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CARISSA NAÑAGAS ENCARNACION

ONLINE ENGLISH VOCABULARY APPS: CATEGORIZATION INTO FORM-FOCUSED AND MEANING-FOCUSED INSTRUCTION FOR USERS AT DIFFERENT STAGES OF SECOND LANGUAGE ACQUISITION

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Acceptance Page

This paper prepared by **CARISSA NAÑAGAS ENCARNACION** with the title: **"ONLINE ENGLISH VOCABULARY APPS: CATEGORIES OF FORMS OF INSTRUCTION FOR ITS USERS IN DIFFERENT LEVELS OF ACQUIRING ENGLISH AS A SECOND LANGUAGE"** is hereby accepted by the Faculty of Education, U.P. Open University, in partial fulfillment of the requirements for the Master of Arts in Language and Literacy Education.

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Certification of Final Thesis Manuscript Submission

I, Carissa Nañagas Encarnacion, declare that this final thesis manuscript submission entitled "Online English Vocabulary Apps: Categorization into Form-focused and Meaning-focused Instruction for Users at Different Stages of Second Language Acquisition" is approximately 28,700 words in length including quotes and excluding tables, figures, appendices, bibliography, references, and footnotes. The ethics component of the research was reviewed by the research panel instead of an external reviewer since no humans were involved in the study. The thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma.

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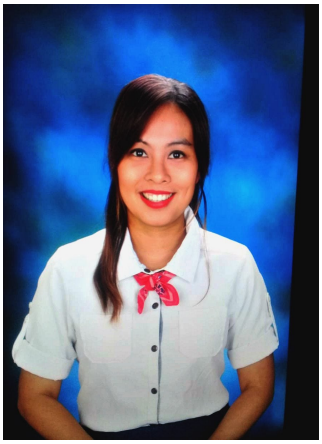
Biographical Sketch



The author, Carissa Nañagas Encarnacion was born on December 31, 1982 in Metro Manila, Philippines. She is the eldest of four children. She is the first daughter among the three daughters and one son of Dr. Juan R. Nañagas and Mrs. Ma. Elvira J. Nañagas.

In 2000, she enrolled at De La Salle University located in Taft Avenue, Metro Manila, under the Bachelor of Arts in Translation Studies and graduated in 2003 with a gold medal for outstanding thesis. She finished her secondary education in Assumption College from the academic year 1996 - 2000. Furthermore, she took her primary education in Assumption College from the academic year 1987 -1996

She is currently teaching ESL for Korean students online under a Korean company. Prior to that, she taught as a Teaching Assistant in International School Manila's ESL program for nine years. She has a TEFL certificate.

She is married to Paul. A. Encarnacion. She loves Jesus and Mother Mary.

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Dedication

I dedicate this thesis to Jesus and Mama Mary who never left my side in every step of the way. I will never forget their unconditional support.

I would also like to dedicate this to my husband, Paul A. Encarnacon who motivated me to strive hard in life to achieve my dreams. This thesis is also dedicated to my parents, Dr. Juan R. Nañagas and Mrs. Ma. Elvira J. Nañagas, as well as my siblings: Romina J. Nañagas, Noelle N. Hui, and Paolo J. Nañagas, as I would not have been able to complete this thesis without their inspiration.

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Abstract

With English being an international language, people from various nationalities aim to learn the language through formal and non-formal means within and outside the language classroom. One of the growing trends in English language learning is to make use of various online technologies and applications or " apps," particularly when learning English vocabulary. While there is a large growing number of online English vocabulary apps online, many of these apps are uncategorized systematically, leaving language learners in the dark as they choose which app would be most appropriate for their current generic stage of second language acquisition. This study provides a categorization system for online English vocabulary apps based on their form of instruction while cross-referencing them to the five stages of second language acquisition by adopting deductive content analysis to investigate the features of twenty (20) online English vocabulary apps from the top two digital platform providers, Google Play and App Store. Based on the findings of this study, these online English vocabulary apps may be classified as form-focused instruction and meaning-focused instruction, with the former having either a single or multiple number of isolated non-communicative tasks that may either have computer-generated assessments or none and may have computer-generated feedback or none. Apps found to be form-focused may be further subdivided into five subcategories. Of the twenty online English vocabulary apps analyzed, only one falls under meaning-focused instruction and is most suitable for ESL learners at the intermediate and advanced fluency stages. The app category descriptions presented may serve as the study's contribution to make the challenge of choosing suitable online English vocabulary apps for a level of second language acquisition less onerous. Despite the worthwhile findings, the study asserts that analysis and categorization of the growing number of online English vocabulary apps remain

necessary to meet the equally increasing demand for individualized and accessible non-formal language learning, especially in the digital age.

Chapter I

Introduction

This chapter briefly summarizes the emergence of apps in education and subsequently discusses earlier formal studies on analyzing language apps in relation to language teaching and learning. This chapter then moves on to the research gap in the growing number of educational apps and how, despite early analysis of their content and features, they still lack regulation, testing, and classification; and may need to be further examined. Finally, this chapter presents the significance of the study.

Background on Language Learning Apps Research

The existence of language learning apps is now unquestionable, and current interest in including mobile apps in teaching keeps increasing (Baran et al. 2016). This fact seems promising in language teaching since mobile technology, where language learning apps are typically made available, is one of the most vital approaches to promoting vocabulary learning (Kruchinin & Bagrova, 2021; Lin et al. 2022; Nisbeth & Austin, 2013). Outside the classrooms in both developed and developing countries, the use of online language apps continue to grow because of faster paced lifestyles, and as individual schedules become more complex, finding a language teacher that can be available to fit one's schedule becomes more challenging (Kruchinin & Bagrova, 2021). Thus, the use of language learning apps individually has become a popular option, especially for a generation born in the age of technology, as interacting with a computer has become the more comfortable option for some language learners rather than interacting with a human teacher (Kruchinin & Bagrova, 2021).

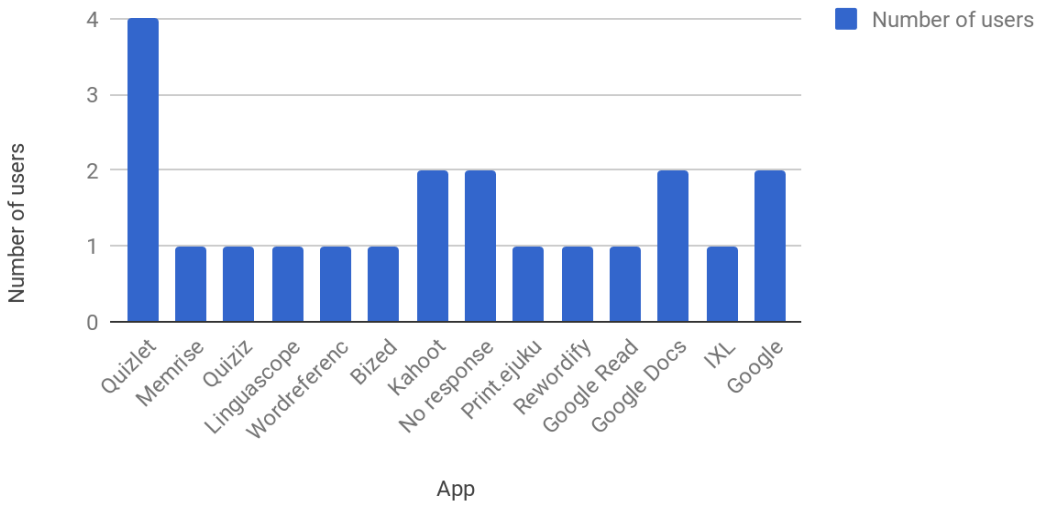
In more formal contexts, especially in the developing countries, schools have been accepting mobile technology in learning (m-learning), allowing students to bring such devices

because learners are shown to have increased new skills and literacies related to communication, information literacy, research, and online interaction (Beach & Castek, 2015; Sharples et al. 2010). In the Philippines, the Department of Education has prioritized programs and initiatives within the past decade to help teachers and learners adopt technology-enhanced teaching and learning in the classrooms, as attested by former Department of Education Secretary, Leonor Briones when she kept on "…saying that with or without the COVID-19 pandemic, we are already moving towards technology." (Hernando-Malipot, 2021). In addition, the Philippine Institute of Development Studies' (PIDS) president Aniceto Orbeta Jr encouraged DepEd to prioritize the standards of education and its practices wherein Orbeta highlighted that the interchange between teachers and learners must be upgraded and that the country's education field must be more strategic in its application of technology (Philippine Institution for Development Studies, 2022).

In addition to some research documenting how m-learning serves to foster literacy practices, an informal survey was conducted to serve as additional background for this research, which showed the same optimistic view on the use of apps in tenth grade, such that the results revealed that the majority of the tenth-grade teachers across different subject areas use online tools for vocabulary enhancement. As seen in Figure 1, the results of the informal survey showed that 57.14% of the participants who are Grade 10 teachers affirm that they use online applications, platforms, tools, sites, and resources to enhance vocabulary in the classroom.

Figure 1

Online Apps Used by Grade 10 Teachers for Vocabulary Enhancement



With the proliferation of language learning apps, research studies on their use have also been increasing. Some studies have focused on describing, classifying, and analyzing these language learning apps, which included looking into content craftsmanship, common knowledge of the language, assessment returns, self-correction functions, user stimulus, user-friendliness, flexibility, and social communication features (Chen 2016; Siskin 2009). In analyzing the language learning apps' content, earlier categorizations were made by personally accessing the apps and acquiring enough user experience to gauge the apps' effectiveness, efficiency, and user satisfaction, which early studies refer to as the "traditional usability" method (Godwin-Jones 2011; Lindgaard 2014; Siskin 2009; Sudar et al. 2018). Variations to how language learning apps were analyzed can also be observed in other studies, depending on how involved a user would be in analyzing them for research purposes (Ginsburg, 2010; Sweeney & Moore 2012). Aside from how language learning apps may be analyzed, however, various categorizations of apps were also recommended in previous related studies (Ginsburg, 2010; Heil et al. 2016; Liang, 2018; Mindog, 2016; Siskin, 2009;).

Limitations in the Studies on Apps' Categorization

Despite the recommended ways to analyze the language learning apps and resulting app categorizations, providing more specific guidance on the potential relevance and suitability of the apps to language learners and their use for educational purposes remains necessary. While there have been regulations and guidelines set forth by some educational institutions and ministries of education (or any equivalent), they are typically too broad and unstructured (Yang & Jiang, 2019), which was probably the reason it was recommended that teachers from various disciplines themselves, as well as other members of the academic sector, should be asked to test educational apps in general (Baran et al., 2016). Furthermore, for the last twenty years, the New Media Consortium have joined groups of experts from higher education and stated three core questions regarding higher education goal and trends for technology development, as well as the challenges and strategies for such; their reports stress the needs for references in technology (Alexander et al., 2019). One previous study analyzing language learning apps, specifically online English vocabulary apps, showed that "the majority of apps (42 of 50, 84%) included a focus on vocabulary items as isolated units, that is, as individual words without context" (Heil et al; 2016, p. 37). Such a finding still reflects a narrow, form-focused view of language teaching and learning, which slightly contradicts what has been happening and has been recommended in the traditional language classroom contexts (Pawlak, 2006), especially if we are to look at the studies of Richards and Schmidt (2014) classifying teaching instructions as either form-focused or communication-focused (meaning-focused) and when they presented their observation of the transition from a form-focused view to a more communicative and meaning-focused view of how language may be taught and learned (Richards & Schimdt, 2014). In this regard, it is important to look into the top language learning apps, focusing on vocabulary acquisition and development, and see if there has been an improvement in the kind of apps that are typically accessible to and are popularly used by language learners, noting that

even online language vocabulary apps should be more communicative, less isolated, and interactive. It is also important to see which of these apps may be more suitable to use for a specific stage of language acquisition to guide the users—whether the language learners themselves, their teachers, and even the guardians—further, as a way to compensate for the limited guidelines from educational institutions and regulatory bodies.

Partially guided by the recommendations from previous studies and related literature, this study may serve as an additional reference for learners, teachers, and other stakeholders interested in developing and using educational technology within second language learning contexts by categorizing online English vocabulary apps in relation to the stages of second language acquisition.

The Research Problem, Questions, and Objectives

This study's categorization of online English vocabulary apps may help alleviate the scarcity of guiding tools for teachers' choices of apps, which may be of great help as such types of language learning apps continue to grow in number and many of them are unchecked and unevaluated (Cherner et al. 2014; Hirsh-Pasek et al. 2015). In this regard, the findings of this study and their implications may be a contribution.

Research Questions

Specifically, this study addresses the following research questions:

1. How can popular, cost-free online English vocabulary apps from two digital distribution platforms be categorized as either form-focused instruction or meaning-focused instruction?
2. What are the distinguishing characteristics of form-focused online English vocabulary apps and meaning-focused English vocabulary apps?

3. Which stages of second language acquisition correspond to the two categories of online English vocabulary apps?

Research Objectives

Through the three research questions, this research's overall aim is to classify online English vocabulary apps. The specific aim of this research is to distinguish form-focused apps from meaning-focused apps in relation to the different stages of second language acquisition based on the content analysis of the online English vocabulary apps' features and content, which can be summarized into the following research objectives:

1. To analyze the apps content
2. To recommend categorization of the apps in relation to their functions and the stages of second language acquisition
3. To present key characteristics within app classifications in order to distinctly distinguish one categorization from the other

Significance of the Study

As earlier stated, categorizing online English Vocabulary apps to summarize their features and potential suitability to a specific stage of language acquisition may help both the language learners and teachers, within the Philippines and beyond, in choosing which apps to incorporate in their language teaching and learning. App categorizations such as what this study presents may also provide an additional reference for learners, teachers, and other stakeholders interested in developing and using educational technology within second language learning contexts.

Implication of Analyzing Apps to the English Language Learners and Teachers

By being able to categorize online English Vocabulary Apps in terms of their focus of instruction, language learners and teachers can assess if the learning that is taking place uses both forms of instruction. It has been assessed to a certain degree that a combination of the two forms of instruction are efficient in improving vocabulary, grammar, and reading ability (Celik, 2015). While the two forms of instruction are very much different, such that form-focused instruction revolves on linguistic form and meaning-focused instructions pushes for natural process of learning, a recommendation encourages that both approaches be used by learners and even for educators to study the efficiency of the mixed approach (Celik, 2015). By identifying the key characteristics of form-focused and meaning-focused online English vocabulary apps and their users, both teachers and students can independently assess the form of instruction being applied by the app. In doing so, the app user can ascertain whether he or she is using both forms, as a mixed-approach is effective in language learning. With the user being to individually shape his or her own language learning processes, the student-centered approach is highlighted, supporting international trends in education which demonstrate a movement from the traditional teacher-centered practices to a student -centered methods (Schreurs & Dumbraveanu, 2014)

In addition, this study's aim to classify online English vocabulary apps and parallel them to the stages of second language acquisition is beneficial to both learners and teachers. This study's specific aim is shaped by a growing need to study language learning apps, as the use of apps in formal learning environments is still relatively in the beginning stages of exploration for both students and teachers, at least in the Global South (Nguyen et al. 2014). Pastushenkov (2020) mentioned that language learning apps play an important role especially for both learners in beginner and intermediate levels but also admitted that due to the sparse sample population, such point should still be interpreted with heed; and so, this study' cross-

referencing of the apps to stages of second language acquisition can help address the aforementioned need for more detailed studies and aid teachers in selecting a variety of apps for students in different stages of language learning; furthermore, learners can be more comfortable in the language learning journey when they are using apps appropriate for their language learning level.

Importance of Studying the Online English Vocabulary Apps' Suitability to the Stages of Second Language Acquisition

With the increasing number of internet users in the Philippines, such that 35% of the population in 2014 (Jaffarian et al., 2014) and then 41% of the population in 2018 have access to the internet (ABS-CBN News, 2018), free online English vocabulary apps can therefore be available to more and more Filipinos. As this study aims to categorize online English vocabulary apps and cross-reference them to the five stages of second language acquisition, this study can help Filipinos select apps that are more appropriate for their supposed stages.

Beyond the scope of the Philippines, the use of language learning apps, whether focused on vocabulary learning or other aspects of English language learning (or both), is also spreading, adding value to this study. Language app sales have been noted to accomplish an apex in downloads in August 2024, gaining over 26.5 million installs from global learners (Ceci, 2024). This ascend began during the COVID-19 pandemic wherein the demand for language learning apps surged due to users' aspiration to participate in meaningful tasks within the comforts of home; and this rise has steadily continued (Ceci, 2024).

Relevance of the Study to Language Learning Research

This study's focus on categorization can improve the selection of online English vocabulary apps in terms of instructional method and brings a systematic analysis on characteristics of both forms of instructions. As technology continues to further develop with the ever-growing online lists of best English language learning apps, there is still only a number of limited resources available to assist their selection of apps (Cherner et al. 2014), making this study further valuable as it puts more emphasis on the categorization of the apps' instructional methods while relating their implications to the different stages of second language acquisition. While the categorization of language learning programs, tools, and now apps, have manifested throughout years (Taylor, 1980; Warschauer & Healey, 1998; Bax, 2003), none of the previous studies attempted to add another layer, such as this study's association of the categorizations to the stages of second language acquisition.

Scope and Delimitations

This research is qualitative in nature and focused on the top ten most popular online English vocabulary apps that have been filtered by the two leading digital distribution platforms, Mac's "Apps Store" and Android's "Google Play." The online filters limited apps to belonging to the following specifications: education category, free of cost, and popular. Apps that do not have English as the target language were excluded. Apps included in the study were consistently online without time expiration to ensure multiple access times to the apps, at least within the period of the study.

Chapter II

Review of Related Literature and Conceptual Framework

This chapter reviews relevant literature on language learning apps, beginning with evolving concepts in language learning technology and a paradigm shift that reflects these changes. This section also includes the rise of apps which is the technological focus of this study. Next, a common limitation within language apps is discussed, mainly how they often focus on the grammar form rather than the meaningful usage in authentic social contexts. This chapter then discusses the importance of balancing the two forms of instruction, "form-focused" and "meaning-focused" within language learning apps, highlights the existing research gap regarding the study of language learning apps, and presents studies of language app users and their different stages of second language acquisition. This chapter ends by showing the conceptual framework and presenting an operational definition of terms.

Focus of Second Language Instruction

Long (1998) gave three (3) general approaches to teaching and learning for second language learning, specifically in teaching grammar. The first option is the "focus on forms," emphasizing that the word "form" is plural, "forms," and which generally is now commonly known as the traditional approach wherein the teacher chunks out learning into compartments, such as sentence patterns and functions. The second option is "focus on meaning," wherein the learner is the focus, not the language, and learning occurs naturally, such that it is incidental and conversable through relevant immersive communication. Long's (1998) third option is "focus on form," wherein the word "form" is singular, and in this option, specific resources are distributed in context. Thus, learning is still incidental, similar to "focus on meaning," but the learner's attention also shifts to linguistic elements implanted by the resources to trigger the

student's mindfulness. This study prioritized Long's (1998) first and second options, "focus on forms" and "focus on meaning," as the two reflect two dominating paradigms: the "instruction paradigm," in the case of "focus on forms," and "learning paradigm," in the case of "focus on meaning."

Changes in Language Teaching Approaches and Strategies

As changes in both vocabulary learning and technology occur, Barr and Tagg (1995) noted another change, particularly a paradigm shift from the "instruction paradigm" to the "learning paradigm." This change has brought about a move from teachers solely "providing instructions" to students being "co-producers" of learning wherein they are responsible for their own studying. Furthermore, Huba and Freed (2000) pointed out that while in the "instruction paradigm" or "teacher-centered" paradigm, knowledge is transmitted typically only by the teacher or professor, it is different in the "learner-centered" learning, or "student-centered" paradigm, where students build their own knowledge through gathering and synthesizing information which they integrate into inquiry, critical thinking, and communication. Moreover, due to changes in technology, teacher-centered methods, which have been used in most formal academic settings for decades, have been transformed to a more student-centered approach; thus, learning that is based solely on teacher's instructions has been replaced by a kind of learning wherein students play an active role in planning how to reach their desired learning outcomes (Agrahari, 2016). In addition, dissatisfaction with the traditional teacher-centered paradigm has led to a strong push for a learner-centered paradigm that highlights society's evolving educational needs rather than a repetitive standardization form of learning that was not made to meet individual learners' needs (Watson & Reigeluth, 2018). "The shift from teacher-centered education to student-centered education is one of the aspects embarked on to address the quality issues in the delivery of education" (Lal, 2018, p. 7), as there is

movement from a teacher-centric and lecture-heavy environment to a student-centric, collaborative, and authentic environment wherein student participation allows them to make sense of topics by using life experiences. This shift to the learner-centered approach is done not merely in the traditional learning setting but also in technology-enhanced learning environments, where the use of language teaching apps, at least in the context of a technology-enhanced language classroom, has been growing.

The change from the teacher-centered paradigm to the learner-centered paradigm also reflects this study's focus on the categorization of "form-focused" online English vocabulary apps and "meaning-focused" online English vocabulary apps because form-focused apps simulate a teacher-centered method wherein the app is the teacher; and on the other hand, "meaning-focused" apps simulate a learner-centered method and is communication driven. For example, form-focused instruction relies on the teacher's control on what vocabulary, sentences, greetings or phrases are to be memorized, as well as to what extent they are repeated (Brown & Nation, 1997), and these may be replicated by apps which direct the lesson by providing pre-selected vocabulary lists, sentence starters, familiar phrases, and the likes, as well as determining the user's mastery of such and whether the given language elements need to be further reviewed by the user or move on to a new set. While there is movement from the traditional, teacher-centered paradigm to the learner-centered model, it is necessary to continue to study both models because, according to Walker & White (2013),

> although we now understand that there is more to learning a language than simply knowing vocabulary and the rules of grammar, drill-and-practice programs still have a place, such that learners can use them for independent revision; and learners often feel secure and reassured by drill-and-practice activities (Chapter 1).

Thus, this study's categorization of apps as either being form-focused or meaning-focused is important because only then can we ensure that there is a healthy mix of form-focused and meaning-focused instruction in the available apps, especially since both are equally important in language learning.

Technology-enhanced Vocabulary and Language Learning

In connection to the paradigm shift that moves toward learner-centered instruction, as mentioned by Barr and Tagg (1995), language learning apps are also beginning to reflect learner-centered methods. In one study, ESL apps are deemed to be advantageous in that they provide individualized and learner-focused learning prospects (Eshankulovna, 2021). Thus, using Information and Communication Technologies or ICTs can aid language learning as even such digital technologies can manifest the change to learner-centered learning, and is becoming absorbed in education systems.

While Richards and Schmidt (2014) noted the transition from the narrow, form-focused view of language to a more communicative and meaning-focused view of language in the 1960s onwards (Richards & Schmidt, 2014), technology has also been changing and growing, especially in relation to its roles in language education and its implication to the roles of the students. Taylor (1980) came up with a description of these changes in the following perspectives: "tutor, tool, and tutee" (p. 661). The "tutor" perspective points out that the computer spoon-feeds structured learning while the student is subjected to become nothing more than a submissive recipient. In the "tool" aspect, the learners are responsible for their own learning. Taylor (1980, p. 1) states that students become active users who utilize the computer as an aid, a tool in learning while making individual choices from available computer functions. In Taylor's "tutee" aspect, the computer is "taught" or programmed by the students on how it should teach them, making the computer the submissive "tutee" (Taylor, 1980, p. 1).

In the 1990s, Warschauer and Healey (1998) described a movement in language learning technology quite similar to Taylor's. Warschauer and Healey's (1998) three perspectives of these technological changes used the term "CALL" which means "Computer Assisted Learning" and the three perspectives are as follows: "structural CALL," "communicative CALL," and lastly, "integrative CALL." Warschauer's structural CALL perceives language as a system of structures wherein the focus is drill-and-practice methods, as the students merely swallow and follow recurring instructions provided. This repetitive structure was even described as "drill and kill," non-judgmental feedback by Warschauer and Healey (1998). "Communicative CALL" places the learner's mind as the constructor of knowledge rather than an external set of rules (Walker & White, 2013), as students formulate their own learning by communicating to the computer their learning preferences by selecting from the study options provided. In his third perspective, "integrative CALL," Warschauer refers to multimedia and the internet or web (as cited in Walker & White, 2013), wherein language learning is focused on its meaningful use in authentic social contexts that are integrated in such technology (Mitsikopoulou, 2014.) Similar to Warschauer and Healey (1998), another study by Bax (2003) analyzed computer-assisted language learning as either "restricted CALL," "open CALL," or "integrative CALL." Bax (2003) also pointed out that we are in the presence of "Open CALL" and in that should "attain a state of 'normalisation' in which technology is invisible and truly integrated" (p.14); and students learn language through realistic social exchange happening through technology. Davis et al. (2012) changed the previous interpretation of CALL's evolution with the following three perspectives, "Dumb CALL," "Multimedia CALL," and "WEB CALL." The first perspective, "Dumb CALL," was likened to both Structural CALL (Warschauer & Healey, 1998) and Restricted CALL (Bax, 2003). The second perspective, "Multimedia CALL" was likened to Warschauer and Healey's

(1998) Communicative CALL and Bax's (2003) Open CALL. The third perspective, "WEB CALL" was likened to Integrative CALL (Warschauer & Healey, 1998; Bax, 2003).

As the concepts and paradigms in language learning technology evolve, the presence of these technological devices and their different terms continue to change and increase. One of these terms is the, "app." An app is a "computer software, or a program, most commonly a small, specific one used for mobile devices" ("Technopedia", 2021, Para 1). To be more specific, educational apps are "apps designed to promote active, engaged, meaningful, and socially interactive learning within the context of a supported learning goal are considered educational" (Hirsh-Pasek et al, 2015, Abstract). These learning apps' "use modern mobile technologies, gamification, psychology, and best teaching practices to make learning easy and engaging" (Cherednichenko, 2020, par 9). Educational apps encourage active learning through minds-on involvement, undistracted engagement, meaningful experiences with the learner's interests, and high-quality social interaction (Levy, 2015). Ibrahim et al. (2017) suggests that the effectiveness of these apps are based on the app's ability to allow fun self-learning at any place and time. Hirsh-Pasek's et al. (2015) description of educational apps, Ibrahim's et al. (2017) inclusion on self-learning, as well as Levy's (2015) mention of meaningful experiences and social interactions, go hand in hand with the learner-centered paradigm and meaning-focused instruction, which is one of the categorizations intended to be included in this study.

Weaknesses of Online English Vocabulary Apps

Studies on online vocabulary apps noted that the app choices have been increasing but such apps remain largely unregulated and untested (Hirsh-Pasek et al. 2015); and the literature on online vocabulary apps' use for language learning still lacked essential information, especially to help parents, educators, and users decide which apps may be relevant if they are to be used as support or supplementary resources for language learning (Liang, 2018;

Papadakis & Kalogiannakis, 2017; Vaala et al. 2015). In addition, more studies need to examine the pedagogical premises that underpin the design of current mobile apps and to suggest improvements (Steel, 2012) that could lead to a "comprehensive but workable, evidenced-based, theoretically grounded model for classifying and using educational apps" (Kay, 2018, p. 0374).

As apps grow in number and popularity, they are not without limitations. One key limitation of vocabulary apps is that "widely used apps, such as those for vocabulary learning, rarely present authentic tasks or settings, yet they currently play a substantial role in the mobile language learning domain" (Stockwell & Hubbard, 2013, p. 8). Similarly, Cojocnean (2016) found a lower interest in use of digital vocabulary devices with apps that lacked cultural association and, therefore, lacked a meaningful connection to the learners. Other studies also revealed the same limitation, such that a study of the fifty most popular language learning apps were evaluated and one of the three key findings pointed out that, "apps tend to teach vocabulary in isolated units rather than in relevant contexts" (Heil et al. 2016, p. 32). In fact, "in 84% of apps (42 out of 50), vocabulary was taught in isolation, while only 23 of 50 apps (53%) taught vocabulary in context" (Heil et al. 2016, p. 37). Another study of the 22 most popular Chinese vocabulary apps found that apps were either designed to be dictionaries or games, and both failed to provide users with opportunities to practice the words within clear social contexts (Chin-His et al. 2018). Another study in Canada found quite similar limitations regarding the need for more social experiences, such that, Liang (2018) noted the following:

> All three vocabulary learning apps in this study have some exemplar app features in curriculum, pedagogy, and design, but I did not mark these apps as exemplar apps because some app features need improvement such as incorporating detailed feedback, articulating levels of difficulty, adding social interaction and collaboration, and solving technical problems" (p. 142)

In addition to information regarding the insufficiency of socially realistic activities in apps, Chik (2014) found from an analysis of 90 app descriptions that English learning apps do not encourage user interaction around the texts, which and this may limit the learners' use of the second language to only isolated contexts. Such findings are possibly supported by Pienemann's "Processability Theory" or PT (1998) because Pienemann's (1998) "Processability Theory's" (PT) main assumption is that students can generate responses based only what they can process; and if they can work only on isolated grammar chunks through from-focused instruction, their communication skills would be limited if not without the use of meaning-focused instruction.

While there is movement from the teacher-centered paradigm to the learner-centered paradigm, it is ironic that many studies done on apps, including the six studies above, showed how apps lack learner interaction; and thus, corresponds to the point of Steel (2012) that apps are still made by utilizing behaviorist algorithms. This means that they follow the teacher-centered paradigm, as these behaviorist systems lack learner's social play and relies on isolated spoon-feeding methods, such as repeated memorization; and is thus form-focused rather than meaning-focused. Hence, users of online English vocabulary apps should be able to decipher teacher-centered, form-focused apps from learner-centered, meaning-focused apps to ensure that they have both kinds because while there is movement towards the latter, form-focused apps remain valuable because certain mobile apps for vocabulary acquisition, such as those featuring flashcards and games, are perceived to be beneficial to students' learning (Steel, 2012). Shang (2007) highlighted the advantages and disadvantages of both forms of instruction:

> Teachers who place too much emphasis on grammar-based instruction may sacrifice learners' fluency. However, if teachers only focus on meaning-based instruction, then learners will not attain accuracy in their FL oral production in which "FL" means

> "foreign language". It is now the crucial issue for FL teachers to develop effective teaching strategies to balance and combine both form and meaning (p. 125).

Form-Focused and Meaning-Focused Instruction in Online English Vocabulary Apps

Language learning without the combination of meaning-focused instruction and form-focused instruction is a downfall because "although explicit instruction resulted in improvement on controlled, form-oriented written tasks, learners were largely inaccurate in less controlled oral production" (Terrel, Baycroft, & Perrone, 1987 as cited in Schmidt, 1995, p. 218); and according to Harley (1993), "there is also evidence from immersion classes that are purely communicative 'focus on meaning' is not sufficient" (as cited in Schmidt, 1995, p. 218). Furthermore, Harley and Swain (1985) stated that:

> even after years of content-based instruction in French immersion classes, students' language was still plagued by error, and with certain types of verb morphology (e.g., the conditional tense), their performance was less than 50% accurate. Similarly, Swain and Lapkin (1989) found that native-like accuracy was not achieved even after more than 5,000 hours of meaning based instruction (as cited in Markina, 2018, p. 31).

The same assertion on the value of a combination of form-focused and meaning-focused instruction was made within the context of Asian language learners, particularly Chinese and Hong Kong students using online vocabulary apps where they "highly value features like enabling users to choose specific target groups of words, having vivid visual aids, providing pronunciations, detailed and accurate definition and examples, and allowing users to interact with other users" (Zou et al., 2018, Abstract). This shows that form-focused instruction alone is not enough, as the interaction with other students was also noted as an important

feature; and thus, there has to be both form-focused instruction and meaning-focused instruction in present day language learning apps.

The importance of both form-focused instruction and meaning-focused instruction cannot be stressed enough as it is now largely accepted that while implicit learning may account for the majority of language development, conscious engagement is also necessary for efficient learning (Hiver et al. 2020). In addition, recent approaches to second language instruction have also called for a blending of form-focused instruction and meaning-focused instruction in language learning environments (Loewen, 2002). For example, Bandar and Gorjian (2017) stated that their study provided a reason to state that focus on form and focus on meaning are more efficient than the traditional mode of just mastering grammar, which was consistent in the point made by Spada and Lighbown (1993, Abstract) decades before on the importance of integrating both form-focused instruction and meaning-focused instruction, such that, "form-focused instruction and corrective feedback provided within the context of communicative interaction can contribute positively to second language development in both the short and long term" (Spada & Lightbown, 1993, Abstract).

This study analyzed and classified selected online English vocabulary apps to see which featured form-focused instruction and/ or meaning-focused instruction to contribute to the existing guides with hope that users, as English language learners, may have an additional reference to guide them to use a combination of apps that feature form-focused instruction and meaning-focused instructions in their language learning experience.

Stages of Second Language Acquisition and Online English Vocabulary Apps

It is important to remember that language learners are at varying ability levels, come from diverse language and cultural backgrounds, interests, and profiles (Theisen, 2002), and those at different stages of language acquisition need different forms of instruction. Finding more appropriate online English vocabulary apps may be less of a challenge if one considers the diversity of its potential users in the course of app analysis and, eventually, app use for language learning. One such diverse characteristic is related to the language learner's stage of language acquisition. The literature on language acquisition has long pointed out the generic differences among learners at different stages of language acquisition (Saville-Troike & Barto, 2017). In terms of second language acquisition, it was theorized that a second language learner has some similar experiences that a person who is learning to speak for the first time goes through: from making incoherent sounds, to single-word responses, to two-word phrase answers, to full sentence replies, and finally, to complicated grammar application (Hill & Miller, 2013). Krashen & Terrell (1983) discussed that a second language learner may either learn the language in naturalistic ways, also known as acquisition, or by learning it through formal studies, described as formal knowledge.

In acquisition, the learner is not conscious of the grammar rules but typically acquires or learns a language rule or skill by natural instinct and can feel when a grammatical error is present in what was said or written (Krashen & Terrell, 1983). In learning a language through formal studies, the learner is fully aware of the grammar rules and can explain the grammar rules when an error has been committed, as grammar rules were directly taught to him or her (Krashen & Terrell, 1983). Simply said, naturally learning a second language through acquisition is implicit learning while learning a second language through formal studies is explicit learning (Krashen & Terrell, 1983). Both implicit learning or explicit learning of a language are related to this study as the former reflects meaning-focused instruction while the

latter reflects form-focused instruction. Both forms of instruction are key points in this study's research questions. Whether second language learning was done implicitly or explicitly, all learners may be identified to be in a certain stage in second language acquisition.

Within the context of the diverse learners of English as a second language (ESL), the five stages of second language acquisition (Krashen & Terrell, 1983) could provide a sufficient framework for understanding their general characteristics. In the context of this study, a more detailed and evolved version of the stages from Krashen and Terrell (1983) was consulted (Hill & Bjork, 2008; Hill & Flynn, 2006), which featured general descriptions of the learners, time frame or length of learning the second language (L2), and typical prompts and instructions from a language teacher. The stages remain at five, namely: (1) Preproduction stage where the learners have minimal comprehension and can only respond by verbal cues, such as nodding or pointing, (2) Early production stage where the learners have limited comprehension but can respond in about one to two words, (3) Speech emergence stage where the learners have generally good comprehension and can produce simple sentences, (4) intermediate fluency stage where the learners are considered to have excellent comprehension and would only make a few grammatical errors, and (5) advanced fluency stage where the second language learners would have an almost native-like level of speech, assuming that "native-like" to mean more than adequate grasp of the language and application of its rules (Hill & Flynn, 2006).

By cateogrizing the apps and cross referencing them to stages of second language acquisition, this study could help language app users to independently choose apps that are more suited for their stages and needs as "it is by now widely accepted that the learner takes an active part in the learning process" (Meisel et al. 2008, Extract). For example, a study of the language app Duolingo (Vesselinov & Grego, 2012), indicated that it was beginners who gained the most and more advanced learners gaining the least; and this may be associated to Duolingo being form-focused due to its target of building the user's vocabulary and grammar

skills (Duolingo, 2025) rather than communication skills, a goal that language learners in the earlier stages focus on, as their second language skills range only from non-verbal responses to simple sentences. Thus, language learners must find other apps, leaning towards meaning-focused instruction, so that their higher language ability may be challenged for them to grow their skills by having both form-focused and meaning-focused apps.

Studies on How English Vocabulary Apps are Analyzed

In studies related to CALL and MALL for education, particularly those involving English vocabulary learning, the typical focus has been on describing how mobile devices and apps are used to promote or develop vocabulary learning for English learners, explaining attempts to design vocabulary apps that were aimed to help students learning English as a second or foreign language, and examining the feasibility of merging technology-enhanced or technology-assisted and traditional classroom methods for a more effective and successful vocabulary learning and development (Deng & Trainin, 2015; Guaqueta & Castro-Garces, 2018; Kim, 2013; Hong et al., 2013; Huang, et al., 2012; Nami, 2020; Wang, 2017; Yildiz, 2012). All of these foci are important to understand the featured vocabulary app further, along with its value to the target learners' potential learning, and encourage technology assisted vocabulary learning among learners. However, there remains a need to touch on the nuances of vocabulary app use for educational purposes–one of which is categorizing and describing the apps in multiple ways to aid purposeful app selection.

Previous studies on vocabulary app analysis have addressed the need to categorize apps, albeit with slight variations in their app analysis and different labels and characteristics of app categories (Almousawi, 2021; Bax, 2003; Cherner et al., 2014; Ginsburg, 2010; Kim & Kwon, 2012; Rosell-Aguilar, 2017; Sweeney & Moore, 2012; Warschauer & Healy, 1998). Across time, there were studies that focused on analyzing apps from only one of the leading companies

involved in app development and sharing and all its related software (i.e., App store as a virtual marketplace and digital distribution platform and iTunes as a digital media store, developed by Apple, Inc.) (Ginsburg, 2010; Kim & Kwon, 2012; Rosell-Aguilar, 2017; Almousawi, 2021). However, there were those that studied apps from elsewhere, such as stand-alone CALL software programs (Warschauer & Healy, 1998) and CD ROM-based materials as the source of apps (Sweeney & Moore, 2012). A different study chose to use two different digital platforms, App Store and Google Play as their source for apps (Cherner et al., 2014).

Each study mentioned above varies in terms of what aspects of the apps were analyzed. One study focused on the apps' teaching practices (Warschauer & Healy, 1998). Another study focused on the apps' 1) task type such as the activities it provides, for example, closed-drills, quizzes 2) types of student activity in terms of interaction with the computer or others 3) types of feedback, such as comments or corrections, 4) given role of the teacher, such as monitoring or facilitating 5) elicited attitude from the teacher, such as emotions of fear, awe. 6) position in the curriculum, such as integrated material or a toy 7) position in the lesson, such whether CALL was used entirely in the lesson or partially, and lastly 8) the physical position of the computer, such as computer lab or every desk (Bax 2003). A third study focused on aspects within the app and outside the app, such as the user experience, the coding, the marketing, and customer support (Ginsburg, 2010). Another study two years later focused on the app's 1) content target, such as the user's profile 2) procedure and approach, such as types of activities, assessment, linguistic focus 3) technological features, such as videos, graphics, speech recognition (Kim & Kwon, 2012). In the same year, another study focused on the app's 1) pedagogy, such as best practices in materials design for learning and teaching clear learning contexts and outcomes 2) technology, such as the ability of the apps' automation system to compliment the pedagogy (Sweeney & Moore, 2012). In the same decade, another study focused on the app's 1) purpose, especially for its user, ranging from memorizing to applying

2) required task, meaning what activity will the student need to accomplish, and 3) classroom teacher application which refers to the manner in which how the student will involve the app in the classroom (Cherner et al., 2014). Two years later, another study focused on the app's 1) content quality 2) pedagogical coherence 3) feedback and self-correction 4) motivation 5) usability 6) customization 7) sharing (Chen, 2016). Two years later, a study focused on the app's 1) description 2) the app content 3) and user reviews (Liang, 2018). Three years later, another study focused on the apps' 1) technology which refers to smooth interface, easy navigation, availability of instructions, gamified fun, helpful tech support, as well as online/offline requirements 2) pedagogy which refers to valid descriptions, language explanation, progress tracking, progressive support, meaningful feedback, use of various media, varying levels, and entertainment ability 3) user experience, which refers to learner-to-learner interaction, active/passive app interaction, sharing options, commendation icons, price range, registration requirements, presence of advertisement and lastly, 4) language learning which refers to reading texts, audio materials, writing opportunity, vocabulary tools, grammar practices, pronunciation/intonation aids, target language culture information, and availability in other languages (Aguilar, 2021). In the same year, another study focused on the apps' 1) language focus which refers to language specific topics 2) scaffolding tools which refers to availability of support material 3) collaborative learning which refers to interaction between other learners or the computer 4) focus on mental operations which refers to the materials being mechanical, meaningful, and communicative 5) input which refers to the presence of both written and aural discourse 6) output which refers to the presence of both written and aural exchange 7) MALL approach which refers to the app's status being restricted MALL or open MALL or integrated MALL and lastly, 8) SLA approach which refers to application of language learning theories (Almousawi, 2021). Despite the varied app aspects or components analyzed , the most common factor appears to be the app's language learning materials, which

different studies referred to in various ways, such as: tasks, user experience, activities, required tasks, app content, language learning; and thus, this study focused on the tasks to be able to categorize the apps into meaning-focused or form-focused but at the same time, referring to the app's description only to confirm that the app's online textual depiction actually matches the app's contents (Liang, 2018). As opposed to previous studies, however, user feedback was treated only as just supplementary references rather than a major element to analyze (Ginsburg, 2010; Liang, 2018).

In terms of categorization, the above mentioned studies also differed from each other but with some common factors. Earlier studies classified the apps into three categories, namely: "behavioristic CALL, communicative CALL, and integrative CALL" (Warschauer & Healy, 1998). In the early 2000's, the study of Bax (2003) continued to refer to the three app categorizations of Warschauer and Healy (1998). Seven years later, one study classified the apps into three categories as well, "utility apps," "productivity apps," and "immersive apps" (Ginsburg, 2010). Two years later, one study classified the apps into three categories as well, namely: "short language data informations," "cognitive language drills," and "various modes and functions of multimedia" (Kim & Kwon, 2012). In the same year, another study (Sweeney & Moore, 2012) referred back to the three categories of Ginsburg (2010). Two years later, another study also classified apps into three categories, such as, "skill based," "content based," and "function based" (Cherner et al; 2014). Seven years later, another study also classified the apps into three categories once more, namely: "dictionaries and translators," "not designed for but useful for LL," and "designed for LL" (Aguilar, 2021). In the same year, another study classified the apps into one finding or one category, "mechanical forms-focused" (Almousawi, 2021). Except for one, all of the studies mentioned above classified the apps into three categories. Warschauer & Healy's (1998) three categories set the mold, as all other studies followed their pattern wherein the first category is a single function, repetitive, non-

communicative drill, fast-use app while the second category is still non-communicative but had variations to choose from within content tasks; and the third category, different from the first two are communicative apps. While the three-category formula remains consistent in the study, Ginsburg's (2010) and Cherner et al; (2014)'s studies were used in this study to create a categorization matrix, as their descriptions were more detailed, including prompts that apps for each category would use. This study aimed to further narrow down the three categories into just two categories, "form-focused" and "meaning-focused" while extending the study by relating the categories to the stages of second language acquisition.

Keyword Search with Filters as a Starting Point to Analyze English Vocabulary Apps

Choosing digital platforms and keyword search with filters appeared to be the typical starting point in previous qualitative studies that involved content analysis and categorization of selected vocabulary learning apps based on a few selected studies reviewed (Chen, 2016; Gunter, et al. 2016; Liang, 2018; Tu et al. 2020). One sample study that used Google Play as a digital platform is that of Gunter et al. (2016) who studied the effectiveness of mobile game applications in assisting learners to grasp the required language skills and standard scholastic content. Similar to Tu et al. (2020), this study focused only on the 10 most popular apps, such that, the 10 most popular online English vocabulary apps from Google Play and 10 most popular apps from App Store, provided that they are classified by the app provider as educational, is available cost-free, and the target language is English.

The search keyword for both Google Play and App Store for this study was "English Vocabulary" rather than Chen's (2016) keyword, "ESL" because this study further narrowed the focus to be specific to apps that teach English vocabulary only rather than all apps designed to teach any component of the English language. Like other studies, this research used filters to choose specific apps. One of those studies is Kim and Kwon (2012) who set up a specific criteria such that first, the app should be designed for ESL, second, the app is written in English,

and third, the app should have instructional devices (tutorial, scaffolding, or direct instruction). Liang (2018) used qualitative content analysis to study selected vocabulary learning apps, specifically by analyzing the apps in terms of the app description, app content, and user review. To analyze the subject apps of this research as either being form-focused or meaning-focused, each app was analyzed in terms of its online description and actual operation, but the user review feature was only treated as a supplementary reference for the analysis, which was the opposite of Liang's (2018) study because while user reviews from both app providers permit app users to convey their opinions about the apps, "it is less clear what information is contained within these reviews" (Hoon et al. 2012, Abstract).

In the study of Heil et al. (2016), apps based on their rankings on Google Play and Apple iTunes were selected and assessed. Heil et al. (2016) studied the following eight aspects of the apps: 1) language supported 2) platform used 3) monetization 4) user input to device, 5) areas of instructional assessment 6) modes of grammar instruction 7) corrective feedback 8) listening, reading, and writing. Among Heil et al. (2016)'s eight factors, this study included one of their factors. One of those factors is "areas of instructional assessment" and when further broken down meant: vocabulary taught in isolation, vocabulary taught in context, grammatical form, pragmatics, pronunciation, assessment. That particular aspect, "areas of instructional assessment" and its constituents are the core of the app; and it is the factor that most displays the kind of instruction used. Since this study aims to classify apps into two forms of instruction, form-focused and meaning-focused, it was ideal that this particular factor from Heil et al. (2016) be included. The study's conceptual framework presented in Figure 2 illustrates the final aspects or components analyzed.

Conceptual Framework

Figure 2

The Study's Conceptual Framework

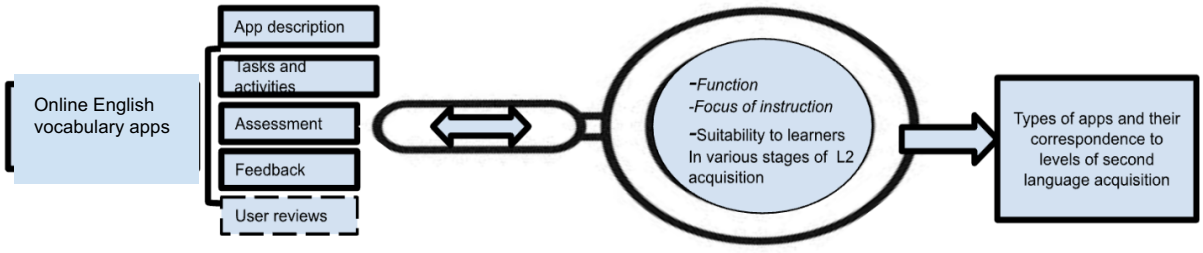


Figure 2 above summarizes the conceptual framework of the study, which argues that apps may be broken down in terms of various components: app description, tasks and activities, assessment, feedback, and user reviews. The term "app description" refers to the available summary of the app, especially its contents, and is usually what the users learn first about the app. The "tasks and activities" in the context of online English vocabulary apps refer to the learning tools and language exercise options that are available for the app users to study or explore. The term "assessment" refers to tests, quizzes, diagnostic drills, graded games, and other features that typically come after users explore the language inputs or lessons, learning tools, and exercise options The term "feedback" refers to scoring systems, grading rubrics, report cards, level interpretations, and other remarks that users may receive after completing an assessment in the app. The last component, "user reviews" refers to the available comments or ratings by other users of the app. However, user reviews in the context of this study is viewed as an optional component because not all vocabulary learning apps which fit the criteria set in this study may have publicly available user reviews; and thus, broken-lines were used in the diagram. Beside the components is a magnifying glass which indicates that the elements can be analyzed in terms of function (whether utility, productive, or immersive), focus of instruction (whether the focus is on form or meaning), and suitability of the apps based on a

learner's level of second language acquisition. The two-way arrow represents the back and forth analysis of the five aforementioned components, which can then lead to a concise app categorization.

Operational Definition Of Terms

Key terms or concepts	Operational definition
App content	Available features of an app, namely, tasks (activities), assessments, and feedback
App description	Online explanation of what that particular app is, as provided by the application developer
App user review	Online comments of users about the app
Authentic task (language learning)	Activities intended for language acquisition through an application of everyday life
CALL	Computer Assisted Language Learning, such as the use of digital technology to foster language acquisition through direct programmed, algorithmic instructions. In the context of this study, online vocabulary learning apps belong as tools under CALL
Communicative CALL	Language learning through computer or digital technology that places the student to be responsible for his/her own learning, such as making decisions on what aspects of the technology to use and how to use it
Feedback (app)	Response of an app in order to address an error; and the response is either computer-generated or human assisted
Direct instruction	It is a teacher directed method (McGraw Hill, 2020) where language is taught explicitly by specific frameworks, such as grammatical features and the likes (National Research Council et al. 2010) and direct teaching tasks (Engelmann, 2015). In the context of this study, the term refers to technology, such as an app, providing

	programmed and algorithmic directives for the user to engage in as part of his or her language learning development.
Drill-and-practice methods (language)	It is an instructional strategy that promotes the acquisition of language through repetitive individual practice, usually memorization of definition, spelling, pronunciation of vocabulary (California Lutheran University, n.d.) until mastery is reached (University of Illinois Springfield, 2021). The drill and practice model comprised of exercises and practices. The process could be repeated until the intended skill level is achieved (Kurniawan et al; 2019) In the context of this study, it is the use of technology, such as an app, wherein a programmed, algorithmic language learning task is repeated until mastery is achieved.
ESL	It stands for "English as a Second Language" wherein a non-native speaking of English studies the language with its mastery as a goal
Filter (online)	A digital system that narrows the online search process of a user, usually by providing restriction options
FL	Foreign language
Integrative CALL	Integrative Computer Assisted Learning wherein the internet, specifically multimedia, such as text, graphics, videos sounds, and the likes are used with interaction of learners by accessing, downloading, uploading, and communicating to learn a language (Warschauer, 1996)
Learner-centered model (language)	It is an approach that places the learner to have core responsibility for his/her own learning by making individual decisions to support language development. In the context of this study, the app user directs his or her language learning by selecting digital tasks such as apps and the options within them in order to match his or her language learning objectives.
Lexical resource	Range of vocabulary while writing or talking (Ieltsguru, 2019)

Online English Vocabulary Apps	Educational aplications that focus on English vocabulary learning available on the internet, which may be accessed through computers or mobile devices. Because the focus is on vocabulary learning, such apps may feature word choices, such as: nouns, verbs, adverbs and their use within a text (Hinkel, 2002)
Open CALL	Open Computer Assisted Language Learning wherein learning is through interaction with the computer in a student-centered approach, such as the student interacts with the computer by choosing from a variety of computer-programmed activities and social interactive tasks (Bax, 2003, as cited in Chen, 2012)
Restricted CALL	Restricted Computer Assisted Language Learning wherein computer use for language learning is confined within the learner's environment, and limits the learning through the computer only which provides non-communicative, single-skill activities (Shei et al. 2019). These may include closed quizzes and questions with feedback that only states either "correct" or "incorrect"(Bax, 2002)
Target language	A language that a learner intends to learn. In the context of this study, the target language is English.
Task (app)	Available activities within an online vocabulary app
Tool (Taylor)	The computer provides aid and support to language learners, and is thus an instrument to learning (Taylor, 1980)
Traditional teaching paradigm (language learning)	Language learning is rooted in the idea that language must be taught separately and compartmentalizing its grammar aspects (Krickhan, 2013)
Tutee (Taylor)	The computer is "taught" by the learner, such that the computer is programmed by the learner's selections, for example, choosing language tasks to be able to structure it to meet his/her needs (Taylor, 1980)
Verb morphology	The study of verbs, including "person–number agreement, tense–aspect–modality markers,

valency increasing–decreasing operators, verb serialization, and dependency markers" (Watters, 2002, Summary)

Chapter III

Methodology

This chapter is a summary of the research design and methods. The overarching research design of this study is based on qualitative research, particularly qualitative content analysis. An overview of how each research question was addressed, along with the steps followed and tools prepared to select the apps to be analyzed, is presented. In deepening the analysis of the apps' contents, analytical guides were prepared based on the two approaches to teaching grammar and Hill and Bjork's (2008) five stages of second language acquisition.

Research Design

This study adopted qualitative content analysis as a research design to analyze selected online English vocabulary apps and their key contents. Qualitative research is an approach to true-to-life queries that search for a deeper comprehension of social circumstances within their existing environment (University of Texas Arlington, 2022). In qualitative research, contents or data from actual social domains are analyzed. In addition, qualitative research or more specifically, "qualitative content analysis," is a process made to consolidate unprocessed data from text, written work, published pieces and the likes, into groupings or themes grounded from well-founded interpretation (Zhang & Wildemuth, 2005). Qualitative content analysis is one of the appropriate research methods to be utilized for examining text data in its many forms (Elo & Kyngas, 2008; Elo et al. 2014). For this study, however, instead of the typical texts or archival data, the contents of the vocabulary learning apps served as the material to be analyzed.

Qualitative content analysis may either be deductive or inductive. Research done through deductive content analysis, also known as direct content analysis, has preceding

theoretical substance in the first part of the process, and the research queries are guided by pre-existing expertise on the subject, and thus, influencing the data gathering stage (Kyngäs & Kääriäinen, 2020). Deductive content analysis basically means connecting theory to the results in order to evaluate the theory (Bingham, 2023). In doing so, this approach follows a "top-down" method during data interpretation by using pre-designed codes on the data wherein the codes can come in the form of organizational tools, or patterns of concepts taken from the literature, from ideologies, or from concepts that the researcher has created (Bingham, 2023). Inductive analysis is a more forthcoming approach wherein the researcher peruses through the collected findings and lets codes surface, as it is more of a "bottom-up" process (Bingham, 2023). It is recommended for research situations wherein there are no earlier studies pertaining to the phenomenon or when earlier studies are weak (Elo & Kyngäs, 2008).

The processes for both deductive and inductive content analysis adopt three phases: preparation, organization, and reporting of results (Elo et al., 2014). Not much difference can be noted in the first and last phases, but the organization phase for each approach to content analysis shows variation. In deductive content analysis, the primary organization step includes a categorization matrix design wherein all the inputs are studied for content and then coded for correlations or illustrating recognized categories (Polit & Beck, 2012, as cited in Elo et al. 2014). Inductive content analysis utilizes the process of abstraction to reduce and group data, so that researchers can answer the study's questions using concepts (Elo & Kyngas, 2008; Kyngäs et al. 2020). The inductive approach usually begins with a specific observation and attempts to develop a theory; and is thus distinctly different from the deductive approach which starts with pre-existing theories or studies then tries to test these actual theories (Streefkerk, 2019). Finally, inductive content analysis ends with a general conclusion that stemmed from the initial observation, followed by pattern identification; and

thus is unmistakably different from deductive content analysis which ends in either concluding, rejecting, or expanding a theory (Streefkerk, 2019).

In the context of this study, the approach adopted was deductive content analysis. By applying deductive content analysis, this research's investigative study categorized online English vocabulary apps and used codes that were based on earlier categories of technology-assisted language learning programs (Bax, 2003; Cherner et al., 2014; Ginsburg, 2010; Taylor, 1980; Warschauer & Healey, 1998). By enhancing and building on earlier analysis and categorization studies, this study attempted to fulfill the aim of the deductive approach, which is to confirm or extend conceptually a theoretical framework or ideology through findings that may either reinforce or disparage evidence for a theory with new or extended codes and categories (Elo & Kyngas, 2008). Adopting deductive content analysis for this study made more sense since, apart from either reinforcing or contradicting previous categories of vocabulary learning apps, this study could also either highlight or dispute earlier studies regarding movement from form-focused instruction to meaning-focused instruction (Heil, Wu, Lee, & Schmidt, 2016). Moreover, a deductive approach is helpful if the overall goal was to test a previous theory or study in another situation or to juxtapose categories at different time periods (Elo et al. 2014). The categories formulated by Ginsburg (2010) were more than a decade ago and the movement from form-focused instruction to meaning-focused instruction began in the 1960's (Richards & Schmidt, 2014). Further studying digital aspects of form-focused and meaning-focused instruction could help address the scarcity in app categorizations (Kay, 2018) and elaborate on the characteristics of form-focused and meaning-focused online English vocabulary apps.

Noting the recommended three generic phases of doing deductive content analysis (Elo et al. 2014), an overview plan was formed in the context of preparing for this study (See Table 1). This overview plan reflects the most fitting blueprint, prepared through precise and

thoughtful planning based on current circumstances and recognizing obtainable resources (Bengtsson, 2016). In going over relevant information and materials that are needed to analyze data, the researcher's "pre-understanding" was taken into account, as recommended in the literature (Bengston, 2016; Elo et al., 2014; Long & Johnson, 2000).

Table 1

Overview Table of the Study

	Information needed	**Data gathering instruments**	**Data gathering procedures**	**Data analysis instruments**	**Data analysis procedures**
RQ 1 How can popular, cost-free online English vocabulary apps from two digital distribution platforms be categorized as form-focused instruction and meaning-focused instruction?	Curated list of vocabulary apps	Not an instrument but a guide of relevant search keywords and filters from previous language app studies	Type the keyword search: "English Vocabulary " in Google play and in App Store	Model from previous existing studies of keyword searches	Initial relationship coding scheme (Elo & Kyngas, 2008) to deduct connections between Ginsburg's 3 app categories and Celik's (2015) descriptions of form-focused instruction and meaning-focused instruction
RQ 2 What are the key characteristics of form-focused online English vocabulary apps and meaning-focused English	Earlier studies regarding the traits of form-focused instruction and meaning-focused instruction	Google Play access and App Store Access	Type the keyword search: "English Vocabulary " in Google play and in App Store	Analysis tool	Apply content analysis to making replicable and justifiable inferences from collected data to their context

vocabulary apps?					(Krippendorff, 1980 as cited in Elo et al. 2014)
RQ 3 What stages of second language acquisition apply to the two categories of online English vocabulary apps?	Characteristics of each stage of second language acquisition	Analysis tool	Type the keyword search: 'English Vocabulary" in Google play and in App Store	Analysis tool	Applying deductive reasoning to Celik's (2015) descriptions of form-focused instruction and meaning-focused instruction to connect to Hill and Bjork's (2008) stages of second language acquisition

As shown in Table 1, the research questions needed the following information 1) scheme to categorize apps into either form-focused or meaning-focused instruction, 2) characteristics of form-focused online English vocabulary apps, 3) characteristics of meaning-focused apps, and 4) the connection between the stages of second language acquisition and the two aforementioned categories of apps based on instruction. The list of instruments used, as well as procedures taken, are also included in the overview table of the study, although the succeeding sections on the categorization matrix and analytical table elaborated on them.

Research Locale: Getting the Apps to Analyze

Similar to previous studies that focus on analyzing and categorizing language learning apps (Heil et al., 2016; Kim & Kwon, 2012; Liang, 2018; Tu et al., 2020) the selected apps of this study also came from two digital platforms, namely: "Google Play" and "App Store." There were two reasons for selecting these two platforms. Firstly, Google Play and App Store are the two biggest marketing channels for mobile apps, providing almost a global reach to a large number of diverse prospective consumers (Dogtiev, 2022). The two platforms provided a huge variety of app choices to select from for its users and for the researchers of this study. Secondly, previous studies referred to these platforms as sources in the analysis of vocabulary apps (Chen, 2016; Gunter et al. 2016, Guo, 2015; Heil et al., 2016; Liang, 2018).

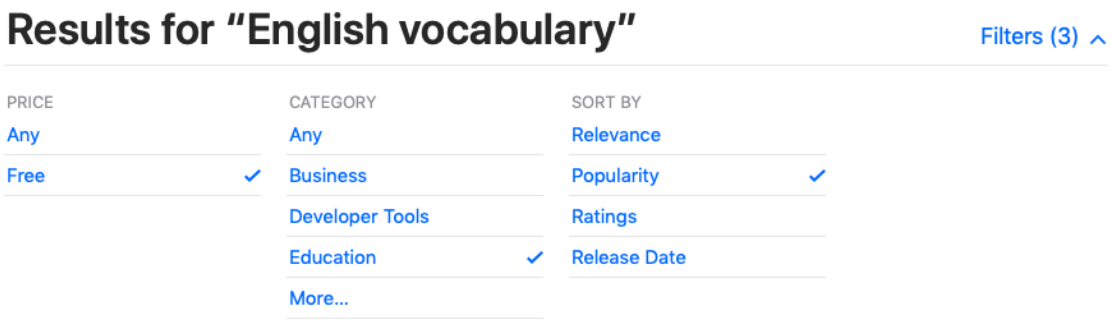
From the two app providers, ten (10) most popular apps from each digital platform were selected by popularity, thus having a total of twenty (20) apps to analyze. Popularity in the context of online English vocabulary apps from Google Play and App Store refers to an app's reputation as perceived by the users. In Google Play, the top 10 popular online English vocabulary apps are affected primarily by two factors. First, top apps are heavily influenced by public appeal or public demand that is monitored by Google Play itself. Second, leading apps that are shown in search results are also heavily influenced by consumer queries (Google Play, 2002). Similar to Google Play, App Store also likes to display apps that are clearly popular with consumers based on App Store's monitoring; and at the same time, keyword searches also affect popularity ranking (App Radar, 2020).

This study revolved particularly on online English vocabulary apps and downloadable options found in filtered search results from Mac's App Store and Android's Play Store. Liang (2018) selected apps based on: ability to be downloaded for mobile devices, off-line functionality, Google Play / iTunes accessibility, suitability. The reason to select both online

and offline downloadable language learning apps rather than just the online ones was because this study aimed to assess the presence or absence of both form-focused and meaning-focused instruction in popular online apps whether online or downloadable, as both forms of instructions are needed in communication due to the fact that "in naturalistic (non-classroom) settings, human language communication of course takes both oral and written forms and develops in one or more languages wherever social interaction occurs (Savignon, 2017, p. 1)." This study was further limited to filtered search results from the search keyword "English vocabulary." The following filters that were turned on were: "education," "free of cost," and "popular." For the Mac "App Store," the filters were "free" in terms of price, "education" in terms of category, and "popularity" in terms of sorting, as seen in Figure 3, which is a screenshot of Mac "App Store Filters." "Popularity" was an important filter because this research aims to study and categorize the apps that are commonly and strongly used, regardless of ratings.

Figure 3

Screenshot of Mac App Store Filters

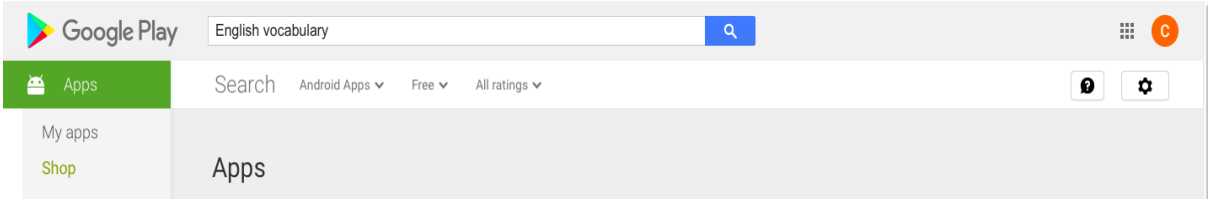


Note. Mac App Store's 3 search filters with dropdown menu options for each filter

For Google Play, the available filters narrowed the app search were "free," as seen in Figure 4 which is Screenshot of Google Play filters. While Mac Store and App Store used different terminologies for their filters, they are technically the same.

Figure 4

Screenshot Showing Google Play's Filters for Apps



Note. Google Play's 3 search filters

These filters were turned on to specify the scope of this study. The search and filtering process of this study were inspired by a study from Kim and Kwon (2012), but with slight variations, which included but were not limited to: the medium of instruction (i.e., English or other languages), primary target learners (i.e., ESL, EFL, ELL, all learners), research method (both qualitative and quantitative), topics within the apps (vocabulary, reading , grammar, listening, speaking, writing), and study of the apps' technological features (multimedia, recording, email).

This study accommodated any online English vocabulary apps instead of limiting apps that primarily target ESL users since the more important element is for the apps to use English as the target language, regardless if it is a second or third language. In terms of specified domains, this study opted to be more specific than Kim and Kwon (2012), as this study limited the filter to only allow apps from the education category because the focus of this research is vocabulary learning apps, particularly apps that identify themselves usable for language education. Kim and Kwon (2012) did not use a filter for including only apps that were considered educational. In another aspect, particularly monetary details, this study included

cost-free in the search filters due to limited budget constraints; and this is in contrast to Kim and Kwon (2012) who included both free and paid versions. Moreover, this study used a filter that only selected popular apps in order to address RQ1 which specifically pinpoints "popular apps" because these are the apps that are being frequented or searched for by users. Kim and Kwon (2012), on the other hand, had no specifications with regard to an apps' popularity. Lastly, Kim and Kwon (2012) limited their app selection only to include apps that have instructional devices wherein they specifically defined "instructional" as tutorials, drills, text reconstruction. This research did not include that limitation, as this research aims to classify apps as either traditional form-focused or meaning-focused instruction; and if "instructional" were used as a filter, like Kim and Kwon (2012) then the results would be narrowed down to only form-focused instructions apps; and thus, making this research off-target.

Apps that appeared in both the "App Store" and "Google Play" were counted for both searches but other apps were added to ensure that there were at least 20 different apps. Dual lingual apps were included if there was an English description, and if there were English-targeted tasks that can be tried, and as an added option, had English user reviews.

For the Android's "Google Play," the filters allowed only android apps that were free of cost and allowed androids of all ratings because there was no filter option for popularity; and the ratings do not immediately translate to popularity, as a user may have liked or enjoyed an app, giving it a high rating but the app may still be unpopular, if for instance, other users were not as delighted as one user was.

Research Instruments

The study used three instruments as guides in the various stages of content analysis: a preliminary descriptive guide to analyze the app components and features, a categorization

matrix to break down the analysis of apps further in terms of their functions, and a guide to analyze the apps in relation to the stages of second language acquisition.

Preliminary Descriptive Guide

Since qualitative content analysis involves coding and categorizing steps (SAGE Publications, 2022), which were necessary to address the study's first research question, a preliminary instrument, as seen in Table 2, was designed upon consulting pertinent research findings (Cherner et al., 2014; Davis et al., 2012; Ginsburg, 2010; Hsieh & Shannon, 2005; Taylor, 1980; Warschauer & Healey, 1998) for preliminary coding. This preliminary guide helped especially in the first round of content analysis.

Table 2

Preliminary Descriptive Guide for Analyzing the Apps in Terms of its Functions

	Type A	Type B	Type C
Tasks and activities	Non-communicative single task that include only one of the following: ● picture dictionary ● wordbook ● vocabulary list	Non-communicative multi-tasks that include two or more of the following: ● multi grammar topics ● listening audio files ● tests / quizzes ● memorization tools ● word lists ● single player games ● reading materials ● tasks	Communicative multi tasks that include one or more of the following: ● multiple user accounts ● multiplayer games ● download and upload function for file sharing

Assessment tools	Non-communicative, computer generated assessment ● Scored word games / tasks ● grammar quizzes / tests ● memorization tests ● pronunciation matching test ● listening tests	No assessment	Communicative assessment Provided by administrator
Feedback scheme	Immediate computer-generated feedback involving: ● algorithmized, automatic scoring / grading ● algorithmized, automatic report card ● algorithmized, automatic answers / corrections ● algorithmized, automatic track progress	No feedback	Communicative feedback Provided by administrator
*User reviews**			
*An aspect that may or may not be featured in the app is, therefore, not necessarily required to be analyzed			

Of the several related studies which classified language learning apps based on functionality, the study primarily consulted the categorization from Ginsburg (2010) and Cherner, et al. (2014) as these studies clearly described each app category and presented tasks which would be typically featured in the apps, and this further enriched how the apps would be analyzed. The first column in Table 2 reflects the elements of the apps which were analyzed. App description refers to the first set of sentences present when accessing the apps; and is often what the user first reads. The second aspect, "tasks," refers to the functions, tools, activities, and games offered by the app. The third aspect, "assessment tools," is any activity that is scored and considered as a test and is often recorded. The third aspect, "feedback scheme," refers to output or feedback from the app based on what a user encoded or chose, ranging from numeric

scores, corrections, remarks, or report cards. The last aspect, "user reviews," was included as it refers to online comments by people who have used the app. However, it was considered a supplementary aspect of the apps since not all apps which were included in the study had user reviews.

Categorization Matrix

As also shown in Table 2, Types A, B, and C were used as initial codes for a potential app categorization. A code in qualitative research is usually a word or short phrase that represents a collective idea for a section of language-based material or visual data files (Saldana, 2013). Further characterization of each type was summarized as the next rounds of analysis or cycles of coding were conducted, such that Types A, B, C reflected Utility apps, Productivity apps, and Immersive apps (Ginsburg, 2010) and Skill-based apps, Content-based apps, and Function-based apps (Cherner et al., 2014). The characteristics of each type were summarized in the form of a categorization matrix, presented in Table 3. The preliminary coding, Type-A, Type-B, and Type-C, served as the pre-established codes used to interact with and make sense of the chosen online English vocabulary apps as the source of data (Jansen, 2022). Having pre-established codes helped quickly identify relevant data in this study, which enabled and facilitated the creation of higher level categories (Smith, 2021). However, this study took the earlier categories of Ginsburg (2010) and Cherner et al. (2014) into another progressive step by narrowing three categories into only two, form-focused or meaning-focused, as seen by the column headings in Table 3, and elevating the categories by relating the two categories to the stages of second language acquisition.

Table 3

Categorization Matrix for the Analysis of Apps Based on Functions

Form-focused instruction		Meaning-focused
Type A apps (Utility, skill-based)	**Type B apps (Productivity, content-based)**	**Type C apps (Immersive, function-based)**
These apps are quick to access by providing only bite-sized pieces of information which are ready to use. There is a single task or function that is often recalling, memorizing, choosing, matching, or identifying in computed generated drills that may or not many have assessment or feedback but if either are available they are computer generated. Everything in the app is without context and is not socially communicative in nature.	These apps are multi-functional apps without context or social communication. The user navigates from multiple tasks that range from finding information, researching, reading a text, viewing an image, or watching a video. There is also vast amounts of information. Due to the various pre-programmed task selections, the student has choices within the content options that can support various goals. There is no assessment and feedback provided by the app.	These apps are customized for the user, as each learner may communicate socially through creating texts, making visuals, or crafting multi presentations which they will later share digitally. These apps usually have a message board for the administrator to indicate given tasks and student users organize their own work. For the student to be able to do the posted tasks, the apps usually have functions for electronically emailing one another and posting images, videos, or text. There are no assessments and feedback

Essentially, the categorization matrix presented in Table 3 was developed out of the preliminary descriptive guide (Table 2) and as the analysis of the apps' contents progressed within the organizational phase of deductive content analysis (Polit & Beck, 2012). While the preliminary descriptive guide was particularly useful in the first cycle of coding (Saldana, 2013), the categorization matrix became particularly useful in the next cycles or rounds of analyzing each app's contents. The process for all rounds involved reviewing each app, and eventually the entirety of the collected data, and then coded in correlation to the categories or in order to illustrate the recognized categories (as cited in Elo et al. 2014). The first two columns of Table 3 were used as the guide for analyzing each app again (second and third rounds). Once each app was identified as either Type-A, Type-B, or Type-C, the

second round of analysis, guided by the categorization matrix confirmed whether each app features form-focused instruction (in the case of Types A and B) or meaning-focused instruction (in the case of Type C).

Guide for Analyzing Apps in Connection to the Stages of Second Language Acquisition

With each app categorized as form-focused or meaning-focused, the next layer was not just to confirm this categorization with another round of analysis but also analyze the forms of instruction reflected in the apps based on the stages of second language acquisition. This correlation of form of instruction with Hill and Bjork's (2008) stages of second language may guide the user or teacher to what app categorization, form-focused or meaning-focused, is needed more based on the individual learner's stage of second language acquisition. Conveniently, Hill and Bjork's (2008) adapted stages of second language acquisition from Krashen & Terrell's (1983) and expounded each stage by placing corresponding command prompts that a teacher would use in a classroom setting; and these prompts were easily converted to prompts that either form-focused apps or meaning-focused apps may be putting into use, as seen in Table 4. Overall, Table 4 befittingly served a more distinct instrument as the characteristics of both form-focused and meaning-focused instructions were placed alongside the Hill & Bjork's (2008) stages of language acquisition and teacher command prompts for each stage.

Table 4

Guide for Analyzing Forms of Instruction Reflected in the Apps Based on Stages of Second Language Acquisition

Stages of L2 acquisition	Characteristics of a language learner	Prompts (typically used by the teacher)	Prompts adopted and featured in the vocabulary apps analyzed		Other comments and notes alluding to the apps content
			Form-focused	Meaning-focused	
Preproduction 0-6 months	-Has minimal comprehension -Does not verbalize -Nods "Yes" and "No" -Draws and points	-Show me? -Circle the ____? -Where is ____? -Who has ____?			
Early production 6 months to 1 year	-Has limited comprehension -Produces one-or- two word responses -Uses key words and familiar phrases -Uses present tense verbs	-Yes/no questions -Either/or questions -Who? -What? -How many?			
Speech Emergence 1-3 years	-Has good comprehension -Can produce simple sentences	-Why? -How? -Explain? -Questions			

	-Makes grammar and pronunciation errors -Frequently misunderstands jokes	requiring phrase or short-sentence answers			
Intermediate fluency 3-5 years	-Has excellence comprehension -Makes few grammatical errors	-What would happen if? -Why do you think? -Questions requiring more than a sentence response			
Advanced fluency 5-7 years	The student has a near native level of speech	-Decide if -Retell			

The first column represents the stages of second language acquisition (Hill & Bjork, 2008). The second column reflects on the characteristics of the learner, particularly how the learner responds in his or her stage of comprehension in the target language. The third column are prompts used by the traditional teacher for each stage; and this is in the context of a traditional classroom setting. The fourth column is split into two, to be allotted for prompts found in meaning-focused apps and form-focused apps. The last column was simply allotted for the researcher's other remarks, notes, observations, or analysis of each app's content not guided by the preliminary guide from previous literature.

Data Collection

Once drafts of all descriptive guides had been prepared, the next concern was to get enough sample online English vocabulary apps and exhausting all means to analyze each.

Sample Vocabulary Learning Apps

In data gathering, Creswell (2013, 2014) points out that using purposeful sampling, choices need to be made about who or what is sampled, what form the sampling should take, and how many people or sites need to be sampled (as cited in Elo et al. 2014). As recommended by the research panel, twenty (20) apps were analyzed for this study, consisting of the top 10 most popular English language learning apps from the Mac App Store and the top 10 from Google Play.

Keywords, Filters, and Refining the Search

As discussed early on in getting the apps, the keyword search started with "English vocabulary" to gather online English vocabulary apps, regardless of the primary target learners, such as native speakers, ESL learner, or multilinguals. Furthermore, a minimal keyword, like "English Vocabulary" allows a broader search, without limitations for the user, like, age or English language level. Three initial filters were then used: "education," "free of cost," and "popular." Any online and downloadable apps that fitted the criteria were included in the analysis.

Data Analysis Procedures

Review and Analysis of the Apps' Elements

Apps that were included in the study have online descriptions, tasks or activities, may or may not have assessments, and may or may not have feedback. Often, a consumer looking for an app would read the description. However, because of the self-organized format of the current app providers, the descriptions of apps are informally written and contain a lot of "noisy" words and writing (Tong et al. 2015). To address this concern in the context of this study, app descriptions were first read but were also cross-referenced to the other elements of

the apps' content, consistent with how Liang (2018) analyzed app descriptions in her own study.

The tasks and activities of the app are considered as the app's core. Often, this is where the form of instruction is most visible, so this element of the mobile apps must be studied (Almousawi, 2021; Bax, 2003; Cherner et al., 2014; Ginsburg, 2010; Kim & Kwon, 2012; Rosell-Aguilar, 2017; Sweeney & Moore, 2012; Warschauer & Healy, 1998). The findings of Heil et al. (2016) mentioned vocabulary taught in isolation and vocabulary taught in context. This can be related to the guiding questions of this study, as vocabulary taught in isolation is form-focused instruction while vocabulary taught in context is meaning-focused instruction; thus, studying the apps tasks is crucial.

An apps' activities may or may not have assessments. Apps with assessments should be able to make an evaluation or feedback of progress through different kinds of form-focused testing and reporting (Chen & Li, 2022), often in quick, rapid digital forms. On the other hand, some apps are helpful when learners must do research or study a topic rather than have an assessment; and such apps encourage more advanced thinking skills because they require learners to gauge the quality of the information given, and thus synthesizing through meaning-focused instruction (Cherner et al. 2014). Furthermore, meaning-focused apps without assessment often and unfortunately do not provide feedback (Cherner et al. 2014), thus assessing an apps' assessment and feedback also helps further the distinction between meaning-focused and form-focused instruction which is relevant to this study's second research question.

In qualitative content analysis, researchers should permit themselves to read through each material as many times as possible (Elo & Kyngäs, 2008). In this study, the apps and each of the elements were reviewed and analyzed three times on different days, as qualitative content analysis is a reflective procedure and not a linear model in terms of analysis, and reading,

coding, and categorizing are not one-time events (Erlingsson & Brysiewicz, 2017). Since it is usual that a reasonable amount of altering is necessary following the first analysis attempt, this study was sensibly satisfied with two more sessions of interpretation after the first one before finally deciding if an app uses form-focused instruction or meaning-focused instruction. While the earlier discussions have alluded to a few steps in the content analysis conducted, the entire process is illustrated in Figure 5.

Deductive Content Analysis Framework

The general analytical flowchart (Figure 5) shows the recommended steps in conducting deductive content analysis advocated by Mayring (2000, 2014). While Elo and Kyngas (2008) summarized the steps into three phases–preparation, organizing, and reporting–Mayring's eight-step model (2000), and then later simplified it into a seven-step model (2014), showed a more detailed guide to conducting qualitative content analysis adopting the deductive approach, beginning with setting the research questions based on a review of the theoretical background (Step 1). The model is also intended for researchers in the areas of sociology, psychology, communication science, and education (Claussen et al., 2020). On the other hand, in the content analysis process of Elo and Kyngas (2008), the preparation phase focuses on selecting the unit of analysis and making sense of the data available, assuming that a set of research questions have already been set. Nevertheless, both further guided the analytical framework for this research.

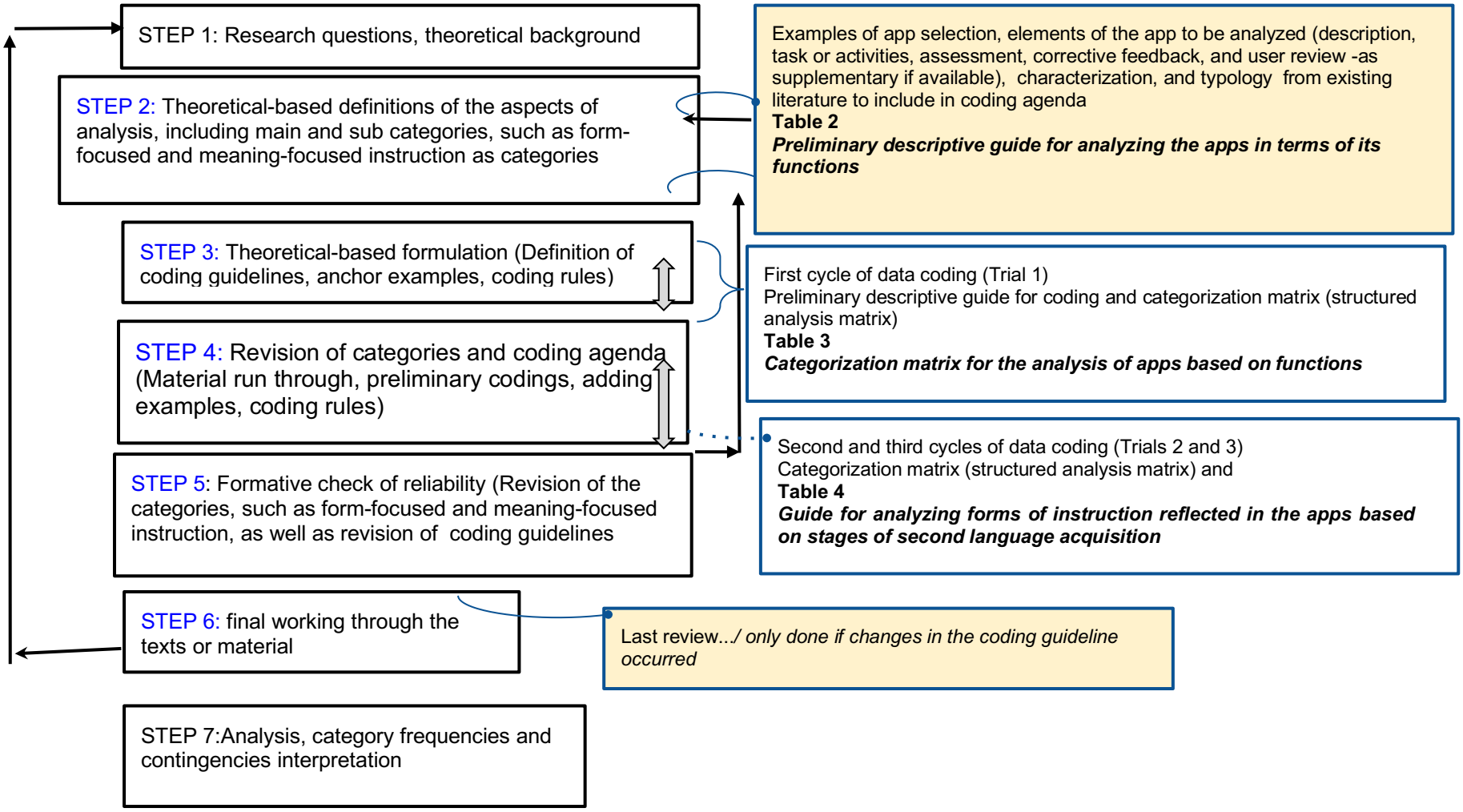
Figure 5 demonstrates the process adopted in the study–from the research questions leading to the use of the research tools, data collection, analysis, and conclusions. The first step is to begin with the research questions, which Mayring (2000) labeled as "research questions and theoretical background." In the context of this study, the first step refers to the three research questions of this study which was based on the theoretical background

concerning the need for categorization of language apps, the movement from teacher-centered learning to student-centered, the shift from form-focused instruction to meaning-focused instruction, and the stages of second language acquisition. The initial categorization of the apps in this study (Type-A, Type-B, and Type-C) was the equivalent of searching for theoretical-based definitions, which Mayring (2000) refers to as the second step, "theoretical based definitions," in conducting deductive content analysis. All three types were based on earlier categorizations made by Ginsburg (2010) and Cherner (2014), as seen in Table 2. Mayring (2000) labeled the third step as "theoretical based formulation," which refers to the creation of definitions, examples, and rules for categorizing. In the case of this study, the third step included the search for apps, as guided by the studies of Liang (2018) and Kim and Kwon (2012), and the preparation and development of all the preliminary analysis guides and supporting instruments used. Mayring (2000) labeled the fourth step as "revision of categories and coding agenda," which refers to a material run through, review of preliminary coding, adding examples, and coding rules. In the case of this study, this step, happened during the first round of analysis. Mayring (2000) labeled the fifth step as "formative check of reliability," which involved revising categories and coding guidelines, "making connections, interpreting them, and drawing conclusions" (Kibiswa, 2019, and confirming possible additional themes or sub themes taken from target passages that do not match into any predetermined categories or subcategory (Elo & Kyngäs, 2008 as cited in Kibiswa, 2019) after 10-50% of analyzing the apps' contents. All these tasks happened predominantly during the second analysis of the online English vocabulary apps. Mayring (2000) labeled the sixth step as "final working through the texts" (Mayring, 2000), which, in the context of this study, served as the third and final round of analysis, which served to confirm any analytical decision if the results of trials 1 and 2 differed from each. Mayring (2000) labeled the seventh step as "summative check of reliability," which is known as packaging of the results (Janus & Brinkman, 2010), as the

outcomes are ready to be disseminated. In the case of this study, the next chapter, "Results and Discussion," would present all findings to represent this seventh step in Mayring's content analysis. Lastly, the eighth step, labeled as "interpretation of the results," refers to established deductions wherein the research questions of the study are answered. Lee (2018) adapted Mayring's (2008) process of deductive content analysis and referred to this eighth step as a reporting of the analysis and process; and in doing so addresses the study's questions. In the case of this study, the chapters on "Results and Discussion" and "Conclusion" would reflect this last step, and therefore, was not included in the analytical framework adopted in the actual content analysis reflected in Figure 5.

Figure 5

The Analytical Framework of the Study Based on the Deductive Approach



Mayring's (2000) Process Model for Qualitative Content Analysis

This study chose to emulate Mayring's (2000) process model, see figure 5 above, for several reasons. To begin with, his first book on qualitative content analysis in 1982 is currently in its 12th edition, thus undoubtedly is considered a classic on the aforementioned topic (Dresing & Pehl, 2021). Furthermore, Mayring (2000) is already considered a major advocate of qualitative content analysis, producing several clear-cut methods (Flick, 2004). Moreover, Mayring's (2000) method is intended for researchers in the areas of sociology, psychology, communication science, and education (Claussen et al. 2020) –making his method ideal for this research. Above all, Mayring (2000) finds that qualitative content analysis, such as those of his models is applicable where new information needs categories that still have to be established, thus appropriate for supporting the first two research questions.

As Philipp Mayring (2000) pointed out in his text *Qualitative Content Analysis*, this type of content analysis is useful in approaching new data where categories have yet to be determined, but must be created for more precise methods of analysis to work effectively.

Reliability of the Analysis

While the analysis tool put structure in analyzing, such tools needed to demonstrate validity to assure that there was logic in its use. To strengthen the validity of the analysis tool, each app was analyzed three different times. If the analysis through the tool had been consistent at all times, a second and third party were not needed to analyze. However, if the second and third analysis through the tool produced different results, then a second and third party had to use the tool to analyze the app. Going over the analysis three times is a reasonable number of repeats because if the deductive approach is applied, double-coding usually aids in assessing the caliber of the categorization matrix, as Schreier (2012) stated

that if the code terminologies are distinct and subcategories do not crisscross, then two cycles of individual coding should yield roughly similar results (as cited in Elo et al.2014).

Ethical Research Concerns

There were no human participants in this study since the focus was on analyzing the content and features of the vocabulary apps. Only the app features that are made available to the public were analyzed, and user reviews that were analyzed remained anonymous.

Chapter IV

Presentation, Analysis, and Interpretation of Data

This chapter presents a thorough analysis of each online English vocabulary app, selected from the set criteria for both Google Play and App Store, guided by a categorization matrix based on apps' functions. The chapter also includes a summary of characteristics of each app categorization based on what emerged from the individual analysis and presents the potential needs of second language learners at different stages of language acquisition in relation to each focus of language instruction.

Resulting Apps from the Keyword Search and Filters

The use of the filters in Google Play and Mac App Store resulted in the most popular free educational apps that target the English language. Table 5 shows the top 10 online English vocabulary apps from Google Play and Mac App Store (in Columns A and C, respectively). At the time of the app search, the apps focused on vocabulary and either had a single task or a variety of tasks. Some apps had assessment with feedback while others had no assessment or feedback. The vocabulary tasks ranged from word games, word lists, reading materials, and audio files and were largely algorithmic. The use of programmed formulas for the tasks brought about coded assessments and feedback. The encrypted tasks, test, and evaluations highlight the non-communicative nature of the assessments.

Table 5

Keyword Search Results after Use of Online Filters

	Column A	Column B	Column C	Column D
App rank	Top 10 online English Vocabulary apps from Google Play	General Notes about the Apps (from 2023 onwards)	Top 10 online English vocabulary apps from Mac App Store	General Notes about the Apps (from 2023 onwards)
1	Improve English: Vocabulary, Grammar, Word Games	The app has global reach and is still in the top 10 results.	Oxford Advanced Learners' Dict	The app is no longer available.
2	English Vocabulary	The app is no longer available.	Express DigiBook	The app has global reach, but is not in the top 10 results anymore.
3	English Test	The app is no longer available.	XXI Century Dictionaries	The app has limited reach (Mac Users only) and is not in the top 10 results anymore.
4	EN	The app is no longer available.	Typing & Reciting Games	The app has limited reach (Mac Users only) and is not in the top 10 results anymore.
5	English Vocabulary 1000 Words	The app has global reach but is not in the top 10 results anymore.	iYingYue	The app has global reach, but is not in the top 10 results anymore.
6	English Vocabulary In Use & Picture	The app has global reach but is not in the top 10 results anymore.	Oxford Learner's Academic Dic	The app is no longer available.
7	English Vocabulary	The app is no longer available.	Earthlingo	The app is no longer available.
8	English Vocabulary	The app has global reach but is not in	OE WordBook	The app has limited reach (Mac users only), is present and

		the top 10 results anymore.		upgraded to "OE WordBook2" but is not in the top 10 results anymore.
9	G	The app is no longer available.	VocaForMe	The app has limited reach (Mac Users only) and is not in the top 10 results anymore.
10	Vocab	The app has global reach but is not in the top 10 results anymore.	11+ Vocabulary Builder Lite	The app is no longer available.

The content and features of these apps were analyzed three times in 2019, then their availability were reviewed in 2024, leading to the corresponding general notes under Columns B and D. Half of the apps from Google Play are no longer available, as in the case of four out of the ten apps from Mac App Store. Nevertheless, the analysis of the features of all apps may still be relevant in gauging what can be appropriate and useful for English vocabulary learning.

General Results of the Study as a Reflection of Previous Studies

The results of this study reflected Taylor's (1980) timeline of computer assisted learning, "tutor, tool, and tutee" (p. 661), as well as Warschauer and Healey's (1998) three perspectives of technological changes namely: "structural CALL, communicative CALL" and lastly, "integrative CALL." "Tutor" and "Structural CALL" perceive the computer as the teacher that controls the lessons and topics, usually by feeding repetitive drills, which, in terms of apps, may be form-focused, as these drills are usually compartmentalized segments of grammar that the app user must complete. This is similar to apps classified in this study as Type-A wherein there is a single computer programmed drill or task with computer generated assessment and feedback. "Tool" and "communicative CALL" perceive the computer an instrument for studying, and the learner communicates to the computer his or her choice of

lesson, topic, activity, and so on by selecting from a set of programmed options. This is similar to apps classified in this study as Type-B wherein there is more than just one non-communicative computer programmed task wherein the learner chooses his or her preferred task to be accomplished with regard to language learning and there is no assessment or feedback. Oftentimes, these are self-directed wherein the learner uses the apps' materials based on his own learning habits and preferences, such as selecting which materials to read, what kind of vocabulary to list and learn; and thus there are no assessments or feedback. Both "Tool" and "Communicative CALL" in terms of apps tend to also be form-focused, as there is no social interaction outside the computer and the learner. "Tutee" and "Integrative CALL" perceive the computer as a co-pupil because the learner often interacts with other learners through the computer wherein studying is integrated into actual social transactions through sharing, posting, commenting, and so forth. Both "Tutee" and "Integrative CALL" in terms of apps tend to be meaning-focused as learning is not segregated in grammar topics but rather integrated into daily living and communication contexts that the app user gets to experience. This is similar to apps classified in this study as Type-C wherein there may be one or more communicative tasks that involve multi-players in a game or uploading and sharing of a learner's completed tasks. Assessments and feedback may or may not be present but if ever available are based on the app's administrator's inputs.

Individual Analysis for Each of the Twenty Apps

Using the guide for analyzing apps in terms of its functions (Table 2) first presented in Chapter Three, the analysis of the content of each app selected based on app description, assessment tools, and feedback scheme are presented. User review highlights may also be included when relevant. Before coming up with the categorzation for each app, preliminary analysis and coding was done using the "Categorization matrix for the analysis of apps based

on functions" tool (Table 3). In addressing the third research question, the "Guide for Analyzing Forms of Instruction…" (Table 4) was used to summarize the stages of second language acquisition, characteristics per stage, and prompts used by the app (as the "teacher") per stage.

Each discussion below begins with a short paragraph that begins with a label that is either "GS" which means "Google Store" or "AS" which means "App Store" and then followed by a number to indicate which app it is in the sequence. The paragraph then mentions observations of the app in terms of description, tasks and activities, assessment, and feedback. The short paragraph is then followed by a table wherein the observations are placed under one of the columns: Type-A, Type-B, or Type-C, wherein Type-A and Type-B fall under the form-focused umbrella while Type-C falls under the meaning-focused umbrella. The table is then followed by a paragraph that connects the app to a stage or stages of second language acquisition.

Comprehensive Analysis of 10 Online English Vocabulary Apps from Google Play

Google App #1 (GS #1). The description of the app mentions more than one topic, for instance: vocabulary and grammar. The tasks available include flashcards, spelling games, listening activities to name a few. For instance, there is "spell safe" and "listen and speak audio." The assessment presented to the user is composed of only word games. The corrective feedback offered is computer scored.

Form-focused instruction		Meaning-focused
Type A (Utility, skill-based) apps	Type B apps (Productivity, content-based)	Type C apps (Immersive, function-based)

Due to the computer generated assessment without social interaction, this app is a utility app. Due to the numeric, computer produced feedback without social interaction, this is a utility app	Due to the variety of topics mentioned in the description, it classifies it as a productive app. Due to the multiple selection of non-conversant activities to choose from the app's tasks, this app is a productive app	

Being mostly either a utility app and productive app, this app fits the description of a form-focused app, predominantly because learning is done through a variety of non-communicative tasks to choose from with computer programmed assessment and feedback. In general, learners that would benefit the most from this app are those in preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). Learners in the speech emergence stage may also benefit, though less, as they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #2 (GS #2). The description of the app mentions multi-skilled tasks, such as listening, reading, word definition. The tasks available include a variety, such as: reading sample sentences, listening to audio files, recording and speaking functions. For example, these sample sentences and sound files can be found in books such as "Book1 Words 1-100," "Book 2, Words 201-400" and so forth. The assessment presented to the user is composed of hundreds of quizzes with computer-programmed answers. The corrective feedback offered is a report card of scores.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based
Since, the assessment is computer generated and without social interaction, this is a utility app Since the feedback is computer produced and without social interaction, this is a utility app	Due to the variety of non-communicative activities to choose from, this app is a productive app	

Being mostly a utility app and productive app, this app fits the characteristics of a form-focused app, predominantly because its multi tasks are non-socially communicative in nature; and there is the presence of assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). Additionally learners in the speech emergence stage can also benefit from this app but not as significantly because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #3 (GS #3). The description of the app mentions a variety of tasks, described to be off-line activities, such as: vocabulary tests ranging from synonyms,

antonyms, idioms. The tasks available include tests, flashcards, word lists. For example, some of the word lists are labeled as “All Words,” “Grouped Words,” “Important Words.” The assessment presented to the user is composed of the same tasks but scored. The corrective feedback offered is a progress track.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Due to the assessments being computer generated and without social interaction, this is a utility app Since the feedback is computer produced and without social interaction, this is a utility app	Due to the mention of its non-communicative. multi-tasks in the description, this app is a productive app Due to the multi-activity selections that are not socially interactional, this is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks that are non-socially communicative in nature; and there is the presence of assessment and feedback which are not socially interactive but rather computer-generated. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with “yes” or “no” or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). Additionally, learners in the speech emergence stage can also benefit from it but not as much, as they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #4 (GS #4). The description of the app mentions a variety of memorization tools, such as: visuals, flash cards, listening tasks. The tasks available include word activities with visuals, flash cards by topic. For example, some of the flashcard topics are: "food," "environment," "transport." The assessment presented to the user is composed of the same tasks but with scoring. The corrective feedback offered is automatic scoring.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since its assessments are computer generated and without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app Due to its multi-activity selections which are not socially interactional, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of assessments and feedback which are not socially interactive but rather computer-generated. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary (Hill & Bjork, 2008). Additionally, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #5 (GS #5). The description of the app mentions that it is an offline English vocabulary learning tool with a variety of tasks such as: vocabulary audio, word lists. The tasks available include audio files for word definitions, pronunciation, and spelling, plus: word-list functions, flash cards. For example, one of the word-list functions is "root words." The assessment presented to the user is composed of a flash-card test and picture-match test. The corrective feedback offered is automatic scoring.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since the assessments are computer generated and without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app Due to its multi-activity selections which are not socially interactional, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of assessment and feedback which are not socially interactive but rather computer-generated. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can

also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #6 (GS #6). The description of the app mentions that it is an "English vocabulary with daily images" then it instructs the user to go through its features. The tasks available include English vocabulary classified in different levels or categories, audio options, offline listening and speaking, vocab lists, list creating functions. For example, some of the vocabulary categorizations are: "insects," "seafood," "vegetables." The assessment presented to the user is composed of word games, for instance: word jumble. The corrective feedback offered is automatic correction.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since its assessment is computer generated and without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app	Due to the mention of its multi tasks which turn out to be non-communicative when one has browsed through them, this app is a productive app Due to its multi-activity selections which are not socially interactional, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in

the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app too but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #7 (GS #7). The description of the app mentions offline vocabulary learning through a variety of vocabulary tasks. The tasks available include English vocabulary lists in different levels, audio files with different topics, and word-list function. For example, some of the first few levels are: "Lesson 1: HOMELIFE," "Lesson 2: CULTURAL DIVERSITY," "Lesson 3: WAYS OF SOCIALIZING" There is no assessment presented to the user There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
	Since the description mentions non-communicative multi-tasks which are offline, this app is a productive app Due to its multi-activity task selections which are not socially interactional, this app is a productive app Since there is no assessment and no social interaction, this app is a productive app.	

	Due to the absence of feedback, and thus, non socially communicative, this app is a productive app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the absence of assessment and feedback, making it not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #8 (GS #8). The description of the app mentions offline fun learning of English vocabulary through various games. The tasks available include pronunciation audio files, word-list function, and various games which need to be unlocked. For example, the first audio file topic is "GREETINGS" wherein there is an audio recording for the word "Mrs," followed by the function to record your voice and a "test your voice" button that will automatically rate your pronunciation from 1 to 3 stars. The assessment presented to the user is composed of accomplishing levels of pronunciation. The corrective feedback offered is an automatic "yes" or "no."

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since its assessments are computer generated and without social interaction , this app is a utility app Since the feedback is computer produced and without social interaction, this is a utility app	Due to the mention of its non-communicative multi-tasks which are offline, this app is a productive app Due to its multi-activity task selections which are not socially interactional, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #9 (GS #9). The description of the app mentions the app to be a self-study app for different levels that touch on rules that are segregated by topic, as well as reading materials that are also segregated by topic. The tasks available include reading grammar rules,

browsing through synonyms, antonyms, homonyms, and practicing word substitution. For example, some topics for grammar rules are: “LEVEL 1 nouns, verbs, pronunciation,” “LEVEL 2 verb tenses, verbs, determiners,” “LEVEL 3 articles, conjunctions, non countable nouns.” The assessment presented to the user is composed of a “What is the topic sentence?” test. There was no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since it is a computer generated assessment without social interaction this app is a utility app	Due to the mention of its non-communicative multi-tasks in the description, this is a productive app Due to its multi-activity selection of tasks which are not socially interactional, this app is a productive app Due to the absence of corrective feedback which makes the app void of social exchange, this app is as a productive app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of an assessment which is not socially interactive. The absence of corrective feedback further classifies it as a form-focused app, as there is no social interaction. In general, learners that would benefit the most from this app are those in the early production stage, and speech emergence stage because learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar

words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can benefit too from this app because they have good comprehension, enough to understand and produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Google App #10 (GS #10). The description of the app mentions a variety of vocabulary topics, visual aids, pronunciation audio, definition function, tests, and games. The tasks available include vocab lists of various topics for reading and audio files for vocabulary lists. To be exact, there are "150 vocabulary topics" and "5,000 vocabulary pictures." The assessment presented to the user is composed of listening tests. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Due to its computer generated assessment without social interaction, this app is a utility app	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app Due to its multi-activity selections which are not socially interactional, this app productive app Due to the absence of corrective feedback and thus, void of social exchange, this app is a productive app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and

there is the presence of an assessment which is not socially interactive, plus the loss of corrective feedback further makes it non-communicative. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Comprehensive Analysis of 10 Online English Vocabulary Apps from App Store

App Store app #1 (AS #1). The description of the app mentions new word definitions, pronunciation functions, explanations, and examples. The tasks available include search options, pronunciation audio, voice record function, and word-list function. As per its name, it has the common dictionary functions but also includes other details such as the plural form if any; and if it is a noun whether it is countable or uncountable. There is no assessment presented to the user. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app	

	Due to its multi-activity selections which are not socially interactional, this app is a productive Due to the loss of assessment, and thus void of social interaction in terms of testing, this app is a productive app Since this app is void of feedback, and thus, void of social exchange in terms of evaluation, this app is a productive app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

App Store app #2 (AS #2). The description of the app mentions cooperation and engagement among schools' multiple student accounts wherein a digital environment offers gamified learning experiences, and downloadable multimedia learning materials. The tasks

available include downloading materials and uploading completed tasks for sharing. For example, the administrator has the "Assign homework to learners" wherein the administrator may assign tasks individually or by groups, as shown in the demo. The assessment presented to the user was made inaccessible by the app provider, unless a teacher or school or administrator uploads. Corrective feedback is unavailable, unless the teacher or administrator provides such.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
		Due to the mention of cooperation among pupils; and is thus, socially communicative, this app is an immersive app Since the tasks require contributing in discussions and is socially interactional, this app is an immersive app While assessments were not seen, unless given access by the administrator, the assessment can still classify as an immersive app because the assessments are socially open for sharing and comments. Since the feedback is made of input and comments from a human; and thus has social exchange, this app is an immersive app

Being mostly an immersive app, this app fits the description of a meaning-focused app, predominantly because of communal uploading for sharing, and human interchange through assessment and feedback; and is thus, socially communicative in nature. In general, learners that would benefit the most from this app are those in the speech emergence stage, intermediate fluency stage, and advanced fluency stage because learners in the speech emergence stage

have good comprehension, enough to produce simple sentences that are needed to respond in communal sharing (Hill & Bjork, 2008). In addition, learners in the intermediate fluency stage and advanced fluency stage can benefit from this app too because they are either communicating with few grammar mistakes or communicating at the same stage as a native speaker (Hill & Bjork, 2008).

App Store app #3 (AS #3). The description of the app mentions dictionary spellings, antonyms, synonyms and lists of nouns and verbs. The tasks available include searching words, making own word lists, finding definitions, and listening to audio. For example, one function is "Make your choice" which allows the user to select a dictionary from a variety of them and use the available functions of the selected dictionary. In addition, there is a "smart search" function which allows the user to search for similar words or even full text, such as a paragraph. There is no assessment presented to the user. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app. Due to the multi-activity selection of tasks which are not socially interactional, this app is a productive app Due to the loss of assessment, thus making it void of social interaction in terms of	

	testing, this app is a productive app Since the app is void of feedback, and thus, void of social exchange in terms of evaluation, this app is a productivity app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with yes or no or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008).

App Store app #4 (AS #4). The description of the app mentions a variety of typing games and a variety of reciting games. The tasks available include 5 typing games, 10 typing + reciting games, 2 reciting games. Examples of these were racing through typing, word matches, spelling. For example, one game is "balloon hit" wherein the user must type the given word before the balloon flies away completely or "word spell" wherein the user must rearrange a block of words to form the word mentioned in audio recording. A dictionary management tool was also available for creating one's own word lists. The assessment presented to the user is composed of the same game choices but with scoring. The corrective feedback offered is programmed corrections.

Form-focused instruction	Meaning-focused

Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since its computer generated assessments are without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app	Due to its multi-activity selections of tasks which are not socially interactional, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of computer-generated assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

App Store app #5 (AS #5). The description of the app mentions learning words from different sources, such as: books, web pages, documents. The description also included a dictionary, as well as an individual word-list function. The tasks available included reading texts, extracting words from texts, making word lists, noting reading difficulty. For example, some reading texts available were "Simone Biles drops out of individual floor competition"

and “American swimmer Dressel wins fifth gold.” There is no assessment presented to the user There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
	Due to the mention of its non-communicative multi-tasks in the description, this app is a productive app Due to the multi-activity selection of tasks which are not socially interactional, this app is a productive app Due to the loss of assessment, thus making it void of social interaction in terms of testing, this app is a productive app Since the app is void of feedback, thus making it void of social exchange in terms of evaluation, this app is a productive app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. Learners that

can benefit from this app are those in the early production stage, and speech emergence stage because learners in the early production stage are still adding vocabulary to
their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). However, it is the learners in the speech emergence stage that would benefit more from this app because they already have good comprehension, enough to produce simple sentences but with grammar mistakes, and can read more of the reading texts provided (Hill & Bjork, 2008).

App Store app #6 (AS #6). The description of the app mentions sample dictionary pages, reading and understanding academic texts, improving academic writing. The tasks available include creating vocab lists, listening to pronunciation, finding words in an academic text, using the dictionary function. For example, one function to improve academic writing is "collocations" which shows the user common words that are juxtaposed with a given word. There is no assessment presented to the user. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
	Due to the mention of its non-communicative multi-tasks in the description, this app is a productivity app Due to its multi activity selections of tasks that are not socially interactional, this app is a productivity app Due to the loss of assessment, thus making the app void of social	

	interaction in terms of testing, this app is a productivity app Since the app is void of feedback, thus making it void of social exchange in terms of evaluation, this app is a productivity app	

Being mostly a productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. In general, learners that would benefit the most from this app are those in the speech emergence stage, intermediate fluency stage and advanced fluency stage because learners in the speech emergence stage have good comprehension, enough to read academic texts (Hill & Bjork, 2008). In addition, learners in both the intermediate fluency and advanced fluency either have excellent comprehension or native-like comprehension, and can therefore read academic texts (Hill & Bjork, 2008).

App Store app #7 (AS #7). The description of the app mentions vocabulary learning through an interactive picture dictionary that initiates word recall via word association. The tasks available include only associating words with pictures. For example, an alien is seen navigating through a street; and as the alien jumps over a bus, the word "bus" appears and is heard through an audio recording while the word "noun" appears on the screen. The same experience is repeated but this time, the user must select the word "bus" from word choices. The assessment presented to the user is composed of the same activity but is scored. The corrective feedback offered is automatic correction.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Due to the mention of its single, non-communicative task in the description, this app is a utility app Due to the solo activity which is not socially interactional, this app is a utility app Since the assessment is computer generated and without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app		

Being mostly a utility app, this app fits the description of a form-focused app, predominantly because of its single task which is non-socially communicative in nature; and there is the presence of computer-generated assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage and early production stage because learners in the preproduction stage are still building vocabulary, as they only respond with yes or no or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008).

App Store app #8 (AS #8). The description of the app mentions learning a collection of new words by creating multiple word books. The tasks available only included making one's

own word books. What may be seen in a word book is the word itself, its function, its translation, and the date when the user had inputted the word. There is no assessment presented to the user. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Due to the mention of its single non-communicative task, this app is a utility app Having only a solo activity which is not socially interactional, this app is a utility app	Due to the loss of assessment, thus making the app void of social interaction in terms of testing, this app is a productive app Since the app is void of feedback, thus making also void of social exchange in terms of evaluation, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its single task which is non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. In general, learners that would benefit the most from this app are those in the preproduction stage and early production stage because learners in the preproduction stage are still building vocabulary, as they only respond with "yes" or "no" or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

App Store app #9 (AS #9). The description of the app mentions making one's own vocabulary lists for memorization purposes. The tasks available included only a vocab-list tool which did not even require the internet, once it was downloaded. Generally the only function is a word input feature. There is no assessment presented to the user. There is no corrective feedback offered.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Due to the mention of its single, non-communicative task in the description, this app is a utility app Due to its solo activity which is not socially interactional, this app is a utility app	Due to the loss of assessment which voids social interaction in terms of testing, this app is a productive app Since the app is void of feedback, thus also making void of social exchange in terms of evaluation, this app is a productive app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its single task which is non-socially communicative in nature; and there is the absence of assessment and feedback which makes it socially inactive. In general, learners that would benefit the most from this app are those in the preproduction stage and early production stage because learners in the preproduction stage are still building vocabulary, as they only respond with yes or no or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much

because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

App Store #10 (AS #10). The description of the app mentions quizzes for various tasks. The tasks available include alphabetizing, solving anagrams, matching antonyms, correcting spelling errors, making synonym sets. For example, the instructions for synonym sets are, "Select the word that is most similar in meaning to OPULENT" and five choices are displayed on the screen, as well as the meaning of "opulent." The assessment presented to the user is composed of tests and mock tests, similar to the task but is scored. The corrective feedback offered is a progress meter.

Form-focused instruction		Meaning-focused
Type-A (Utility, skill-based) apps	Type-B apps (Productivity, content-based)	Type-C apps (Immersive, function-based)
Since the assessment type is computer generated assessment without social interaction, this app is a utility app Since the feedback is computer produced and without social interaction, this app is a utility app	Due to the mention of its non-communicative multi-tasks in the description, this app is productivity app Due to its multi-activity selection of tasks which are not socially interactional, this app is a productivity app	

Being mostly a utility app and productive app, this app fits the description of a form-focused app, predominantly because of its multi tasks which are non-socially communicative in nature; and there is the presence of computer-generated assessment and feedback which are not socially interactive. In general, learners that would benefit the most from this app are those in the preproduction stage, early production stage, and speech emergence stage because learners in the preproduction stage are still building vocabulary, as

they only respond with “yes” or “no” or pointing; and learners in the early production stage are still adding vocabulary to their limited vocabulary and can respond with only one or two familiar words (Hill & Bjork, 2008). In addition, learners in the speech emergence stage can also benefit from this app but not as much because they already have good comprehension, enough to produce simple sentences but with grammar mistakes (Hill & Bjork, 2008).

Summary Analysis of the Online English Vocabulary Apps

The first important finding is that out of the twenty online English vocabulary apps analyzed, the majority could be classified under form-focused instruction. As seen from the individual content analysis of the apps, only one was considered immersive (Type C), alluding to meaning-focused instruction. The description of the only meaning-focused app in this study mentions cooperation and engagement among schools’ multiple student accounts wherein a digital environment offers gamified learning experiences, and downloadable multimedia learning materials. Keywords in the description such as “cooperation” and “among school” distinctly classify it as a meaning-focused app which is very communicative in nature. The tasks available included downloading materials and uploading completed tasks for sharing. For example, the administrator has the “Assign homework to learners” function, letting the administrator assign tasks individually or by groups, as shown in the demo. The assessment presented to the user was made inaccessible by the app provider, unless a teacher or school or administrator uploads. Corrective feedback is unavailable, unless the teacher or administrator provides such. Since both the assessment and feedback come from a human administrator rather than being algorithmic, the assessment and feedback are interactive in nature, a clear-cut characteristic of meaning-focused apps. This app has the distinct characteristics of a meaning-focused app, as mentioned in Table 3, such as communicative tasks like uploading the app user’s (as the language learner) own written texts, images, and presentations based on

a human administrator's directives. These files are to later to be shared, prompting social interaction. Particularly from this finding, it may be safe to conclude that grammar-centered directives remain to be the core of language instruction in language learning apps rather than communication (Richards & Schmidt, 2014). Surprisingly, the shift from form-focused instruction to meaning focused instruction (Bar & Tagg, 1995) and the shift from "teacher-centered" to "student-centered" practices (Aghari, 2016) are not as visible when it comes to English vocabulary apps, as there is only one out of the twenty most popular apps may be considered meaning-focused.

The second important finding of this study is that while the categorical features noted by previous research (Cherner et al., 2014; Ginsburg, 2010) were classified as Type-A or Type-B apps being form-focused apps and Type-C apps being meaning-focused, for this study, form-focused apps, Type-A and Type-B, can have subcategories, namely F1 and F2 apps. The first subcategory (F1 apps) of form-focused apps are "purely productivity" (purely Type-B). F1 apps have two or more non-communicative tasks; and they have no assessment or feedback. The second subcategory (F2 apps) of form-focused apps are "produtility apps", a combination of "productivity apps" (Type B) and "utility apps" (Type A) apps.

The third important finding of this study is that F2 apps can be further broken down into three more subgroups, namely: F2a, F2b, and F2c. F2a apps have multi non-communicative tasks and have computer-generated assessments and computer-generated feedback. F2b apps have multi non-communicative tasks and have computer generated assessments and computer generated feedback. F2c apps have a single non-communicative task and have no assessment and feedback. While they differ in having either single or multiple tasks and differ as to either having assessments or not, the general common theme in them is that they are non-communicative in nature. This information supports the idea that while there is movement towards meaning-focused instruction, grammar-centered directives remain to be

the core than communication (Richards & Schmidt, 2014). The subcategories support the idea of Warschauer (1996) and Bax (2003) that we still in "Open CALL" wherein students focus on their own learning, given the multiple tasks but should continue to work on "attain a state of 'normalisation' in which learning technology is concealed as it is truly merged within daily, real life digital applications. The third sub-category (F3 apps) of form-focused are "purely utility apps" which have a single non-communicative task with computer generated assessments and computer generated feedback.

App Analysis and the Stages of Second Language Acquisition

In analyzing each app, distinct prompts were noted to reflect the different stages of second language acquisition. Prompts such as "match pictures with words," "choose the correct meaning," "select the correct missing word," "memorize kinds of shapes," and "identify the verb" are form-focused commands that suit stage 1 (preproduction stage) of second language acquisition. Prompts mentioned prior plus "count the apples," "list unfamiliar words," and "type the present tense" are form-focused commands that suit stage 2 (Early production stage) of second language acquisition. Prompts mentioned prior plus "read the given text," "watch the short video," "listen to the pronunciation," "type the past or present tense of the verb," and "write a one-day diary" are form focused commands that suit stage 3 (speech emergence stage) of second language acquisition. Prompts mentioned earlier plus "Write a descriptive letter about your house," "respond to a friendly letter about your long weekend," "post a notice about a missing dog," "share a narrative about your week routine," and "upload a postcard with a descriptive caption," are meaning-focused commands that suit Stage 4 (intermediate fluency stage) of second language acquisition. Prompts mentioned prior plus "Write a descriptive letter to your friend about your neighbor," "respond to an academic letter," "post a notice about starting a certain advocacy group "share a narrative about your

summer vacation" and "upload a how-to video " are meaning-focused commands that suit Stage 5 (advanced fluency stage) of second language acquisition.

In summary, the first three stages of second language development tend to need more form-focused instruction apps than meaning-focused apps. These form-focused apps mirror the characteristics of the utility apps and productivity apps discussed by Ginsubrg (2010). Generally these apps are non-socially communicative in nature and follow a drill format with computer generated assessments and feedback or none at all . In addition, it can also be said that apart from the command terms taken from Ginsburg (2010) and (Cherner et al. 2014), such as "memorize, choose, match, and identify," other command terms can be noted as well, such as "list and listen." For example, "match the picture with the correct word" is ideal for the "preproduction stage" (Stage 1) because at this point, the learner does not verbalize but relies on pointing (Hill & Bjork, 2008), thus is similar to moving the cursor to the right image. Examples of prompts that are ideal for the "Early production stage" (Stage 2) are "count the apples," "list unfamiliar words," and "type the present tense" because, at this stage, the learner has moved on from one-word responses to two-word response (Hill & Bjork, 2008), and can start making vocabulary lists. Also the learner can use present tense verbs (Hill & Bjork, 2008), thus selecting the right one is ideal because even if the learner can use the present tense, he or she still has limited comprehension and cannot make sentences (Hill & Bjork, 2008). Lastly, learners at this stage can count (Hill & Bjork, 2008), thus commands to add up the number of items in a picture by counting is ideal. Examples of prompts that are ideal for the "speech emergence stage" (Stage 3) are "read the given text," "watch the short video," "listen to the pronunciation," "type the past or present tense of the verb," and "write a diary" because at this stage, the learner has good comprehension (Hill & Bjork, 2008), and thus can understand a short video. Also, the learner has moved on from just learning the word to actually pronouncing

it right, thus listening to audio guides for pronunciation is ideal. In addition, learners at this stage can produce simple sentences (Hill & Bjork, 2008), and writing a diary is ideal as most verbs will be in the simple past tense sentences; and learners at this stage can respond to questions that require short answers (Hill & Bjork, 2008), like "What did you do today?" which is fitting for a one-day diary narrative.

Moving forward, the last two stages of second language acquisition, tend to need more meaning-focused apps than form-focused apps. These meaning focused apps mirror the characteristics of immersive apps as discussed by Ginsburg (2010). Generally these apps are socially communicative in nature and learning takes place within given context in real life activities. The command terms are usually video, upload, record, create, email, post, and share; and there are no computer-generated assessments or feedback but if there are any, they are humanly regulated. Examples of prompts that are ideal for "intermediate fluency" (Stage 4) are "write descriptive letter about your house," "respond to a friendly letter about your long weekend," "post a notice about a missing dog," "share a narrative about your weekly routine," and "upload a postcard with a descriptive caption" because learners at this stage have excellent comprehension (Hill & Bjork, 2008) and can respond in social interactions, such as replying to a cordial letter. In this stage the learner also makes few grammatical errors (Hill & Bjork, 2008) and can participate in social exchanges or publicized writing, such as making a notice about a missing dog or sending a descriptive postcard. Also, these tasks require several sentences and learners at this stage can respond to tasks that require answers with more than just one sentence (Hill & Bjork, 2008). Examples of prompts that are ideal for the "advanced fluency stage" (Stage 5) are "Write a descriptive letter to your friend about your neighbor," "respond to an academic letter," "post a notice about starting a certain advocacy group" "share a narrative about your summer vacation" and "upload s how-to video because learners at this stage have a near native level of speech (Hill & Bjork, 2008), thus can move on from cordial

correspondences to writing an academic letter. Learners at this stage are capable of retelling (Hill & Bjork, 2008), thus a longer narrative of a vacation is ideal. Learners in this stage can also respond to decision making questions, such as "decide if" (Hill & Bjork, 2008); and writing about a neighbor is subjective, as this is more than just describing what the six senses can fathom. Similarly, "posting a notice about starting a certain advocacy group" is ideal as the learner has to decide what reasons and facts will support the chosen advocacy.

For visual references, Table 6 is presented below with sample, general form-focused and meaning-focused prompts typically used by traditional language teachers and were also found in the apps under Column 2 (specifically, Columns 2a and 2b) while detailed form-focused and meaning-focused instructions featured in the apps and other pertinent notes by the researcher are under Column 3 (specifically, Columns 3a and 3b).

Table 6

Characteristics of Second Language Acquisition and Prompts from the Online English Vocabulary Apps

Stages of L2 acquisition	Teacher prompts adopted and featured in the vocabulary apps analyzed		Other comments and sample notes alluding to the apps content	
	Form-focused	Meaning-focused	Form-focused	Meaning-focused
Stage 1: Preproduction 0-6 months	prompts such as: -choose -select/ click/ touch -memorize -identify *without context	–relies on the app user's inputted commands	**Form-focused > meaning-focused** - Match (*Match the correct word to the correct picture)* - Choose *(Choose the correct word that corresponds*	

			to the definition given) - Select *(Select the best word the completes the sentence)* -Memorize *(Memorize kinds of shapes)* -Identify *(Identify the verb)* **contains more visuals aids or pictures*	
Stage 2: Early production stage (6 months to 1 year)	*Similar commands from the pre-production stage, plus: -count -list -type *without context	–relies on the app user's inputted commands	**Form-focused > meaning-focused** *Similar commands from the pre-production stage, plus: -Count *(Count the apples)* -List *(List the words from the text that you don't understand)* -Type *(Type the present tense of the verb that best completes the sentence)* **Spelling begins*	
Stage 3: Speech emergence stage (1 to 3 years)	*Similar commands from the earlier stages, plus: -read -listen -watch -type	–relies on the app user's inputted commands	**Form-focused > meaning-focused** *Similar commands from the earlier stages, plus: -Read *(Read the given text)*	

	-write *without context		-Watch *(Watch the short video)* -Listen *(Listen to the pronunciation)* -Type *(Type the past tense of the verb that best completes the sentence)* -Write *(Write a one-day diary entry)* **Comprehension activities begin* **More downloadable offline materials are available*	
Stage 4: Intermediate fluency stage (3 to 5 years)	*Similar commands from the earlier stages, plus: -write -respond -post -share -upload	–relies on the app user's inputted commands		**Form-focused > meaning-focused** *Similar commands from the earlier stages, plus: -Listen *(Listen to the audio narration)* -Write *(Write a descriptive letter about your house)* -Respond *(Respond to a friendly letter about your neighbor)* -Post (*Post a notice about your missing dog)* -Share *(Share a narrative about your weekly routine)* -Upload *(Upload a postcard picture with a descriptive caption under the picture)*

				**Activities have more context.*
Stage 5: Advanced fluency stage	*Similar commands from the earlier stages	–relies on the app user's inputted commands		**Form-focused < meaning-focused** *Similar commands from the earlier stages but more advanced activities: -Write *(Write a letter to your friend, describing your neighbor)* -Respond *(Respond to an academic letter)* -Post *(Post a notice about starting a group for a certain advocacy)* -Share *(Share a narrative about your vacation)*

As earlier described, form-focused apps are non-communicative in nature that may have one or more non-communicative tasks and may or may not have assessment or feedback while meaning-focused apps are communicative in nature and may have one or more socially communicative tasks and may or may not have human-assisted feedback, depending on the app administrator who would most likely not require assessments, as learners are instructed to "create" rather than take a test (Cherner et al, 2014).

Online English vocabulary apps that are more form-focused would be more suitable for language learners that have been acquiring and learning the language within three years or those that are in any of the first three stages of second language acquisition, "pre-production stage," "early production stage," and "speech-emergence stage." In the "pre-production stage,"

wherein the student has nominal comprehension and can only respond by gestures (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006), it is plausible to say that form-focused instruction is more needed, as this form of instruction is not socially communicative in nature; and therefore, "matching, choosing, and identifying" are the more appropriate app commands as the learner relies on merely clicking on answers, such that in traditional learning, the learner merely nods or points. In the "early production stage" wherein the learner has restricted comprehension and can only respond with one or two words (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006), form-focused instruction is still more strongly needed because the student cannot respond yet in complete sentences or ideas, and form-focused instruction is not-socially communicative in nature. The app commands, "count," "list," or type" are most suitable as the student can respond in 2-word utterances (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006), for example: "two apples" when asked to count a visual or "mother and father" when asked to list members of the family; and these commands reflect instructions from a teacher in a traditional setting such as, "How many?," "Who?," and "This or that?" In the "speech emergent stage" wherein the learner has commonsensical comprehension, form-focused instruction still outweighs meaning-focused instruction. The app command "type," particularly "Type the past tense or the present tense of the verb that best completes the sentence" is most applicable as learners in this stage can produce basic simple sentences (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006). In traditional learning, the teacher's questions or instructions also result in simple sentences. An example of such a question is "why," such as "Why is the boy absent?" and the learner may respond simply with "He is sick."

Such findings are consistent with the points made in previous literature (Hill & Bjork, 2008; Hill & Flynn, 2006), which described learners as having minimal comprehension, dependent on verbal cues to at the most can produce simple sentences. This is consistent with

the literature on second language acquisition that still places value on form-focused, drill-and-practice programs for the students' independent study despite the movement to meaning-focused and student-centered methods because students frequently feel safe and comfortable with drill-and-practice activities (Walker & White, 2013).

On the other hand, learners who have been acquiring a second language for a longer time, around three to seven years, are more suited for meaning-focused vocabulary mobile apps these learners range from having outstanding comprehension with scarcely any grammatical errors to having near native-like fluency (Hill & Bjork, 2008). In the "intermediate fluency stage" wherein the learner has very good comprehension (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006), meaning-focused instruction is more necessary than form-focused instruction because the student can respond with more complex sentences, as he or she makes few grammatical errors. The app commands most applicable are the likes of "Write," such as "Write a friendly letter describing your house" or "Respond," such as "Respond to the friendly letter by talking about your future plans for the summer," as this command requires more than one sentence and the task itself is more socially communicative in nature. In the traditional form of teaching, the teacher's commands reflect the app commands mentioned above, such that the teacher may say "What do you think you will be doing in the next five years?," as this requires a response of more than one sentence and is more socially communicative in nature. The last stage, the "advanced fluency stage," leans strongly on meaning-focused instruction because the learner has acquired near native-like fluency of the target language (Krashen & Terrell, 1983; Hill & Bjork, 2008; Hill & Flynn, 2006). The app commands most suitable for this stage are somewhat similar with the prompts and commands found appropriate for the "intermediate fluency stage" but the actual tasks and activities may reflect a more advanced requirement in one's English vocabulary and overall language skills, such as "share a written narrative

about your daily routine," reflecting the command of a teacher in traditional teaching when asking learners to recall, retell, and describe an experience in a cohesive and coherent written form (for example, "Retell how your day went in diary entry"). Prompts and commands suitable for the last stage of second language acquisition require the kind of responses that feature cohesive sentences, like that of a paragraph with clear communicative ideas.

Table 7 summarizes the analysis of the apps and how they generally relate to the stages of second language acquisition.

Table 7

Stages of Second Language Acquisition and the Need for the Type of Instruction

Stages of L2 acquisition (Hill & Bjork, 2008)	Type of instruction (form-focused or meaning-focused) typically adopted and featured in the online English vocabulary apps that is most suitable for each L2 acquisition stage *The symbols > and < represent which form of instruction is more needed and less needed
Preproduction stage (0-6 months)	Form-focused > meaning-focused
Early production stage (6 months to 1 year)	Form-focused > meaning-focused
Speech emergence stage (1 to 3 years)	Form-focused > meaning-focused
Intermediate fluency stage (3 to 5 years)	Form-focused < meaning-focused
Advanced fluency stage	Form-focused < meaning-focused

In general, the first three stages need more form-focused instruction while the last two stages need more meaning-focused instruction.

Chapter V

Summary, Conclusions, and Recommendations

This chapter includes conclusions based on the findings made and summarizes the potential answers to each research question. This chapter ends with a set of recommendations for language and literacy teachers, English language learner app users, and for future researchers of language learning apps.

Summary of Findings

Research question 1: How can popular, cost-free online English vocabulary apps from two digital distribution platforms be categorized as form-focused instruction and meaning-focused instruction?

Based on the findings of this study, apps can be analyzed and categorized based on their functions and focus of instruction, as evident from their generic description, featured tasks, assessment activities, and feedback schemes. Generally apps that are categorized as form-focused have one or more non-communicative (isolated) tasks which may either have computer algorithmized assessments or no assessments; and can either have computer generated corrective feedback or no feedback at all. On the other hand, apps that are categorized as meaning-focused either have one or more socially communicative tasks which may or may not have human-assisted assessments and can either have human-assisted corrective feedback or none.

Research question 2: What are the key characteristics of form-focused online English vocabulary apps and meaning-focused English vocabulary apps?

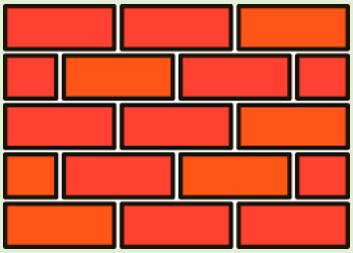
Based on the findings of this study, only one app showed characteristics of meaning-focused instruction. The rest reflected form-focused instruction, which can be further summarized into five subcategories, with the first three having a collection of isolated computer-generated tasks and the last two focusing on only a single computer-generated task, as represented by the key features and metaphors in Table 8. The first sub-category for form-focused apps is a purely productivity app such that it is described to have many non-communicative tasks but there is no assessment and no corrective feedback.

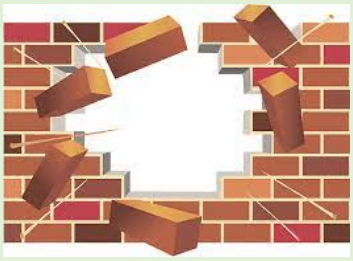
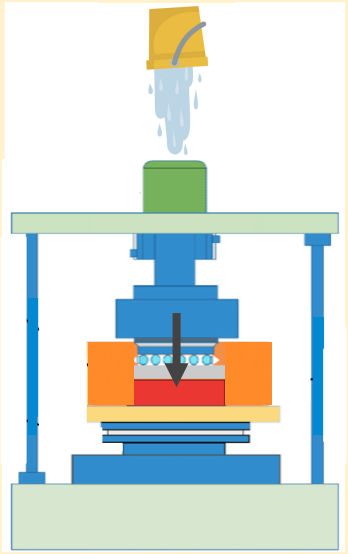
Metaphors for the Subcategories of Form-Focused Apps

In analyzing the nature of the tasks found in the online English vocabulary apps with predominantly form-focused instruction, the key features noted represent app sub-categories, which may also be described using brick metaphors, shown in Table 8.

Table 8

Form-Focused Instruction in the Apps and its Sub-Categories

Nature of the tasks	**Key features**
Multiple, isolated tasks	A1. without assessment and corrective feedback Brickwall  (Freepik, 2010)

	A2. with computer-generated assessment and corrective feedback Pressurized cemented brick wall  (Adobe Stock, 2023; Dreamstime, 2023)
	A3. with computer-generated assessment but without corrective feedback Pressurized brick wall  (Adobe Stock, 2023)
Single, isolated tasks	A4. with computer-generated assessment and corrective feedback Pressurized cemented brick  (Wang, 2008) (Pouring bucket, 2023)
	A5. without assessment and corrective feedback Brick

	 (Freepik, 2010)

The first-subcategory may be likened to a brick wall, as each brick represents a task but there is nothing else—no tests or constructive comments. An app that fitted these characteristics was App Store's "Oxford's Advanced Learner's Dictionary (AS #6)" such that the user can access word definitions, listen to pronunciation audio, record own pronunciation, create word-banks which were all non-communicative in nature; and there was no assessment or corrective feedback. The second sub-category, like the first, has many non-communicative task options but has computer-generated tasks and computer-generated corrective feedback. This second-subcategory may be likened to a pressurized cemented brick wall. The bricks are the tasks; and the applied pressure on the bricks are the assessments. The cement is the feedback, strengthening the brick wall by filling up the gaps, similar to correcting flaws. An app that fitted these characteristics was Google Play's "English Vocabulary" such that with a variety of non-communicative tasks, the user was exposed to word definitions, and may choose to listen to audio or to record own pronunciation; and as an assessment, there is access to hundreds of non-communicative computer-generated quizzes with immediate computer-generated answers as corrective feedback. The third sub-category is like the first and second sub-categories, as it has several non-communicative tasks to choose from, and has computer-programmed assessments but no corrective feedback. This third-subcategory may be likened to a pressurized brick wall, as there are many tasks, many bricks and there are assessments – represented by the pressure but there is no cement or corrective feedback. An app that fitted these characteristics was Google Play's "Vocab (GS #10)," such that the non-communicative tasks ranged from reading descriptions, viewing visual aids, or listening to pronunciation; and vocabulary was assessed through computer generated tests and games but there was no

corrective feedback. The fourth sub-category is different from the first three subcategories, such that it is described to focus on a single non-communicative task; and this isolated task is computer-generated, along with assessments and corrective feedback that are computer-generated as well. This fourth-subcategory may be likened to a pressurized cemented brick, as the single brick is a single task; and applied pressure is the assessment while the cement is the corrective feedback. An app that fitted these characteristics was App Store's "Earthlingo (AS #7)" such that the single task was to match items in a visual tour to their vocabulary counterpart. This computer-generated interactive visual tour was an assessment itself with computer-generated automatic corrective feedback by scoring and immediate correct answers. The fifth sub-category, like the fourth is described to have a solitary task but there are no assessments and no corrective feedback. This fifth-subcategory may be likened to a single brick, as the single brick is a single task, without pressure or assessment; and without cement or feedback. An example of this was the Mac App Store's "OE Word Book (AS #8)" wherein the solitary task was to collect new words by creating multiple word books. There was no assessment and there was no corrective feedback.

Key Characteristics of Online English Vocabulary Apps in Terms of Focus of Instruction

Form-focused apps have the qualities of both utility and productive apps. They may either have a single task or multiple tasks, as long as they are non-communicative in nature. When it comes to assessments, they either have computer-generated assessment/s or none at all. Likewise, for feedback, it may be computer-generated or none at all. Meaning-focused apps have the qualities of immersive apps. They may either have a single task or multiple tasks, as long as they are communicative in nature. When it comes to assessments, they either have human-assisted assessment/s or none at all. Likewise, for feedback, it may be human-assisted or none at all.

Research question 3: Which stages of second language acquisition correspond to the two categories of online English vocabulary apps?

Since most of the popular, cost-free online English Vocabulary apps that were part of this study fell into the form-focused category, these apps may be considered most appropriate for learners at the preproduction until early production stages, as learners in these stages range only from minimal comprehension to limited comprehension with responses that range from non-verbal to one-to-two word responses by using keywords and familiar phrases (Hill & Bjork, 2008). In addition, the form-focused apps found in this study often involved the following non-communicative features: picture dictionaries, word books, grammar topics, audio files, memorization tools, reading materials, and single-player games; and these in turn match some of the strategies recommended for the preproduction and early production stages, namely: visuals, games, displayed / printed language, vocabulary expanding lessons (North Platte Public Schools, 2021). While it is mostly learners in the preproduction and early production stages that can benefit from the popular, cost-free online English vocabulary apps in Google Play and App Store, learners in the speech emergence stage can still somewhat benefit as learners in this stage mostly respond to questions requiring phrase or short-sentence answers (Hill & Bjork, 2008), as they still have limited vocabulary but can learn them more through incorporated text reading and writing, as well as communicative describing, retelling, comparing rather than visuals, games, and displayed / printed vocabulary (North Platte Public Schools, 2021). There seems to be less appropriate apps for learners at the intermediate fluency and advanced fluency stages because based on the results of this study indicating that most apps were form-focused and non-communicative, but learners in the intermediate and advanced stages range from excellent communication to native speaker-like communication and would benefit more from communication of opinion, judgment, explanation, as well as developing

written and oral academic language (North Platte Public Schools, 2021) rather than rather than visuals, games, and displayed / printed vocabulary (North Platte Public Schools, 2021). In summary, apps using form-focused instruction are best suited for learners at the first three stages of second language acquisition. The last two stages of second language acquisition wherein the learner has been using or learning the language for three years or longer would benefit most from apps that use meaning-focused instruction.

While this study found the apps to be mostly form-focused and most beneficial to those at the preproduction and early production stages, the results do not seem to reflect the transition to the more communicative and meaning-focused view of language which according to Canale in Richards and Schmidt (2014)'s "Language and Communication" begun from the 1960's and onwards. The significantly smaller presence of meaning-focused instructions in the apps studied is a limitation to all learners, even to learners at the preproduction and early production stages, and while learners at these stages communicate with only actions or at the most two-word responses, social interaction is still recommended for these stages, even in just the forms of real-life examples, role-playing, peer-to-peer or peer-to-teacher dialogues, group / choral reading (Obregon & Shillcock 2012, as cited in Haynes, 2012). Moreover, Bandar and Gorjian (2017) stated that their studies provided a reason to state that having both forms of instruction is more efficient than just the traditional form-focused mode of mastering grammar; and thus, the form-focused apps in this study while is mostly beneficial to the first two stages of language acquisition is still not enough without meaning-focused instruction because learners can only apply their second language skills based on what they had encountered in their learning journey (Pienemann, 1998), and thus, isolated language tasks in form-focused instruction will not suffice for interactive, real-life social exchange. Form-focused instruction with corrective feedback within communicative interaction can still be favorable to second language acquisition development (Spada & Lightbown, 1993) because it provides "safe" practice

opportunities to help establish vocabulary and grammar roots, as well as boost their confidence, provided that that meaning-focused instruction is available to apply these these draining skills to actual use of the second language in actual social contexts. Unfortunately, majority of the apps that emerged from Google Apps and App Store use-form focused instruction, giving more options for learners in the first three stages of second language acquisition, mirroring the findings of Vesselinov & Grego (2012).

Conclusion

Each top ten online English vocabulary apps from Google Play and the App Store were deemed to be mostly form-focused apps that mostly had a variety of non-communicative tasks to choose from. However, it is important to take note that regardless of having only a single task or a variety of tasks or having assessment or no assessment, the key characteristic is that the tasks, assessments, or feedback are non-communicative in nature, which addressed the first half of the second research question of this study. Being non-communicative is the overarching distinction that puts apps under form-focused instruction and inversely, the primary distinction of meaning-focused apps is that regardless of having a single task or multiple tasks and regardless of having assessments and feedback or not, all the components (task, assessment, feedback) must be communicative in nature to be considered meaning-focused, which addressed the second half of second research question. The two overriding criteria concerning the absence or presence of social communication within the apps' tasks, assessments, or feedback directly addressed the first research question. Since most of them have many non-communicative tasks as options to select from, the results may imply a stronger presence of the learner-centered paradigm as students are playing a more participative role by deciding on their preference of learning aids and outcomes rather than just the professor doing so, as in a teacher-centered paradigm (Agrahari, 2016). The more evident presence of multi non-communicative

tasks corresponds to Warschauer's "communicative CALL" that puts the learner's mind as the constructor of knowledge (as cited in Walker & White, 2013), However, since only one app had communicative assessment and feedback; and most had either computer generated feedback or none at all, it can be said that technology has not completely moved away from the Warschauer's "structural CALL" which is described to have repetitive drills and "non-judgemental feedback" through computer generated reports or ratings (Warschauer, 1996, section 1.6), which may imply that the movement to the learner-centered paradigm remains incomplete Furthermore, the more distinct presence of form-focused apps, with its multi non-communicative tasks and feedback, reflects Bax's (2003) findings that we are in the presence of "Open CALL" and still need more communicative apps that make learning truly integrated into meaningful use of technology. With the knowledge from this study that apps can be classified as form-focused if they have single or multiple non-communicative tasks that either have the presence or absence computer-generated assessments and feedbacks, hopefully users will be more aware that it is learners at the first two stages of second language acquisition that would benefit the most from these apps because most of the apps are non-communicative in nature, and the first two stages of language acquisition have learners communicating with only one or two word responses at the most, and thus addressing the third research question. To add on, since most of the apps were found to be form-focused, users should also keep in mind that they must find a way to add meaning-focused learning because methods in second language instruction have also pushed for a combination of form-focused and meaning-focused instruction in the language learning (Loewen, 2002).

Recommendations

Being able to clearly distinguish characteristics of form-focused language learning apps and meaning-focused language learners apps and find subcategories under form-focused

instructions apps, it is recommended that language teachers refer to the characteristics to supplement the materials that they use for deciding on which apps to access whether in traditional learning classrooms or non-traditional forms, as these new technological advances continue more and more to become more included in education; and that shifts in worldwide moratoriums and intercontinental industries brought about by globalization are bringing about a new set of necessary 21st century skills and competencies the require technological literacies for partnerships and communication (UNESCO, 2016). To be more exact, apps, laptops, tablets and the likes will be part of every learner's educational tools as the World Bank is funding a number of prominent "one laptop per learner" advocacies which have now gained new stages of development (Trucano, 2013). Unfortunately, while the access to such learning apps is broad, learners may be overwhelmed by the wide array of choices, as learners do not even have an exact definition of a learning app, such that these learners simply relied on their individual assessment of what they considered to be a learning app when one study asked them to list the learning apps present in their Smartphones (Kim et al., 2012). If even the basic, surface definition of a learning app is not evident to its users, it can be then said that the categories of these apps also remain vague, including their unclear identification of speech goals, language focus, and communication aims which in turn hinders maximum potential of these apps (Gosnell, 2011).

Moving forward, since this study found a more obvious presence of form-focused online English vocabulary apps that is more beneficial to the first three stages of language acquisition, it is recommended that language learner app users supplement their vocabulary learning with other learning tools that are meaning-focused because studies have been showing that both form-focused and meaning-focused instruction are needed, as focus on form and focus on meaning is more efficient than just the traditional mode of mastering grammar (Bandar & Gorjian, 2017).

Lastly, this study recommends future researchers of language learning apps to continue the categorization of apps, even in a larger scale because while this study has classified ten of the most popular, educational cost-free online English vocabulary apps from Google play and another ten from App Store, more apps will continue to emerge because mobile phones are not just portable phones but rather act like small computers with internet access that can provide effortless downloading of attractive vocabulary apps, and thus, in turn, learners can obtain more vocabulary materials and increase their commitment in the learning process, as opposed to earlier traditional teaching approaches (Jamal et al., 2021). The sole meaning-focused app in this study reflects the aformentioned movement away from older, conservative teaching approaches, as it distances itself from isolated language drills through its interactive functions, such as sharing options of completed taks to encourage social exchange. This study recommends future researchers of language learning apps to categorize other online English vocabulary apps from other platforms, such as, "Amazon App Store," which is .globally, the largest retailer since its opening in 2011 and a "worthy contender to Google's Play store" (Visual, 2024). This particular recommendatiuon may find other meaning-focused apps and in doing so, give more options, particularly for advanced language learners.

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