Integrating ESL Vocabulary Instruction into an Accounting Class

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Abstract

This mixed method study looked at how vocabulary was being addressed in an accounting course and the efficacy of integrating vocabulary strategies to assist second language learners. The purposes of this paper were to determine the pedagogical implications about the explicit teaching of accounting vocabulary and extrapolate learners' attitudes toward accounting terminology and whether they feel these strategies were beneficial to their overall learning. Participants were mostly English as a second language (ESL) undergraduate students in a private university enrolled in an upper division accounting class. At three different times during a ten-week term, students were given different wordlists and asked to study the wordlists on their own using the online version of Quizlet (a vocabulary learning software) in preparation for vocabulary quizzes. Wordlists were created using second language learning vocabulary principles and online tools to help identify academic words, high-frequency words, and repetition in prefixes. After interviewing students, data revealed that the overall experience was a positive one especially with the functionality of Quizlet. The wordlists and the online software Quizlet seemed to help the students direct their learning, focus on key words for the class, and strengthen their connections with the given words to the textbook and previous classes. Quizlet, according to the students, was easy and fun to use, and provided the repetitious element needed for long-term retention. This suggests that the use of wordlists in conjunction with the online software Quizlet in a content course like Accounting is a useful learning experience for second language learners.

Introduction

Acquiring vocabulary in a second language in an effective way is very important for English as a second language (ESL) learners (Hunt & Beglar, 2005). This is particularly true for ESL learners who are studying a major in university. Each area of study or discipline has its own body of technical terms that are complex, low frequency outside the area of expertise, and sometimes have different meanings within the field of study. Use of these technical terms are complex and can cause difficulty for learners. For example, Davis (2016) notes that perceptions of the vocabulary that auditors (accountants) use can lead members of an organization to feel like their auditors are speaking Greek or another foreign language. However, appropriate use of these terms are vital in demonstrating their expertise in their field. These terms can be particularly difficult for language learners to learn, so additional support is needed to learn these words. The online software of Quizlet allows instructors to give students a study set of

vocabulary words and prefixes that are specifically chosen to help them learn these difficult accounting-related terms more effectively.

Additionally, a limited amount of research has been done on vocabulary in accounting education (King et al., 2021; Umar & Olowo, 2023; Wong et al., 2018). To address this gap, we designed this study to analyze how accounting vocabulary is being addressed in an accounting course and the efficacy of integrating vocabulary strategies to assist second language learners. The objective was to determine the pedagogical implications that the data highlighted about the explicit teaching of accounting vocabulary. Further objectives included extrapolating learners' attitudes toward accounting terminology and whether they feel these strategies were beneficial to their overall learning. The study will be beneficial for teachers who teach predominantly second language learners.

Statement of the Research Problem

In learning a second language, a solid foundation of the vocabulary of the target language is essential for effective learning. Without sufficient vocabulary, meaningful interaction cannot occur, and learning is hindered (e.g., Alijanian et al., 2019; Qian & Lin, 2020; Schmitt, 2019; Webb, 2020). This reality can also be attributed to any field of study that deals with a large body of technical vocabularies, such as the fields of medicine (Le & Miller, 2023), science, business (Cohen, 2020), or computers. With this understanding of how language is learned, an analysis of how integrating vocabulary strategies appropriately can prepare students in an accounting class is evaluated in this study. The studied university is predominantly international and as such, many students struggle in their major classes learning discipline-specific vocabulary terms while also continuing to learn English as a second or foreign language (ESL/EFL). This research will help to inform, not only the discipline-specific programs about the benefits of integrating explicit vocabulary instruction but also directly address language learners' fears about learning discipline specific vocabulary. Additionally, this study is helpful to instructors that teach discipline-specific vocabulary terms to predominantly EFL learners, to understand specific pedagogies that help students learn vocabulary.

Literature Review

Vocabulary teaching and learning is a topic that is well researched and studied especially for those in the field of ESL/EFL. Over the years, researchers have looked at what vocabulary to teach (Coxhead, 2000; Nation & Chung, 2009; West, 1953), how it can be learned efficiently (Barclay & Schmitt, 2019; Hunt & Beglar, 2002; Nation, 2006; Nation & Chung, 2009;), and strategies to teaching it effectively (File & Adams, 2010; Nation & Nation, 2001; Nation & Chung, 2009; Nation & Meara, 2010).

What vocabulary to teach

To answer the question of what vocabulary to teach, many researchers have created different word lists to focus vocabulary study. West's (1953) General Service List is one of the earliest word lists created and was used for many years. Coxhead's (2000) Academic Word List became the updated academic version when it was created and was soon followed by many other corpus-based word lists; for example, The British National Corpus (1992), Davis' (2009) Corpus of Contemporary American English (COCA) and the New General Service List (Browne, 2014), and New General Service List (Brezina & Gablasova, 2015). These lists are based on four vocabulary characteristics such as high frequency words, academic words, technical words, and low frequency words (Nation & Chung, 2009). These lists are great for setting program goals and assessments; however, in an academic setting for a specialized

content course like accounting, a teacher may wish to create their own vocabulary list since the terminology needed for the course may not be as salient in a general academic word list (Smith, 2020). For the purpose of this study, such a word list was created based on the content of the course while utilizing Nation and Chung's (2009) four characteristics of vocabulary.

How to teach vocabulary to improve learning?
Knowing what vocabulary to teach is only part of the equation when teaching second language learners. A teacher must also know how vocabulary is learned to be able to teach it efficiently (Barclay & Schmitt, 2019; Nation & Chung, 2009). For vocabulary to be learned, a number of things need to take place. A learner needs to understand the form, meaning, and use of the word (Nation, 2006), and that vocabulary knowledge is gained incrementally (Barclay & Schmitt, 2019). Because vocabulary learning is incremental, many researchers over the years have developed best strategies to make learning vocabulary more efficient. According to Hunt and Beglar (2002), there are three approaches to vocabulary instruction; incidental learning, explicit instruction, and independent strategy development. This is similar to Nation's (2006) four strands of vocabulary learning; learning vocabulary from meaning-focused input through listening and reading, learning vocabulary from meaning-focused output through speaking and writing, deliberate vocabulary learning, and developing fluency with vocabulary across the four skills. Although Hunt and Beglar's (2002) explicit instruction and Nation's (2006) deliberate vocabulary learning have different names, what lies at the heart remains the same. Teachers can make vocabulary instruction more efficient by deliberately or explicitly isolating the vocabulary to be learned and integrating it into the content of the course (File & Adams, 2010). For this study, vocabulary words were taught at three different phases during the two month semester, and the seven principles were adhered to in order to make the learning more efficient and effective.

Online software Quizlet
When comparing traditional learning to online learning, online vocabulary learning has produced significantly higher vocabulary quiz/exams scores (Baki & Akdem, 2010; Waluyo & Bucol, 2021). Some of the software utilized for learning vocabulary includes Word Champ (Hung, 2015), ECTACO Flash Cards (Baki & Akdem, 2010) and more recently Quizlet (Waluyo & Bucol, 2021). Quizlet has proven to be an effective online vocabulary learning software (Baki & Akdem, 2010; Dizon, 2016; Waluyo & Bucol, 2021) but has often been implemented in the context of secondary schooling (Apriliani, 2021; Ho et al., 2020; Sangtupim & Mongkolhutthi, 2019) instead of tertiary education/higher education in language learning classes. Thus, leaving more opportunities to understand how Quizlet could benefit higher education learning settings within major classes. In this study, to assist learners with their vocabulary practice, the online software Quizlet was used.

Theoretical/conceptual framework
The framework for this study was taken from Hunt and Beglar's (2005) framework for developing EFL/ESL reading vocabulary and Nation's (2022) principles of vocabulary learning (see Appendix A). Hunt and Beglar's (2005) framework consists of two major approaches to vocabulary teaching and learning, specifically the explicit and implicit approach. The research for this paper drew from Hunt and Beglar's (2005) explicit approach of studying decontextualized lexis and Nation's (2022) three aspects of attention (focus, quantity, and quality) to create the vocabulary lists for students in an accounting course. The combining of Hunt and Beglar's (2005) framework with Nation's (2022) principles in the creation of the accounting vocabulary wordlists is based on second language learning principles of how vocabulary is learned and acquired.

Within this approach, Hunt and Beglar (2005) explain that studying decontextualized lexis (targeted vocabulary) helps learners acquire new vocabulary, consolidate information about previously met vocabulary, and elaborate their knowledge of vocabulary terms (see Figure 1). This framework was only a part of what we used in the creation of the vocabulary wordlists for the purpose of this research. We also drew from Nation and Chung's (2009) four characteristics of a word list: high frequency words, academic words, technical words, and low frequency words. The words chosen for the study were academic words that were a mix of technical accounting terms of high frequency within the context of accounting or low frequency when compared to general academic vocabulary terms. In addition to technical terms, affixes were added to the vocabulary list to help assist students in finding meaning in context by breaking down the technical accounting terms into their basic forms.

Figure 1

A Framework for Developing EFL/ESL Reading Vocabulary Source Hunt and Beglar (2005)
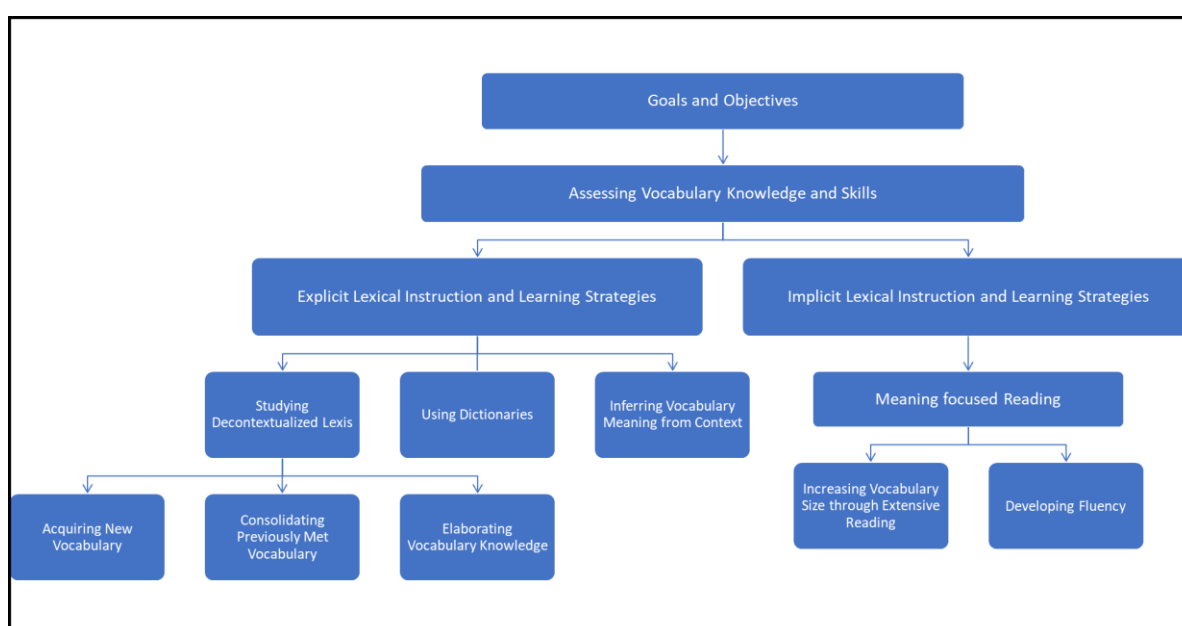
After the creation of the vocabulary lists, students were asked to use a software program called Quizlet in their vocabulary study because of the principles internalized within the functionality of Quizlet. Quizlet contains an online form of vocabulary cards and as such, implements the same principles that many proponents of vocabulary cards tout as effective strategies for increasing vocabulary knowledge. Principles such as how vocabulary is spaced for repetition and recycled (Barclay & Schmitt, 2019), and how it utilizes retrieval rather than recognition techniques (Nation & Meara, 2010). Other principles such as limiting the vocabulary size to something that is appropriately sized, adding context where it helps, and avoiding words with similar spelling or similar meaning within the same pack or list (Nation & Nation, 2001), are principles that we implemented in the process of creating the word lists.

Research questions
- **RQ1:** How do students in an upper-division accounting course perceive and experience an online vocabulary learning software (Quizlet)?
- **RQ2:** How do students perceive and experience different vocabulary lists created for the upper-division accounting course?

Methodology

The research design was a mixed method study with qualitative interviews over one semester and quantitative data from student exam scores over two semesters. Qualitative research is seen as a naturalistic, interpretive approach that brings meaning to phenomena (Creswell & Creswell, 2007). This study used interviews to collect data to understand students' voices as participants and exam percentages were collected within an auditing classroom.

Participants

Participants of the study are students of a small private undergraduate university of which over half of the university population is composed of international students who represent over 70 different countries and cultures. Participants of this study were taken from 11 students who were enrolled during the Spring 2022 semester within an upper-division accounting course. Seven of the eight students interviewed were second language learners. Three of the students interviewed identified as males and five identified as females.

Sample

Convenience sampling was used as one of the researchers was the instructor for the class. During the Spring 2022 semester, all the students in the upper-division accounting course were invited to participate in qualitative interviews that lasted approximately 30-45 minutes. Eight out of eleven students (73%) enrolled in the auditing class were interviewed to understand more about learning vocabulary. There is not an agreed upon guideline for the number of interviews in qualitative research that equates to sufficient sample size according to Vasileiou et al., (2018). Kuzel (1992) recommends that for a homogeneous sample, six to eight interviews is a sufficient amount. Guest et al.,(2006) posit that data saturation is possible after approximately six to twelve interviews. Guest et al., (2006) interviewed 36 women using purposive sampling from the outlined population of their study. After reviewing the transcripts of the first six interviews, 73% of the total codes had been generated. Within the first 12 interviews, Guest et al., (2006) found that 92% of the total number of codes (from 36 interviews) had been developed, suggesting that a sample size of six to twelve could be both efficient and effective.

Procedures

During the course of the semester, the instructor used three vocabulary sets inputted into the online software called Quizlet. Quizlet includes 500+ million study sets on numerous different topics with one million users that study using Quizlet every day (Quizlet, n.d.). Quizlet is currently the most popular tool for learning in the United States and can be used for recalling or retrieval practice. Quizlet is a free software but can be upgraded to Quizlet Plus for approximately $35.99 per year. Quizlet Plus allows for more data analytics, ad-free studying, offline test set access, custom images and audio, and custom teams when playing in live mode. The Quizlet analytics include seeing student progress over time and seeing the most missed words (see Appendix B) for screenshots of the Quizlet software interface). Instructors can input their terms into the set by entering the word and the corresponding definition or by copying and pasting their set from Excel, Word, or Google Docs. A tab or a comma can separate the word from the definition and a new line can separate one definition from another. Once all of the terms have been inputted, the terms can be used by studying flashcards, matching terms to definitions, or taking practice tests.

Creation of wordlists

The class was titled "Auditing" and it follows the Arens et al., (2016) textbook entitled: Auditing and Assurance. The textbook outlines the summary of the audit process in four phases

and as such the class content is modeled and assessed according to the four phases (see Appendix C). Vocabulary lists were compiled in the following manner:

Phase I: The Phase I vocabulary list was compiled by the audit instructor and guided by textbook definitions. In conjunction with the definitions, the terms were explained with application examples which led to lengthy definitions. There were a total of 35 terms.

Phase II: The Phase II vocabulary list was compiled by both the vocabulary subject matter expert (SME) and the audit instructor by discussing what words would be the most appropriate for students to engage with for Phase II. The vocabulary SME ran course content through an online program called Lextutor to analyze how frequent the terms were seen throughout the material (Dang et al., 2022). Furthermore, the vocabulary SME suggested that only 11 terms be assessed instead of 35 terms like Phase I. The vocabulary SME examined course content for viable prefixes and one viable prefix was added to the vocabulary set. Definitions were not shortened, but included definitions from the textbook in conjunction with application examples leading to lengthy definitions.

Phase III & IV: The Phase III & IV vocabulary list was compiled by the vocabulary SME and the audit instructor. The vocabulary SME examined the overall frequency of words to see if they were either low, mid-frequency, or high. The vocabulary SME also examined the course material for salient words, repetition of prefixes and the frequency of academic words. The audit instructor reviewed the words for frequency used in class and the likelihood of exposure to the words in previous accounting classes. Although words such as: assets, income, financial, ledger, invoice, and transaction had high frequency after the vocabulary SME's analysis of terms, the audit instructor helped to identify that the words would have been used in multiple previous accounting courses and therefore were not added into the vocabulary sets. Shorter, more precise, terms were agreed upon by the vocabulary SME and the audit instructor by using the Longman Online dictionary (https://www.ldoceonline.com/dictionary) and deciding which definition was most appropriate for auditing.

Instrumentation
Researchers used a semi-structured interview protocol to structure the interview (see Appendix D for interview questions).

Data collection procedures
Those students who accepted the invitation to participate were given an informed consent form to complete. All identifying information was removed, and pseudonyms (Student 1,2,3, etc.) were used for names and places mentioned in the data. Only researchers had access to the data to maintain confidentiality.

Because the data collected was not insignificant, 8 hours of recorded transcripts, we used Otter.ai to transcribe the recordings. First, we listened to the recordings and corrected errors that had been transcribed by the program, added timing to the transcripts, and filled in words that the program missed. Once the transcripts were corrected, we did a careful reading of all student responses to highlight commonalities and thematic points of interest.

Data analysis
The transcripts were coded using a thematic analysis process (Saldaña, 2021). The researchers used reflexivity and an audit trail to understand how ideas were developed and how evidence was pulled-together to support conclusions (Ary et al., 2019; Bazeley, 2007). Researchers used

labels or tags through the use of highlighting "In Vivo" codes within the transcript (Bazeley, 2007). These quotes add thick, rich, description. As a team, we reached consensus with categories and themes. The data analysis exposed different themes that were agreed upon by research team members, that were associated with the learner's perceptions and experiences with second language learning or more specifically, language learning through vocabulary building.

Findings

To help students reflect on their vocabulary learning, the research team asked about how they typically learned new words. The responses followed the normal pattern of vocabulary learning which includes learning from the textbook or the professor, through self-regulated strategies such as context clues, memorization, writing it down, keywords, translating from L1 to L2, and making connections to other classes. Additionally, students used online resources such as online dictionaries, Google translate, and other online vocabulary apps. The focus of this research is on the online vocabulary software, namely Quizlet.

RQ1

How do students in an upper-division accounting course perceive and experience an online vocabulary learning software (Quizlet)?

Two major themes were identified in our data analysis (see Table 1). The first theme was positive features of Quizlet and the second was learning benefits. In the paragraphs below, we describe the two different themes and their alignment to Paul Nation's Principles of Vocabulary Learning.

Table 1
Major Themes for RQ1

Quizlet themes	Paul Nation's Principles of Vocabulary Learning
Positive features: Flash cards were easily accessible	Quantity
	Repetition
Positive features: Matching function	Quality
	Desirable difficulty/effort
Learning Benefits: Confidence in class and preparation for exams	Quality
	Levels of processing

Positive features: flash cards
Students reported that the Quizlet flash cards were helpful and easily accessible through Canvas, the course learning management system (LMS). Flashcards quickly showed the correct definition after students clicked on the online card which is helpful for verbatim repetition. Accessing the flashcards often allowed for repetition of key terms because of how it isolated vocabulary words, whereas textbooks were seen as less of a vocabulary tool because the focus was not on vocabulary learning but on comprehension of key principles.

> The format of Quizlet is, the definition and you click it and it will show the right the word that it means. So it's very helpful for me and it's easier to, I don't know, its easier to remember in

because it's flashcard even though the old school flashcard papers, it's very helpful. So, it's very helpful. (Participant 1)

So it's, it's very helpful, because you have a platform to collect all of the vocabulary here to review. Because when I just read the textbook, and when I see the vocabulary, and then I try to, I find the unfamiliar vocabulary, and then I look up the dictionary, and then I will probably, I will probably just forget it. I mean, forget it later. But if I use Quizlet, to collect all the vocabulary, I can have the opportunity to review it in the future." (Participant 4)

Positive features: matching function

Another positive feature of Quizlet was the matching function. Three out of eight students noted two different functionalities of Quizlet including the traditional flashcards as well as the matching game functionality. One student noted that during the first use of Quizlet, they had trouble switching between the matching game function to the traditional flashcards, which was frustrating. Conversely, some students referred to the matching function as a "matching game" that helped them to continue to memorize the definition and test to see if their memory was correct. One student described it as "fun and engaging" and "exciting". Another student referred to the matching function as the most useful way to use Quizlet. A few students even expressed that it was fun or enjoyable to use Quizlet to study.

I do think it's a very good tool, like being able to flip the cards over quickly. And like you can play the matching stuff if you want to. (Participant 3)

Yeah I think that's kind of similar. The same because it works well for me, this kind of strategy. So I check the word, and then I memorize the definition. And then I just start the game, the different mode. So the most useful one for me is the matching one. Yeah, so I just kinda check if my memory is correct or not. (Participant 4)

Learning benefits

A large number of participants expressed that using Quizlet helped them learn the material better, feel confident during class, and better prepare for the exam.

I already know most of the words. Quizlet helped me more to become confident with my answers. (Participant 5)

Yeah I think after I get to know this word, it helped me to better understand the concept from textbook. Yeah, and help me to understand the question in the exam. (Participant 4)

It help me to learn better because yeah it collects all the necessary word for me to understand, understand the contents of the chapter and what we do and focus on phase one all the auditing activity. (Participant 8)

Although students reported feeling prepared for exams, quantitative comparison of the Quizlet intervention course (Spring 2022) compared to the previous semester course that had no Quizlet (Winter 2022) showed no significant differences in exam performance (See Table 2 below).

Phase III & IV exam scores failed the Shapiro-Wilk test of normality and violated assumptions for independent samples t-test, as such, exam scores were removed from the analysis. Phase I and Phase II exam scores met the assumptions for an independent samples t-test. Findings from Phase II exam scores highlight that the group with the Quizlet intervention had "marginally significant" gains. This research examines "approaching significance" or "marginally significant values within the analysis as it has become a more common practice. Pritshet et al., (2016) examines studies over the past four decades noting that in the field of academic psychology, the use of "approaching significance" or "marginally significant" values are

widely used. Since more researchers are reporting p-values between .05 and .10, there has been less of an emphasis on strict thresholds but results should be interpreted with caution as relaxing the p-value criteria can increase the Type 1 errors. Quantitative results from this study should be interpreted with caution as the sample sizes included groups of 17 and 11 students, but Forrow and Kelly (2021) have found useful insight even with the limitation of small sample sizes. Using vocabulary flash cards seems to increase student Phase II exam performance scores as the Spring 2022 semester scores ($M = 142.18$, $SD = 14.46$) were marginally higher than the Winter 2022 semester ($M = 132.73$, $SD = 13.60$).

Table 2
Student Exam Scores Out of 160 Points with and without Quizlet Intervention

Phase/group	Mean (SD) Max = 160	t	df	p
Phase I with Quizlet[a]	141.72 (11.92)	-0.36	26	0.361
Phase I no Quizlet[b]	143.64 (11.24)			
Phase II with Quizlet[a]	142.18 (14.46)	-1.46	26	0.078*
Phase II no Quizlet[b]	132.72 (13.60)			

[a]Spring 2022 n = 11, [b]Winter 2022 n = 17
* Marginally significant

Overall, highly positive responses were received around the implementation of the Quizlet software, especially once students understood the features of the software including flashcards and matching modalities. Conversely, two students noted that they did not use Quizlet very often but relied mainly on integrated vocabulary strategies such as reading the textbook and studying PowerPoint slides. Of those two students, one student regretted not using Quizlet more often when studying as the software seemed helpful/useful in learning vocabulary.

RQ2
How do students perceive and experience different vocabulary lists created for the upper-division accounting course?

Four major themes were identified from our data analysis which included: focused words were used, vocabulary overlap, strengthened connections between the textbook and previous classes, and recommendations to improve the vocabulary lists (see Table 3).

Table 3
Major Themes from RQ2

Wordlist themes	Paul Nation's Principles of Vocabulary Learning
Focused words	Focus
	Focus
Phase I, II	Accuracy

Vocabulary Overlap	Quantity
	Repetition
Phase II, III & IV	
Strengthen connections between textbook and previous classes	Quality
	Desirable difficulty/effort
	Levels of processing
Phase I, II, III & IV	
Student Recommendations for wordlist	More Focused words
	Transfer-appropriateness
Phase II, III & IV	More Quality
	Desirable difficulty/effort

Focused words

Auditing vocabulary comes with discipline specific terms that may have different meanings in other contexts. All students agreed that the right words were chosen for Phase I and Phase II in the vocabulary lists, especially with the technical nature of the discipline. The instructor and vocabulary SME tried to choose the most important words to focus on. Although students stated that they could make educated guesses about the definitions of words through context clues, some terms such as "preliminary judgment about materiality" were more technical in nature. Further, looking up the definition in a generic dictionary search did not return discipline specific definitions.

> You could, like, I could strike a pretty decent guess. But like, I don't think I would get like preliminary judgment about materiality. Even material misstatements, like I guess, but I don't know exactly what it is, because it's it's more technical, in my opinion. (Participant 3)

> I will say, for these vocabularies, if I look it up by myself, I, there's like so many different definitions. And it's hard to like, understand, I don't know by myself, but this, this vocabulary, on the Quizlet, it's really specific. And this is most likely what we'll be learning in class. So I kind of have an idea of what it will be on the materials that we have. (Participant 7)

Vocabulary overlap

Many students noted that vocabulary words were revisited in subsequent phases. This vocabulary technique followed the "varied repetition principle" in order to strengthen learning. One student identified the vocabulary words of "test of control" and "control deficiency" had overlap across phases.

> Like control deficiency tests of control, sometimes I mix up with test of control the other words in other things from phase one, because phase one and phase two, there are some words like um, overlap each other so yeah (Participant 2)

Strengthen connections between textbooks and previous classes

Students continued to emphasize the specific nature of the definitions but also noted that the vocabulary in Quizlet helped them to link words to teaching lessons, the textbook, and other classes.

Acceptable audit risk was very new to me before we started our class. And after [the teacher] had the word and after Quizlet, and after reading it, I am confident the meaning of acceptable audit risk. And together with almost all of these words. (Participant 4)

The definitions in Quizlet are more specific and more defined. And we also use those terms in [teacher's] teaching lessons, so it's easy for us to, what do you call, connect those words altogether… Yeah I think after I get to know this word, it helped me to better understand the concept from the textbook. (Participant 5)

Student recommendations for wordlist

Students recommended having shorter definitions of words in Phase I and Phase II or to have certain key words highlighted within the definition if the definition was long. Some students commented that Phase III & Phase IV definitions were shorter and more precise.

Yeah, I think the length of the definition also helps to write if it's a shorter definition, more precise words. Student or probably just me will be more willing to at least take a look. (Participant 6)

Well, I see that is a long sentence. It's kind of difficult for me to read it at once. I need to read it multiple times. I like this when there's highlights the underline or bolded the key words in the paragraph. That is more helpful. (Participant 8)

Especially in Phase III & IV students explained that some words were not new words and their level of study would be a lot less time intensive.

And most of the words I can see now is very familiar, especially in the prefixes and some other nouns. But yeah, that's the only thing that I can see. I can see like one word that would be that I need to review. (Participant 5)

When asked if studying prefixes was helpful, some students expressed that prefixes were not very helpful as they were already familiar with the chosen prefixes from prior educational experiences.

Not really, because, like, we already know it so it's not new, but it's, it's good, but I, I don't think they're necessary. (Participant 1)

Not really, because I already knew that before. So for this class. Yeah, I learn it. Before I even came to [higher education institution]. (Participant 2)

Other recommendations

One student suggested having visuals on flashcards especially when understanding connections between concepts as the vocabulary words needed to be supplemented with slides from the textbook for context and understanding. Another student noted that taking vocabulary words out of context was difficult for them to connect the words to meaning and context, or in other words, they might prefer learning by using the integrated vocabulary learning technique. Overall, the word lists seemed to help students focus on key words and phrases for the class while giving them enough repetition to strengthen their learning and connect the given words to the textbook and previous classes. Recommendations given from students may help other instructors to more successfully implement these types of vocabulary techniques in their courses.

Discussion

This section will cover the significance of this study, its limitations, and the conclusions of the study. Tran and Ngyuen (2023) and Dizon (2016) found that students perceived Quizlet as a convenient tool that was enjoyable, useful, and easy to use and allowed for repetition. These findings were congruent with the themes from our qualitative interview participants. Students were able to self-govern their learning or participate in autonomous learning similar to Korlu and Mede (2018) and Nguyen et al., (2021).

Students emphasized the usefulness of the matching function which added a gamification element to learning vocabulary. Waluyo and Bucol (2021) noted that there is potential for integrating gamification into vocabulary learning to enhance motivation, interest, and excitement for learning. Our findings show similar benefits around excitement. Setiawan and Wiedarti (2020) found students were less likely to get bored with the integrated gamification features of Quizlet. The matching function of Quizlet is aligned to Nation and Nation's (2001) principle of retrieval and students highlighted that principle within the interviews. Alternatively, Nguyen et al., (2021) reported that only 9% of students engaged with the "matching" function while Pham (2022) found that approximately 26% of students engaged with the "matching" function on a regular basis. Nguyen et al., (2023) and Pham (2022) report flashcards, learn, test and spell were the most popular functions. The spell function was not utilized by this study as students were upper-division accounting students and spelling was not part of the vocabulary quizzes.

Focus group participants reported feeling confident in class and feeling prepared for exams. Although students scored 91-98% on their vocabulary quizzes, no statistical gains were noted in exam scores for each of the exams of each audit phase. Online tools for learning vocabulary, such as Quizlet, are effective in vocabulary exam gains (Dizon, 2016; Waluyo & Bucol, 2021) but not necessarily effective in content-specific exams as more comprehension is needed (Marsden et al., 2023). Students said the vocabulary lists were focused with specific terminology useful for that phase. In other studies student-created vocabulary lists lacked accuracy in form and use (Pham, 2022; Thuy et al., 2022). Finally, we caution ESL teachers about the processing levels and cognitive load (Bobis et al., 1993) capacity when choosing vocabulary words and adding lengthy definitions. Using lengthy definitions may lead to an undesirable experience which is not aligned to Paul Nation's principle of desirable difficulty/effort. Mason and Seton (2020) studied the effects of cognitive load and how cuing such as highlighting/bolding key parts of definitions and explanations can reduce complexity so that students don't get cognitively overloaded.

Significance and pedagogical implications

This research will help to inform, not only the accounting program about the benefits of isolating and integrating explicit vocabulary instruction but also directly address second language learners' fears about learning discipline-specific vocabulary. It will also allow instructors of discipline-specific courses to understand the benefits and drawbacks of using an online vocabulary learning software. Teachers can utilize similar tools (e.g., Lextutor) to create wordlists to help identify academic words, high-frequency words and repetition in prefixes. Additionally, teachers can use dictionaries that are good for second-language learners (e.g., Longman online dictionary) to condense definitions without losing meaning.

Limitations

Students received small monetary incentives and extra credit to participate in interviews, which could lead to selection bias and an unwillingness to give candid answers while giving the most

socially desirable responses (Ary et al., 2019). An additional research limitation includes potential researcher bias in terms of reliability, as the researcher is the co-investigator and instructor of the accounting course (Zohrabi, 2013). Moreover, the sample size is small for the group size that was interviewed, leading to limited generalizability to a broader context or external validity (Zohrabi, 2013). Future research could use a larger sample size to understand if learning vocabulary could produce gains in content-specific exams.

Conclusion

Acquiring vocabulary in a second language is vital for ESL learners that are studying a major in university. This present research found that using a targeted wordlist and adding the online software Quizlet to assist students in learning accounting specific terms was met favorably among second language learners. The addition of the online software Quizlet as a study tool was also met with high regard, especially once students understood the features of the software included flashcards and matching modalities. Students also reported that flash cards were helpful and easily accessible through the course learning management system (LMS). A large number of participants expressed that using Quizlet helped them learn the material better, feel confident during class, and better prepare for the exam. The overall results suggest that the wordlists seemed to help students focus on key words for the class while giving them enough vocabulary overlap to strengthen their learning and connect the given words to the textbook and previous classes. Instructors that teach discipline-specific vocabularies to predominantly EFL learners can utilize these specific pedagogies to help students learn vocabulary.

Appendix A
The Requirements of Learning & 7 Principles of Vocabulary (Nation, 2022).
https://www.tesolanz.org.nz/resources/paul-nation-the-principles-of-vocabulary-learning/
"Vocabulary learning, and presumably most learning, depends on learners giving attention to what needs to be learned. The effectiveness of a learning activity depends on (1) the usefulness, clarity (comprehensibility) and accuracy of what is focused on, (2) the quantity or amount of attention (including repetition) given to what needs to be learned, and (3) the quality of the attention given. Figure 1 illustrates these three requirements" (Nation, 2022, para. 1).

The Three Aspects of Attention that Affect Learning
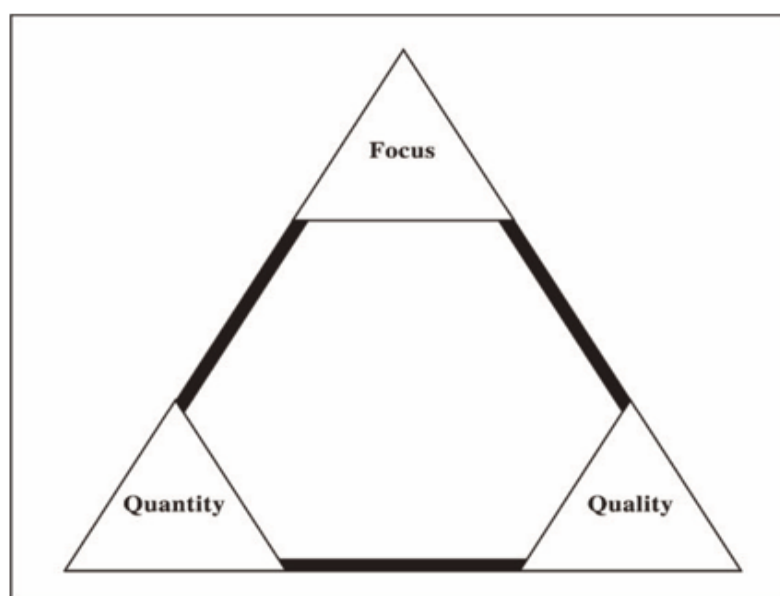
PRINCIPLES

Focus principles

1. Focus: We learn what we focus on, so focus on the learning goal.

2. Transfer-appropriateness: Our learning is more useful if it closely resembles the use that we need to make of what we learn. Learn across the four strands.

3. Accuracy: Our learning is more useful if the information we are focusing on is complete, accurate and comprehensible.

Quantity principles

4. Repetition: The more repetitions (verbatim and varied), the stronger the learning.

5. Time-on-task: The greater and longer the attention, the stronger the learning.

Quality principles

6. Desirable difficulty/effort: Spacing, retrieval, testing (rather than re-studying), interleaving, form recall vs meaning recall, and variation ensure a better quality of attention and a greater amount of attention resulting in better long-term retention.

7. Levels of processing: Deliberate attention, elaboration and analysis increase and strengthen connections between the item to be learned and other knowledge making it easier to access the item.

Appendix B
Screenshots of the Quizlet software interface
Inputting terms into Quizlet software:

Flashcards:

Matching:

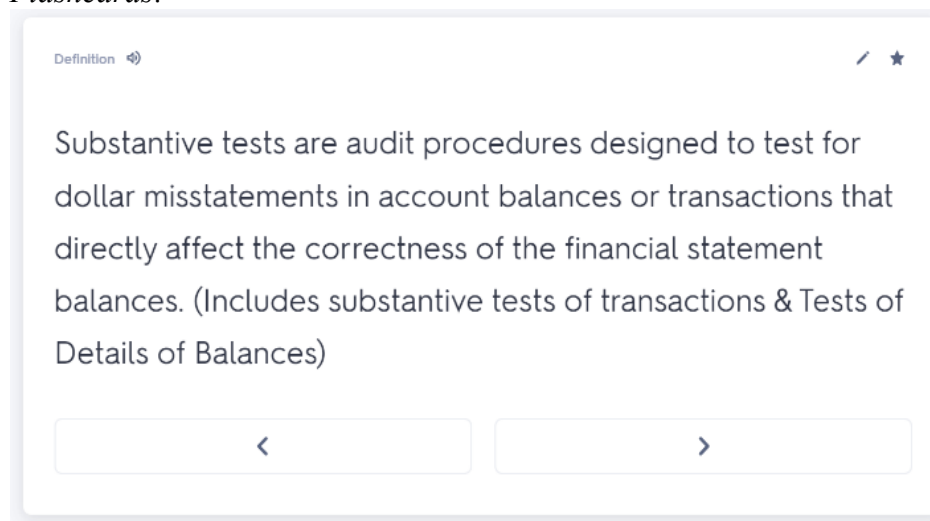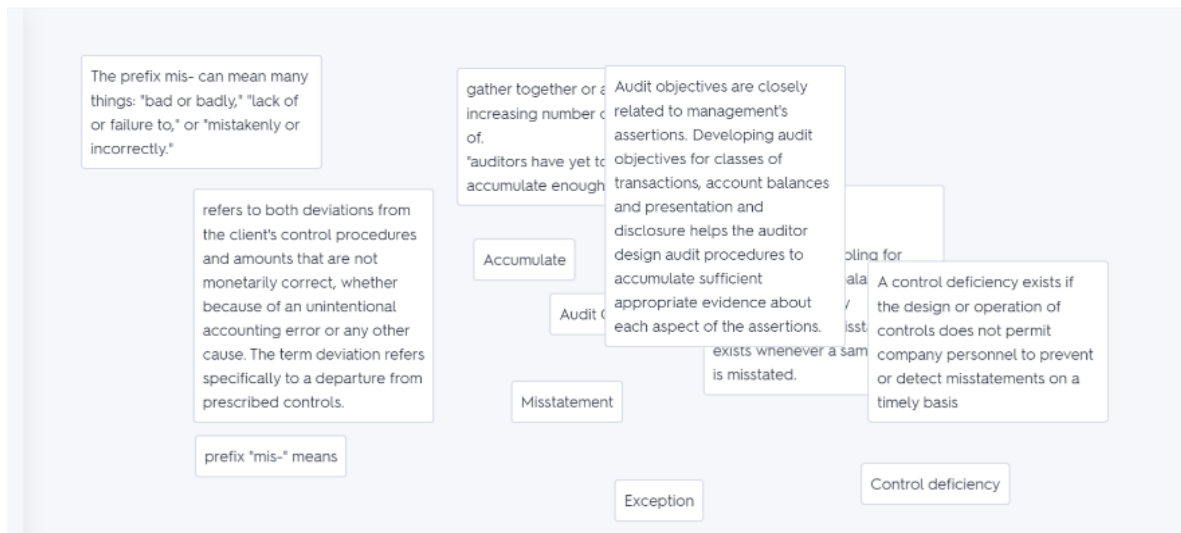The prefix mis- can mean many things: "bad or badly," "lack of or failure to," or "mistakenly or incorrectly."

gather together or a increasing number of. "auditors have yet to accumulate enough

Audit objectives are closely related to management's assertions. Developing audit objectives for classes of transactions, account balances and presentation and disclosure helps the auditor design audit procedures to accumulate sufficient appropriate evidence about each aspect of the assertions.

refers to both deviations from the client's control procedures and amounts that are not monetarily correct, whether because of an unintentional accounting error or any other cause. The term deviation refers specifically to a departure from prescribed controls.

Accumulate

Audit (

bling for

ala

A control deficiency exists if the design or operation of controls does not permit company personnel to prevent or detect misstatements on a timely basis

exists whenever a sam is misstated.

isst

prefix "mis-" means

Misstatement

Exception

Control deficiency

Practice Tests:

Definition 🔊

A financial statement audit is conducted to determine whether the financial statements (the information being verified) are stated in accordance with specified criteria. Normally, the criteria are U.S. or international accounting standards

Choose answer

True

False

Term 🔊   1 of 11

Financial statement audits

Definition 🔊

gather together or acquire an increasing number or quantity of. "auditors have yet to accumulate enough evidence"

Choose matching term

1 Accumulate
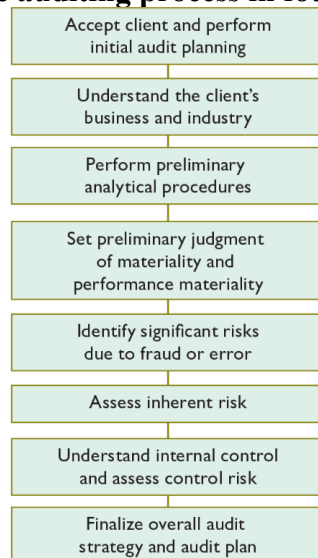
2 prefix "mis-" means

3 Misstatement

4 Exception

Appendix C
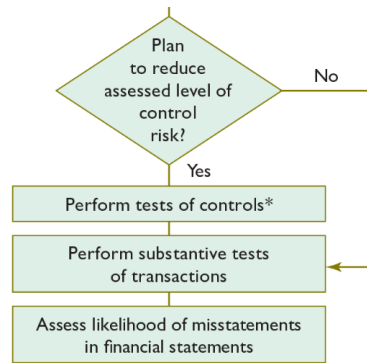**Summary of the auditing process in four phases from Arens et al. (2016)**

PHASE I
Plan and design an audit approach

Accept client and perform initial audit planning

Understand the client's business and industry

Perform preliminary analytical procedures

Set preliminary judgment of materiality and performance materiality

Identify significant risks due to fraud or error

Assess inherent risk

Understand internal control and assess control risk

Finalize overall audit strategy and audit plan

PHASE II
Perform tests of
controls and
substantive tests
of transactions

Plan
to reduce
assessed level of
control
risk?

No

Yes

Perform tests of controls*

Perform substantive tests
of transactions

Assess likelihood of misstatements
in financial statements

PHASE III
Perform substantive
analytical procedures
and tests of details
of balances

Low   Medium   High or
unknown

Perform substantive
analytical procedures

Perform tests of key items

Perform additional tests
of details of balances
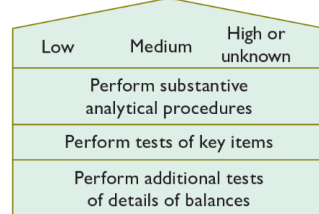
PHASE IV
Complete the
audit and
issue an
audit report

Perform additional tests for
presentation and disclosure

Accumulate final evidence

Evaluate results

Issue audit report

Communicate with audit
committee and management
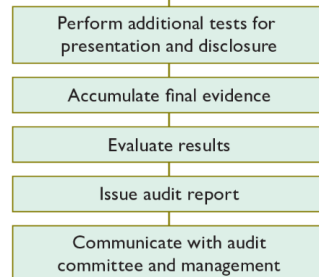
Appendix D
Semi-structured interview questions

Experience and opinion questions:

1. When faced with new words in an accounting class, how do you typically learn new vocabulary?
2. Did you do anything different in this auditing class to learn new words?
3. How many hours outside of class did you spend studying vocabulary?

Within the units I gave you Phase I had 25 key terms, Phase II had 11 specific vocabulary words and word parts to teach with 1 assessment with five terms. Phase III 10 specific vocabulary words (show them the word lists).

1. How would you describe your experience with Quizlet during an auditing course?
    a.   During Phase I
         i.   Could you tell me more?
        ii.   Could you give me a specific example
    b.   During Phase II
    c.   During Phase III & IV
2.   Did the Quizlet help you learn the material better? Why or why not? (Phase I, II, III & IV)
3.   What percentage of the vocabulary words were new words?
4.   Do you think the right words were chosen for the Quizlet?
5.   Were the word parts (prefixes) helpful? Yes/no, why or why not? (Phase II, III & IV)

6. What would you recommend to future students learning vocabulary in this auditing class?

7. If you were giving advice to an instructor considering implementing Quizlet vocabulary techniques in their courses, what would you say?

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