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The Effect of a Self-Regulated Intervention on Vocabulary Knowledge and Self-Regulated Learning Skills for English Language Learners

Qizhen Deng
Boise State University

Guy Trainin
University of Nebraska-Lincoln

Self-Efficacy for Vocabulary Learning, Reading Motivation, and Academic Achievement Among Native and Nonnative English Speakers

Qizhen Deng*
Boise State University
qizhendeng@boisestate.edu

Guy Trainin
University of Nebraska-Lincoln

Abstract

This study aimed to examine vocabulary learning self-efficacy beliefs of vocabulary learning and its relationships to reading motivation and academic achievement among college students of native and nonnative English speakers. Participants completed the Self-efficacy for Vocabulary Learning questionnaire measuring self-efficacy and Motivation for Reading questionnaire measuring reading motivation. Results showed differences between native and nonnative speakers in self-efficacy for vocabulary learning. Natives' self-efficacy significantly predicted their reading motivation and academic achievement; however, this did not hold for nonnatives. Both groups of students reported higher self-efficacy in reading modality than listening modality. Natives reported lower self-efficacy for academic goal than leisure goal; conversely, nonnatives had higher self-efficacy related to academic goal.

Keywords: self-efficacy, vocabulary, motivation, native vs. nonnative speakers, academic achievement

Introduction

Bandura's (1986) social cognitive theory suggests that self-efficacy beliefs of students, defined as "people's judgments of their capabilities to organize and execute the courses of academic action required to accomplish academic tasks" (p. 391), strongly influence the choices students make, the effort they exert, and the perseverance they display in face of challenges, which subsequently predicts their academic performance (Pajares, 1997; Schunk & Pajares, 2009; Schunk & Zimmerman, 2007). In the past three decades, self-efficacy has emerged as a powerful predictor of students' motivation and academic achievement in various academic domains such as reading, writing, mathematics, and general academic achievement (Bandura, 1997; Pajares, 1997; Pajares & Miller, 1994; Schunk & Zimmerman, 2007).

In the field of vocabulary acquisition, vocabulary learning is important for both first and second language learners to master English (Graves, 2009; Nation, 2001). At the college level, students are constantly challenged to expand their vocabulary given that most discipline-specific content is packed with concepts and technical vocabulary that they need to know well if they are to comprehend academic content (Francis & Simpsons, 2009; Rupley, 2005). Indeed, vocabulary learning is formidable due to the complexity of vocabulary knowledge (Francis & Simpson, 2009; Nagy & Scott, 2000; Nation, 2001). Nagy and Scott (2000) identified five aspects of vocabulary knowledge including incrementality, multidimensionality, polysemy, interrelatedness, and heterogeneity. Vocabulary researchers have unfortunately been puzzled by the fact that a wide range of vocabulary performance was observed, with some students overachieve and others under perform. To gain insight on students' vocabulary learning processes, researchers endeavor to identify various affective and motivational individual factors (Dornyei, 2009; Schunk & Zimmerman, 2007).

More recently, self-efficacy beliefs received increasing attention by language researchers along with motivational psychologists' argument that self-efficacy is an essential type of motivation (Schunk & Zimmerman, 2007). To the best of our knowledge, however, self-efficacy research in the area of vocabulary acquisition is still at the beginning stages despite that students' beliefs of their capabilities are essential for academic achievement (Bandura, 1986, 1997; Pajares, 1997; Schunk & Pajares, 2009). This study, therefore, was a preliminary attempt to address the gap in the literature by investigating self-efficacy for vocabulary learning among college students. Specifically, the primary purpose was to examine the effect of self-efficacy for vocabulary learning on reading motivation and academic achievement among college students. A secondary goal was to determine whether self-efficacy for vocabulary learning differs as a function of English language background (Native vs. Nonnative), learning modality (reading vs. listening), and learning goal (academic vs. leisure).

Theoretical Review

Social Cognitive Theory and Self-Efficacy

Social cognitive theory (Bandura, 1986) is a theory that explains how humans can regulate their thoughts, feelings, and actions through a system of self-beliefs. The concept of "triadic reciprocity" is essential in social cognitive theory (Bandura, 1986), which emphasizes that "people are neither driven by inner forces nor automatically shaped and controlled by external stimuli" (p. 18); rather, the three factors of behavior, cognition, and environment all operate as determinants of each other (Bandura, 1997). That is, how individuals interpret their behaviors informs and changes their environment and their self-beliefs, which in turn inform and change their subsequent behaviors. Bandura's view of human behavior emphasizes people's self-beliefs as key elements in the exercise of control.

The influence of self-efficacy beliefs on human behavior was emphasized in social cognitive theory (Bandura 1986). Students with a strong feeling of self-efficacy willingly undertake challenging tasks, demonstrate increased persistence in the face of obstacles, show higher motivation, have lower level of anxiety, and self-regulate better than others in academic tasks (Bandura, 1986; Pajares, 1997). On the other hand, students with less sense of self-efficacy avoid challenging academic tasks, and prefer to uncomplicated academic tasks to which they are more likely to apply minimal effort with limited to no persistence. Consequently, students with high self-efficacy obtain higher level of academic achievement whereas students with low self-efficacy tend to underperform in academic tasks (Bandura, 1997; Schunk & Pajares, 2009).

According to Bandura (1986, 1997), four sources are vital to acquire self-efficacy beliefs: mastery experience, vicarious experience, verbal persuasions, and physiological states. Mastery experiences are the most influential source of self-efficacy because students' interpretation of the effects of their successful purposive performance helps shape their efficacy beliefs (Pajares, 1997). Outcomes or experiences interpreted as successful raise students' self-efficacy, such as acquiring new words when reading by using context clue in reading text; on the contrary, outcomes or experiences interpreted as failure lower it, such as failing to guess unfamiliar words by breaking them down into smaller morphological parts. Vicarious experiences refer to the effects of actions of others. Vicarious experiences play a role when students have limited prior experiences or are uncertain about their own abilities. Students with limited prior experiences might refer to social comparisons with other students or a significant model who helps instill self-beliefs that will influence their academic performance. For example, a student's successful experiences of acquiring new words through reading have positive effect on the self-efficacy of his or her classmates. The third source of self-efficacy, verbal persuasions, involves receiving

verbal persuasions from others. Verbal persuasions is effective when the envisioned success is attainable. It is not effective if the praise is empty and artificial without tangible goals.

Physiological states refer to emotional anxiety, stress, or mood. Physiological states influence self-efficacy because students' strong emotional reactions to an academic tasks usually provide cues about anticipated success or failure. If students are extremely anxious or stressed about vocabulary learning through strategies, these negative emotions can lower their perceptions of capabilities of learning vocabulary by using various strategies.

With regard to measuring self-efficacy beliefs, the concept of domain specificity is vital in social cognitive theory (Bandura, 1986; Pajares, 1997). Self-efficacy beliefs are multidimensional, that is, different on the basis of the domains of functioning. For instance, a student with high self-efficacy for reading does not necessarily indicate high self-efficacy for math (Marsh, Hau, Artelt, Baumert, & Peschar, 2006; Pajares & Miller, 1994). Self-efficacy are sensitive to context of learning or performance, such as learning new words from reading compared to that from listening. As a result, self-efficacy beliefs should be studied and measured at domain-specific levels (Bandura, 1986; Pajares, 1997). In addition, the content of self-efficacy measure focuses on performance capabilities rather than personal qualities (Bandura, 1986; 1997). Self-efficacy beliefs are better predictors of performance than are prior knowledge because self-efficacy beliefs are independent on one's actual abilities (Bandura, 1986).

Self-efficacy for Vocabulary Learning

In this study, guided by self-efficacy beliefs and domain-specificity in social cognitive theory (Bandura, 1986), we conceptualize and measure self-efficacy for vocabulary learning as students' perceptions of their capabilities to learn new or unfamiliar words by using certain strategies within designated contexts. This approach emphasizes students' own judges of their

capabilities to acquiring new vocabulary, which gives new insight in understanding the nature of vocabulary acquisition when students face the challenge of increasing the breath and depth of their vocabulary to attain academic success (Gu & Johnson, 1996). This is because students' beliefs of their capabilities to learn new or unfamiliar words influences their performances of learning these words, such as how long students persevere in face of these words, whether they choose to ignore these words or use various strategies to learn them, and how much effort they expend on these words. If students feel more capable of learning vocabulary by using a certain strategy in a given environment such as reading a textbook with new concepts or jargon, they are more likely to work hard and persist longer to learn the words by using strategies and, thus, more likely to achieve a higher level of vocabulary knowledge.

To measure self-efficacy for vocabulary learning, we identified six vocabulary learning strategies and four learning contexts. Six vocabulary learning strategies are dictionary use, help-seeking, phonological analysis, spelling analysis, morphological analysis, and contextual analysis. These strategies are based on the publication of the NRP report and second language research (Ehri & Rosenthal, 2007; Karabenick & Newman, 2006; Nagy, Berninger, & Abbott, 2006; Nagy & Scott, 2000; Nation, 2001; Schmitt, 1997, 2010; Walter, 2008). Four learning contexts were developed as a result of two modalities (reading vs. listening) by two goals (academic vs. leisure): 1) reading for academic goal, 2) reading for leisure goal, 3) listening for academic goal, and 4) listening for leisure goal. The conceptualization of these learning contexts was based on the theory of goal theory and domain-specificity in social cognitive theory (Bandura, 1986; Pintrich, 2000; Schunk & Zimmerman, 2007). For example, in order to measure students' self-efficacy for using morphological analysis during reading for academic

goal, we focus on how confident they are of their capabilities to learn a word by breaking words down when reading for academic goal.

Followed is detailed discussion of the six vocabulary learning strategies and the role of learning modality and goal.

Dictionary use. Dictionary can help learners with vocabulary learning. English learners rely heavily on dictionary use when they face new words (Nation, 2001). Research indicated that learners with a dictionary learned more words in both immediate and delayed tests than those without access to a dictionary (Nation, 2001).

Help-seeking. Seeking help from others is an adaptive strategy to cope with challenges when encountering obstacles (Karabenick & Newman, 2006; Newman, 1990). Contrary to a popular perception that students who seek help are relatively less successful, students who seek help are more motivated to engage in challenging learning tasks (Marchand & Skinner, 2007). Marchand and Skinner (2007) proposed a reciprocal effect of students' help-seeking behavior; that is, students who are motivationally "rich" become "richer" by constructively seeking help, whereas motivationally "poor" students become "poorer" by concealing their difficulties. Previous research findings support the notion of reciprocal effect by providing strong association between help-seeking behavior and academic success (Newman, 1990).

Phonological Analysis. Phonology, the aural part of language, is a basic component of both read and heard text. In the information processing theory, the concept of phonological loop explains the prominence of phonological analysis as a vocabulary learning strategy (Walter, 2008). Phonological loop consists of two parts, a short-term phonological store with auditory memory traces that are subjective to decay over short periods of time and an articulatory rehearsal component that can reactivate the memory traces (Baddeley, 1986). Unfamiliar sound

patterns of the words are encoded and decoded from long-term memory through phonological loop in working memory (Baddeley, Gathercole, & Papagno, 1998). Phonological analysis in vocabulary learning refers to the manipulation of different ways that a word can be broken down into a sequence of sounds or phonemes (De Jong, Seveke, & Van Veen, 2000). When reading new words, students with high phonological sensitivity are more likely to store unfamiliar sounds patterns in long-term memory (Baddeley et al., 1998; De Jong et al., 2000).

Spelling Analysis. Spelling awareness influences conceptualization of vocabulary learning and metalinguistic awareness (Ehri & Rosenthal, 2007). It impacts the detection of words through visual recognition (partially matched with phonological one); it also guarantees more precise memory of word meanings. Students gain a clearer understanding of the relationship between a word form and its corresponding meanings by connecting graphemes and phonemes (Rosenthal & Ehri, 2008). When students encounter new vocabulary in reading and pay attention to the spelling, they consolidate accurate word representation in memory (Ehri & Rosenthal, 2007).

Morphological Analysis. Morphological analysis is the understanding of the ways that words are formed through the manipulation of different morphemes, or smaller meaningful word parts (Tong, Deacon, Kirby, Cain, & Parrila, 2011). The importance of morphological knowledge has long been recognized in vocabulary learning (Nagy et al., 2006; Nagy & Scott, 2000; Nation, 2001). The meaning of unknown words can sometimes be ascertained by examining the morphemes, such as prefixes, suffixes, compounds, and word roots (Nation, 2001; Schmitt, 2010). Morphological analysis is an important practice in vocabulary learning at the college level because many subjects introduce complex vocabulary from Latin and Greek origins (Francis & Simpson, 2009).

Contextual Analysis. Students use context clues to understand word meanings by scrutinizing surrounding text, including preceding or succeeding sentences which might provide syntactic and semantic cues (Nagy & Scott, 2000). Some researchers (Nagy et al., 1987; Schatz & Baldwin, 1986) pointed out that it is rare to learn a low-frequency word from a single encounter in a natural occurring context. Schatz and Baldwin (1986) conducted three studies to examine the extent to which context help students infer the meanings of unknown words, and they found context did not help readers to identify the meanings of low-frequency words in naturally occurring prose. It is important to recognize contextual analysis is not necessarily always effective in natural reading context in the short run. Nevertheless, the use of context clues has been shown to improve vocabulary learning efficiency and reading comprehension (Nagy & Scott, 2000). Contextual analysis helps vocabulary learning in reading, especially when students are exposed to a considerable amount of written contexts as commonly happens in college (Nagy et al., 2006; Nagy & Scott, 2000).

The Role of Learning Modality and Goal

Contextual characteristics are of interest to investigate students' self-efficacy for vocabulary learning (i.e., reading vs. listening modality, academic vs. leisure goal). The concept of incidental learning is relevant to the discussion of contextual characteristics, which highlights the fact that both native and nonnative speakers incidentally learn vocabulary (rather through formal instruction) by actively using strategies to comprehend the words they encounter in reading or listening contexts (Graves, 2009; Nagy, Anderson, & Herman, 1987; Nation, 2001; Swanborn & De Glopper, 1999). Native speakers High school graduates typically know between 40,000 and 50,000 words (i.e., equals to learning almost 100 words a week for 12 years) (Graves, 2009; Nagy et al., 1987). This type of vocabulary learning is beyond the scope of even the most

intensive K-12 programs of vocabulary instruction, which only covers a few hundred words per year (Nagy & Anderson, 1984). This growth in vocabulary knowledge is achieved mostly through incidental learning. Such learning occurs in situated language learning in discourse communities where individuals are situated in a community of practice, which indicates the language is usually embedded in social and cultural activities (Lave & Wenger, 1991). The learners most effectively acquire vocabulary through the active use of language. It is believed that incidental learning within discourse communities plays a critical role for college students given that fact that they receive little to no formal vocabulary instructional supports (Perin, 2004; Stahl, Simpson, & Hayes, 1992). Indeed, researchers agree that incidental vocabulary learning should be encouraged among college students for native and nonnative speakers (Francis & Anderson, 2009; Hunt & Beglar, 2005; Nation, 2001; Schmitt, 1997, 2010).

The amount of vocabulary learned incidentally can be small or large depending on the contextual characteristics of learning and learners themselves (Vidal, 2011). In this study we were interested in learning modality (reading and listening) and goal (academic and leisure). Both modalities of reading and listening provide students rich opportunities to incidentally learn vocabulary by using strategies, such as such as guessing word meanings from context clues or referring to a dictionary to check words when reading (Schmitt, 2010). College students have the choice to make regarding when and why to use vocabulary learning strategies due to contextual features of learning (Schmitt, 2010). The modalities of reading and listening possess modality-specific features where reading provides spelling of words that are available in listening. These features cause certain vocabulary learning strategies more or less applicable and, as a result, influence students' perception of their capabilities of using those strategies. For example, within listening modality, students are more likely to perceive it inconvenient to look at the spelling of

unfamiliar words, and consequently, judge themselves with low capabilities to apply the strategy of dictionary use to learn word meanings (Rosenthal & Ehri, 2008). Morphological analysis are relatively more effective ways of learning words in the reading contexts than in listening context, because morphological analysis requires learners to break words into smaller parts and the pronunciations of the words in listening context do not necessarily inform the listeners about the spellings (Tong et al, 2011).

Similarly, students' learning goals influence the perceptions of their capabilities to learn vocabulary learning. Goal theory suggests that the socially constructed practices in a particular setting (e.g., in or out of the classroom) are associated with goals that are relatively distinctive to that setting (Pintrich, 2000; Schunk & Zimmerman, 2007). For instance, if students are reading an academic textbook with new concepts that are compacted with unfamiliar morphologically complex words, they have to know the word meanings to understand the relationship between the words and the concepts and, more importantly, comprehend the academic reading context (Francis & Simpson, 2009). When students set themselves a goal or are given a goal by instructors to comprehend the courses reading, they are likely to experience an sense of self-efficacy to do it, and they tend to make a commitment to attain the comprehension (Schunk, 1994; Schunk & Pajares, 2009). If they meet new words, they are likely to learn these words by using various strategies to understand the concepts for comprehension. However, if the learning goal is for leisure, students focus more on the meanings than new words and they tend to ignore the new words under circumstances like reading a piece of newspaper or a novel, or watching a movie or listening to radio (Nation, 2001).

Native and Nonnative English Learners

In this study we are interested in the influence of students' English language background on self-efficacy for vocabulary learning. We hypothesize that native speakers have higher self-efficacy for vocabulary learning than non-native speakers. As is discussed in previous section, four resources affect the development and revision of students' perceived self-efficacy beliefs: mastery experience, vicarious experience, verbal persuasions, and physiological states (Bandura, 1986, 1997). Native speakers have far more exposure to both written and oral language (Nation, 2001; Schmitt, 1997, 2010). This exposure provides them chance to gain mastery experience in vocabulary learning which assured their perception of capabilities in learning vocabulary (Bandura, 1986). In addition, a bigger vocabulary size of native speakers than nonnatives might add mastery experience of native speakers (Nation, 2001).

For nonnative English speakers, vocabulary knowledge is a major determinant of reading comprehension and academic success (Bogaards & Laufer, 2004). They face bigger challenges in vocabulary learning than native speakers at college. Before entering college, nonnative speakers need to know between 3,500 word-families and 4,500 words to cover 95% of the vocabulary needed to pass the Test of English as a Foreign Language (TOEFL) (Chujo & Oghigian, 2009). TOEFL is a common admission tool used by colleges and universities in Canada and the United States to evaluate international students' ability to understand and use English in academic settings. It is not difficult to conclude that, when nonnative speakers enter college, their average vocabulary size is only a fraction of that of native speakers. After being admitted to college, nonnative speakers are challenged to learn vocabulary more quickly than native speakers in order to catch up. In fact, researchers in vocabulary acquisition have called for more attention to the study of vocabulary learning of nonnative speakers (Bogaards & Laufer, 2004; Laufer & Nation, 1995).

Self-Efficacy for Vocabulary Learning and Reading Motivation

Though the motivation literature was marked as full of “fuzzy but powerful constructs” (Pintrich, 1994, p. 139), reading literature has given increasing attention to motivational constructs. In this study, we adapted the concept of reading motivation conceptualized by Wigfield and Guthrie (1997). Their discussion of reading motivation is probably the most comprehensive one which includes several constructs from the motivational fields, including self-efficacy, intrinsic and extrinsic motivation, and achievement goals orientations, and achievement values. On the other hand, if students are not efficacious for learning vocabulary during reading a textbook with complex words, they might skip or give up when they encounter new words. The unsuccessful experiences of vocabulary learning through reading might affect their perception about their reading itself, such as their perceived capabilities to read, their intrinsic motivation for reading, and what goals they set for reading (Beck, McKeown, & Kucan, 2002).

We hypothesize that students’ self-efficacy beliefs for vocabulary learning significantly predict their reading motivation. Previous empirical studies confirmed the link between self-efficacy and students’ reading and writing (Bruning, Dempsey, Kauffman, McKim, & Zumbrunn, 2011). Vocabulary knowledge is an important component of reading comprehension (Graves, 2009; Nation, 2001). Students with higher self-efficacy beliefs in vocabulary learning tend to acquire more vocabulary incidentally from reading (Guthrie, Wigfield, Humenick, Perencevich, Taboado, & Barbosa, 2006). With a larger vocabulary size, students are likely to find it easier and more enjoyable to read. The enjoyment of reading, in turn, provides richer mastery reading experience. With mastery experience, students have higher reading motivation (Pajares, 1994).

Self-efficacy for Vocabulary Learning and Academic Achievement

We hypothesize that students' self-efficacy for vocabulary learning predict their academic achievement. First of all, previous studies found self-efficacy was positively correlated with general academic achievement (Pajares, 1996; Schunk, 1991). Students' self-efficacy beliefs predict cognitive learning by influencing their affective proclivities toward academic tasks, meta-cognitive strategies, and persistence (Bouffard-Bouchard, 1990; Schunk & Pajares, 2009; Stajkovic & Luthans, 1998; Van dinter, Dochy, & Segers, 2011). Bouffard-Bouchard (1990) found college students' self-efficacy has positive impact on their task persistence and cognitive performance. Stajkovic and Luthans (1998) found self-efficacy is significantly correlated with work-related performance in diverse domain areas. In addition, vocabulary knowledge significantly predicts college students' general academic performance (Pedrini & Pedrini, 1975) and domain-specific final grades such as biology, English, and psychology courses (Emmeluth, 1979). Kuehn (1996) reported that ineffective vocabulary development was the most significant barrier to students' comprehension of lectures and text reading.

The Current Study

In a nutshell, this study was performed with the intention to extend research regarding self-efficacy for vocabulary learning among college students and the influence of self-efficacy for vocabulary learning to reading motivation and academic achievement. The following questions were formed on the basis of research purposes:

1. Does native and nonnative speakers differ from each other regarding self-efficacy for vocabulary learning?
2. Does self-efficacy for vocabulary learning predict reading motivation and academic achievement for native and nonnative speakers?

3. Does self-efficacy for vocabulary learning differ as a function of learning modality (reading vs. listening) and learning goal (academic vs. leisure)?

Method

Participants

Participants consisted of two language groups of traditional undergraduate students ($N=121$; 66 female and 55 male) from a large Midwestern university, including native English speakers ($N=69$) and non-native English speakers ($N=52$). Students reported GPA with a mean of 3.46 ($SD = .51$). Ethnically, this sample was composed of white (50.3%), Asian (42.1%), African-American (3.3%), and others (4.3%). The sample was from 54 majors in predominantly three colleges, including the Colleges of Arts and Sciences (34.7%), Business (27.3%), Education (26.4%), and others (14.2%).

Measures

Self-Efficacy for Vocabulary Learning. To measure students' self-efficacy for vocabulary learning, we adopted a domain-specific approach to self-efficacy. Bandura (1986, 2006) emphasized that theoretical guidelines should be followed regarding domain-specificity of self-efficacy assessment in order for self-efficacy to accurately and validly predict academic outcomes. In some studies, the misjudgment of domain-specificity led to mis-measurement and weak effect of self-efficacy (Zimmerman, 1996). To the best of our knowledge, no study exists focusing on the scale of self-efficacy for vocabulary learning. Hence, we developed a scale to measure self-efficacy for vocabulary learning, that is, the Self-efficacy for Vocabulary Learning Questionnaire (SeVLQ).

Self-efficacy for vocabulary learning is defined here as one's belief about his or her capability to learn new or unfamiliar words by using certain vocabulary learning strategies

within a designated context. SeVLQ has a total of twenty items on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). All items start with “I can ...” to ensure content validity, in accordance with Bandura’s (2006) guide for constructing self-efficacy scales. Bandura (2006) posited that efficacy items should be phrased in terms of “can do” rather than “will do” in order for items to accurately reflect the construct of a judgment of perceived capability. To further ensure construct validity, participants were asked to rate how confident they were for each statement and they were told there were no right or wrong answers.

In the SeVLQ, six vocabulary learning strategies were addressed after extensive literature review, including dictionary use (Nation, 2001), help-seeking (Karabenick & Newman, 2006), phonological analysis (Walter, 2008), spelling analysis (Ehri & Rosenthal, 2007), morphological analysis (Nagy & Scott, 2000), and contextual analysis (Nagy et al., 2006). Based on Bandura’s (1986, 1997, 2006) concept of domain-specificity and guidelines on self-efficacy measurement, four scenarios were developed as a result of two modalities (reading vs. listening) by two goals (academic vs. leisure): 1) reading for academic goal, 2) reading for leisure goal, 3) listening for academic goal, and 4) listening for leisure goal. Within each scenario, a number of items were developed to measure students’ self-efficacy for vocabulary learning using specific strategies. For example, under the scenario of reading for academic goal, the item measuring self-efficacy for morphological analysis when students see a new word was “I can break down the new word into smaller parts to learn it”; the item measuring self-efficacy for dictionary use when students see a new word was “I can look up the new word in dictionary to learn it” (see Appendix for the item pool and Table 1 for the item map).

Insert Table 1 here.

Motivation for Reading. Motivation for Reading Questionnaire (MRQ) is a 54-item instrument with established reliability and validity. It is used to measure students' motivation for reading on the basis of social cognitive theory, intrinsic motivation, extrinsic motivation, and goal theory (Wigfield & Guthrie, 1997). In present study, MRQ was used to validate the instrument SeVLQ.

Academic Achievement. To measure the academic achievement, participants were asked to report their overall GPA on a 9-point letter scale ranging from A⁺ to C⁻ in the demographic information part of the questionnaire. The letters were coded later into numbers with an interval of .33 where A⁺ = 4 and C⁻ = 1.33 with higher scores indicating higher grades.

Procedures

Participants took about 30 minutes to complete the measures in one sitting. We randomized the order of the two questionnaires to control order effects (i.e., SeVLQ and MRQ). Before answering the questionnaire, the participants were instructed to report their beliefs about their capabilities to use specific strategies to learn new words within different modality (reading vs. listening) and for different goal (leisure vs. academic). They were told that there were no "right" or "wrong" answers but only asked to report their individual judgment of confidence toward the items. Participants were compensated with \$5 for their participants.

Results

Results included four sections. First, we used factor analyses of SeVLQ to examine how well the measures reflected their intended constructs. Then, we applied discriminant analysis to explore the group difference of native and nonnative English speakers. Followed was the examination of the predictive role of self-efficacy for vocabulary learning to reading motivation and academic achievement for native and nonnative English speakers respectively. The last

section included the report of self-efficacy difference as a function of learning modality (reading vs. listening) and learning goal (academic vs. leisure).

Five factors were extracted from factor analysis (see Table 2). The total internal consistency reliability for SeVLQ was .82. For the five subscales, all Cronbach's coefficient α values exceed the recommended .7 cut-off point (Nunnally & Bernstein, 1994), ranging from .75 to .87 (see Table 3), which allows us to make refined judgment about students' self-efficacy for vocabulary learning. For the MRQ, reliability of total score was .91. Reliabilities of subscales ranged from .57 to .80 except for the dimension of *Compliance* ($\alpha = .30$), resembling previous reports with MRQ (Wigfield & Guthrie, 1997).

Descriptive statistics and inter-correlations among the subscales of SeVLQ are presented in Table 3. When multivariate data were analyzed to understand the data set, it is argued that discriminant analysis is more suitable over separate F tests to examine group differences on a set of dependent variables simultaneously (Borgen & Seling, 1978). In this study, we used discriminant analysis to test whether group differences exist between native and nonnative English speakers. The overall Wilks' lambda was $\lambda = .79$, $\chi^2(6, N = 122) = 26.24$, $p < .001$, $\eta^2 = .20$, indicating that the two groups were significantly different. Canonical correlation ($R = .45$) was the association between the discriminant function and the groups. The correlation between the composite predictor variable and the grouping variable accounted for 20.25% of the variance. Results were shown in Table 3. Self-efficacy for phonological analysis was highly correlated with the grouping variable (.75), followed by morphological analysis (.73), contextual analysis (.67), and help-seeking (.56), with loading less than .40 not being interpreted (Sherry, 2006).

The group centroid means indicated the discriminant function maximally separately the native speaker group (.44) and the nonnative speaker group (-.57). Specifically, the discriminant

function separated the native from the nonnative speaker group in these variables, self-efficacy for phonological analysis, help-seeking, morphological analysis, and contextual analysis, with higher scores for the native speaker group ($M = 3.82, SD = .85; M = 3.69, SD = .76; M = 3.42, SD = .68; M = 4.00, SD = .60$, respectively) than the nonnative speaker group ($M = 3.14, SD = .98; M = 3.23, SD = .84; M = 3.01, SD = .65; M = 3.57, SD = .64$, respectively). However, group did not separate the variable of self-efficacy for dictionary use.

Insert Table 2 and 3 Here.

Self-Efficacy for Vocabulary Learning, Reading Motivation, and Academic Achievement

To address the second research question, multiple linear regression analyses were conducted separately for the two groups of English language speakers (native vs. nonnative). In step one, we examined the predictive role of self-efficacy for vocabulary learning to reading motivation. In step two, we examined whether self-efficacy for vocabulary learning and reading motivation predict academic achievement. Both self-efficacy for vocabulary learning and reading motivation were entered into regression equation as independent variable. Results were shown in Table 4.

For English native speakers, results from step one indicated the predictor of self-efficacy for vocabulary learning explained 21% of the variance in reading motivation, $F(1, 67) = 17.85, p < .001, R^2 = .21$. Results from step two indicated self-efficacy for vocabulary learning explained 6% of the variance in academic achievement, $F(1, 67) = 3.97, p = .05, R^2 = .06$, and adding reading motivation into the regression model did not contribute to significant increment of variance accounted for, $F(2, 66) = 2.68, p = .07, R^2 = .02$.

For nonnative English speakers, however, results showed that self-efficacy for vocabulary learning did not predict reading motivation, $F(1, 50) = 2.42, p = .13, R^2 = .05$. Result

from step two indicated self-efficacy for vocabulary learning did not predict academic achievement, $F(1, 50) = .55, p = .46, R^2 = .01$, and adding reading motivation into the regression model did not add significant contribution, $F(2, 49) = .57, p = .58, R^2 = .01$.

Insert Table 4 Here

Modality, and Goal Difference

A three-way (*L1 by Modality by Goal*) factorial analysis of variance was applied to test the effect of L1, learning goal (Academic vs. Leisure), learning modality (Reading vs. Listening), and their interactions on self-efficacy for vocabulary learning. We included the factor of L1 in order to capture the interactions between L1 and the other two factors. Results are shown in Table 5. There is significant main effect for L1, $F(1, 122) = 38.38, p < .001$, partial $\eta^2 = .08$, with higher self-efficacy reported by native speakers ($M = 3.63, SD = .55$) than non-native speakers ($M = 3.26, SD = .53$), consistent with previous discriminant analysis. There was also a significant main effect for Modality, $F(1, 122) = 8.90, p < .001$, with higher self-efficacy in the modality of reading ($M = 3.62, SD = .58$) than listening ($M = 3.31, SD = .69$).

The main effect of Goal is not significant, $F(1, 122) = .31, p = .58$, indicating no overall difference in self-efficacy between academic goal ($M = 3.48, SD = .61$) and leisure ($M = 3.47, SD = .61$). However, the interaction between Goal and L1 was significant, $F(1, 122) = 4.13, p = .04$, indicating the effects of Goal were not the same for two different language groups. Further examination reveals that for the group of English native speakers, self-efficacy was higher for leisure ($M = 3.69, SD = .56$) than academic goal ($M = 3.58, SD = .61$), $t(67) = 3.08, p = .01$, Cohen's $d = .19$, with a small effect size; for English nonnative speakers, on the contrary, self-efficacy is lower for leisure ($M = 3.19, SD = .54$) than academic goal ($M = 3.36, SD = .56$), $t(52) = -3.57, p = .001$, Cohen's $d = .31$, with a small effect size.

Discussion and Conclusion

Vocabulary is a crucial component in post-secondary education as it is closely related to students' reading activities and academic success (Francis & Simpson, 2009; Graves, 2009; Perin, 2004). The present research had three major goals. The first one was to examine the self-efficacy difference between two language groups. Our data revealed distinct self-efficacy patterns for two language groups. Native speakers reported higher overall self-efficacy than nonnative speakers, indicating native speakers generally have higher perception of their own capabilities to learn vocabulary using various strategies in different contexts than non-native speakers. Native students reported higher self-efficacy in phonological analysis, help-seeking, morphological analysis, and contextual analysis. These findings confirmed our hypothesis that native speakers have higher self-efficacy for vocabulary learning than nonnatives. It can be explained that language background affects the sources of self-efficacy beliefs. According to Bandura (1986), students' judges of competence are developed and revised as they interpret information from their prior experiences. Native speakers have far more exposure to both written and oral language (Nation, 2001), where they gain mastery experiences in vocabulary learning. These experiences contribute to their perception of capabilities in learning vocabulary. When students completed an academic task successfully, their confidence of finishing a similar task is raised (in our case, learning vocabulary by using various strategies within different contexts); on the other hand, if they had no or little successful experience completing that academic task, they tend to judge themselves unable to succeed in similar tasks. Students' actual mastery or unsuccessful performance of learning vocabulary with strategies is probably the most reliable information because they are usually perceived as tangible indicators of one's capabilities (Pajares, 1997; Usher & Pajares, 2008). Other resources of self-efficacy, including vicarious experiences, social

persuasion, and physiological indexes are potential explanations to the group difference as well. Second language learners, compared to native speakers, have observed fewer occasions of their peers' succeed in learning vocabulary with strategies in and out of classroom, such as morphological analysis and contextual analysis (Nation, 2001; Graves, 2009). Interestingly, no difference was found in self-efficacy for dictionary use. It is probably because nonnative speakers rely heavily on dictionary use when they face new words (Nation, 2001). Nonnative speakers' mastery experience of using dictionary to learn vocabulary have positively influenced their perceived confidence in dictionary use. One implication for the findings is that nonnative speakers need more explicit instructions in vocabulary learning strategies (e.g., contextual analysis and morphological analysis), in line with suggestions by previous researchers (Perin, 2004; Stahl, Simpson, & Hayes, 1992).

The second goal was to investigate the predictive role of self-efficacy for vocabulary learning to reading motivation and academic success. For native speakers, self-efficacy for vocabulary learning significantly predicted reading motivation and academic achievement. This result is consistent with previous research findings that self-efficacy is predictive of motivation and academic performance (Bandura, 1997; Komarraju & Nadler, 2013; Schunk & Zimmerman, 2007). For nonnative speakers, however, no significant relationship was found. One explanation for this is that nonnative speakers' cultural backgrounds can influence their perception of their capability to perform a task (Scholz, Dona, Sud, & Schwarzer, 2002). For example, Mau (2000) found self-efficacy difference as a function of nationality where Asians tend to be more self-criticizing and American tends to be more self-enhancing. In this study, nonnative speakers came from different countries where English was learned as a foreign language before they attended college in the United States. Nonnative speakers' cultural backgrounds might have influenced

their judgment of their capability, which resulted in non-relationship between self-efficacy and their reading motivation or academic achievement. Another possible explanation is due to the measurement of academic achievement. We measured nonnative speakers' self-reported GPA based on their previous school experiences at their home countries in their first languages. We did not exclusively measure their academic achievement earned in the United States, as it was the case for English native speakers. Their academic achievement in their home language might have little to do with their English vocabulary learning experiences. In addition, GPA scores in this study have a restricted range, which might inaccurately account for academic achievement. These two restrictions can cause the underestimation of the effects for non-native groups.

The last goal was to examine the difference in self-efficacy for vocabulary learning as a function of learning modality (reading vs. listening) and learning goal (academic vs. leisure). The self-efficacy for vocabulary learning was found to differ as a function of modality (reading vs. listening), consistent with the concept of domain-specificity and goal theory (Bandura, 1997; Pintrich, 2000). The results indicated that students believed they were more able to learn vocabulary during modality of reading than listening. An explanation lies in the nature of the two modalities in question. When students encounter new words in reading, they can examine the morphemes or refer to dictionary by looking at the spelling as long as necessary. If students encounter new words when they listen, unless they stop the speakers and inquire about the word, it is less likely for them to attend to spelling and dictionary for meaningful morphemes.

Contrary to our hypothesis that self-efficacy for vocabulary learning was goal-sensitive, there was no overall self-efficacy difference between academic and leisure goal. Interestingly, interaction between goal and language background was significant, and further examination revealed goal difference for both language groups: native speakers reported higher self-efficacy

for leisure than academic goal; on the contrary, nonnative speakers reported lower self-efficacy for leisure than academic goal. This result could be explained by goal theory, which suggests that the socially constructed practices in a particular setting (e.g., in or out of the classroom) are associated with goals that are relatively distinctive to that setting (Schunk & Zimmerman, 2007). In addition, the characteristics of the sample might also explain the findings. The sample of native speakers consisted of academically successful undergraduates from a research university, where about eighty-eight percent of the participants reported GPA higher than three on a scale of four. Average high self-efficacy reported by this sample on a scale of five might have resulted from relatively high intrinsic motivation that is closely related to enjoyment in a task (Ryan & Deci, 2000; Schunk & Zimmerman, 2007). The theory of intrinsic and extrinsic motivation is related to these two learning goals (Ryan & Deci, 2000). It is assumed that learning for leisure is more based on personal interest or curiosity (intrinsic motivation), whereas learning for academic goal might have involved academic tasks out of genuine interest, but it might also be aiming for performance (e.g., grades) (extrinsic motivation). With higher level of interest or curiosity, the self-efficacy recourse of physiological index might be higher which, in turn, raise students' judgment of their capability to accomplish relevant tasks (Usher & Pajares, 2008).

For the sample of nonnative speakers at college level, on the other hand, academic vocabulary learning is still the primary goal to catch up with the English proficiency level of native speakers (Francis & Simpson, 2009) and, thus, they might be motivated to perform well (e.g., grades). Non native speakers of English reported less self-efficacy in learning for leisure goal, one potential explanation is that they might have much less mastery experience in learning vocabulary during learning for leisure but devoted more leisure time in their home language, they may even have experienced anxiety facing large amount of vocabulary during leisure time,

as a result, they judged themselves less capable of learning vocabulary during leisure literacy activities.

Considering the close relation between self-efficacy and academic success (Pajares, 1996; Schunk & Zimmerman, 2007), the finding of difference between academic and leisure goal is especially meaningful for native and nonnative speakers who find themselves less prepared for post-secondary education, as it indicates the likelihood they will learn new vocabulary. For students with less self-efficacy for vocabulary learning, they are encouraged join in college-level summer reading classes or special reading programs, for instance, to learn vocabulary in the academic area and beyond (Francis & Simpson, 2009; Perin, 2004).

Limitations and Implications

There are mainly three limitations in this study. First, the study included only traditional undergraduate students from a four-year research university. It is open to question whether the findings generalize to other cross-grade or cross-cultural populations. Much research is needed in the future to examine the self-efficacy for vocabulary learning among K-12 students, and students from two-year institutions and/or universities in other countries. Second, the measurement of self-efficacy for vocabulary learning and students' academic achievement is based on self-report. Self-reported data might bear little relationship to reality. Self-reported GPA is good representation of actual grades for students with high academic achievement, but unlikely to reflect accurately the actual scores of students with low GPA and, to a lesser extent, low ability (Kuncel, Credé, & Thomas, 2005). Third, further research is needed to establish the predictive role of self-efficacy for vocabulary learning. The true utility of the merit of self-efficacy for vocabulary learning may be better judged by its ability to predict vocabulary learning rate, vocabulary learning strategy use, vocabulary knowledge and/or various academic

performances (e.g., verbal ability, reading comprehension, metalinguistic skills) rather than its single ability to shed light on students' self-reported perception of their capability to learning vocabulary by using several vocabulary strategies within the modality of reading and listening.

Finally, the present research has a number of important implications for educational practice. First, the findings suggested that self-efficacy for vocabulary learning of native speakers significantly accounted for the variance of their reading motivation and ultimate academic achievement. This is meaningful for teachers and researchers when they attempt to monitor students' self-efficacy for vocabulary learning and help students succeed in enhancing their vocabulary breath and depth (Schmitt, 2010). Second, determining how self-efficacy for vocabulary learning varies as a function of learning modality (reading vs. listening) and learning goal (academic vs. leisure) can assist in tailoring treatment programs or including more salient instructions on vocabulary learning for both native and nonnative speakers (Li, 2009; Nation, 2001; Perin, 2004). Third, nonnative speakers reported less overall self-efficacy for vocabulary learning than native speakers. Difference was observed as a function of learning modality and learning goal. However, no predictive role was observed for their self-efficacy for vocabulary learning to either reading motivation or academic achievement, contrary to the findings for native speakers. These findings indicate a need for more research on the resources of nonnative speakers' self-efficacy for vocabulary learning and how their self-efficacy beliefs contribute to their vocabulary learning processes and ultimate language achievement in addition to general academic achievement. For example, providing instructions in vocabulary learning techniques can be efficient ways to increase their learning skills and task persistence for vocabulary learning; mastery experience with these skills, in turn, enhance their perception of capability to learn vocabulary. In all, the study of self-efficacy for vocabulary learning among both native and

nonnative speakers at college level serves us in our request to fill the gap in vocabulary research about the role of self-efficacy for vocabulary learning and, in addition, inform both native and nonnative vocabulary learning and academic success.

Table 1

Item Map for SeVLQ With Six Subscales

Subscales	Reading		Listening		Total
	Academic	Leisure	Academic	Leisure	
Self-efficacy for Phonological analysis	1	1	-	-	2
Self-efficacy for Spelling analysis	1	1	-	-	2
Self-efficacy for Morphological Analysis	1	1	1	1	4
Self-efficacy for Contextual analysis	1	1	1	1	4
Self-efficacy for Help-seeking	1	1	1	1	4
Self-efficacy for Dictionary use	1	1	1	1	4
Total	6	6	4	4	20

Table 2

Factor Analysis of SeVLQ Items: Varimax-Rotated Factor Loadings (Rotated Factor Matrix) for a Five-Factor Solution with Maximum Likelihood Extraction.

Subscale	Items ¹	1	2	3	4	5
Self-efficacy for Morphological analysis	Item 1	.51				
	Item 7	.57				
	Item 13	.50				
	Item 17	.51				
	Item 5	.75				
	Item 10	.81				
Self-efficacy for Dictionary Use	Item 3		.59			
	Item 9		.57			
	Item 15		.72			
	Item 19		.75			
Self-efficacy for Help-seeking	Item 4			.56		
	Item 10			.58		
	Item 16			.79		
	Item 20			.62		
Self-efficacy for Contextual Analysis	Item 2				.56	
	Item 8				.44	
	Item 14				.75	
	Item 18				.66	
Self-efficacy for Phonological Analysis	Item 6					.94
	Item 12					.60

Note. Loadings (>.4) are shown in the table. ¹ For item information, see appendix.

Table 3

Descriptive statistics, Standardized discriminant function coefficients, structure coefficients, ANOVA, pooled within-group correlations, and reliabilities of subscale in self-efficacy for vocabulary learning

Sub-scales	<i>Native</i>	<i>Nonnative</i>						Pooled Within-group Correlation				
	<i>(N=69)</i>	<i>(N=52)</i>										
	<i>M (SD)</i>	<i>M (SD)</i>	<i>Coefficients</i>	<i>r_s</i>	<i>Wilks' Lambda</i>	<i>Univariate F(5, 122)</i>	1	2	3	4	5	
1. PA	3.82 (.85)	3.14 (.98)	.45	.75	.876	16.76**	.84					
2. DU	3.62 (.90)	3.48 (.76)	-.29	.67	.992	.89	.25	.79				
3. HS	3.69 (.76)	3.23 (.84)	.41	.56	.925	9.60*	.33	.54	.83			
4. MA	3.42 (.68)	3.01 (.65)	.59	.34	.880	10.06**	.56	.34	.41	.87		
5. CA	4.00 (.60)	3.57 (.64)	.31	.17	.896	13.74**	.34	.22	.37	.50	.75	

Note. * $p < .05$, two tailed; ** $p < .001$, two tailed. r_s = structured coefficients. Bellow the diagonal is pooled within-group correlations; on the diagonal are reliabilities. PA: Phonological analysis; SA: Spelling analysis; DU: Dictionary use; HS: Help-seeking; MA: Morphological analysis; CA: Contextual analysis.

Table 4

Regression Analysis Predicting Reading Motivation and GPA with Self-efficacy for Both Language Groups ($N=122$)

Steps and predictor variable	Native Speakers						Non-Native Speakers					
	B	95% CI	SE B	β	R^2	ΔR^2	B	95% CI	SE B	β	R^2	ΔR^2
Step 1 ¹ :					0.21	0.20					.05	.03
Self-efficacy	0.37	[.19, .54]	0.09	.46**			.16	[-.05, .37]	.10	.22		
Step 2 ² :												
Model 1:					0.24	0.06					.01	-.01
Self-efficacy	0.24	[.00, .49]	0.12	0.24*			-.10	[-.37, .17]	.14	-.11		
Model 2:					0.27	0.02					.02	-.02
Self-efficacy	0.17	[-.10, .44]	0.14	0.17			-.12	[-.40, .16]	.14	-.13		
Reading Motivation	0.2	[-.14, .54]	0.17	0.16			.15	[-.23, .52]	.19	.11		

¹Dependent variable is reading motivation. ²Dependent variable is GPA. * $p < .05$; ** $p < .001$.

Table 5

ANOVA results for main and interaction effects of L1, modality, and goal on self-efficacy

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	η^2
L1	1	16.44	38.26	< .001	0.07
Modality	1	9.95	23.16	< .001	0.05
Goal	1	0.13	0.31	.579	0.001
L1 * Goal	1	1.77	4.11	.043	0.01
Error	476	0.428			

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Appendix

The following show the twenty items measuring self-efficacy for morphological analysis (item 1, 7, 13, 17, 5, 11), contextual analysis (item 2, 8, 14, 18), dictionary use (item 3, 9, 15, 19), help-seeking (item 4, 10, 16, 20), and phonological analysis (item 6, 12) across four scenarios (reading for leisure and academic, listening for academic and leisure).

Scenario 1:

Think about the most interesting books or articles you have ever read or you are still reading for fun. Now, KEEPING THAT READING IN MIND, and answer the following 6 questions:

<i>When I read a new word,</i>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. I can break down the new word into smaller parts to learn it.	1	2	3	4	5
2. I can continue reading to figure out the new word.	1	2	3	4	5
3. I can look up the new word in a dictionary.	1	2	3	4	5
4. I can ask someone to explain it to me.	1	2	3	4	5
5. I can look at the spelling to understand the new word.	1	2	3	4	5
6. I can sound out the new word to see if I know it.	1	2	3	4	5

Scenario 2:

Sometimes you have to read textbooks or paper for school assignments. These reading assignments might be from your instructors. Think about the last time you read a book or a paper, KEEP THAT READING IN MIND and answer the following 6 questions:

<i>When I read a new word,</i>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
7. I can break the new word down into smaller parts to learn it.	1	2	3	4	5
8. I can continue reading to figure out the new word.	1	2	3	4	5
9. I can look up the new word in a dictionary.	1	2	3	4	5
10. I can ask someone to explain it to me.	1	2	3	4	5
11. I can look at the spelling to understand the new word.	1	2	3	4	5
12. I can sound out the new word to see if I know it.	1	2	3	4	5

Scenario 3:

We all listen at school. Sometimes you listen to teacher in class; sometimes you listen to multimedia materials in class. KEEP THAT LISTENING IN MIND and answer the following 4 questions:

<i>When I hear a new word:</i>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
13. I can break the new word down into smaller parts to learn it.	1	2	3	4	5
14. I can keep listening to see if I can figure out the new word.	1	2	3	4	5
15. I can look up the new word in dictionary to learn it.	1	2	3	4	5
16. I can ask someone to explain the new word to me.	1	2	3	4	5

Scenario 4:

Think about a time when you heard something after school. It can be anything, for example, a song, an interesting story, a TV show, or a piece of news. Now KEEP THAT LISTENING IN MIND and answer the following 4 questions:

<i>When I hear a new word:</i>	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
17. I can break the new word down into smaller parts to learn it.	1	2	3	4	5
18. I can keep listening to see if I can figure out the new word.	1	2	3	4	5
19. I can look up the new word in the dictionary to learn it.	1	2	3	4	5
20. I can ask someone to explain the new word to me.	1	2	3	4	5