UNIVERSIDADE FEDERAL DE SANTA CATARINA
CENTRO DE COMUNICAÇÃO E EXPRESSÃO
PROGRAMA DE PÓS-GRADUAÇÃO EM INGLÊS: ESTUDOS LINGUÍSTICOS E LITERÁRIOS

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The Use of Digital Comics for Vocabulary Knowledge in EFL: A Systematic Review

Florianópolis
2021

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Dissertação submetida ao Programa de Pós-Graduação em Inglês da Universidade Federal de Santa Catarina para a obtenção do título de Mestre em Inglês: Estudos Linguísticos e Literários.
Orientador: Prof., Dr. Celso Henrique Soufen Tumolo

Florianópolis
2021

Ficha de identificação da obra elaborada pelo autor,
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Neves, Leonam
The Use of Digital Comics for Vocabulary Knowledge in EFL : A Systematic Review / Leonam Neves ; orientador, Celso Henrique Soufen Tumolo, 2021.
79 p.

Dissertação (mestrado) - Universidade Federal de Santa Catarina, Centro de Comunicação e Expressão, Programa de Pós Graduação em Inglês: Estudos Linguísticos e Literários, Florianópolis, 2021.

Inclui referências.

1. Inglês: Estudos Linguísticos e Literários. 2. Digital Comics. 3. Vocabulary . 4. EFL. 5. Systematic Review. I. Soufen Tumolo, Celso Henrique. II. Universidade Federal de Santa Catarina. Programa de Pós-Graduação em Inglês: Estudos Linguísticos e Literários. III. Título.

Leonam de Andrade Neves

The Use of Digital Comics for Vocabulary Knowledge in EFL: A Systematic Review

O presente trabalho em nível de mestrado foi avaliado e aprovado por banca examinadora composta pelos seguintes membros:

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Certificamos que esta é a **versão original e final** do trabalho de conclusão que foi julgado adequado para obtenção do título de mestre em Inglês: Estudos Linguísticos e Literários.

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Prof. Dr. Celso Henrique Soufen Tumolo
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Florianópolis, 2021.

Este trabalho é dedicado a mãe Nelma, ao pai Nonato e a tia Fátima.

AGRADECIMENTOS

Gostaria de agradecer aos meus pais, Nelma Maria e Raimundo Nonato, e as minhas avós, Graça e Marquimina, por tudo que eles puderam fazer por mim, mesmo com suas limitações, para que eu pudesse hoje finalizar o mestrado; ao professor e orientador Celso Henrique que sempre esteve disponível em me ajudar e ouvir; à banca por toda colaboração ao meu trabalho, especialmente à professora Lêda Tomitch que esteve me acompanhando desde 2019; à Capes que financiou esta pesquisa. Também gostaria de agradecer a todos os meus professores, desde o maternal, que colaboraram para a minha formação; à secretária e coordenação do PPGI, como também a todos os pesquisadores do mundo, e especialmente aqueles citados nessa dissertação.

Um agradecimento mais que especial a todos os meus amigos por me ouvirem e não me deixaram desistir, especialmente a Brenda, Cabíria, Camilo, Caroline, Cleyson, Ian, Luana, Marcelle, Norma, Thaís, Vanessa, e a minha irmã Letícia. Muito obrigado!

ABSTRACT

Vocabulary knowledge[1] has played a substantial role in all four English skills: writing, reading, listening and speaking (MASKOR; BAHARUNDIN, 2016). Also, in the technological era, digital resources and tools, such as online games and digital comics (DCs), seem to have some relevance and positive aspects in English as a Foreign Language (EFL) teaching and learning (LORENSET, 2019; YUNUS; SALEHI; EMBI, 2012). Thus, this study aimed to review systematically the literature about the use of digital comics for EFL students' vocabulary knowledge. Furthermore, this thesis used a qualitative approach in order to analyze the findings of the eight selected studies, five articles and three theses, in DCs and vocabulary knowledge. The results and discussion show that the use of DCs has positive contribution to teaching and learning English according to the eight studies reviewed (REIS, RIBEIRO AND PROCÓPIO, 2017; MIRANDA, SALAZAR, AND LARENAS, 2018; CABRERA et al., 2018; CUESTA et al., 2018; WULANDARI, LESTARI, UTAMI, 2019; GONZÁLEZ, 2016; SAADAH, 2020; SABEKIT, 2020). Thus, this systematic review concludes that 1) technological resources, such as digital comics, used more frequently in the classroom, both receptively and productively, might motivate students to develop vocabulary knowledge; 2) instructions and tips from teachers are possibly relevant to students' reading comprehension, consequently acquiring vocabulary through reading; and 3) Digital Comics used as supplemental material for English lessons in various activities, together with note-taking and collaborative work may help to develop EFL students' vocabulary knowledge.

Keywords: Digital Comics. EFL Learning and Teaching. Vocabulary Knowledge.

[1] For this thesis, I preferred for using 'vocabulary knowledge' to refer to 'vocabulary mastery', 'vocabulary acquisition', and 'vocabulary development' terms. Although I am aware they are described differently by specialists of the areas.

RESUMO

O conhecimento de vocabulário desempenha um papel substancial em todas as quatro habilidades do inglês: escrita, leitura, audição e fala (MASKOR; BAHARUNDIN, 2016). Além disso, na era tecnológica, recursos e ferramentas digitais, como jogos online e histórias em quadrinhos (HQs) digitais, parecem ter certa relevância e aspectos positivos no ensino e aprendizagem de Inglês como Língua Estrangeira (ILE) (LORENSET, 2019; YUNUS; SALEHI; EMBI, 2012). Portanto, este estudo teve como objetivo revisar de forma sistemática oito estudos, cinco artigos e três dissertações, sobre o uso de Histórias em Quadrinhos (HQs) para o conhecimento de vocabulário de alunos de EFL. Além disso, esta pesquisa utilizou uma abordagem qualitativa a fim de analisar os achados de pesquisas anteriores sobre quadrinhos digitais e conhecimento de vocabulário. Os resultados e discussão dessa dissertação mostram que o uso de HQs digitais tem demostrado contribuições positivas no ensino e aprendizagem de Inglês de acordo com oito estudos revisados nessa pesquisa (REIS, RIBEIRO AND PROCÓPIO, 2017; MIRANDA, SALAZAR, AND LARENAS, 2018; CABRERA et al., 2018; CUESTA et al., 2018; WULANDARI, LESTARI, UTAMI, 2019; GONZÁLEZ, 2016; SAADAH, 2020; SABEKIT, 2020). Assim, esta revisão sistemática conclui que 1) recursos tecnológicos, como HQs digitais, usados com mais frequência em sala de aula, tanto de forma receptiva como produtiva, pode motivar os alunos a desenvolverem o conhecimento de vocabulário; 2) instruções e dicas dos professores são possivelmente relevantes para a compreensão da leitura dos alunos, consequentemente adquirindo vocabulário através da leitura; e 3) HQs digitais usadas como um material suplementar para as aulas de Inglês em diversas atividades, juntos com as anotações e trabalho colaborativo podem ajudar a desenvolver o conhecimento de vocabulário de alunos de ILE.

Palavras-chave: Quadrinhos Digitais. Aprendizado e Ensino de ILE. Conhecimento de Vocabulário.

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DCs Digital Comics

EFL English as a Foreign Language

HQs Histórias em Quadrinhos

ILE Inglês como Língua Estrangeira

RQ Research Question

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1 INTRODUCTION

Vocabulary knowledge plays an important role in reading, writing, speaking, and listening skills (MASKOR; BAHARUNDIN, 2016) and it has been addressed in a variety of ways. Especially in reading, vocabulary knowledge is seen as crucial for comprehension (TUMOLO, 2007). If learners lack lexical knowledge, communication in a second language may not succeed (ALQAHTANI, 2015). Consequently, research in vocabulary knowledge has increased in EFL teaching and learning (AZEVEDO *et al*., 2017).

Furthermore, digital resources have provided opportunities to teach and learn vocabulary through different and multiple tools and resources, such as software and applications (MA, 2017). For instance, Pires (2018) concluded that most of the second language applications analyzed, in spite of mostly approaching vocabulary through drills and translation, may assist vocabulary development. Moreover, Lorenset's (2019) results show that a game, called The Sims, fosters learners' vocabulary knowledge. Then, we can see how digital technology has its role in teaching and learning vocabulary.

According to Suwastomo (2016, p. 1), comics can be "one strategy that can influence students' vocabulary achievement". Many authors (such as McCLOUD, 1993; SUWASTOMO, 2016; YUNUS; SALEHI; EMBI, 2012) have defined comics as a combination of images and written texts. Smith (2006) also proposes a categorization for comics, and one of them is Digital Comics (DCs), which can be considered as a digital resource as well. Then, comics as a pleasant reading or production, in the majority of comics' studies, show positive results in a classroom setting (CIMERMANOVÁ, 2015; KILIÇKAYA; KRAJKA, 2012; SUWASTOMO, 2016).

In order to foster students' vocabulary knowledge in the digital technology age, bringing Digital Comics (DCs henceforth) as a resource to teach and learn English as a Foreign Language (EFL) not only may help students to engage in the classroom but also may improve learners' vocabulary knowledge. Since some studies have been researched in these areas, the main goal of this study was to carry out a systematic literature review about the use of Digital Comics for vocabulary knowledge in EFL.

The next subsection shows the background of the study in teaching and learning concerning the use of Comics and Digital comics.

1.1 BACKGROUND OF THE STUDY IN TEACHING AND LEARNING

This section presents, in general, previous studies of the use of DCs and Comics in teaching and learning, and their gains in distinct aspects, in order to bring a broad contextualization of the DCs' contribution to the educational area. This summary follows the guidelines of presenting the main points of the introduction, methods, results, and discussion of these studies as explained and expanded by Tomitch (2012) (see more in 3.2.8).

Several studies have addressed comics in classroom settings. For example, Suwastomo's (2016) study investigated if there was an improvement in students' vocabulary mastery through the use of comics as a media. The author says that the use of comics as a strategy to learn vocabulary can create a more attractive environment to motivate the students. In her quasi-experimental research, using a quantitative approach, there were 55 Indonesian students as participants from the tenth grade divided into an experimental and control group. As instruments, there were only pretest and posttest. The participants had a total of 10 meetings, two for the tests and eight for the treatment.

The results, from the *t.test*, of her study, displayed that there was a significant difference in the improvement of the participants' vocabulary from the pretest (*M=61.*43) to the posttest (*M=73.*81) with the use of comics in the experimental group. Also, there was a significant difference between the experimental and control group since the t-obtained (6.828) was higher than the t-table (2.08). Suwastomo interpreted these results as the students' improvement was from poor to good in their vocabulary knowledge. Then, she concluded that this improvement is explained for the following reasons: a) the participants were interested in learning English since comics were a different method used in the treatment, and b) comics helped them in terms of "content, organization, structure, and mechanics" (SUWASTOMO, 2016, p. 20).

Moreover, a study by Cimermanová (2015) using DCs as authentic materials investigated the reading strategies by EFL readers focusing "on lexical guessing using context" (CIMERMANOVÁ, 2015, p. 2452). According to the author, comics may facilitate the understanding of the students since the images support in the context of the written text, as a complement information, which might motivate learners in the reading. In her case study, there were four EFL learners as participants, and they were from different L2 proficiency levels (B1, B2, A1, and novice) and ages (10, 16, 20). When she collected data for two months, she used observations and interviews as instruments. The participants had between 8 and 12 lessons using DCs created on the website *makebeliefscomix.com.*

Her results show that each participant applied a different reading strategy when they were reading DCs. One participant focused more on a general visualization, another one

frequently looked at the images, the third one used more guessing strategies based on previous knowledge and context, and the last one often concentrated on lexical inferencing strategies. Cimermanová (2015) concluded that the motivation, vocabulary knowledge, and reading strategies of the participants had increased by using Webcomics with their reading strategies. Lastly, she suggested that teachers should be familiar with reading strategies and teach them to the students in order to increase their autonomy. That is, reading webcomics allowed for the development of the participants' visual literacy.

Also, another study conducted by Kiliçkaya and Krajka (2012) explored and examined the EFL students' perceptions in creating DCs in the classroom to develop their grammar knowledge and writing skill. They claim that their study allowed the participants to create and share their own DCs using the website *makebeliefscomix.com*. The participants were twenty-five Turkish EFL students from a pre-intermediate class. In their qualitative study, they used questionnaires as instruments. In each encounter, the participants had a class of a grammar topic, such as passive voice, and then, they created DCs related to this topic. They had five classes in total. The teacher published every DCs on a website, and all the students read and commented on the other students' DCs.

In general, the results showed that 96% of the participants enjoyed creating DCs and agreed that activities of DCs aided in understanding grammar and enhancing their writing skills. Then, the authors concluded that the creation of DCs by the participants had positive effects on motivation, reading, writing, grammar, and lexical items since they were approached in a "meaningful" context, and the type of DCs' activities will depend on the pedagogical purposes of the teacher.

Hence, previous studies on comics or DCs have shown enhancement aspects of students in a classroom, such as motivation, reading strategies, and grammar knowledge. Yet, to the best of my knowledge, there is no systematic review of the literature, even in this area of comics, and concerning the use of DCs for the EFL learners' vocabulary knowledge. Then, this research aimed at filling this gap.

Bearing in mind this gap, the next subsection presents the objectives (the general and the specific ones) and the two research questions of the current research.

1.2 OBJECTIVES AND RESEARCH QUESTIONS

The main objective of this research was to review systematically the literature about the use of Digital Comics for vocabulary knowledge in English as a Foreign Language based on studies from 2010 to 2020.

Furthermore, the specific objectives of this research are:

- To present the context and researchers' findings of the studies – from 2010 to 2020 - concerning the use of DCs for EFL learners' vocabulary knowledge.
- To investigate the commonalities of the researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge.

For those objectives, the following research questions are posed:

RQ1: What are the context and researchers' findings of the studies – from 2010 to 2020 - concerning the use of DCs for EFL learners' vocabulary knowledge?

RQ2: What are the commonalities of researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge?

The next subsection explains the motivation of the researcher and the significance of the actual thesis.

1.3 MOTIVATION AND SIGNIFICANCE OF THE STUDY

As Suwastomo (2016) mentions, to develop the four language skills - writing, reading, speaking, and listening, it is crucial to develop vocabulary knowledge. She also claims that comics can be one strategy that fosters learners' vocabulary knowledge. Also, Yunus, Salehi, and Embi (2012, p. 3462) report that "many teachers are inspired to be as creative as possible". Then, this thesis reviews studies regarding the use of Digital Comics as a pedagogical and digital resource for vocabulary knowledge, which seems to be significant for the teaching and learning field, and specifically for the field of vocabulary knowledge.

This research has been specially motivated by my background and experience. When I was a teenager, I noticed that my teachers did not use comics in the classes, not as much as I wished. The pictures and images helped me to imagine a whole world while I was reading or producing comics. Later, when I became a teacher, I noticed that not only me but also my students were engaged in reading a text in English on a comic book, besides the fact that they seemed to be always learning new vocabulary.

Lastly, when I started to read articles about teaching and learning English through comics, I understood why my students and I enjoy reading comic books instead of other types of texts, because the combination of images and written texts facilitate in the processing of

incoming information from the text. The majority of the articles and research have shown positive results in using comics in a teaching and learning context. Hence, in this digital technology era, the principal objective of this study was to review studies concerning the use of Digital Comics for the vocabulary knowledge of EFL learners.

The next section presents the organization of the thesis which is divided into five chapters (1. Introduction, 2. Theoretical background, 3. Method, 4. Results and discussions, and 5. Final remarks).

1.4 ORGANIZATION OF THE THESIS

The thesis is organized in the following way: this first chapter is an introduction (1), where the investigation was contextualized, with the general and specific objectives, the research questions, and the significance and motivation of the research. Then, there is the second chapter, with the theoretical background (2), which brings some concepts and discussions about vocabulary knowledge, digital comics, and multimedia learning. Thirdly, the method chapter (3), which describes the research design and the protocol to carry out research. After that, there is chapter 4, with the results and discussion (4), which reports the findings of the selected studies and their commonalities, followed by chapter 5, with the final remarks of this text (5), which brings a summary of the investigation, and limitations of the research and suggestions for further research. After these text elements, there are the references and appendixes.

2 THEORETICAL BACKGROUND[2]

In the interest of understanding some key concepts of this research, such as Digital Comics and Vocabulary Knowledge, section 2.1 will come up with some approaches of vocabulary knowledge, unplanned and planned vocabulary teaching, and incidental and intentional vocabulary learning. Then, section 2.2 will address the concept of comics and their categories, such as Digital Comics. After that, section 2.3 will show the cognitive theory of multimedia learning design and its application in DCs. Finally, in 2.4 a summary of the chapter will be presented.

2.1 THE WORLD OF VOCABULARY

Since this research investigated the use of DCs for vocabulary knowledge of EFL learners, this thesis initially shows a general concept of vocabulary knowledge and some different approaches that try to characterize it. After that, the terms vocabulary teaching and vocabulary learning will be addressed as well in order to display other perspectives of this vast world of vocabulary.

2.1.1 Vocabulary knowledge

During the presentation of a semantic and psycholinguistic view of vocabulary knowledge concept, Dóczi and Kormos (2016, p. 22) summarize this term as encompassing "both mental representations encoded in memory as well as ability and control in the usage of this knowledge in producing and comprehending language". However, the approaches that are presented in this chapter for vocabulary knowledge are the ones described by Milton and Fitzpatrick (2014) who described three approaches in the book of Dimensions of Vocabulary Knowledge: a) the component approach, b) the development approach, and c) the metaphorical approach.

Milton and Fitzpatrick (2014) explained some studies that focused on the component approaches of vocabulary knowledge through history, from Aristotle to Daller et al. (2007). The first relevant point that they present about the component approach studies was that

[2] Although this research is a systematic literature review, it does not focus on reviewing concepts or any terms related to vocabulary that the select studies brought in their literature review, such as vocabulary acquisition and/or vocabulary mastery.

knowing a word is knowing the spoken form, written form, and their meanings, based on Aristotle (fourth century BC) – which he interpreted the words in four elements: a) real world things, b) impressions, c) spoken signs, and d) written signs – and Saussure (1916) – who presented the difference between the signifier (sound, word, image) and signified (the mental concept). The second point that Milton and Fitzpatrick (2014) discussed was the distinction presented by Palmer, in 1921, between receptive and productive vocabulary knowledge. He distinguished receptive vocabulary knowledge through recognizing the form and perceiving the meaning of words, and productive vocabulary knowledge through recovering the form and meaning of words to use automatically, both in the appropriate context.

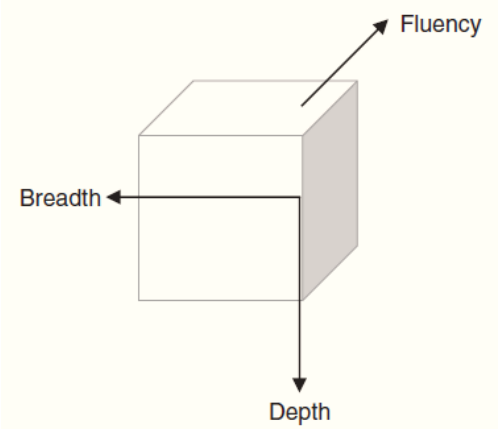
The third point about the component approach studies of vocabulary knowledge presented by them was the one characterized by Nation in 2001. He divided vocabulary knowledge into a) knowledge of use, b) knowledge of form, and c) knowledge of meaning. And, the last point showed by Milton and Fitzpatrick (2014) in their book was the concept of *breadth*, *depth*, and *fluency* of vocabulary knowledge dimension presented by Anderson and Freebody in 1981, Meara in 1996, and Daller et al. in 2007. In general, the breadth dimension is the quantitative words that a person knows; the depth dimension is qualitative knowledge that a person has about the words, such as, morphological and syntactic properties of these words; and the fluency dimension is about how natural this person can use the vocabulary knowledge for communication.

The development approach, the second approach, is based on these components and dimensions of vocabulary knowledge and is characterized in terms of development. Milton and Fitzpatrick (2014) mentioned two development models. The first one was Dale's (1965) four-stage development model in order to demonstrate if a person knows a word. These four development stages are: 1) this person never saw the word before (no development); 2) this person has heard the word; however, she/he does not know the meaning of it (a degree of development); 3) this person recognizes the word through the context and says what it relates to (a high degree of development); 4) this person knows the word (learned the word).

On the Paribakht and Wesche's (1993) model, which is known as Vocabulary Knowledge Scale (VKS), the stages are five, and detailed, to know if a person knows a word: 1) the person is not familiar with the word at all; 2) the person is familiar with the word but she/he does not know its meaning; 3) the person can give a right translation or synonym of the word; 4) the person uses the word semantically appropriate in a sentence; 5) the person uses the word semantically appropriately and grammatically accurately.

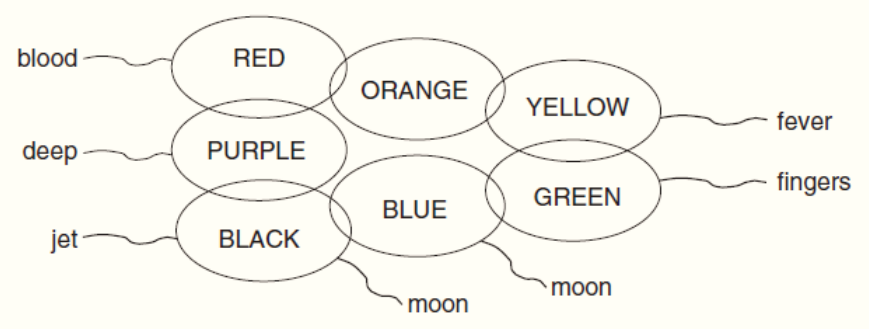
The last approach discussed by Milton and Fitzpatrick's (2014) was the metaphorical approach. They show two metaphors: the lexical space, explained by Daller et al. (2007); and the web of words, introduced by Aitchison (1987). The lexical space metaphor is based on the three vocabulary knowledge dimensions (*breadth*, *depth*, and *fluency*). It is drawn in a cubic space as we can see in Figure 1. On the other hand, the web of words "is often used to describe the depth axis and the way the words interact with each other" (MILTON; FITZPATRICK, 2014, p. 10), in other words, this web demonstrates the connections among words which can be organized into categories. It seems like a spider's web as we can see in Figure 2.

Figure 1 – The Lexical Space



Source: Daller et al. (2007 apud MILTON; FITZPATRICK, 2014)

Figure 2 – Word Web



Source: Aitchison (2003 apud MILTON; FITZPATRICK, 2014)

The next section still presents some vocabulary terms used in this thesis: vocabulary teaching and vocabulary learning.

2.1.2 Vocabulary teaching and learning

Regarding the procedures to teach vocabulary, this thesis will briefly mention the use of unplanned and planned vocabulary teaching. As explained by Hatch and Brown (1995, p. 403), unplanned vocabulary teaching occurs “when the student requests a meaning for a vocabulary item during a lesson or when the teacher realizes that a word that has just come up needs to be clarified. The teacher must improvise on the spot”. On the other hand, planned vocabulary teaching happens when the teacher plans and presents the meaning and form of new words, and reviews them through many procedures in order to consolidate these lexical items.

Taking this explanation into consideration, Tumolo (2007, p.477) carried out a study with three teachers in order “to investigate the procedures used for vocabulary instruction in the reading classroom”. For unplanned vocabulary teaching, he (2007, p. 493) found out that “teachers used a) schemata activation and the corresponding words; b) contextual guesswork, translation and explanation; c) affixes; and d) dictionary use”. And, for planned vocabulary teaching, the teachers used activities such as: “a) guessing-meaning-from-context; b) scrambled words; c) glossaries; d) matching opposites; e) fill-in-the-blanks; f) making sense of sentences; and g) definitions to find words in the context” (TUMOLO, 2007, p. 494).

Besides, when someone learns vocabulary in a contextualized situation “without having the intention of doing so, such as when picking up new words with no intention of doing so during free reading” (BARCROFT, 2009, p. 85), one activates the process of incidental vocabulary learning. This type of vocabulary learning allows the person to guess the meaning of words through the context. On the other hand, intentional vocabulary learning refers to the process when a person intends to learn new lexical items regardless of the context, “such as when a learner studies a list of target words or completes activities in a workbook while working to learn a set of new target words” (BARCROFT, 2009, p. 85).

After these short explanations of vocabulary teaching and learning, some relations between these terms are possible to be found. Nonetheless, we have to bear in mind that these terms are executed by different people (by a teacher and a student). For instance, when a student asks a teacher the literal meaning of a word, and this word was not on the class plan of the teacher, she or he has to use the unplanned vocabulary teaching process to answer the question, and after the clarification, the student learns this word intentionally. Nevertheless, if this teacher planned to teach new words through a movie in a classroom, the students can learn these words incidentally through the context of the story. Then, this teacher must somehow highlight the target words and review them through activities after the movie to complete the planned vocabulary teaching process; at this moment, the student is learning the vocabulary intentionally.

In sum, from these terms, we can relate unplanned vocabulary teaching and intentional vocabulary learning, when the student requires a meaning of a word intentionally, activating the intentional vocabulary learning process, and, the teacher did not predict this requirement and have to improvise in the class, then, the unplanned vocabulary teaching occurs. However, if the teacher planned to teach a word during the class through different contexts, not letting this word explicit, and the student learns the word without his or her intention, then, the planned vocabulary teaching occurs at the same time at incidental vocabulary learning.

The next subsection describes some comics and digital comics terms in order to understand what these resources are.

2.2 THE WORLD OF COMICS

Not only is the world of vocabulary broad and complex, but also the world of comics is multiple, with many related perspectives. That is why this section brings some comics' definitions, and where digital comics are categorized in this world. In general, comics are more than an image or/and a story to entertain people. They can be considered as a language since they may have various genres and particular components as we can see below.

2.2.1 Comics definitions

In talking about comics, the one idea that usually comes to our mind is regarding heroes. Nevertheless, they go further than this. McCloud (1993, p. 9), an American cartoonist and comics theorist, attempts to define comics in a dictionary manner as "juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or to produce an aesthetic response in the viewer". Also, Suwastomo (2016, p. 1) defines comics as "an art form using a series of static image in fixed sequence. Written text is often incorporated".

Furthermore, Yunus, Salehi and Embi (2012, p. 3463) characterize comics "by the combination of pictures with a relatively small number of words, organized into graphically separated units in sequential order". They also explain some comics' components, such as panels, which are the rectangular frames; gutter, the blank space that separates panels; and balloons, where a text is written, which are inserted on the panels.

On the other hand, Wolk (2007, p. 14) shows that comics are more than "images in sequence" combining with a "written text". She claims that comics are a language, a medium,

and have their frameworks and genres beyond that of presenting a hero as we can see her description below:

> Comics are not prose. Comics are not movies. They are not a text driven medium with added pictures; they're not the visual equivalent of prose narrative or a static version of a film. They are their own thing: a medium with its own devices, its own innovators, its own clichés, its own genres and traps and liberties. The first step toward attentively reading and fully appreciating comics is acknowledging that.

Moreover, the next section aims at showing the categories of comics and providing a detailed description of Digital Comics.

2.2.2 Digital comics

According to Smith (2006), comics have five specific categories: 1) Comic Strips, 2) Comic Book, 3) Trade Paper Back, 4) Graphic Novel, and 5) Internet comics/Webcomics. As described by him, 1) Comic Strips are usually published in the newspaper or magazines, utilizing panels with a minimum of one, which is also defined as a cartoon, and a maximum of three or four. The second one, the 2) Comic Book "is a basically a comic strip that runs on for a number of pages (22 is the industry standard)" (p. 3). It is a part of a story in a serial that demands past knowledge of the characters' issues. Thirdly, the 3) Trade Paper Back is a collection of comic books all connected in only one edition. The fourth category, the 4) Graphic Novel is "somewhat similar to a trade paper back; it is constructed in a similar manner – more durable, more book like – and contains a story from start to finish – though, again like trade paper backs, the characters of a graphic novel may appear in further works".

And the last one is 5) Internet Comics or as popularly known as Webcomics, which are self-published by the creators. Smith (2006) says that the creators can be anyone who knows how to produce comics with technological tools. The content of these comics varies widely since the creators do not have restrictions imposed by publishers and/or syndicates. Regarding these categories, the specific term of comics used in this thesis is Webcomics, which may also be called Digital Comics (DCs), as mentioned by Yunus, Salehi and Embi (2012, p. 3462), "digital comics may be understood as comics that are published on a website. Other terms that also refer to digital comics include web comics, online comics and Internet comics".

Moreover, a more recent definition of DCs by Aggleton (2018), through a British library perspective, characterizes them based on eight items: 1) they need to be in a digital format to be published ; 2) they need to have (at least) one single panel or interdependent images in series;

3) they need to have a semi-guided reading path[3]; 4) they likely have visible frames; 5) they likely have word balloons; 6) they likely have handwritten style lettering (which can also be used for an extra meaning); 7) they do not need to have only moving images; 8) they do not need to have only audio.

After this clarification of Digital Comics, we need to take into consideration how this digital technological resource can be best designed for its content to be understood and eventually learned. The next section discusses the design of Digital Comics.

2.3 THE DESIGN OF DIGITAL COMICS

This section will briefly show the contributions of principles proposed by Mayer (2001) for the design of DCs that may assist the comprehension of the information considering the characteristics of our cognitive system and eventually learning from them.

In 2001, Mayer presents the Cognitive Theory of Multimedia Learning, which is a theory based on three assumptions: a) Dual channels[4], "humans possess separate channels for processing visual and auditory information"; b) Limited capacity, "humans are limited in the amount of information that they can process in each channel at one time"; c) Active processing, "humans engage in active learning by attending to relevant incoming information, organizing selected information into coherent mental representations, and integrating mental representations with other knowledge" (MAYER, 2009, p.63).

Then, twelve principles of multimedia design are presented by Mayer (2009, p. 266) in order to "improve our understanding of how people learn from words and pictures" and "to improve the design of multimedia presentations". These principles are divided into three general categories: Principles for reducing extraneous processing, Principles for managing essential processing, and Principles for fostering generative processing.

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[3] "The reader has autonomy over the time they spend reading any particular aspect of the item, and some agency over the order in which they read the item, especially the visual elements. However, reading is also guided in the progression through any language elements, and likely to be guided in the order of movement from one image to another, though this pathway may not always be clear. This excludes items that are purely pictures, as well as items which are purely animation" (AGGLETON, p. 13, 2018).

[4] "Although information enters the human information system via one channel, learners may also be able to convert the representation for processing in the other channel. When learners are able to devote adequate cognitive resources to the task, it is possible for information originally presented in one channel to also be represented in the other channel. For example, on-screen text may initially be processed in the visual channel because it is presented to the eyes, but an experienced reader may be able to mentally convert images into sounds, which are processed through the auditory channel. Similarly, an illustration of an object or event, such as a cloud rising above the freezing level, may initially be processed in the visual channel, but the learner may also be able to mentally construct the corresponding verbal description in the auditory channel" (MAYER, p. 65-66, 2009).

In the following table, there is an adaptation of three tables presented in Mayer's book about the twelve principles of multimedia design, presenting the 1. Coherence Principle, 2. Signaling Principle, 3. Redundancy Principle, 4. Spatial Contiguity Principle, 5. Temporal Contiguity Principle, 6. Segmenting Principle, 7. Pre-training Principle, 8. Modality Principle, 9. Multimedia Principle, 10. Personalization Principle, 11. Voice Principle, and 12. Image Principle:

Table 01 – 12 Principles of Multimedia Design

Principles for Reducing Extraneous Processing	1. Coherence Principle	"People learn better when extraneous words, pictures, and sounds are excluded rather than included".
	2. Signaling Principle	"People learn better when cues that highlight the organization of the essential material are added".
	3. Redundancy Principle	"People learn better from graphics and narration than from graphics, narration, and on-screen text".
	4. Spatial Contiguity Principle	"People learn better when corresponding words and pictures are presented near rather than far from each other on the page or screen".
	5. Temporal Contiguity Principle	"People learn better when corresponding words and pictures are presented simultaneously rather than successively".
Principles for Managing Essential Processing	6. Segmenting Principle	"People learn better when a multimedia lesson is presented in user-paced segments rather than as a continuous unit".
	7. Pre-training Principle	"People learn better from a multimedia lesson when they know the names and characteristics of the main concepts".
	8. Modality Principle	"People learn better from graphics and narration than from animation and on-screen text".
Principles for Fostering Generative Processing	9. Multimedia Principle	"People learn better from words and pictures than from words alone".
	10. Personalization Principle	"People learn better from multimedia lessons when words are in conversational style rather than formal style".
	11. Voice Principle	"People learn better when the

		narration in multimedia lessons is spoken in a friendly human voice rather than a machine voice".
	12. Image Principle	"People do not necessarily learn better from a multimedia lesson when the speaker's image is added to the screen".

Source: Mayer (2009, p. 267 - 268).

Mayer (2009, p. 5) describes multimedia as material using words and pictures. He says that the word "is presented in verbal form – using printed or spoken text, for example", and the pictures "is presented in pictorial form, including using static graphics such as illustrations, graphs, photos, or maps, or dynamic graphics such as animations or video". Since DCs are a digital format of pictures and words combination, in general, then we can assume that they are multimedia, and some of the principles can be applied in their design.

The first principle, the principle of coherence can be applied in the DCs' design because during their construction the creator should have to take into consideration coherent images and words to the story's objective, excluding information that is not relevant to their design. The second principle, the principle of signaling, will depend on the creator's objective. For instance, for the case of vocabulary teaching, the target words can be highlighted in order to call the students' attention to the words. The third principle, the principle of redundancy, cannot be applied to this multimedia since the narration of DCs is on-screen text (written narration). The fourth principle, the principle of spatial contiguity principle is inherent to DCs because the words and pictures are always near to each other. The fifth principle, the principle of temporal contiguity principle, also is on DCs' automatic design since the words and pictures are presented in the same frame.

The sixth principle, the segmenting principle, is possible to apply to the design of DCs since they can be divided into different pages and/or digital comic strips. The seventh principle, the training principle, will depend on the teacher's/creator's objective because, in previous pages of DCs, she or he can explain previous concepts that will be used in the story. The eighth principle, the modality principle, cannot be applied to this multimedia since the narration of DCs is on-screen text (written narration).

The ninth principle, the multimedia principle, is inherent to the design of DCs since they are composed of (written) words and pictures. The tenth principle, the personalization principle, is almost always presented in the DCs' design because the characters usually have a conversational style in their word balloons. The eleventh and twelfth principles, the voice

principle and the image principle respectively, cannot be applied to the design of DCs since there is no oral narration neither speaker's image on this type of multimedia.

In the next subsection, there is a summary of the whole chapter, in an attempt to draw some relations of the terms.

2.4 SUMMARY OF THE CHAPTER

This theoretical background section brings some approaches regarding vocabulary knowledge, and definitions of vocabulary teaching and learning as well; some discussions of the definitions of comics and their categories, such as DC; and how the Cognitive Theory of Multimedia Learning can be applied in the design of DCs. Thus, this subsection will attempt to present some similarities and differences among the definitions for better comprehension.

In 2.1.1, there are three general approaches, discussed by Milton and Fitzpatrick's (2014), that try to characterize the vocabulary knowledge: the component, the development, and the metaphorical approach. Two similarities among them are that a) they attempt to describe vocabulary knowledge in order to explain and understand this knowledge; and, b) the three approaches take into consideration that knowing a word is divided into subcomponents or sub-knowledges. On the other hand, these approaches have many differences, starting from their names. The component approach tries to describe vocabulary knowledge into many different segments, such as receptive and productive vocabulary knowledge or knowledge of use, knowledge of form, and knowledge of meaning. The development approach seeks to describe this knowledge through progressed stages. And, the metaphorical approach attempts to describe vocabulary knowledge through analogies.

In 2.1.2, there are definitions and relations between vocabulary teaching and vocabulary learning. Two similarities between them are that a) these terms can be applied in a classroom setting, and, b) they can complement each other, such as intentional vocabulary learning and unplanned vocabulary teaching. One difference between them, as already explained in 2.1.2, is that vocabulary teaching is performed by a teacher and vocabulary learning by a student. Moreover, unplanned vocabulary teaching happens when the teacher must improvise to clarify a word; on the other hand, planned vocabulary teaching happens when the teacher planned how to teach a word through different procedures.

In 2.2.1, there are some comics definitions, two similarities among these definitions are: a) comics are a combination of sequential pictures or images with written texts, and, b) they have regular components, such as the word balloons and panels. However, one difference

among these definitions is that some authors say that comics are broader than these definitions of written text and images since they are considered as a medium and they have some categories.

In 2.2.2, we can see what the categories are and how Digital Comics are defined. Smith (2006) categorizes comics into 1) Comic Strips, 2) Comic Book, 3) Trade Paper Back, 4) Graphic Novel, and 5) Internet comics/Webcomics. The last category can also be described as DCs, and there are some definitions of this category. Two similarities among DC's definition are that a) they have to be in a digital format in order to validate the comics into DCs, and b) they need to have the same comics components, such as frames and balloons. One difference is that Smith (2006) says that DCs can be created by anyone who knows how to do it and Aggleton (2018) says that DCs need to have a semi-guided reading path.

In 2.3.1, there is a brief explanation of how multimedia material can be best designed for comprehension of its information, considering the characteristics of the human cognitive system. In it, we can see the twelve principles of multimedia design, based on the Cognitive Theory of Multimedia Learning. They are 1) Coherence Principle, 2) Signaling Principle, 3) Redundancy Principle, 4) Spatial Contiguity Principle, 5) Temporal Contiguity, 6) Segmenting Principle, 7) Pre-training Principle, 8) Modality Principle, 9) Multimedia Principle, 10) Personalization Principle, 11) Voice Principle, and 12) Image Principle. Some of these principles have similarities and differences. For instance, principles number 1 to 5 attempt to reduce extraneous processing in the design of multimedia learning. Principles 6 to 8 help in the Management of Essential Processing in the design of multimedia learning. Lastly, principles 9 to 12 try to Foster Generative Processing in the design of multimedia learning.

In 2.3.2, we can see which of these principles can be applied in the design of DCs for learning. Principle 1, 2, 4, 5, 6, 7, 9, and 10 can be applied, and some of them are inherent to the design of DCs for multimedia learning. Two general similarities, that we can see in the Principles of DCs' design, are a) some components elements of DCs, such as images, written texts, balloons, and frames can be presented in different ways according to the creator's objective, b) some of the principles are automatically done in the design of DCs. The difference among these principles is that each of them has its specific description.

The next chapter will describe the method of this study, which is a qualitative systematic review. Also, the stages of the protocol to undertake the systematic review will be explained, which is divided into nine stages, and how each is applied in this study.

3 METHOD

The next sections will describe, in 3.1, the design of this thesis, which is a qualitative systematic literature review. After that, in 3.2, the stages of this review's protocol, that is, the development of the research question; designing conceptual framework; constructing selection criteria; developing search strategies; selecting studies using selection criteria; coding studies; assessing the quality of the study; synthesizing results of individual studies to answer the review research question; and, reporting findings will be expanded and explained. Then, the description of the pilot study will be shown, in 3.3. Lastly, a summary of the chapter will end this section, in 3.4.

3.1 RESEARCH DESIGN

3.1.1 Systematic literature review

The present study is a systematic literature review (SLR). A systematic literature review is a type of research that contains explicit and rigorous protocols and criteria, thus systematic, and is used "to refer to a family of research approaches that are a form of secondary level analysis (secondary research) that brings together the findings of primary research to answer a research question" (ZAWACKI-RICHTER et al., 2020, p. 4). When a secondary research uses the quantitative results of other studies, it is called a meta-analysis. However, many authors have not come up with a specific term for research using qualitative results yet. Then, qualitative research is generally called systematic review (SR), and this is the case of this research.

A meta-analysis is a quantitative research synthesis. As described by Zawacki-Richter et al. (2020, p. 14), it is "an aggregative synthesis approach in which the outcome results from individual studies are transformed into a standardized, scale free, common metric and combined to produce a single pooled weighted estimate of effect size and direction". In other words, this type of research seeks to reveal and discuss the effect size of a treatment found in primary studies. Moreover, Cohen, Manion, and Morrison (2018) describe those meta-analyses report comparisons among quantitative studies based on a common measure of effect size which can be calculated using various formulas.

On the other hand, a systematic review with a qualitative approach often seeks commonalities and/or refutations among primary studies. After that, there is a presentation of

the syntheses. As reported by Cohen, Manion, and Morrison (2018, p. 413), in a qualitative research synthesis, “a variety of methods have been proposed for synthesizing qualitative research from interpretive and critical-realist perspectives which vary along several dimensions”. Also, in educational research, systematic reviewers normally adopt a configurative synthesis (ZAWACKI-RICHTER et al., 2020). Basically, in the configurative synthesis, the findings of the studies are associated in order to reveal patterns for the analysis. Then, many configurations of the data are examined, and new synthetic reports are produced. The techniques of this analysis are “reading and re-reading, descriptive and analytical coding, the development of themes, constant comparison, negative case analysis and iteration with theory” (ZAWACKI-RICHTER et al., 2020, p. 15). Thus, this research used a qualitative synthesis in order to answer its research questions.

Zawacki-Richter et al. (2020, p. 4) suggest a protocol, divided into nine stages, for systematic review research. It is as follows: 1) development of the research question; 2) designing conceptual framework; 3) constructing selection criteria; 4) developing search strategies; 5) selecting studies using selection criteria; 6) coding studies; 7) assessing the quality of the study; 8) synthesizing results of individual studies to answer the review research question; then, 9) reporting findings. For this research, the stages used are explained next.

3.2 THE PROTOCOL OF THIS SYSTEMATIC REVIEW

3.2.1 Development of the research question

For the development of the research questions of this study, the description of a systematic review, presented by Zawacki-Richter et al.’s (2020), was taken into consideration when the research questions of this paper were created. They say: “the review question gives each review its particular structure and drives key decisions about what types of studies to include; where to look for them; how to assess their quality; and how to combine their findings” (ZAWACKI-RICHTER et al., 2020, p. 7). Also, they affirm that a research question can be seen as simple, but it can contain many assumptions, which can be implicit or explicit. According to them, the implicit and explicit assumptions have “epistemological frameworks about knowledge and how we obtain it, theoretical frameworks, whether tentative or firm, about the phenomenon that is the focus of study” (ZAWACKI-RICHTER et al., 2020, p. 7).

In the case of the research questions of this study, the *RQ1What are the context and researchers’ findings of the studies - from 2010 to 2020 - concerning the use of DCs for EFL*

learners' vocabulary knowledge? and the RQ2 *What are the commonalities of researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge?*, we can see that they influenced the whole protocol to carry out this research. For instance, the types of included studies were the ones that used DCs as texts during the intervention and investigated how the EFL learners can improve or not their vocabulary using these DCs. Then, these keywords, such as DCs, EFL, studies from 2010 to 2020, from the RQs were fundamental to construct the criteria (further explained in 3.2.3), leading to each stage of the process.

3.2.2 Designing conceptual framework

These epistemological frameworks (see 3.2.1) can construct a conceptual framework that influences choices of methods and appropriate approaches to carry out a systematic literature review. According to Zawacki-Richter et al. (2020, p. 7), "an initial conceptual framework will contain theoretical ideas about how the phenomena of interest can be understood and some ideas justifying why a particular population and/or context is of specific interest or relevance". For the design of this study, a qualitative approach was used following the protocol suggested by Zawacki-Richter et al. (2020) for a systematic review, with its nine stages.

3.2.3 Constructing selection criteria

The selection criteria of this research followed the suggestion made by Zawacki-Richter et al. (2020, p. 8) where these criteria "(sometimes referred to as inclusion or exclusion criteria) create restrictions on the review" and "are shaped by the review question and conceptual framework". For the inclusion criteria in this thesis, the following aspects were considered a) if the study used Digital Comics or their synonymous, such as Webcomics or Internet Comics, as a treatment to the research, b) if the research was published from 2010 to 2020 in Portuguese or English; and, c) if the study was or had some degree of relation in the area of vocabulary knowledge in English as a Foreign Language. On the other hand, studies were excluded if the study: a) did not use digital format; b) was not in Portuguese or English; and, c) did not include vocabulary knowledge in EFL.

3.2.4 Developing search strategies

The first search strategy used was related to the sources available, such as the internet (world wide web) and citation checking, which aided in the selection of the studies. They were *Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES), SciELO, SCOPUS, ERIC (Education Resources Information Center), ACM Digital Library, and Google Scholar.

The second search strategy was to define search words. All the search words that are in the table below (Table 1 – Search Words), regarding the variables and research questions, were used for search. Moreover, for advanced research, the words "AND" and "OR" were also used.

Table 2 – Search Words.

Topics	Search words
Comics	Digital Comics; Webcomics; Internet Comics.
Education	Teaching; Learning; EFL Teaching; EFL Learning; EFL Learner; EFL Teacher.
Vocabulary	Vocabulary; Vocabulary Knowledge; Lexical Knowledge; Vocabulary Acquisition; Vocabulary Mastery; Vocabulary Teaching; Vocabulary Learning.

Source: Adapted from Zawacki-Richter et al. (2020).

3.2.5 Selecting studies using selection criteria

The selection of the studies for this systematic review had two moments. First, the titles and abstracts of each relevant study to the research were read. Afterward, they were downloaded and organized into appropriate folders on the researcher's computer. Then, they were read by the researcher from the title to the references. Also, the references of the selected studies were checked as another search strategy in order to have more studies. In total, eight studies were selected, five articles and three theses, and became my data for analysis.

3.2.6 Coding studies

After the selection of the relevant studies, the identification and the recording of their characteristics were systematically done, as explained by Zawacki-Richter et al. (2020, p. 12), in three parts:

> "The coding describes: (i) details of the studies to enable mapping of what research has been undertaken; (ii) how the research was undertaken to allow assessment of the

> quality and relevance of the studies in addressing the review question; (iii) the results of each study so that these can be synthesised to answer the review question".

This coding process was done for all studies. The first part (i) of this coding process is to outline details of the studies which were done in a table (Table 3 - Studies' Details) adapted from Perez et al (2013).

Table 3 – Studies' Details.

Publication Characteristics	*Author*	
	Year	
	Publication type	
Research Design Features	*Design*	
	Instruments	
	Sample size	
	Pilot study	
Participant Characteristics	*L1*	
	Instructional level	
	Proficiency level	
DC's Materials	*Receptive DC's task*	
	Productive DC's task	
	Authenticity	
	Tool	

Source: Adapted from Perez et al. (2013).

In the second part (ii), it is essential to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) (Appendix A) developed by Hong et al. (2018) was adapted to this research (Table 4 - Mixed Methods Appraisal Tool) in order to understand and analyze the quality of the selected studies (see 3.2.7).

Table 4 – Mixed Methods Appraisal Tool (MMAT).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?				
	S2. Do the collected data allow researchers to address the research questions and/or objectives?				
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?				
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				

	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?				
2. Quantitative	2.1. Are the participants representative of the target population?				
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				
	2.4. Is the sampling strategy relevant to address the research question?				
	2.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				
	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

Source: Adapted from Hong et al. (2018).

In the third part (iii), in order to answer the first research questions, the results of each study were synthesized following Tomitch's (2012) guidelines (see 3.2.8). Also, notes or written comments on the files were done as strategies in order to aid in this synthesis.

3.2.7 Assessing the quality of the study

As already mentioned, the appraisal tool, which was adapted to be used in this research, is the one developed by Hong et al. (2018) for a mixed-methods approach. According to them, MMAT "permits to appraise the methodological quality of five categories to studies: qualitative research, randomized controlled trials, non-randomized studies, quantitative descriptive studies, and mixed methods studies" (HONG et al., 2018, p. 1).

In the checklist document (Table 3), there are the categories of the study design, questions about the methodological criteria, and the quality appraisal of the selected studies for this research. The authors suggest "to provide a more detailed presentation of the ratings of

each criterion to better inform the quality of the included studies. This may lead to performing a sensitivity analysis (i.e., to consider the quality of studies by contrasting their results)" (HONG et al., 2018, p. 1).

3.2.8 Synthesizing results of individual studies

In order to answer the first research question, integrating the context and findings of each study, this study followed Tomitch's (2012, p. 80) guidelines about the main ideas of a study. She explains these guidelines as:

> 1. Introduction- Why was the study done? What was the objective of the research/study? What kind of problem did the study investigate? 2. Methods- How was the study done? What is the context of the research: participants (e.g. how many? background?), instruments for data collection (e.g. questionnaires? tests? texts?), procedures for data collection? 3. Results- What did the author find? What were the main research findings 4. Discussion- How are the findings relevant to the larger field How does the author interpret the main findings? What is the conclusion of the study? Are there pedagogical implications? What are they?

In order to answer the second research question, synthesizing the findings and discussions of the studies, a configurative synthesis was carried out. As explained by Zawacki-Richter et al. (2020, p. 14), this type of synthesis seeks to integrate the information from each selected study in order to present commonalities among them. They also say that "all types of synthesis involve some kind of data transformation that is achieved through common analytic steps: Searching for patterns in data; Checking the quality of the synthesis; Integrating data to answer the review question".

3.2.9 Reporting findings

In order to report the findings of this study, all stages of by Zawacki-Richter et al.'s (2020) protocol were taken into consideration. During the Results and Discussion section, the answers from Tomitch's (TOMITCH, 2012) guideline questions will be presented for each selected study in order to answer the first research question of this paper, after the Table 3 (Studies' Details) and Table 4 (Mixed Methods Appraisal Tool) will be shown in order to show how the coding process was done.

For the second research question, a configurative synthesis was done. This synthesis is an attempt to find patterns in the studies. These patterns are organized in commonalities.

After that, there was a report of the patterns of the selected studies. As explained by Zawacki-Richter et al. (2020, p. 15), “the different kinds of text about individual studies and their results are meshed and linked to produce patterns in the data, explore different configurations of the data and to produce new synthetic accounts”.

The next section reports some details of the pilot study of this thesis carried out last year.

3.3 PILOT STUDY

Before the actual collection, a pilot study aimed at answering the research questions was conducted early in the second semester of 2020 with a small sample of studies, one using a qualitative design and another using a mixed-methods design (Appendix B and C). However, only the qualitative findings were used for piloting. These two studies also were used for the current data analysis of this paper.

In the next section, a summary of the whole chapter is presented.

3.4 SUMMARY OF THE CHAPTER

The method section described the research design of the current study, and a summary of it is presented next.

In 3.1, there are some examples and explanations of what a systematic review is and how it is conducted in educational research. The main authors that described the systematic review’s concepts were Cohen, Manion, and Morrison (2018), and Zawacki-Richter et al. (2020). They report the perspectives that prevail among systematic reviewers, such as meta-analysis as quantitative research and configurative synthesis for qualitative research. It also showed the nine stages of Zawacki-Richter et al.’s protocol (2020) for this qualitative systematic review.

In 3.2, the nine stages of the selected protocol are explained, along with the inclusion criteria and exclusion criteria. Then, the search strategies were detailed in order to find the relevant studies for the review. Also, the selection and coding processes are presented, with information on the assessment of the studies’ qualities. Finally, how the findings are reported in the Results and Discussion section.

Lastly, in 3.3, the pilot study conducted to test the stages of the protocol for this systematic review was explained.

The next section shows the results and discussion in an attempt to answer the research questions.

4 RESULTS AND DISCUSSION

This section aims at presenting the results and proceeding to a discussion of the results found. In 4.1, the first research answer presents the context and researchers' findings of the studies concerning the use of DCs for EFL learners' vocabulary knowledge. In 4.2, the second research answer presents the commonalities of the researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge. Then, in 4.3, a summary of the results and discussion is presented as well.

4.1 THE CONTEXT AND FINDINGS OF THE SELECTED STUDIES

In order to answer the first research question *What are the context and researchers' findings of the studies concerning the use of DCs for EFL learners' vocabulary knowledge?* this thesis shows the integration of the Introduction, Methods, Results, and Discussion of the selected studies, following Tomitch's (2012) guidelines, then Table 3 (Studies' Details) and Table 4 (Mixed Methods Appraisal Tool) are presented as described in 3.2.9. In 4.1.1, five selected articles are presented, and 4.1.2, three selected thesis are presented as well.

4.1.1 The articles

4.1.1.1 Reis, Ribeiro and Procópio (2017)

The first paper presented here is by Reis, Ribeiro, Procópio (2017). Their objective was to investigate how the use of written notes in Digital Comics can aid lexical inference and acquisition through implicit vocabulary learning. Since the authors consider lexical knowledge as a necessary condition in order to understand a text, they say that studies have a focus on implicit learning, in which learners understand vocabulary through the context, and explicit learning, in which learners understand vocabulary through the strategies and techniques. Taking into consideration implicit learning, they mention the process that recognizes the vocabulary through contextual clues as lexical inference. Nonetheless, this process is not always feasible. Also, they assume that the use of written notes can guide the students in reading multimodal texts, such as DCs, and they can be a complement technique to lexical inference.

This qualitative research had about 70 students from *Colégio de Aplicação (UFJF)* as participants. They were in the 8th grade and considered basic level English students according to the identification questionnaire. As instruments, they had: the identification questionnaire, a reading evaluation questionnaire, a vocabulary pretest and posttest, and the DCs with hypermedia annotations (written notes). The procedures for data collection were divided into six stages. The author: 1) invited the students, and the ones who accepted to participate in the research received the assent form; 2) applied the identification questionnaire in order to know some characteristics of the participants; 3) applied the vocabulary pretest in order to identify some lexical items that are familiar or not to the students; 4) applied a DC's reading task, offering the participants DCs from Monica's Gang in order to read and understand the targeted words, and the whole text, through hypermedia annotations with clues about their meaning; 5) applied the vocabulary posttest in order to assess the participants' vocabulary learning after the DC's reading task; and, 6) applied a reading evaluation questionnaire in order to know the students' suggestions and criticism about the DC's reading task.

One of the main findings was that most of the participants did not know the meanings of the targeted words in the pretest. On the other hand, in the posttest, the targeted words were significantly known by the participants after the DC's reading task, assuming that the students learned the vocabulary of the text with the written notes. The authors highlighted this change based on a dual-channel assumption by Mayer (2001), as they mentioned in their paper, in which the participants used the written and visual resources in order to learn the targeted words and context. Moreover, they claimed that the hyperlinks facilitated the navigation and interaction in the DCs and helped the participants' motivation and cognition aspects in the reading and that this type of material (DCs) was close to the students' digital technology reality. Lastly, they believe that the frequency of some words might contribute to learning the targeted words.

The researchers concluded that written notes or hyperlinks had a contribution to inferring and learning of the targeted words. Further, the pedagogical application discussed was that digital environments or resources, such as DCs, may amusingly offer plenty of language themes in a ludic way, specifically for learning vocabulary.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 5 – Studies' Details of Reis, Ribeiro and Procópio (2017) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 5 – Studies' Details of Reis, Ribeiro and Procópio (2017).

Publication Characteristics	*Author*	Reis, Ribeiro and Procópio
	Year	2017
	Publication type	Journal article
Research Design Features	*Design*	Qualitative research
	Instruments	Questionnaires, tests, and notes
	Sample size	70
	Pilot study	Not reported
Participant Characteristics	*L1*	Portuguese
	Instructional level	Secondary education
	Proficiency level	Beginners
DC's Materials	*Receptive DC's task*	Yes
	Productive DC's task	No
	Authenticity	Not authentic
	Tool	Adobe Reader

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 6 – MMAT of Reis, Ribeiro and Procópio (2017) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality in its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, the instruments are adequate to address the research questions and/or objectives, the qualitative data collection methods are adequate to address the research question and/or objectives, the findings are adequately derived from the data, the interpretation of results is sufficiently substantiated by data, and there is coherence between qualitative data sources, collection, analysis, and interpretation.

Table 6 – MMAT of Reis, Ribeiro and Procópio (2017).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?	X			
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?	X			
	1.3. Are the findings adequately derived from the data?	X			

	1.4. Is the interpretation of results sufficiently substantiated by data?	X			
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?	X			
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

4.1.1.2 Mirando, Salazar and Larenas (2018)

The second paper was written by Miranda, Salazar, and Larenas (2018), and its main objective was to investigated Chilean students' learning of new words through the context after the use of DCs (for the receptive task) and Comics (for the productive task). According to the authors, vocabulary does not have the necessary focus in the EFL classes as it should have. Then, a different teaching approach, such as comics and DCs, can be used to teach English vocabulary to Chilean EFL students.

In their action research, they had two groups, one from a semi-public school and the other from a public school. From the semi-public school, they had a total of seventeen participants; and from the public school, they had eleven participants. The students were from the eleventh and twelve grades. As instruments for data collection, they had pre- and posttest and digital comics as the main text. The procedures for data collection were divided into three stages. In the first one, the target words and their illustrations were presented in a slideshow

and contextualized in sentences; after that, some DCs, with the target words, were read by the teacher; then, the students read more DCs in silence. In the second stage, the participants practiced the target vocabulary in worksheets (matching, multiple-choice, sequencing, and fill in the gaps) and classroom games (charades and mime game). In the third stage, the students, divided into groups, had to create a comic trip, on a sheet of paper, using the targeted words.

For the first group, the one from the semi-public school, based on a comparative chart of students' pre and post-test, the authors say that the participants had improved between the tests. Also, they used the Wilcoxon test in order to confirm the students' vocabulary gain after the DCs' intervention, and the Asymptotic Significance in order to deny their null hypothesis. Hence, they found in this group that the pre and post-test were statistically significant and different.

For the public-school group, the second one, the authors describe that this group did not have higher scores than the first group, based on its comparative chart of pre and post-test, however, still there was a modest improvement between the tests. They also used the Wilcoxon test, to certify the participants' vocabulary gain, and the Asymptotic Significance, to refuse the null hypothesis. Then, they concluded that the second group had pre and post-test scores statistically significant and different.

In general, Miranda, Salazar, and Larenas (2018) affirm that both groups had statistically significant improvements in vocabulary knowledge. Although the objective of the study was not to compare the two groups, the authors comment that the semi-public school group doubled the scores from the pretest to the posttest, showing significant progress, and the public-school group was near to double the scores between the tests. According to them, this difference might be as a result of the English class hours that each group had during their whole school life (1008 hours for group 1 and 685 hours for group 2). They take into account that the visual input of the DCs and the different activities in the treatment had their relevance in the participants' scores. As a pedagogical implication, they say that with the presentation of DCs, the students' practice of the targeted vocabulary in different activities, and the production of comic strips were fundamental to learn the targeted words and motivate the students. Then, they concluded that the use of DCs and comics as an intervention in EFL classes for Chilean students can aid in their vocabulary knowledge in different contexts.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 7 – Studies' Details of Miranda, Salazar and Larenas (2018) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 7 – Studies' Details of Miranda, Salazar and Larenas (2018).

Publication Characteristics	*Author*	Miranda, Salazar and Larenas.
	Year	2018
	Publication type	Journal article
Research Design Features	*Design*	Action research and Quantitative research
	Instruments	Pretest and posttest
	Sample size	28
	Pilot study	Not reported
Participant Characteristics	*L1*	Spanish
	Instructional level	Secondary Education
	Proficiency level	Not reported
DC's Materials	*Receptive DC's task*	Yes
	Productive DC's task	No
	Authenticity	No
	Tool	PowerPoint

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 8 – MMAT of Miranda, Salazar and Larenas (2018) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality in its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, the participants are representative of the target population, measurements are appropriate regarding both the outcome and intervention (or exposure), the intervention was administered (or exposure occurred) as intended, the sampling strategy is relevant to address the research question, and the statistical analysis is appropriate to answer the research question.

Table 8 – MMAT of Miranda, Salazar and Larenas (2018).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?				X
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?				X
	1.3. Are the findings adequately derived from the data?				X

	1.4. Is the interpretation of results sufficiently substantiated by data?				X
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?				X
2. Quantitative	2.1. Are the participants representative of the target population?	X			
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	X			
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?	X			
	2.4. Is the sampling strategy relevant to address the research question?	X			
	2.5. Is the statistical analysis appropriate to answer the research question?	X			
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

4.1.1.3 Cabrera et al. (2018)

The third article is Cabrera et al. (2018), which investigated the use of a DC website, Pixton, for EFL grammar and vocabulary teaching as supplementary material in a high school in Ecuador. They claim that grammar and vocabulary knowledge are important components to learning English, and one useful manner to teach them is through the comics since they have visual aids that motivate the students. Then, the authors suggest the use of comics in a digital format, specifically the use of Pixton, which is a website that creates DCs, as a material for their intervention.

In their quasi-experimental study, they had a total of 163 participants from an Ecuador public high school divided into two groups: experimental group (85 participants) and control group (78 participants). The experimental group had the intervention of the use of Pixton in

their EFL classes, and the control group did not have this intervention in the classes. According to the paper, all students were classified as A1 proficiency level in the CERF (Common European Framework of Reference for Language). As instruments for their data collection, they had pre and post-test, pre- and post-questionnaire, teachers' questionnaire, and an observation sheet. During the treatment, the teachers developed similar classes for both groups, using textbooks and supplementary materials to teach vocabulary and grammar. The main difference between the groups was that the teachers used only DCs, Pixton website, as supplementary material for the experimental group; and posters, flashcards, PowerPoint presentations were used as supplementary materials for the control group.

According to the questionnaires, most of the students had not been using digital technological tools in their EFL classes. However, after treatment, 54,97% of the participants from the experimental group declared that the Digital Comics Website, Pixton, was very useful and 13,90% of the participants considered that Pixton was highly useful to increase their vocabulary knowledge. Regarding grammar knowledge, 51,06% of the students agreed that Pixton was very useful and 19,14% that it was highly useful. Also, the teachers seemed to agree with the students' perceptions. Taking into consideration the tests, there was no significant difference between the experimental and control group in the pretest ($t= 0.2788$, $p= 0.7808$) and, in the posttest, there was a significant improvement in the experimental group ($t= 3.9294$, $p= 0.0001$). Then, the authors claimed that the use of the Digital Comics website aid to increase the participants' EFL vocabulary and grammar knowledge. They call Pixton an "important, effective and innovate tool" (CABRERA et al., p. 64, 2018) to use in EFL classes in order to develop the grammar and vocabulary knowledge of the students.

Cabrera et. al (2018) interprets the findings as the use of Pixton has positive aspects in improving the Ecuadorian students' vocabulary knowledge and grammar for many reasons. The authors say that DCs motivated the participants because they are enjoyable resources, they influence the class to a favorable environment, and they call students attention. Also, Cabrera et. al (2018) claim that the DCs' elements, such as sceneries, dialogues, and characters, aided the participants to learn vocabulary and grammar through the context. Moreover, they highlight the importance of clear and good teachers' instruction during the intervention. To conclude, the authors mention how much the students of the experimental group improved their scores from the pretest to the posttest after the use of Pixton to develop their vocabulary and grammar knowledge.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 9 – Studies' Details of Cabrera et al. (2018) – adapted

from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 9 – Studies' Details of Cabrera et al. (2018)

Publication Characteristics	*Author*	Cabrera et al.
	Year	2018
	Publication type	Journal article
Research Design Features	*Design*	Mixed-method and quasi-experimental research
	Instruments	Questionnaires, tests and observation sheets
	Sample size	163
	Pilot study	Yes
Participant Characteristics	*L1*	Spanish
	Instructional level	Secondary education
	Proficiency level	Beginners
DC's Materials	*Receptive DC's task*	Yes
	Productive DC's task	Yes
	Authenticity	Authentic
	Tool	Pixton

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 10 – MMAT of Cabrera et al. (2018) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality in its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, there is an adequate rationale for using a mixed methods design to address the research question, the different components of the study are effectively integrated to answer the research question, the outputs of the integration of qualitative and quantitative components are adequately interpreted, divergences and inconsistencies between quantitative and qualitative results are adequately addressed, and the different components of the study adhere to the quality criteria of each tradition of the methods involved.

Table 10 – MMAT of Cabrera et al. (2018).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			

1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?				X
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?				X
	1.3. Are the findings adequately derived from the data?				X
	1.4. Is the interpretation of results sufficiently substantiated by data?				X
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?				X
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?	X			
	5.2. Are the different components of the study effectively integrated to answer the research question?	X			
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	X			
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	X			
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	X			

Source: Adapted from Hong et al. (2018).

4.1.1.4 Cuesta et al. (2018)

The next article was written by Cuesta et al. (2018). The main objective of their research was to investigate the use of ToonDoo, a website which produces DCs, to improve the vocabulary knowledge of Ecuador students from a private school. They state that vocabulary has a crucial role in learning another language and that digital technological resources can increase the vocabulary of EFL learners. Thus, they suggest the use of a Webcomic called ToonDoo in the EFL classes to achieve this improvement of students' vocabulary knowledge.

The approach of this study was a quasi-experimental design with 189 participants, aged between 12 and 13 years old, from an Ecuadorian private high school. The experimental group was composed of 84 students and the control group was composed of 105 students. As instruments for their data collection, they had pre and posttest, a questionnaire, and an observation sheet. In their data collection, the students had 7 classes per week during 5 months of intervention. Both groups did the pretest; then, the experimental group learned how to use ToonDoo, receiving all support to know how to use this Digital Comics' resource from the researchers, and at the same time, they did many English activities in order to increase their vocabulary knowledge using ToonDoo; after that, the posttest and the questionnaire were applied to the groups.

According to the authors, using the t-test, there was a statistical difference between the pretest and posttest in the experimental group. Taking into consideration the pretests of both groups, they say that there was a small difference between them (0.16). On the other hand, they state that the difference between the posttests was significant (1.5), showing an improvement of the EFL students' vocabulary knowledge after the use of ToonDoo. Also, as considered by 89,76% of the participants in the questionnaire, the use of ToonDoo was motivating which aid their vocabulary knowledge development. Moreover, 80% of the participants perceived that the quality of the images may have affected this improvement, and 86,06 of them would continue to use the ToonDoo in order to enhance their vocabulary knowledge.

Cuesta et al. (2018) interpret the findings from a positive perspective. They claim that this Digital Comics, ToonDoo, is effective to teach and learn EFL vocabulary based on the questionnaire and mainly in the results of the tests, which shows a significant enhancement in the experimental group's posttest. They also highlight how important this tool was to the participants' motivation to improve their vocabulary knowledge.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 11 – Studies' Details of Cuesta et al. (2018) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 11 – Studies' Details of Cuesta et al. (2018)

Publication Characteristics	*Author*	Cuesta et al.
	Year	2018
	Publication type	Journal Article
Research Design Features	*Design*	Mixed-method research
	Instruments	Pre and posttest, a questionnaire and an observation sheet
	Sample size	189

	Pilot study	No
Participant Characteristics	*L1*	Spanish
	Instructional level	Secondary Education
	Proficiency level	Not reported
DC's Materials	*Receptive DC's task*	Not reported
	Productive DC's task	Yes
	Authenticity	Yes
	Tool	ToonDoo

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 12 – MMAT of Cuesta et al. (2018) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a regular quality in its methodological design since there are not clear research questions and/or objectives, I cannot tell if the collected data allow researchers to address the research questions and/or objectives, there is not an adequate rationale for using a mixed methods design to address the research question, the different components of the study are effectively integrated to answer the research question, the outputs of the integration of qualitative and quantitative components are adequately interpreted, divergences and inconsistencies between quantitative and qualitative results are not adequately addressed, and I cannot tell if the different components of the study adhere to the quality criteria of each tradition of the methods involved.

Table 12 – MMAT of Cuesta et al. (2018).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?		X		
	S2. Do the collected data allow researchers to address the research questions and/or objectives?			X	
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?				X
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?				X
	1.3. Are the findings adequately derived from the data?				X
	1.4. Is the interpretation of results sufficiently substantiated by data?				X

	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?				X
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?		X		
	5.2. Are the different components of the study effectively integrated to answer the research question?	X			
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	X			
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?		X		
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?			X	

Source: Adapted from Hong et al. (2018).

4.1.1.5 Wulandari, Lestari and Utami (2019)

The last article was written by Wulandari, Lestari, Utami (2019). The objective of the study was to investigate how the use of a Digital Comics Website, Webtoon, can improve the Indonesian students' EFL vocabulary knowledge. They started the paper by saying that the EFL vocabulary is not easy to recall, and it is fundamental to understand a second language. Thus, Webtoon, which is advantageous to intermediate and advanced students, can be an interesting tool to develop vocabulary knowledge since it has a combination of comics and the internet.

In their qualitative research design, they had 30 adult students from the fourth semester of the English Department as participants. They were from Tidar University and aged between 19 and 22 years old. As an instrument for the data collection, the researchers had only a questionnaire with eight questions (1- Does Webtoon increase your vocabulary?; 2 - Is there any difficult in learning vocabulary by using Webtoon?; 3 - Are you interest learning vocabulary by using Webtoon? why?; 4 - Do language in Webtoon enhance your ability to

memorize and words? why?; 5 - Do languages in Webtoon develop positive interaction?; 6 - Do languages in Webtoon enhance your motivation to learning vocabulary?; 7 - Is it necessary to use Webtoon in learning vocabulary?; 8 - Do you agree if Webtoon as a media in learning process? Why?). Basically, the procedures to collect data were: sending the questionnaire by Whatsapp and gather the answered questionnaires in order to analyze them.

The main research finding was that the EFL students require different teaching approaches that should engage them to increase their vocabulary knowledge. Nonetheless, the authors divided the findings into three main issues: 1) the use of Webtoon may allow the participants' vocabulary knowledge improvement, 2) the EFL students figured out how easy it can be to read DCs in anyplace and anytime, and, 3) the use of Webtoon can be applied in a classroom setting as a new method. Taking into consideration the first issue, the authors said that 21 participants described positive perspectives of the use of Webtoon to improve their vocabulary knowledge. They say that this Digital Comics' Website is fun and interesting; and it gives the audience plenty of different stories, pleasing images, and explicit words. However, 9 of the participants said that locating stories in the website, which could increase their EFL vocabulary knowledge, was complicated; and that some of them were too lazy to search the meaning of unknown words in a dictionary while reading some DCs. Moreover, in the second issue, the participants highlighted that the DCs can be accessed anywhere, whether in a class or at home, and during their free time in a day. This accessibility of DCs motivates the participants to read more and more, consequently, exposing them to new words frequently. The last issue ratifies that the Webtoon can be used for the teaching and learning process since they are described by the students as an interesting, fun, and easy platform to be accessed, which is very different from the conventional approach of reading books.

The authors' interpretations of the main findings were that the use of Webtoon can improve the EFL vocabulary knowledge of Indonesian students and that the Digital Comic website can be a favorable tool to read in English anywhere and anytime, and may be used with different approaches in classes. They mentioned that some participants faced some issues in the website, such as, locating a story, which leads them to boring moments during the process. They did not provide any explicit pedagogical implications; they only described that Webtoon can be used in many situations, can be introduced as a digital resource to motivate students, and can increase EFL vocabulary knowledge.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 13 – Studies' Details of Wulandari, Lestari and Utami

(2019) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 13 – Studies' Details of Wulandari, Lestari and Utami (2019)

Publication Characteristics	*Author*	Wulandari, Lestari and Utami.
	Year	2019
	Publication type	Proceeding paper
Research Design Features	*Design*	Qualitative research
	Instruments	Questionnaire
	Sample size	30
	Pilot study	Not reported
Participant Characteristics	*L1*	Indonesian
	Instructional level	Higher education
	Proficiency level	Advanced
DC's Materials	*Receptive DC's task*	Not reported
	Productive DC's task	Not reported
	Authenticity	Not reported
	Tool	Webtoon

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 14 – MMAT of Wulandari, Lestari and Utami (2019) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a regular quality in its methodological design since there are not clear research questions and/or objectives, I cannot tell if the collected data allow researchers to address the research questions and/or objectives, the instruments are adequate to address the research questions and/or objectives, the qualitative data collection methods are not adequate to address the research question and/or objectives, I cannot tell if the findings are adequately derived from the data, the interpretation of results is not sufficiently substantiated by data, and I cannot tell if there is coherence between qualitative data sources, collection, analysis, and interpretation.

Table 14 – MMAT of Wulandari, Lestari and Utami (2019).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?		X		
	S2. Do the collected data allow researchers to address the research questions and/or objectives?			X	

1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?	X			
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?		X		
	1.3. Are the findings adequately derived from the data?			X	
	1.4. Is the interpretation of results sufficiently substantiated by data?		X		
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?			X	
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

The next section also shows the context and researchers' findings of the theses concerning the use of DCs for EFL learners' vocabulary knowledge in order to answer the first research question.

4.1.2 The theses

4.1.2.1 Gonzáles (2016)

The first thesis presented is the one written by González (2016). Her study investigated how the use of ToonDoo and collaborative learning can be effective in the EFL vocabulary knowledge, focusing on action verbs about the daily routine, of Colombian students. She said that teachers should use a digital tool to develop students' knowledge. Then, Digital Comics, such as ToonDoo, can be used to enhance the students' EFL vocabulary knowledge.

In her action research, she had 16 students from the 7h grade of a Colombian public school as participants. They were between 12 and 14 years old. As instruments, she had a written and an oral diagnostic test, an observing journal, interviews, rubrics (hetero-evaluation, co-evaluation, and self-evaluation), and a final test. Her treatment took 13 classes which she considered as a unit called "My Life in a Comic". First of all, she applied the diagnostic test which was divided into written test (11 questions) and oral test (5 questions). After that, during the lessons, the teacher did many activities, such as mimics, hangman, mental maps, puzzles, as warms-up; then, she presented the targeted words through videos, slide presentation, dictionary, cardboards, oral and written examples; also, she helped the students to organize and revise their ideas for the DCs in sheets of paper in order to create the characters, settings, and context of the stories; and, finally, the participants drew, collaboratively in pairs, their DCs in the ToonDoo Website in order to present their creation orally to the whole class. As the last stage of the data collection, the rubrics, interviews, and the final test were applied respectively.

González (2016) divided the main findings into two categories: 1) how the students learned vocabulary through the use of visual resources and 2) how the students used ToonDoo for collaborative learning. The first category showed, according to the author, that the participants: a) demonstrated clear and good answers in the proposed activities during the classes, indicating mastering of the vocabulary, although some grammatical rules were hard for them to produce; b) used the targeted words (the action verbs about daily routine) properly, as considered by the teacher, in digital and visual activities, which motivated them to have a good performance because they were not traditional resources used in their classes; and, c) achieved their goal in creating and presenting DCs, through the use of ToonDoo, in order to increase their vocabulary knowledge in a contextualized process. In this last item, the author reports that in the interview, the students perceived that they improved in their vocabulary knowledge as much as the tests' results show. In the second category, the participants a) were able to negotiate perspectives and new ideas in the constructions of their DCs, despite some differences during the process; b) perceived that they were more confident during the learning process working collaboratively, then developing their learning process in a social aspect; and, c) produced critical thinking based on other classmates' work through peer assessment, taking into

consideration that they received feedback from other students who were in the same language level, stimulating them to switch their perceptions of other produced DCs.

According to the author, the interpretation of the findings reveals that the use of a DC website, ToonDoo, shows vocabulary improvement of the EFL students through collaborative work in a classroom. However, she concluded that the participants can learn the EFL vocabulary through the DCs' use in a more gradual way. She (2016) also says that in the diagnostic test, the students had a small degree of knowledge about the action verbs, but, after the warm-up activities, and the construction and presentation of DCs, they increased in this type of vocabulary through the expression and understanding of DCs. The pedagogical implications suggested by her were that teachers should contextualize the English classes' contents with multimedia resources, such as DCs, in order to motivate and develop the vocabulary of the EFL learners.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which was done in Table 15 – Studies' Details of Gonzáles (2016) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 15 – Studies' Details of Gonzáles (2016)

Publication Characteristics	*Author*	Gonzáles
	Year	2016
	Publication type	Thesis
Research Design Features	*Design*	Action research
	Instruments	Diagnostic test, an observing journal, interviews, rubrics (hetero-evaluation, co-evaluation, and self-evaluation), and a final test
	Sample size	16
	Pilot study	Not reported
Participant Characteristics	*L1*	Spanish
	Instructional level	Primary Education
	Proficiency level	Beginners
DC's Materials	*Receptive DC's task*	No
	Productive DC's task	Yes
	Authenticity	Yes
	Tool	ToonDoo

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was

adapted to this study in Table 16 – MMAT of Gonzáles (2016) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality on its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, the instruments are adequate to address the research questions and/or objectives, the qualitative data collection methods are adequate to address the research question and/or objectives, the findings are adequately derived from the data, the interpretation of results is not sufficiently substantiated by data, and there is coherence between qualitative data sources, collection, analysis, and interpretation.

Table 16 – MMAT of Gonzáles (2016).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?	X			
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?	X			
	1.3. Are the findings adequately derived from the data?	X			
	1.4. Is the interpretation of results sufficiently substantiated by data?	X			
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?	X			
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X

	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

4.1.2.2 Saadah (2020)

The second thesis presented is the one written by Saadah (2020). The main objective of the study was to create Digital Comics as a learning media in order to teach vocabulary to Indonesian students from the 8th grade. In this thesis, the researcher used webtoon as a DC's social media in order to upload the students' creation; however, their creation was made through the use of two software: Medibang Paint and Corel Draw X7.

In this qualitative research, the participants were students from the 8th grade in Indonesia, and the instruments were written questionnaires and observations. The research described that followed a Computer-Based Instructional (CBI) model during the procedures of data collection. This model has three stages: a) plan, b) development, and c) evaluation. In the planning stage, the researcher observed the classes of the participants in order to analyze if the use of Digital Comics can be useful to the EFL teaching and learning process; then, the researcher started to design the learning objectives of the treatment. Secondly, in the development stage, the researcher presented two DCs to the students, focusing on the vocabulary that was associated with their semester's content; then, the students created their DCs using the Medibang Paint to create the illustrations and Corel Draw X7 to add the balloons. In the last stage, evaluation aimed to enhance the DCs produced by the students during the revision process of the teacher. After these stages, the written questionnaires were handed to the participants.

The main research findings were that, according to the questionnaires, about 80% of the participants agree that digital materials can aid in vocabulary activities. Also, about 80% of the participants said the design and layout of DCs are good in the vocabulary teaching and learning process. About 83% of the participants claimed that the good quality illustration of DCs seems to be appropriate to vocabulary learning and teaching. Moreover, the research compared some

students' DCs in order to analyze if the translation of them is necessary; then, it was said that the students were able to understand the DCs based on the context.

The author concluded that the use of Medibang Paint and Corel Draw X7 to create DCs for vocabulary teaching and learning is very effective in EFL. It may happen because DCs cause emotional reactions through the illustrations in their creations or for readers since their elements, such as humor and narratives call people attention. Choosing colors, characters, and storylines also give the possibility to the students to be motivated in their creation because of the fun construction of DCs.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which were done in Table 17 – Studies' Details of Saadah (2020) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 17 – Studies' Details of Saadah (2020)

Publication Characteristics	*Author*	Saadah
	Year	2020
	Publication type	Thesis
Research Design Features	*Design*	Qualitative research
	Instruments	Written questionnaires and observations
	Sample size	10
	Pilot study	Not reported
Participant Characteristics	*L1*	Indonesian
	Instructional level	Primary Education
	Proficiency level	Beginners
DC's Materials	*Receptive DC's task*	Yes
	Productive DC's task	Yes
	Authenticity	Yes
	Tool	Medibang Paint and Corel Draw X7

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 18 – MMAT of Saadah (2020) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality on its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, the instruments are adequate to address the research questions and/or objectives, the qualitative data collection methods are adequate to address the research question and/or objectives, the findings are adequately derived from the

data, the interpretation of results is not sufficiently substantiated by data, and there is coherence between qualitative data sources, collection, analysis, and interpretation.

Table 18 – MMAT of Saadah (2020).

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?	X			
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?	X			
	1.3. Are the findings adequately derived from the data?	X			
	1.4. Is the interpretation of results sufficiently substantiated by data?	X			
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?	X			
2. Quantitative	2.1. Are the participants representative of the target population?				X
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				X
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				X
	2.4. Is the sampling strategy relevant to address the research question?				X
	2.5. Is the statistical analysis appropriate to answer the research question?				X
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

4.1.2.3 Sabekit (2020)

The last thesis presented was written by Sabekit (2020), and the objective of this study was to investigate if there was a significant difference between the group that used DCs to learn vocabulary and the group that did not use DCs. The researcher focused on the difference between the means of the groups. Moreover, the DCs used in this study was the LINE Webtoon which, according to the author, can improve students' vocabulary online.

In this quasi-experimental study, the participants were 135 Indonesian students from the first year of MAN Kota Blitar, thirty-threes males and one hundred two females. As instruments for their data collection, the pre-test and posttest were multiple choices about part of speech, and the tests were different from each other. The collection of the data happened in two days for the experimental group. On the first day, the pre-test was applied, after that, the researcher presented the Webtoon application to the students, then, they downloaded the app on their cellphones and they had to choose a DC to read from the application, after, the researcher taught part of speech to them and the students read two more times the same DC, and they had to classify some new vocabulary read from the story according to the part of speech in written activity. On the second day, the students read another DC twice and the researcher reviewed the part of speech in the class, after one student presented to the classmates the words that she/he classified in the part of speech from this second DC; then, the students made groups to check the classification of their vocabulary, and the researcher applied the posttest. For the analysis of the data, the t.test was chosen in order to investigate if there was a significant difference between the experimental and control group.

The main research findings were that the mean score of the experimental group in the pretest was 69.57 and in the posttest was 86.57, which means that the mean score between the tests was 17; and the mean score of the control group in the pretest was 52.00 and in the posttest was 58.71, which means that the mean score between the tests was 6.71. According to the research, there were significant differences between the tests and the groups. The experimental group had a better performance in learning the vocabulary than the control group, and the reading of DCs from Webtoon was effective to learn new words.

The author's interpretation of the main finding was that there was a significant difference in the participants' vocabulary scores that used the Webtoon for their vocabulary knowledge. The performance of the experimental group was considered 'very good' and the control group's performance was considered 'fair' by Sabekit (2020). According to the t.test

(0.05), the null hypothesis was rejected and an alternative hypothesis was accepted. Also, the researcher makes some pedagogical applications in the thesis which were that teachers can motivate their students using DCs from Webtoon to read in order to learn vocabulary, thus, creating an enjoyable environment in the classroom and students can pay attention in the classes using DCs as a different resource to learn vocabulary and read DCs at home as well in the cellphone.

As described in 3.2.6 e 3.2.9, one part of the coding process was to outline details of the studies, which were done in Table 19 – Studies' Details of Sabekit (2020) – adapted from Perez et al (2013), and it is shown below in order to visualize some information in an organized way.

Table 19 – Studies' Details of Sabekit (2020)

Publication Characteristics	*Author*	Sabekit
	Year	2020
	Publication type	Thesis
Research Design Features	*Design*	Quasi-experimental research
	Instruments	Pre-test and posttest
	Sample size	135
	Pilot study	Not reported
Participant Characteristics	*L1*	Indonesian
	Instructional level	Secondary Education
	Proficiency level	Beginners
DC's Materials	*Receptive DC's task*	Yes
	Productive DC's task	No
	Authenticity	Yes
	Tool	Webtoon

Source: Adapted from Perez et al. (2013).

Moreover, another essential part was to understand how the research was undertaken. Then, the Mixed Methods Appraisal Tool (MMAT) developed by Hong et al. (2018) was adapted to this study in Table 20 – MMAT of Sabekit (2020) – in order to understand and analyze the quality of the selected studies (see 3.2.7). As we can see, according to the answers from the table below, this study seems to have a good quality in its methodological design since there are clear research questions and/or objectives, the collected data allow researchers to address the research questions and/or objectives, the participants are representative of the target population, measurements are appropriate regarding both the outcome and intervention (or exposure), the intervention was administered (or exposure occurred) as intended, the sampling strategy is relevant to address the research question, and the statistical analysis is appropriate to answer the research question.

Table 20 – MMAT of Sabekit (2020).

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Does not apply
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	X			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	X			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?				X
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?				X
	1.3. Are the findings adequately derived from the data?				X
	1.4. Is the interpretation of results sufficiently substantiated by data?				X
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?				X
2. Quantitative	2.1. Are the participants representative of the target population?	X			
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?	X			
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?	X			
	2.4. Is the sampling strategy relevant to address the research question?	X			
	2.5. Is the statistical analysis appropriate to answer the research question?	X			
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				X
	5.2. Are the different components of the study effectively integrated to answer the research question?				X
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				X
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				X
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				X

Source: Adapted from Hong et al. (2018).

The next subsection shows the commonalities of the researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge in order to answer the second research question.

4.2 THE COMMONALITIES OF THE RESEARCHERS' FINDINGS AND DISCUSSIONS

In order to answer the second research question *What are the commonalities of researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge?* this thesis will show some commonalities. Three commonalities will be presented from Reis, Ribeiro and Procópio (2017); Miranda, Salazar, and Larenas (2018); Cabrera et al. (2018); Cuesta et al. (2018); Wulandari, Lestari, Utami (2019); González (2016); Saadah (2020); and, Sabekit (2020). However, some commonalities are not present in all selected studies, but, in most of them.

4.2.1 The first commonality

The first commonality is that students are not familiar with digital resources, which means that Digital resources, especially DCs, were seldom, if ever, used in their classes, and it can be found in six studies - Reis, Ribeiro and Procópio (2017); Miranda, Salazar, and Larenas (2018); Cabrera et al. (2018); Cuesta et al. (2018); and, Wulandari, Lestari and Utami (2019); Gonzáles (2016). We can see this commonality in an indication made by Reis, Ribeiro, and Procópio's study (2017), where those activities using webcomics motivated students to acquire new words because they bring diversity to the class. The authors even showed some participants' perception of the use of DCs for vocabulary knowledge, such as "I really enjoyed the activity because we like technology and it leads the normal classroom environment" [5]. (REIS, RIBEIRO, AND PROCÓPIO, 2007, p. 86, our translation).

In Gonzáles' (2016) study, a participant said that "... these activities allow us to have more opportunities to use more technology and learn more" [6]. (GONZÁLES, 2016, p. 75, our translation). Cabrera et al.'s (2018, p. 61) study concluded that "students practically had not received English lessons that incorporate technological tools, let alone online comic strips for teaching grammar and vocabulary". The participants from Cuesta et al.'s (2018) study "affirm that they would like to continue using this resource in the future with the same purpose" (CUESTA et al., 2018, p. 13).

[5] "Eu adorei a atividade, pois gostamos de tecnologia e sai do ambiente normal de sala de aula" (REIS, RIBEIRO, AND PROCÓPIO, 2007, p. 86).
[6] "…estas actividades nos permite tener más oportunidades de usar más la tecnología y aprender más" (GONZÁLES, 2016, p. 75).

Also, Wulandari, Lestari and Utami (2019) reported that their participants were not bored during the whole process of the treatment using DCs to learn vocabulary; in fact, they got motivated with the idea that they could continue to access DCs in order to read more frequently in the class or at home, giving them autonomy to use this digital resource. Miranda, Salazar, and Larenas (2018, p. 95) explained that when the participants had "the opportunity to associate the word with another picture in an authentic context, in which they felt excited and motivated". Then, showing the students did not have many opportunities to use digital resources in English classes, especially DCs.

4.2.2 The second commonality

Moreover, another commonality that it is possible to find in the selected studies is the role of the teachers in instructions and tips for the students' reading. In Cabrera et al.'s (2018) research, most of the students perceived that the instructions of their teacher during the reading task were significant for their comprehension. Then, the author concluded that the teachers' instructions "are indispensable for successful vocabulary and grammar learning" (CABRERA et al, p. 64, 2018). Also, the majority of participants from Reis, Ribeiro, and Procópio's study (2007) perceived that the tips given by the teacher were essential to the comprehension in reading, and most of the tips were presented as a writing note on students' DCs. Sabekit (2016) also described the importance of teacher's orientation throughout the treatment during the reading DC's task by the participants to learn vocabulary.

The role of the teachers' instruction for the students' reading also can be seen when the participants from Miranda, Salazar, and Larenas' study (2018, p. 91) "asked teachers in case of any question regarding the vocabulary" during reading DCs. Saadah (2020, p. 26) described that teacher provided "further information about stories in comics that are related to the material, such as tenses used or brief explanations to deepen the reader's understanding related to the material". Thus, we may assume that an intervention made by a teacher during the reading task of DCs has a significant role in participants' comprehension and learning vocabulary based on authors' findings and discussions.

4.2.3 The third commonality

The last commonality that we can highlight here in order to answer the second research question of the current thesis is the authors' findings of DC's positive aspects in students'

vocabulary learning. According to them, using digital comics as supplementary material (CABRERA et al., 2018) in different activities (MIRANDA, SALAZAR, AND LARENAS, 2018; CUESTA et al., 2018; WULANDARI, LESTARI AND UTAMI, 2019; SAADAH, 2020; SABEKIT, 2020) with students' writing notes (REIS, RIBEIRO, AND PROCÓPIO, 2017) and collaborative work (GONZÁLES, 2016) have contributed, based on their findings and discussions, to the participants' vocabulary knowledge. This last commonality leads us to the next paragraph each will attempt to answer the second research question.

The second research question of this research is *What are the commonalities of researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge?* Based on the three commonalities presented and discussed above, the researchers' findings concerning the use of DCs for L2 vocabulary knowledge are: 1) that digital resources, such as DCs, might be used more frequently to motivate students to develop vocabulary; 2) teachers' instructions and tips are possibly relevant for students' comprehension of reading, consequently vocabulary; 3) and DCs used as supplementary material in different activities with students' writing notes and collaborative work may aid in the development of vocabulary.

The researchers' findings and discussions of the use of DC for vocabulary knowledge may vary, but most of them may indicate that, in English Classes, the use of Digital Comics has a positive contribution to the EFL learners' vocabulary knowledge due to various factors, as presented in the previous subsection (4.1).

In the next section, there is a summary of the whole chapter, in an attempt to show the main findings of this thesis.

4.3 SUMMARY OF THE CHAPTER

In this section, the answers of the first and second research questions of the current research were presented based on the studies by Reis, Ribeiro and Procópio (2017); Miranda, Salazar, and Larenas (2018); Cabrera et al. (2018); Cuesta et al. (2018); Wulandari, Lestari, Utami (2019); González (2016); Saadah (2020); and Sabekit (2020).

In 4.1, following Tomitch's (2012) guidelines (Introduction, Methods, Results, and Discussions), the selected articles and theses were presented in order to know the context and researchers' findings of the studies concerning the use of DCs for EFL learners' vocabulary knowledge. All contexts were presented and the main findings were shown. Further, two tables, Table 3 (Studies' Details) and Table 4 (Mixed Methods Appraisal Tool) were adapted to each selected study in order to organize and understand the main information from the studies.

In 4.2, three commonalities were found on their finding of the studies in order to aid in answering the second research question through a configurative synthesis of the selected studies. The three commonalities are: 1) Digital Resources, such as DCs, might be used more frequently to motivate students to develop their vocabulary knowledge; 2) teachers' instructions and tips are possibly crucial for students' comprehension of DCs' reading, consequently developing vocabulary; 3) and the use of DCs as supplementary material in different activities with students' writing notes and collaborative work may aid in the development of vocabulary the students' vocabulary knowledge.

The next chapter will present the final remarks of this thesis. It will show a summary of the whole research, including the four previous chapters; an extra observation, regarding the findings of the selected studies; the limitations of this current thesis, and suggestions for further research.

5 FINAL REMARKS

This section includes the final remarks of the investigation. In 5.1, a summary of the whole paper is presented, highlighting the mains points of the Introduction, theoretical background, method, and results and discussion chapters. And, in 5.2, the limitations of the thesis and suggestions for further research are reported.

5.1 SUMMARY OF THE THESIS

This current study investigated the use of Digital Comics to the EFL learners' vocabulary knowledge based on eight studies, five articles and three theses, from 2010 to 2020 through a systematic review. This thesis presented an introduction with the contextualization of the study and the general objective; the background of studies in teaching and learning with Comics and Digital Comics; then, there the specific objectives, which were *to present the context and researchers' findings of the studies concerning the use of DCs for EFL learners' vocabulary knowledge and to investigate the commonalities of the researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge*, and research questions; after that, the significance and motivation of the study are reported; and, the organization of the paper is shown.

In the theoretical background chapter, in the first subsection, Milton and Fitzpatrick's (2014) presented approaches that describe vocabulary knowledge: 1) the component approach, which has different segments to define vocabulary knowledge, for instance, as receptive and productive vocabulary knowledge, knowledge of use, knowledge of form, and knowledge of meaning; 2) the development approach, which uses progressed stages to define vocabulary knowledge; and 3) the metaphorical approach, which, as its name suggests, use metaphors to describe vocabulary knowledge. Then, relevant concepts of unplanned vocabulary teaching (when a teacher improvises to clarify a word), planned vocabulary teaching (when a teacher plans how to teach a word through diverse procedures) (HATCH, BROWN, 1995), incidental vocabulary learning (when a student learns vocabulary in a contextualized situation without the intention) and intentional vocabulary learning (when a student intends to learn vocabulary regardless of the context) (BARCROFT, 2009) were presented.

In the second subsection, some definitions of comics are given as a combination of sequential images and written text (McCLOUD, 1993; SUWASTOMO, 2016; YUNUS; SALEHI; EMBI, 2012). Nonetheless, Wolk (2007) brings a deeper definition. Also, the five

main categories for comics are presented: comic strip(s), comic book, trade paperback, graphic novel, and Digital Comics (SMITH, 2006; YUNUS; SALEHI; EMBI, 2012). In the last subsection, the twelve principles of multimedia design, baed on the Cognitive Theory of Multimedia Learning are presented (MAYER, 2009) and exemplified as they are designed or not in DCs.

In the method chapter, the research design is defined as systematic review, that is, a secondary research that has explicit and rigorous protocol and criteria, specifically using a qualitative approach (ZAWACKI-RICHTER et al., 2020; COHEN, MANION, MORRISON, 2018; COE, 2002). This thesis followed the protocol suggested by Zawacki-Richter et al. (2020) for systematic reviews in which the steps were detailed on the third chapter.

The steps are: 1) the development of the research question, which had two research questions for this thesis; 2) designing a conceptual framework, which influenced in the choices of the appropriate approach to carry out this systematic review (a qualitative approach); 3) constructing selection criteria, (if all of studies used Digital Comics as a treatment to the research, were published from 2010 to 2020 in Portuguese or English, and had some degree of relation in the area of EFL vocabulary knowledge); 4) developing search strategies, which used all the sources available from the internet and used search words in order to narrow down the search; 5) selecting studies using selection criteria, reading the titles, abstracts, and the study, then, organizing them into folders; 6) coding studies, outlining the details of the study (Table 2), understanding how they were undertaking (Table 3), and answering the first research question following Tomitch's (2012) guidelines ; 7) assessing the quality of the study, which is done on Table 3; 8) synthesizing results of individual studies to answer the review research question, explaining how the synthesis was done following Tomitch's (2012) guidelines, and a configurative synthesis for the second research question; 9) and reporting findings.

In the results and discussion chapter, in order to answer the first research question *What are the context and researchers' findings of the studies concerning the use of DCs for EFL learners' vocabulary knowledge?,* eight studies were selected (REIS, RIBEIRO AND PROCÓPIO, 2017; MIRANDA, SALAZAR, AND LARENAS, 2018; CABRERA et al., 2018; CUESTA et al., 2018; WULANDARI, LESTARI, UTAMI, 2019; GONZÁLEZ, 2016; SAADAH, 2020; SABEKIT, 2020) and their Introduction, Methods, Results, and Discussions were presented following Tomitch's (2012) guidelines.

In order to answer the second research question *What are the commonalities of researchers' findings and discussions concerning the use of DCs for EFL learners' vocabulary knowledge?,* three commonalities of the select studies were reported. They are: i) Digital

Comics can be used to motivate EFL learners to develop their vocabulary knowledge more frequently; ii) the instructions and tips given by the teachers to the students while reading DCs possibly aid in the comprehension, then, helping to develop vocabulary; iii) and the use of DCs as supplementary material in many activities with students' writing notes and collaborative work might help to develop vocabulary knowledge of the EFL students.

The next subsection presents some limitations of the study and makes some suggestions for further research.

5.2 LIMITATIONS AND SUGGESTIONS OF THE STUDY

The thesis and the writing process of the study had some limitations on different levels from the author's perspective. Firstly, one limitation of this thesis was that, unfortunately, it had only eight selected studies to the analysis, then, the data may not seem sufficient to draw huge conclusions. There are few studies because this area of the use of Digital Comics for EFL learners' vocabulary knowledge is new in which did not allow to exclude most of the studies with low methodological quality. Then, two suggestions for further research are: 1) to carry out more research in the area of vocabulary and DCs; consequently, 2) there will be more selected studies to carry out systematic reviews.

Secondly, there are plenty of terms in the thesis, but they are not the focus of the research. Even though this research is a systematic literature review, and I am aware that the terms are described differently by the researchers in the areas, it did not focus on reviewing concepts or any terms related to vocabulary that the select studies brought in their literature review, such as vocabulary knowledge, vocabulary acquisition and/or vocabulary mastery. Instead, this systematic review focused on the results, discussions, and conclusions of these studies (the findings) as seen in the objectives. Thus, as a researcher, I preferred to bring my own background of the descriptions of vocabulary, comics and multimedia since they seem to be more appropriate to the context of my research, the "world" of my research as seen in the second chapter. A suggestion for further research is to bring a further discussion to what should be the appropriate terms to use in this type of research.

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APPENDIX A – Mixed Methods Appraisal Tool (MMAT)

Category of study designs	**Methodological quality criteria**	**Responses**			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions?				
	S2. Do the collected data allow to address the research questions?				
	Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.				
1. Qualitative	1.1. Is the qualitative approach appropriate to answer the research question?				
	1.2. Are the qualitative data collection methods adequate to address the research question?				
	1.3. Are the findings adequately derived from the data?				
	1.4. Is the interpretation of results sufficiently substantiated by data?				
	1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?				
2. Quantitative randomized controlled trials	2.1. Is randomization appropriately performed?				
	2.2. Are the groups comparable at baseline?				
	2.3. Are there complete outcome data?				
	2.4. Are outcome assessors blinded to the intervention provided?				
	2.5 Did the participants adhere to the assigned intervention?				
3. Quantitative non-randomized	3.1. Are the participants representative of the target population?				
	3.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	3.3. Are there complete outcome data?				
	3.4. Are the confounders accounted for in the design and analysis?				
	3.5. During the study period, is the intervention administered (or exposure occurred) as intended?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the research question?				
	4.2. Is the sample representative of the target population?				
	4.3. Are the measurements appropriate?				
	4.4. Is the risk of nonresponse bias low?				
	4.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?				

	5.2. Are the different components of the study effectively integrated to answer the research question?				
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?				
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?				
	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?				

APPENDIX B – Main Selected Studies' Details of The Pilot

Publication Characteristics	*Author*	Cabrera et al.	Reis, Ribeiro and Procópio
	Year	2018	2017
	Publication type	Journal article	Journal article
Research Design Features	*Design*	Mixed-method and quasi-experimental	Qualitative research
	Instruments	Questionnaires, tests and observation sheets	Questionnaires, tests, and notes
	Sample size	163	70
	Pilot study	Partially	Not reported
Participant Characteristics	*L1*	Spanish	Portuguese
	Instructional level	Secondary education	Secondary education
	Proficiency level	Beginners	Beginners
DC's Materials	*Receptive task*	Yes	Yes
	Productive task	Yes	No
	Authenticity	Authentic	Not authentic
	Tool	Pixton	Adobe Reader
General Results	*Quantitative*	Pre-test: (t= 0.2788, p= 0.7808) Post-test: (t= 3.9294, p= 0.0001).	----------
	Qualitative	Positive aspects of participants' vocabulary knowledge.	Positive aspects of participants' vocabulary knowledge.

APPENDIX C – Mixed Methods Appraisal Tool (MMAT) of the Pilot Study, Adapted Table

Cabrera et al. (2018)	Reis, Ribeiro and Procópio (2017)
1	2

Category of study designs	Methodological quality criteria	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	S1. Are there clear research questions and/or objectives?	1; 2			
	S2. Do the collected data allow researchers to address the research questions and/or objectives?	1; 2			
1. Qualitative	1.1. Are the instruments adequate to address the research questions and/or objectives?	2			
	1.2. Are the qualitative data collection methods adequate to address the research question and/or objectives?	2			
	1.3. Are the findings adequately derived from the data?	2			
	1.4. Is the interpretation of results sufficiently substantiated by data?	2			
	1.5. Is there coherence between qualitative data sources, collection, analysis, and interpretation?	2			
2. Quantitative	2.1. Are the participants representative of the target population?				
	2.2. Are measurements appropriate regarding both the outcome and intervention (or exposure)?				
	2.3. During the study period, is the intervention administered (or exposure occurred) as intended?				
	2.4. Is the sampling strategy relevant to address the research question?				
	2.5. Is the statistical analysis appropriate to answer the research question?				
5. Mixed methods	5.1. Is there an adequate rationale for using a mixed methods design to address the research question?	1			
	5.2. Are the different components of the study effectively integrated to answer the research question?	1			
	5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	1			
	5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	1			

	5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?	1			