-level

⁴ Corpora is the plural form of corpus. It is used in linguistics and is a huge database of words and expressions assembled for linguistic study. Words in a corpus can be obtained from authentic real-life materials, such as the Time Magazine Corpus developed by Mark Davies, which includes 100 million words found in *Time Magazine* articles (<http://corpus.byu.edu/time/>, retrieved on December 15, 2008).

second language proficiency in vocabulary may not possibly be achieved without “explicit, focused, and consistent instruction” (p. 7).

In conclusion, research generally reveals that graduate ESL writers need help with their vocabulary repertoires; furthermore, recent research has confirmed the need for explicit instruction of academic vocabulary in ESL writing classes, in addition to implicit learning.

How is academic vocabulary generally taught in ESL writing courses?

Current pedagogical practices seem not to meet the needs of graduate ESL writers with their vocabulary. The lack of pedagogical attention and efforts is twofold. First, graduate ESL writing courses are too few to meet the demand. Allison and colleagues (1998) report that despite the fact that there was an “explosion” in the number of students writing theses in their second language, there was very little research into the difficulties encountered by those students and very few writing programs (courses) that were designed to help them “present their dissertations written to an acceptable standard” (p. 199). The aforementioned survey by Dong (1998) also reveals that compared with their native English-speaking peers, ESL graduate students are more isolated and have less support systems during their dissertation/thesis writing. Almost half of the surveyed ESL graduate students said they had no one but their advisors to help them, although they wished they could have a native speaker’s help with their writing. This result indicates the lack of writing courses and/or the lack of writing mentoring programs for ESL graduate students, especially at a senior level.

Second, even if graduate ESL writing course are available, traditionally, vocabulary is not a focus for those courses; learners are often left to acquire vocabulary on their own (Cohen & Macaro, 2007). Hence, instructional time and energy allotted to academic vocabulary in ESL writing courses is far less than adequate. Reid (1993) offers a typical example of an ESL academic writing class syllabus from University of California, Los Angeles. In the list of “the needs of the students” provided by the syllabus as its theoretical foundation, the needs to master rhetorical patterns such as “descriptive process writing, research summaries and argumentation” and rhetorical structures and strategies such as “paragraph ordering, the movement from generalizations to specific supporting information” were emphasized. The need to “develop strategies” for expanding academic vocabulary was added as the last item in a separate paragraph starting with the words “in addition” (p. 77). This sample syllabus exemplifies the disturbing fact that although students and faculties often voice vocabulary as one of the major problems plaguing ESL academic writing, usually only minimal time or energy is spent on acquiring vocabulary in ESL writing classrooms. Hinkel (2001) also endorses this observation.

The major approaches of teaching ESL writing have not changed much during the last two decades. In her comprehensive and influential review of ESL writing instructional methods, Raimes (1991) discusses several main trends: the instructional mode of focusing on grammar, the writing process model, the content-based approach, and the English for academic purposes model, which all focus on the expectations of the academic discourse community. In two subsequent reviews, Reid (1993) and Baker (2008) also have described major pedagogical approaches to teaching ESL writing: the writing process approach, the expressivist approach, and the socially-constructed approaches, all devoting little attention to the teaching of vocabulary. Among all those

approaches, the writing process model has won dominance in university ESL writing courses since the 1990s (Reid, 1993). In a typical writing class of the process approach, both teaching and learning are centered on the writer's writing process, including invention, writing multiple drafts, peer editing, revising, and editing, etc. The process approach puts tremendous emphasis on the generating and revising of ideas and on the writer's understanding of the writing process. As for vocabulary, in traditional process-oriented writing courses, lexical issues will usually be dealt with in the last stage of the writing process, and students' reports show that they receive little instruction about how to revise their papers at this final stage of writing (Leki, Cumming & Silva, 2008). Hence, in a process-focused writing class, often little pedagogical time or pedagogical effort will be devoted to the teaching of vocabulary.

Raimes (1991) proposes that to "very specialized international graduate students" the content-based approach is probably the most appropriate method (p. 420). However, the content-based approach usually requires the close cooperation between an English language instructor and a "content teacher" of the specific academic field; therefore, it is not always practically feasible for many higher education institutions. As for the English for Academic Purposes (EAP) courses, Spack (1999) warned that teachers of those courses are often ill-equipped to teach papers written for different academic disciplines. Also, English for Academic Purposes courses put emphasis on academic writing conventions and understanding of the academic discourse community, but often neglect the instruction on how to obtain a vocabulary repertoire that is essential to general academic writing across all disciplines.

The prevalent lack of pedagogical attention devoted to vocabulary is equally noticeable (paralleled) in existing research on the teaching or learning of ESL writing. A survey of several prominent academic books in the field reveals that they have barely touched the topic: *Writing in a Second Language* (Leeds, 1996) devotes only half a page to the discussion of vocabulary; *Landmark Essays on ESL writing* (Silva & Matsuda, 2001) does not have "vocabulary" listed in its index and further reading shows that its 16 chapters only mention vocabulary very sparsely, in a random manner. A more recent book, *Second-language Writing in the Composition Classroom: A Critical Sourcebook* (Matsuda et al., 2006) does not have "vocabulary" listed in the index, compared with "voice" having several sub-categories listed under it. A quick look through the past issues of the flagship journal of second language writing *Journal of Second Language Writing* shows that most articles are mainly dealing with conventions, voice, and cultural, social and political contexts of graduate academic writing. This finding is confirmed by a recent synthesis of research on second language writing in English (Leki et al., 2008), which pointed out that "analyses of social contexts have predominated in recent years" (p. 72).

Pedagogical suggestions

The above discussion indicates that there is discrepancy between students' needs and pedagogical practices. On the one hand, graduate ESL students are plagued by their lack of vocabulary knowledge and lack of abilities to use academic vocabulary productively; on the other hand, traditionally ESL writing courses do not sufficiently address the issue of learning academic vocabulary. To at least partially address this problem, the author hitherto proposes some pedagogical suggestions for teachers who will take the initiative

to integrate vocabulary instruction into graduate ESL writing courses. Those suggestions mainly include the following: 1) refocusing (redesigning) the writing course; 2) fostering academic apprenticeship; 3) consulting theories of self-regulated learning, learning strategies, and second language vocabulary learning; 4) adopting computer assisted language learning (CALL).

Refocusing (redesigning) the writing course

For teachers to fully understand why graduate ESL students need specific and explicit instruction in academic vocabulary, they need to first understand the limits of the process model in the context of second language writing as stated before, because the process model has been the dominant pedagogical model of second language writing, at least in the U.S. As early as 1985, when the process approach started to gain followers in the field, Raimes (2001) points out that the process movement might not be particularly suitable for teaching ESL students, since it does not consider the language proficiency level of the student writers as a factor affecting the writing process. In 1999, Biggs, Lai, Tang, and Lavelle point out that in many aspects, graduate ESL writers have acquired certain writing skills already. They can be thought of as competent writers, but with problems. Unlike undergraduate ESL writers, many graduate writers have already been quite familiar with the key steps of the writing process: invention, drafting, revision, editing, etc. Therefore, it is not appropriate to continue to put the writing process as the central or even the only focus in graduate ESL writing courses. Rather, it is more suitable to focus on what they are lacking, such as English proficiency, understanding of English-speaking academic conventions, understanding of the academic discourse community as the audience, etc. Biggs and his colleagues (1999) also argue that there should be three pedagogical foci, which include developing vocabulary, genre conventions, and strategies for applying those genre conventions. They further suggest that a "didactic" teaching method is needed in teaching graduate ESL academic vocabulary.

Hinkel (2001) makes a very strong case for the necessity of revising the process approach. He pointed out that the writing process approach focuses exclusively on the writing process, overlooking the fact that ESL writers may "simply lack the necessary language skills (e.g., vocabulary and grammar) to take advantage of the benefits of writing process instruction" (p. 9). Hinkel (2001) then argues that because of the influence of the "process" approach, which focuses on students' invention, drafting, revising and other stages, the writing product becomes secondary; there is little formal instruction on grammar or vocabulary. On the other hand, Hinkel continued to point out, that university faculties across disciplines evaluate students' academic writing based on the product. The disparity between the teaching methods adopted in L2 (second language) writing instruction and the evaluation criteria of the quality of L2 writing "has produced outcomes that are damaging and costly for most ESL students, who are taught brainstorming techniques and invention, prewriting, drafting, and revising skills, whereas their essential linguistic skills, such as academic vocabulary and formal features of grammar and text, are only sparsely and inconsistently addressed" (p. 6). Hinkel then proposes that "extensive, thorough, and focused" (p. 7) instruction in L2 academic vocabulary and grammar may be essential for developing the advanced ESL proficiency which is necessary for college-level academic studies in English-speaking

countries. In conclusion, ESL writing teachers are recommended to change the traditional belief that a writing class should focus on the writing process, not on language issues. It will be a fundamental philosophical change in approach to teaching writing, if teachers start to address language issues including vocabulary in writing classes (Coxhead & Byrd, 2007).

The reality of limited teaching and learning resources in higher education institutes decrees that it is hardly realistic to design an independent graduate ESL course fully devoted to the instruction of academic vocabulary. Currently graduate ESL writing classes are typically packed with content such as the writing process, organization, the thesis, citation conventions such as MLA and APA systems, and other such demands of the academic discourse communities. Also, students are typically from different disciplines and academic departments. Thus, it is more realistic for teachers to allocate only about 10-15 minutes of "vocabulary time" in each class session. Consequently, teachers should prepare for constant and effective semester-long mini-lessons of academic vocabulary. Teachers should prepare to help students master the process of discerning the nuances of different words and their subtleties, to developing the ability of using vocabulary appropriately in writing, to proactively and systematically seek out words and use them. The above is a recurring cycle of vocabulary acquisition and use. Since the research literature clearly demonstrates that the process approach does not involve consideration of the language proficiency needs of the ESL students, process-based graduate ESL writing courses, then, should be adjusted to accommodate the special language needs of ESL writers, especially their needs of improving academic vocabulary proficiency.

Fostering academic apprenticeships

Lev Vygotsky's (1978)⁵ theory of learning endorses the role of social interactions (interactions with a more capable person or with one's peers) in learning. Vygotsky argued that the learner can reach his or her "level of potential development" (the "zone of proximal development") under the guidance of or in collaboration with others. Based on this influential learning theory, it is recommended that students become "writing apprentices" of the teacher-writer and learn how to expand and use their own vocabulary through collaborations with their teacher and peers. Teachers are encouraged to model for students the process of selecting the right vocabulary. Teachers should be academic researchers and productive writers themselves.

Dedicated writers are more likely to be inspiring role models. Teachers who engage in their own academic writing throughout the whole semester will be more sensitive to the vocabulary challenges that students might encounter during the academic writing process.

Consulting theories of self-regulated learning, language learning strategies, and vocabulary learning theories

Etherington (2008) asserts that pedagogical practices not informed by research have the danger of relying on intuitions about academic writing and can be "misleading or wrong" (p. 34). It is my belief that pedagogical practices not informed by sound theories

⁵ Cited in "Theories of Learning: Social-constructivism" at <http://gsi.berkeley.edu/resources/learning/social.html>, retrieved on January 5, 2010.

face the same danger. I recommend writing teachers to consult the following theories when they design a graduate ESL writing course: a) self-regulated learning; b) language learning strategies (especially vocabulary learning strategies); and c) vocabulary learning theories.

Self-regulated learning

The central element of self-regulated learning is the students' active roles in learning. The earlier teachers understand the active role that students must take to be responsible for their own vocabulary learning, the more effective the instruction could be, all the more because very limited time can be allocated to vocabulary learning in a typical graduate writing course. It is not realistic for teachers to intend to teach the students the specific words; the teachers should coach the students to actively learn vocabulary themselves. Specifically, there could be three stages of this coaching: 1) goal-setting; 2) self-assessment; 3) self-reflection. With goal-setting, the teacher will help each student decide what vocabulary learning goals he or she wants to pursue individually. The teacher should give general guidelines and help students focus on words that they will most likely to use in academic writing. This is especially relevant since "we should conceive of lexical knowledge as a progressive scale rather than an either/or phenomenon" (Klapper, 2008, p. 160). This means that there are different levels regarding students' knowledge of a word: students need to know and use certain words very well in different contexts while they might only need to recognize one essential meaning of some other words. The teacher needs to point out those different levels of "knowing a word" to students and help them to design learning plans accordingly. The teacher can also encourage students to keep a vocabulary learning journal (see Appendix A for a simple format). With self-assessment, each student must assess his or her progress against the previously set goals; by means of self-reflection, each student should contemplate whether and how he or she has attained the learning goals.

Language learning strategies

In her landmark article, Rubin (1976) proposes the idea of exploring what language learners do specifically to enhance learning, which inspired the research of language learning strategies. Language learning strategies is a concept closely related to self-regulated learning. Oxford (1990) defines learning strategies as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferable to new situations" (p. 8). Ellis' (1994) definition points out that learning strategies are deployed to overcome particular learning problems. Oxford's (2008) more recent definition highlights the "goal-orienting" characteristics of strategies: "L2 learning strategies are the goal-oriented actions or steps (e.g., plan, evaluate, analyze) that learners take, with some degree of consciousness, to enhance their L2 learning" (p. 41). Finally, White (2008) emphasizes the learners' role as "responsible agents" in the following:

Language learning strategies are commonly defined as the operations or processes that are consciously selected and employed by the learner to learn the TL (target language) or facilitate a language task. Strategies offer a set of options from which learners consciously select in real time, taking into account changes occurring in the environment, in order to optimize their chances of success in achieving their goals in learning and using the TL. As such, the term

strategy characterizes the relationship between intention and action, and is based on a view of learners as responsible agents who are aware of their needs, preferences, goals and problems. (p. 9)

In conclusion, language learning strategies are specific steps, approaches or techniques that learners purposefully take to help them with their language learning and also with use of the second (foreign) language. The learner is taking the active role here by adopting those strategies.

Chamot, Barnhardt, El-Dinary, and Robbins (1999)'s handbook of learning strategies provides examples of vocabulary learning strategies such as: 1) imaging with keyword, which involves a keyword that sounds like the new word and also two imagined pictures associated with the keyword and the target word individually; 2) grouping/classifying, which means learning new words in groups or categories. Oxford's (1990) well-known Strategy Inventory for Language Learning (SILL) lists strategies that could be used for learning vocabularies: 1) putting the new word in a sentence; 2) using rhyming to help memorization; 3) drawing a picture to help learning; 4) visualizing the spelling of the new word in one's mind; 5) drawing a map to connect new words; and 6) physically acting out the new word. Gu and Johnson (1996, cited in Klapper, 2008) discovered that the following strategy groups correlate significantly with the language measures used in the study:

selective attention (knowing which words to focus on); self-initiation (i.e., seeking out vocabulary for oneself); contextual guessing; dictionary look-up; extended dictionary strategies (studying examples); meaning-orientated note-taking (noting down meanings, linking with synonyms); semantic encoding (making associations with known words); activation (using the vocabulary learned). (p. 164)

Compared with other individual learner differences such as age and country of origin, learning strategies can be largely controlled by the learner (Benson & Gao, 2008). By using language learning strategies, the learner does not need to rely on the instructor for achieving learning results—he or she now has tools (means) to seek learning resources, manage the learning process, keep motivation, and find learning partners. This gives the learner freedom, confidence, and power (Carson & Longhini, 2002).

Learning strategies offer learners a practical and realistic tool to improve their language proficiency. However, it is not recommended for teachers to ask students to mechanically adopt a list of learning strategies. It is more effective if students are encouraged to analyze their own learning situations and select strategies that can best help them. Also, it is crucial for teachers and students to know that there are patterns of strategy use shared by some more successful language learners. First, more "successful" learners seem to have a larger repertoire of available strategies. Second, more "successful" learners seem to use metacognitive strategies (strategies for planning, monitoring, evaluating and reflecting) more frequently. This is not surprising given the hypothesis that more "successful" learners are more in control and more organized about their language learning. They plan, monitor, reflect, and revise and they know what they are doing. Also, more "successful" learners seem to effectively combine their strategies together for achieving a purpose. Finally, strategy use is also affected by learners' developmental stage. Some "shallow" strategies, such as repetition, work well for beginning learners; while deep-processing strategies, such as

making associations and creating mental images, are effective for more advanced learners (Klapper, 2008).

Certain beliefs of teachers and students might influence learners' successful strategy use. As Chamot, et al. (1999) point out, teachers should not only help students believe that they should be responsible for their own language learning but also they, themselves, must believe in the value of students' independent learning. Teachers might believe that students only need to learn the language (vocabularies, grammar, and composition conventions), but they have not fully realized the importance of students becoming more independent learners by learning about how to use language learning strategies. Students' beliefs about language learning influence their language learning strategy use as well. For example, students who believe in the importance of speaking while learning English seek opportunities to use English in conversations as much as possible, which is a strategic approach influenced by their beliefs (Kayaoğlu, 2013).

Vocabulary learning theories

It is crucial for teachers to understand research-based vocabulary learning theories and try to apply them into teaching practices. For example, the "dual coding theory" proposed by Allan Paivio (1971) argues that the association of verbal information with a mental image makes it easier for the brain to recall the specific verbal information, which can be vocabulary words. This theory is also the foundation of the well-known "keyword" method of retaining new vocabulary. The key is to associate the sound of a new word with an image, and then associate the image with the meaning of the word. For example, with the word "deer", the learner can associate the sound of "deer" with the sound of "beer", and create a mental image of a deer drinking beer. That rather bizarre image will supposedly make the word easier to remember.

Another important vocabulary learning theory is the theory of levels-of-processing. The deeper the level at which information is mentally processed, the more likely the information is to be committed to long-term memory (Boers & Lindstromberg, 2008). For example, if the learner learned the form, sound and meaning of a new vocabulary word, and did not stop there—he or she went further to make a sentence using the new word, the learner processed the new word at a deeper level and so it is more likely that the word will be kept in the learner's long-term memory.

Also, regarding implicit learning and explicit learning of vocabularies, some scholars believe that implicit learning through repeated exposure should be combined together with deliberate, explicit learning (Carter, 2001; Klapper, 2008). Implicit learning cannot guarantee that the "input" will become "intake," and explicit learning cannot guarantee that the learner also grasps the collocations, contextual meanings and nuances of the vocabulary use (Klapper, 2008). Thus, Klapper (2008) points out that "active" vocabulary should be combined with "passive" vocabulary, as "receptive" learning should be combined with "productive" learning. Klapper (2008) further mentions that, based on research, receptive learning activities (reading and listening) are best for acquiring a passive vocabulary; while productive learning activities (writing and speaking) are better for acquiring an "active" vocabulary. Therefore, extensive reading and listening activities only are not enough to help learners develop abilities of using the vocabulary productively. Based on the above theories, teachers are recommended to

use multiple methods or media to help students make mental associations of new vocabularies. They can ask students to make sentences, to write a short letter, or to do a role play to use the new vocabularies productively.

Using Language Corpora

Language corpora can be a useful pedagogical tool for helping students learn academic vocabularies (Schmitt, 2000). Helping ESL writers expand their lexical repertoire is an important goal for teaching academic vocabulary in graduate writing courses. Researchers point out that knowing a word in listening and reading is different from using the word in writing and speaking. To be able to use a word in writing, the student must have procedural knowledge of that word. It involves "knowledge of collocations, ...word families, ...synonyms and opposites" (Coxhead & Byrd, 2007, p. 132). Etherington (2008) then recommends "vocabulary choice" and "collocations" as two "starting points" for teaching "lexical-grammatical patterns" in writing courses (p. 44). Thus, the use of language corpora as a tool for teaching and learning becomes relevant, especially with the advancement of computer-aided linguistic research. Coxhead and Byrd (2007) argue that vocabulary selected for study should be words and word families that occur frequently in many different academic fields, instead of words just specific to a particular field. They cite word examples such as "paradigm" and "notwithstanding". As a major proponent for using corpus-generated academic word lists to teach ESL writers, Coxhead (2000) developed the academic word list (AWL), which consists of 570 academic word families that are widely used across academic disciplines. However, the cognitive level of the list is more suitable for undergraduate students instead of graduate students. Therefore, there is an urgent need for developing a graduate level academic word list for use in corpus-assisted graduate ESL writing classes.

On-line language corpus can provide the tool for teachers and students to find which words are commonly used across academic disciplines and how those academic words function in contexts. An on-line concordancer shows students multiple ways in which target words can be used in different contexts. Coxhead and Byrd (2007) recommended a website tool (www.lextutor.ca/) that helps learners learn specialized words; this website also provides an on-line concordancer that can facilitate vocabulary learning. This web tool is quite useful and easy to use. Students can also compile their own corpora to facilitate their learning (Lee & Swales, 2006).

For a teachers' reference, Charles (2007) used an innovative model that combines genre-based approach with the use of corpora. Genre-based approach is a method of teaching writing mainly based on different writing genres. The analysis of genres and genre exemplars can help second language writers grasp the conventions of writing in the target language (Cheng, 2008). Charles (2007) used this model to teach 40 international graduate students or researchers at Oxford University in Britain. Although her purpose was to teach the rhetorical patterns of academic writing, her innovative method of combining genre-based approach with the use of corpora can be developed into a model for teaching academic vocabulary in genre-based writing courses. However, one limitation of this model can be that it requires advanced software such as the WordSmith used by Charles (2007). WordSmith 6.0 can be downloaded at the website: <http://www.lexically.net/wordsmith/version6/>.

Finally, teachers are encouraged to consult published pedagogical frameworks with a clear emphasis on lexical and grammatical issues. One example is the framework developed by Jacoby, Leech and Holten (1995), who claim that “embedded in every phase of each instructional unit (of their framework) is attention to “bottom up” grammatical and lexical issues” (p. 362). They also state:

two pedagogical aims in focusing on lexical and grammatical issues: 1) to demonstrate that the language used by scientists to report their work is consciously designed to serve rhetorical and persuasive purposes; 2) to expand the students’ lexical repertoire of words and phrases useful in reporting research and making claims from research findings. (pp. 362-363)

They have also designed pedagogical activities aimed to “help ESL students understand and express their own nuanced meaning in language, which is grammatically correct, lexically sophisticated, and typical of academic style and register” (p. 363). Although this model is for teaching undergraduate ESL writers, graduate ESL writing teachers can consider adopting this model with adaptations such as raising the levels of target vocabularies.

Conclusion

Although graduate ESL writers urgently need instructions in academic vocabulary, currently, graduate ESL writing courses do not typically include academic vocabulary as an instructional topic. Therefore, teaching graduate ESL academic vocabulary as an integrated part of the writing course or curriculum is highly recommendable and pedagogical initiatives should be encouraged. This article has made research-based pedagogical suggestions for teachers who are willing to take the initiative to explicitly teach about academic vocabulary in graduate ESL writing courses. After teachers are fully aware of the importance of teaching academic vocabulary to graduate ESL writers and also of the necessity of refocusing their writing courses, they are encouraged to consult key theories such as self-regulated learning, learning strategies, and vocabulary learning theories. Finally, they are encouraged to use computer assisted language learning tools, such as corpora or on-line concordances. Corpora provide plenty of examples of texts produced in certain real-life situations, such as transcripts of real business meetings, which can be studied by a learner; concordances provide examples of how a specific word or phrase is used in all kinds of contexts. Both provide the language learner with ample examples of how a word or phrase is used in real life. As always, technology not only enhances learning effectiveness, but also generally helps promote greater participation of students of diverse learning styles and personality types. Finally, it is recommended that teachers of graduate ESL writers consult published instructional frameworks for teaching vocabulary. As there is a lack of an applicable and well-researched pedagogical model of teaching academic vocabulary in graduate ESL writing courses, teachers are encouraged to design their own models and reflect on the results. There is a need for developing pedagogical tools for teaching vocabulary in graduate ESL writing courses as well. Both can be important components for future teacher-preparation materials. Finally, teachers are encouraged to look beyond their own teaching contexts and learn from practices of teaching graduate ESL academic vocabularies in different countries worldwide for useful suggestions and insights.

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Appendix A Vocabulary Learning Journal

- New word _____
- Where _____ (in a conference, in an academic journal, in a lecture, in conversations with professor or peers)
- Contexts _____
