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L2 Vocabulary Acquisition

An Investigation into the Effectiveness of PlayPhrase.me as a Tool for Learning English Vocabulary for Swedish Level 9 Students

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1. Introduction

The importance of vocabulary for communication in second language acquisition is both undeniable and unquestionable. As Wilkins (1972: 111) states: "without grammar very little can be conveyed, without vocabulary nothing can be conveyed". Schmitt, for example, underscores the importance of vocabulary in acquiring a language when he claims that "lexical knowledge is central to communicative competence and to the acquisition of a second language" (2000:55).

Another aspect that corroborates the importance of vocabulary acquisition for mastering a second language is the high correlation between vocabulary size and various measures of language proficiency. Laufer (1992, cited in Schmitt 2010:4) has, for example, shown a close relationship between vocabulary size and reading, whereas Alderson (2005, cited in Schmitt 2010:4) has shown that vocabulary has strong correlations with all language skills. Based on Alderson's comprehensive study, together with the study by Laufer, one can suggest that vocabulary knowledge may be the single factor that most affects learners' variations in language skills.

Despite that, for many years, vocabulary was considered the "poor cousin*"* of language teaching (Carter 2012:178). According to Carter (2012), the specialization of linguistic research on phonology and syntax created an environment in which vocabulary was considered a minor element in the learning of a second language. As a result, vocabulary acquisition tended to be dealt with mostly in an incidental way, where the learning of vocabulary is not an explicit focus – the learning occurs when students are engaged in another task, like reading for example.

Although vocabulary learning was neglected for a long time, since the nineties there has been an increasing interest by linguists in this field, who defend the significance of systematic teaching and learning of vocabulary to achieve effective communication levels. Nation (2001) claims that both incidental and intentional vocabulary learning are essential. Similarly, Barclay and Schmitt argue that "these two learning types should not be seen as conflicting […] but as complementary pieces of the vocabulary-learning puzzle" (2019:807). By taking a systematic approach to vocabulary learning, teachers are able to use class time effectively and help students get the best exchange for their learning effort.

Nevertheless, according to Chung (2018), "it remains unclear what teachers know and believe regarding L2 vocabulary acquisition beyond the commonplace conception that teaching and learning are interrelated". This was evident during my two Teaching Practice Placements, where I could observe that teachers overall know very little about vocabulary acquisition and

vocabulary teaching strategies other than vocabulary translation/questioning. Consequently, I have not encountered one single teacher who had designed a plan or strategy for vocabulary improvement in an intentional way. In addition to that, I could observe that most students speak English quite fluently, some are excellent, but in general their narrow vocabulary prevents them from fully expressing their ideas in their production (writing and speaking), and it also affects their understanding in the target language (listening and reading). Therefore, after studying recent research on the subject, and in particular calls to use digital tools in vocabulary teaching (see section 2.4), I carried out a project at an upper secondary school in Sweden to test the usefulness of one such tool. This essay reports on my investigation into the effectiveness of the web application PlayPhrase.me as part of a teaching strategy in helping level 9 students of English in Sweden to increase their vocabulary in an intentional way.

2. Background

In this section, I begin by discussing the concept of word knowledge (2.1). Section 2.2 looks at vocabulary learning goals, and the importance of word frequency while setting vocabulary goals (2.2.1). Incidental versus deliberate vocabulary acquisition in described in 2.3, and conditions supporting vocabulary acquisition are presented in 2.3.1. The concept of DDL (data-driven learning) is the focus in 2.4, with a description of the web app PlayPhrase.me used in this study in 2.5. Finally, a summary of previous research carried out in the field is given in 2.6.

2.1 What Does it Mean to Know a Word?

According to Nation (2001), knowing a word is very complex because there are various kinds of knowledge associated with a word. Since words are not isolated units of language, being part of a larger system, there are many degrees of knowing a word. On one level there is the item knowledge, on a second level there is the system knowledge, as well as the relationship between these levels. You can, for example, learn a new word by focusing on individual items (a word) or on systems (the sound system, the spelling system, the grammatical system, etc.): either by simply memorizing it (item knowledge) or via the sound-spelling rules in the language (system knowledge) (Nation 2001:23).

Nation (2001) adopts the terms ‘receptive’ and ‘productive’ to distinguish different kinds of language knowledge. The term ‘receptive’ applies to the knowledge connected to listening and

reading skills; the term 'productive' applies to the knowledge connected to speaking and writing. He argues for the receptive/productive distinction as a tool for measurement in vocabulary distinction, although he is aware that the terminology is not "completely suitable because there are productive features in the receptive skills" (Nation & Webb 2011:24). Moreover, via a process model shown in Table 1, he emphasizes the categories of *form*, *meaning* and *use*, and places them at the most general level of lexical knowledge under which all the aspects of what is involved in knowing a word, when they are applied to vocabulary, are accounted for.

Table 1: What is involved in knowing a word (Nation 2001:27)

Form	spoken	R	What does the word sound like?
		P	How is the word pronounced?
	written	R	What does the word look like?
		P	How is the word written and spelled?
	word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express the meaning?
Meaning	form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	concept and referents	R	What is included in the concept?
		P	What items can the concept refer to?
	associations	R	What other words does this make us think of?
		P	What other words could we use instead of this one?
Use	grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	constraints on use	R	Where, when, and how often would we expect to meet this word?
	(register, frequency …)	P	Where, when, and how often can we use this word?

Note: In column 3, R = receptive knowledge, P = productive knowledge.

As we can see in Table 1, word knowledge related to *Form* includes the spoken word, the written form, and word parts. Word knowledge related to *Meaning* includes the relation between form and meaning, the relation between concepts and referents, and associations with other words. When it comes to word knowledge related to *Use*, it encompasses the understanding of grammatical functions, collocations, and constraints on use of words (limitations about when and

where certain words can be used depending on factors such as frequency and register, among others).

Another very interesting concept related to knowing a word is called learning burden. Nation (2011:23) affirms that "the 'learning burden' of a word is the amount of effort required to learn it". The learning burden will be lighter or heavier depending on your previous knowledge related to your first language, other languages, or the target language. Nation argues that teachers can reduce this learning burden by taking advantage of the previous knowledge of their students, that is, "by drawing attention to systematic patterns and analogies within the second language, and by pointing out connections between the second language and the first" (Nation 2001:24).

The multiple classifications of lexical knowledge interact and inter-relate with each other, so it is important to have a receptive and productive knowledge of both the form, the meaning and the use in order to achieve a deeper and wider understanding of words. These different aspects of word knowledge are also valuable tools in measuring vocabulary acquisition.

2.2 How Many Words Does a Learner Need to Know?

Lexical skills are a crucial component in mastering a language considering that lexical errors create serious disruption to communication, but what is the number of words needed by a second language learner in order to function in their second language?

Nation (1990, cited in Schmitt 2010) refers to 100,000 word families rather than discussing the number of words: "A word family consists of a headword, its inflected forms, and its closely related derived forms" (Nation 2001:8); for example, *employ*, *employment*, *employer*, and *employee* which belong in one family under the headword *employ*. With respect to how many words are necessary to be functional in a language, a 6,000 to 7,000 word-family vocabulary is needed for a 98% coverage of spoken English (Nation 2006:27). This number is higher in relation to written text since "word frequency studies indicate that a much smaller vocabulary is needed for speaking than for writing" (Nation 2001:125). Nation (2006:79) claims that 8,000 to 9,000 word families are needed to understand texts such as newspapers or journal articles. Accordingly, in order to adequately comprehend a text in English, a second language learner needs to know at least 98% (lexical threshold) of the words in that text (Nation 2006:61).

2.2.1 Word Frequency

According to Nation (2001:9), "[f]requency based studies show very strikingly (…) that some words are much more useful than others". Besides that, according to Schmitt (2010:63), "the frequency in which a word occurs in language permeates all aspects of vocabulary behavior". In addition to that, the role of corpus analysis as a research tool for determining word frequency is of great significance as it provides an empirical basis for that purpose.

Nation (2001) distinguished four kinds of vocabulary: high-frequency words, academic words, technical words, and low-frequency words. High-frequency words are described as a small group of words that have high utilization, which means that since those words are very frequent, they give learners a good return by learning them. These high frequency words consist of approximately 2,000 words, and we can say that the amount of time spent with their explicit teaching and learning is extremely relevant, and can be justified by their frequency, coverage and range (Nation 2001:16).

Regarding low-frequency words, Nation (2001) claims that teachers should focus on teaching strategies that can help students expand their vocabularies, not spending substantial amounts of class time on each word. Learners should continue to learn new words as well as use the learned strategies to accomplish that goal.

But what about the words in the middle? Schmitt (2010:70) identifies the need for a new category which "can bridge the gap between the highest frequency vocabulary and the amount that is required for language use". He calls this category for mid-frequency and claims that:

> [a]ll of the partners involved in the learning process (learners, teachers, materials writers, and researchers) will have to focus attention on mid-frequency vocabulary in order to help learners acquire a large enough vocabulary to be able to use language without a lack of lexis being a problem. (Schmitt 2010:70)

Similarly, Beck et al. (2013) have conceptualized a three-tier framework that gives perspective on the types of words that need instructional attention for L1 learners. Tier One words consist of the most basic vocabulary words and are commonly used, especially in oral conversations. These words usually do not require special instructional attention due to high exposure. Tier Three words are domain-specific vocabulary and are less frequent. Generally, they are not of high utility for most learners and can be learned when a specific need appears. Tier Two words, the middle tier, appear frequently across various disciplines and are of high utility.

Moreover, they are typical of written text and do not often appear in conversation. For that reason, students are less likely to learn Tier Two words independently – they require explicit teaching. Additionally, Beck et al. (2013:9) affirm that a "rich knowledge of words in the second tier can have a powerful impact on verbal functioning". Considering that, special instructional attention should be given to Tier Two words.

2.3 Incidental Versus Deliberate Vocabulary Acquisition

There are two main processes of vocabulary acquisition, both for first as well as second language learners, namely incidental and deliberate (or explicit) learning. According to Schmitt and Schmitt (2020:138), incidental learning happens "through exposure when one's attention is focused on the use of language rather than the learning itself" (reading, listening, watching television and movies, extramural exposure), whereas deliberate learning happens "through the focused study of words".

Nation (2001) claims that the two ways of vocabulary teaching/learning should be complementary and not opposing activities, each enhancing the learning provided by the other. When Nation (2001) talks about a balanced course in language learning, he introduces the concept of the four strands, which should be given equal importance in a well-designed course. The first strand is related to comprehensible meaning-focused input, where learners learn through reading and listening activities where only 5% of the words are unfamiliar to them. The second strand is language-focused learning, where an appropriate amount of usefully-focused deliberate teaching and learning of language items foment language learning. The third strand is related to meaning-focused output, where learners develop their knowledge through speaking and writing activities. Lastly, the fourth strand is related to fluency development, where learners become more fluent in using items they already know.

Taking into consideration that each strand represents 25% of a balanced course in language learning according to Nation (2001), incidental and deliberate learning/teaching are equally important in vocabulary acquisition. Whilst basic knowledge of lexical items may be developed through deliberate learning, it is suggested that the more contextualized aspects of vocabulary, such as collocation, cannot be easily taught explicitly and are best learned implicitly through extensive exposure to the use of words in context (Schmitt 2008:333-334). In other words, it can be assumed that deliberate teaching/learning helps developing lexical breadth, and incidental learning through reading and listening helps develop lexical depth.

2.3.1. Spaced Repetition and Quality of Attention

Nation (2014:7) argues that the two most important conditions supporting learning are spaced repetition and the quality of attention given to the lexical items. Regarding repetition, studies agree on the fact that repetition is a key factor for vocabulary learning and retention. In a study on the effects of repetition on vocabulary knowledge, for instance, it is argued that "if learners meet unknown words ten times in context, sizeable learning gains may occur" (Webb 2007:64). Despite that, Uchihara et al. report in their literature review that "the number of encounters necessary for substantial learning to take place varies to a large degree" (2019:3) and depends on many different aspects. Although it is still unclear how many encounters in context are needed to learn a word, we know that repetition plays a crucial role in vocabulary learning: "Learners who encounter an unknown word more times in informative contexts are able to demonstrate significantly larger gains in vocabulary knowledge types than learners who have fewer encounters with an unknown word" (Webb 2007:64).

Additionally, Nation affirms that "the more something is repeated, the more likely it is to be learned" (2014:43). And what is more, according to Nation (2014:43), the most effective repetition is the one which is spaced. Put simply, the spaced repetition technique is based on reviewing the content to be learned in spaced time intervals. The idea is that you increase the time between each review until you feel confident and secure with the learning of that content. Regarding incidental learning, reading is a natural form of spaced repetition. Regarding deliberate learning, flash cards are usually associated with this evidence-based learning technique. In the past few years, many software programs have been developed based on spaced repetition to aid the learning process, such as Anki, Memrise, Quizlet, Brainscape, Supermemo, and Synap.

Along with this, "the effects of repetition are strengthened if quality of attention is added to each repetition" (Nation 2014:43). A simple and effective way of adding quality of attention is by retrieving the learned content, since when we remember we demand brain concentration. Another way of adding quality of attention is through varied meetings and varied use. Practicing the learned content in a variety of situations helps build ingrained and conceptually rich blocks in the long-term memory.

2.4 Data-Driven Learning (DDL)

The teaching of second languages has diversified and has benefited increasingly from the flexibility in its methodologies, teaching resources and approaches. One approach that has been very prominent in the last decades is the use of data-driven learning (DDL), a term coined by Johns (1991) to describe the application of corpora (large collections of authentic digital texts) to investigate language use. Johns defined DDL as "the use in the classroom of computer-generated concordances to get students to explore the regularities of patterning in the target language, and the development of activities and exercises based on concordance output" (Johns & King 1991:iii). In corpus linguistics, a concordance is a listing of each occurrence of a word or phrase in a corpus, presented with the words surrounding it, showing examples of use in context. To illustrate, I have used the British National Corpus (see Table 2) to create a concordance for the word *indescribable*, which is one of the target vocabulary items used in my study (see Section 4).

Table 2: A sample of nine concordance lines for *indescribable* from the British National Corpus (BNC)

Some fifty thousand British soldiers and airmen died in Japanese labour camps. Most suffered **indescribable** hardship. Many were tortured. But until now the Go
300ft. The dangers are clear to see. Male speaker It's tremendous; **indescribable**. With most of the traffic travelling 20 to 25 mph faster than anyone else
such controls are necessary. The smell released by a pig or chicken farm is **indescribable**, and can affect 10 square miles of countryside around. One may doubt
:' thirst' is not accurate at all as a description for this apparently **indescribable** condition. It is a desire millions of us know and share, yet for
first Western politician to reach the Kurds. She told MPs she had seen' **indescribable** scenes' of abject poverty. A former teacher, journalist and Euro-MP, Mrs
one's the cowboy? Neither. They're both redskins. # THREE pretty **indescribable** but noisy bands with growing national, even international, reputations play at Da
:' The pride I feel knowing that Joanne saw fit to nominate me is **indescribable**.' Joanne, 13, says simply:' Mum hasn't just looked
thrill of my racing career,' he told me.' The feeling was **indescribable** and nowadays when things don't quite go as planned I often sit back and
,' but I can tell you that already the feeling of anticipation is utterly **indescribable**.' # Hair piece # MICHAEL Fallon remains much the most favoured subject for

This type of technology has been gradually introduced in the area of education, as the use of its resources allows users to have different and specific contexts of learning. In addition to being very useful for the improvement of the specific skills of a second language, it can also stimulate the motivation of learners, helping and engaging them in their learning in an autonomous way. This learner autonomy comes from the fact that DDL is considered a student-centered method because it requires rule and pattern discovery by the student. Consequently, every student becomes a sort of linguistic detective (Johns 1997:101). Thus, the role of the teacher while using this

approach is “to provide a context in which the learner can develop strategies for discovery – strategies through which he or she can ‘**learn how to learn’**” (Johns 1991:1, emphasis added). Despite that, or maybe because of that, it has generally been used at tertiary level, and its use is not widespread in schools. Apart from that, the Swedish curriculum promotes the use of digital tools in schools, which places new demands on teachers to not only teach in the use of digital tools but also to use such to enhance student learning.

Meunier (2020) observes that DDL has evolved in many ways since 1991. Today, there are many new corpus types, presence of detailed activities in textbooks, more online access to DDL software, an opening of DDL to less advanced learners, etc. Nevertheless, one aspect of DDL that has not evolved is the use of current affordances of digital technology, such as multimodality and mobility, in DDL research and applications (Meunier 2020:slide 3). For that reason, Meunier proposes a new definition of DDL that takes into consideration these current affordances of digital technology, since oft-quoted definitions of DDL “limit the boundaries of DDL to the tools and techniques of corpus linguistics, excluding an opening to other tools that have strong pedagogical potential for DDL” (Meunier 2020:slide 4). Using digital tools can facilitate using DDL with younger learners considering that they enable teachers and learners to avoid working exclusively on written concordance lines. It is against this background that Meunier suggests a new definition for DDL:

> DDL 2.0 is learning driven by the use of aligned pedagogical practices promoting the use of authentic data (in various modalities and with the help of various digital tools) to foster the metalinguistic awareness of language patterns. (Meunier 2020:slide 9)

According to Meunier’s analysis of the digital tool PlayPhrase.me (see 2.5 for a description of the tool), it includes the presence of the fundamentals of DDL (metalinguistic awareness, proxy for frequency effects, and authenticity), integration of additional input types (aural and visual input), enhanced inclusion (multiple input sources such as aural, textual and visual, and connections with real life films), and the integration of new digital tools (open access website and mobile app) (Meunier 2020:slide 8). Within this framework, PlayPhrase.me is a good example of a digital tool, representing current affordances of digital technology, which enables data-driven learning.

2.5 PlayPhrase.me

PlayPhrase.me (www.playphrase.me) is a corpus-like web app created by Eugene Potapenko which includes a search engine that allows the search for English phrases that have been uttered in movies, showing short video clips of the searched phrases in context, providing authentic input to the students. Besides that, "the matching results highlight your search term in real-time, as each video snippet is displayed with the audio utterance playing simultaneously" (Sawers 2014). When using the free website version, which is the case for this study, one cannot view more than five phrases per search. To watch more clips, without limits, you are required to become a sponsor of the project.

According to Potapenko (private communication, July 2022), the first version of PlayPhrase.me, launched in 2014, presented a very small base of films with 120,000 phrases. Version 3, with 1,974,756 phrases, was the version used in this study since Potapenko was still working on version 4 at that time. The newly introduced version 4 (August 2022), with 7,600,186 phrases, includes five times more films than version 3. As an example, there were 13 matching results for the phrase *really don't care* in the old version, and 81 matching results in the new version. The app is now being actively promoted as a language learning tool.

As an example of how the app works, one of the target words used for my study is written in the search space, namely *indescribable*. After a few seconds, Playphrase.me shows up to five results where that phrase has been said. The first and the fourth matching results, obtained from version 3, can be seen in Figure 1 and 2:

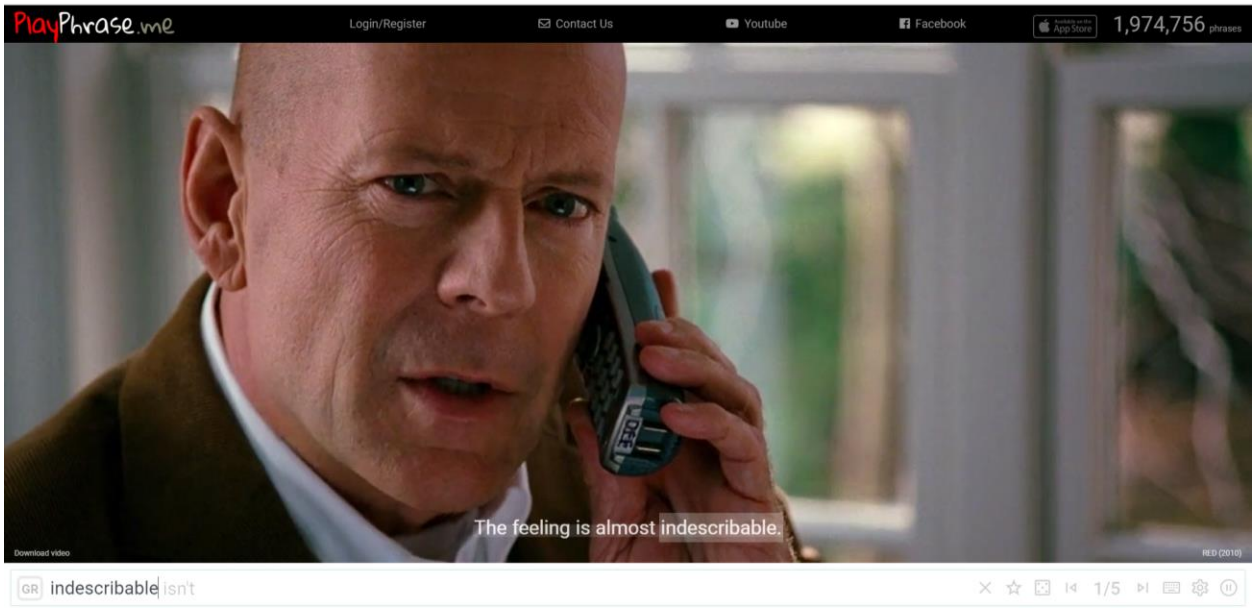

Figure 1: Matching result #1 for *indescribable* (version 3)

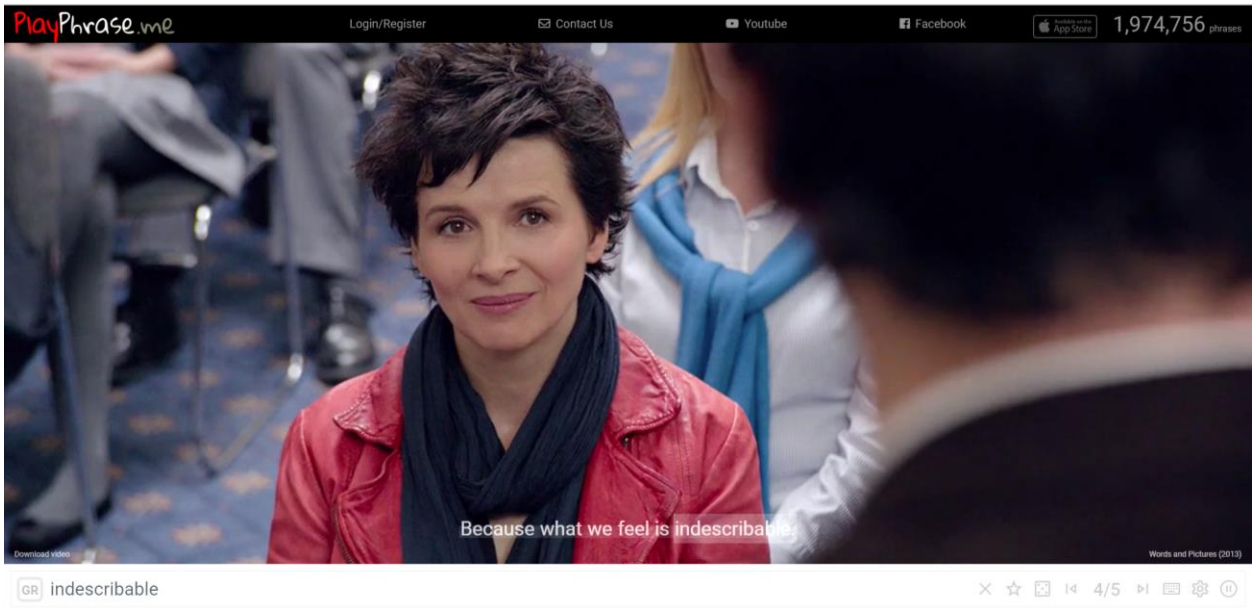

Figure 2: Matching result #2 for *indescribable* (version 3)

The first four matching results are useful because they show the word in context in a sentence, as it was expected. Most of the results show very good examples, but sometimes the context is missing as in the fifth and last result below, where only the searched phrase is shown:

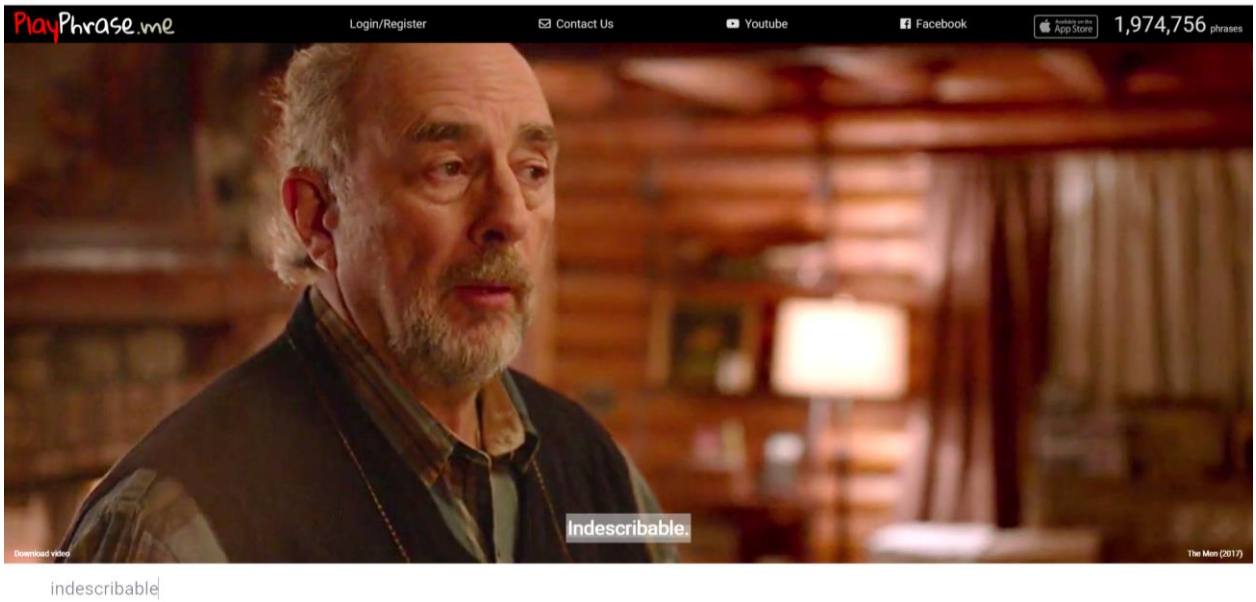

Figure 3: Matching result #5 for *indescribable* (version 3)

One very good feature of PlayPhrase.me is that the video clips are downloadable, which makes them accessible offline and enables the downloaded clips to be added to any lesson plans, presentations or for repetition purposes. It should be noted that scenes of mild violence or bad language can appear among the results.

2.6 Previous Research on DDL

There are many studies related to Data-Driven Learning (DDL), but I did not find any specifically about the effectiveness of the web application PlayPhrase.me. Most research on DDL are applied to developing students' written skills, since existing DDL activities are based on written corpora. Moreover, the great majority of studies concerning DDL are related to tertiary students. Boulton (2019), for example, declares that he knows

> virtually nothing about DDL with younger learners. The simple fact is that probably no one really does. An ongoing but certainly not exhaustive collection of research in the area currently brings up to 378 separate publications featuring empirical study of DDL. Of these, only 19 explicitly state that the participants are in high school and none in a primary school context. (Boulton, 2019:foreword)

By way of illustration regarding the use of DDL in developing tertiary students' written skills, Chen and Flowerdew (2018) introduced data-driven learning to PhD students for research writing purposes, whereas Crosthwaite (2020) focused on L2 error correction in postgraduate academic writing. There are also many studies concentrating on the use of DDL for developing students' vocabulary, such as Rasikawati (2019), Boontam (2002) and Yilmaz and Soruç (2015). Nearly all studies indicate considerable gains with the use of DDL.

Despite these gains obtained with DDL, many scholars highlight the need to expand the boundaries of DDL through new research directions in order to reach the language classrooms. Pérez-Paredes (2010), for instance, argues that there is a need to adapt the methods used in corpus linguistics to the teaching and learning of language. O'Keeffe (2021) endorses Pérez-Paredes (2010) and calls for a broader research gaze on DDL, where "there is a need for greater critical engagement with the pedagogical underpinnings in the form of theories of learning and theories of language acquisition" (O'Keeffe 2021:269).

Boulton and Vyatkina (2021) analyzed 489 empirical DDL studies over three decades (1989-2019) in a foreign/second language context in order to determine areas in need of further exploration. They could then identify themes for future research directions in these studies, and, subsequently, examine how these suggested future directions were realized in subsequent periods. In their conclusion, one of the underexplored possibilities in the field is related to multimodal corpora–written text aligned with sound and/or video recordings. Additionally, "though these are among the most difficult to produce and access, they are potentially of tremendous interest for teaching and research" (Boulton & Vyatkina 2021:82). As an example of such, Boulton and Vyatkina (2021) identify the web app PlayPhrase.me as a readily-available DDL tool and hope for future researchers to be attracted by the potential of such tools.

Meunier's (2020) call to push the boundaries of DDL in order to include current affordances of digital technology stresses that, in order to reach younger and more learners, it is essential that teachers and researchers introduce new types of digital tools into their classrooms and studies so that we can fully achieve DDL's pedagogical potential. Meunier (2020) and Boulton and Vyatkina (2021) recommend the application PlayPhrase.me. In the light of the above considerations, this study can be seen as a response to fill part of the gap identified by some authors in the field of corpus linguistics and DDL studies.

3. Aim and Hypothesis

The aim of this study is to investigate the effectiveness of PlayPhraseMe as a DDL digital tool in helping level 9 students of English to develop their vocabulary so that they will function better in English. My hypothesis is that this web app will be embraced by the students and that it will help them in expanding their vocabulary. The following questions were explored to test this hypothesis:
1. Is PlayPhrase.me an effective DDL digital tool in helping students to expand their vocabulary?
2. Is PlayPhrase.me a useful DDL digital tool for vocabulary learning according to the participating students?

4. Method and Material

In the following section, I introduce the material in 4.1, and then present the participants in 4.2. I explain the choice of target words/phrases in 4.3. The method is detailed in 4.4. Finally, I delineate the problems and limitations encountered during the process in 4.5.

4.1 Material

In this study, the material was collected in the classroom through the usage of four tests and a short feedback response by participants. The first test was a level type test called VLT v.2 (Schmitt, Schmitt and Clapham 2001), explained in 4.4, which was carried out in the very beginning of this study in order to find out the students' baseline vocabulary. The second test was a pre-test with the 18 target words/phrases described in detail in 4.3 (see also Appendix 3). The third test was a post-test applied after the instruction to evaluate whether their knowledge had increased. The fourth test was a delayed post-test to check out the students' retention of the target words in relation to their receptive knowledge related to meaning. The fifth element was to check with the students if they believed that Playphrase.me helped them increase their vocabulary knowledge by choosing an emoticon: a happy face, an indifferent face, or a sad face.

According to Nation and Webb (2011:277), the three sets of tests (pre-/post-/delayed) need to be identical so that the effects of the treatments are not confounded with the different formats or content of the tests. Thus, it is important to note that the pre-test and the post-test were identical, and the delayed post-test was a shorter version of the previous ones, containing only the translation element, in which the target words/phrases and their order remained the same. The shortening of

the delayed post-test was done because unfortunately there was not enough time in the students' schedule to apply a replica of the previous tests.

4.2 Participants

The focus groups in this study consisted of three classes of level 9 students of English at a secondary school in Sweden. The total number of students was 39. In the first and second groups I was able to collect results for 15 students in each group, whereas in group three results were only collected for nine. The students were 15 years old and their approximate CEFR level was B2. All participants were native Swedish speakers and had studied English for a minimum of six years (since level 3), thus having a similar language learning experience background.

4.3 Target Words/Phrases

The 18 target words/phrases used in the pre-test, post-test and delayed post-test are taken from the movie *Captain Fantastic* (Ross 2016). These specific words/phrases were chosen based on the students' baseline vocabulary levels and on frequency: these were mostly words that the students in question were not likely to know and were taken from the OFF and AWL frequency categories. The vocabulary was analyzed using the program Vocabprofile (Cobb n.d.), which can be accessed via the Lextutor website (www.lextutor.ca). The program matches words to the divisions of a frequency list, as shown in Table 3. Additionally, the program looks at individual words, not phrasal vocabulary, and the very frequent 1k words below are parts of phrases, e.g. *off the grid* and *child abuse*.

Table 3: Target words/phrases and their frequency categories

FREQUENCY CATEGORY OF WORD TYPES	TARGET WORDS / PHRASES
1k types: [families 4 : types 4 : tokens 4] **child_[1] game*_[1] off_[1] the_[1]**	**off the grid** **stab** **paralyzed** **inferior** **game*** **predetermined** **edible** **bold** **indescribable**
2k types: [4:4:4] **ashes_[1] bold_[1] funeral_[1] self_[1]**	

AWL types: [4:4:4] commit_[1] conventional_[1] reliant_[1] sustainable_[1]	self-reliant sustainable commit suicide conventional custody funeral ashes dignity child abuse
OFF types: [?:11:11] abuse_[1] custody_[1] dignity_[1] edible_[1] grid_[1] indescribable_[1] inferior_[1] paralyzed_[1] predetermined_[1] stab_[1] suicide_[1]	

*Note: The word 'game' in this study refers to 'prey' as in the following definition: wild animals or birds that are hunted for sport and sometimes cooked and eaten (definition of *game* from the Collins English Dictionary). In Swedish, the translation is *vilt*.

4.4 Method

The method used in this study is of both quantitative as well as qualitative nature. The methodology used is action research, where data is collected in the classroom in an authentic teaching/learning environment.

The first step was to inform the students about the study and about the fact that I intended to use their test results anonymously in my project. No students objected to this even though I informed them that they could choose to not allow me to use their test results. Since the students are under 18 years old, I also needed to get their parents' consent. That was solved by asking the class teachers to e-mail a consent letter (see Appendix 1) to the students' parents informing them that I would be using their test results in this study in an anonymous way. No signatures were required, and it was up to parents to respond if they did not want their child to participate. No parents objected to this.

The next step was then to apply a baseline vocabulary test in order to find out their level. The test used for this purpose was the VLT v.2, a level type test developed by Schmitt, Schmitt and Clapham (2001) available on www.lextutor.ca, where we tested the students' receptive knowledge relating to 2000-, 3000- and 5000-word levels. The students were given 20 minutes to do this test. Their mean and standard deviation scores on the 2,000-, 3,000- and 5,000-word levels of Version 2 of the Vocabulary Levels Test (VLT) by Schmitt, Schmitt and Clapham (2001), available at the Lextutor website (lextutor.ca) (see Appendix 2), was for 2k a mean of 91.33% (SD

10.07%), for 3k a mean of 84.35% (SD 13.14%) and for 5k a mean of 72.27% (SD 20.95%), as shown in Figure 4. That indicates that the focus groups had a good receptive knowledge of the 2,000- as well as the 3,000-word level. The lowest score and the most variation occurred in the 5,000-word level, as could be expected.

It is noteworthy, though, that not all participants in this study took the vocabulary levels test due to absence. The results shown in Figure 4 are the results for all students in all three groups that actually took the test. In Group 1, 11 out of 15 participants took the test; in Group 2, 13 out of 15 participants took the test; in Group 3, 7 out of 9 participants took the test. Thus, nearly 80% of the participants took this test.

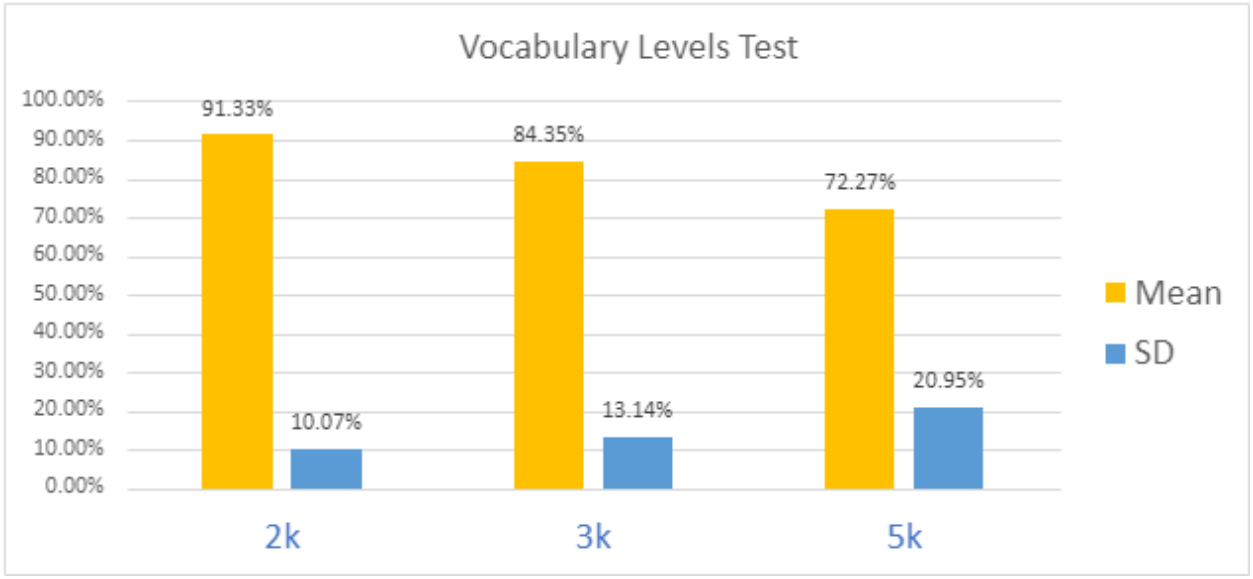

Figure 4: Vocabulary Levels Test Results (Mean and Standard Deviation per Level – All Groups)

After that, in their next class the target words pre-test was applied, which was a test to check the students' knowledge concerning the target words so that I could compare later if they had improved their knowledge about these words after using Playphrase.me. On one hand, the types of knowledge in this pre-test are related to the receptive and productive knowledge associated with meaning of the target words, where the students should write the meaning of the items in Swedish as well as write an explanation of the items in English. On the other hand, this test is related to the productive knowledge associated with use, where the students should write a sentence using the words (see Appendix 3). The students were given 20 minutes to do this test,

which proved to be too little time for a few students, who did not have enough time to come up with or write sentences.

In their next class we went through the target words together using the web app PlayPhrase.me, described in 2.5. I typed some of the eighteen target words and showed the students how the app worked. After that the students got 10 minutes to try some of the words themselves. We then divided the words into two groups, with nine words in each. We used then PlayPhrase.me together to check each of the first nine words. After that we had a memory game with these nine words, and for the next class I repeated the same procedure for the remaining nine words. This memory game consisted of writing nine target words (out of 18 in total) on the whiteboard, then the students were divided into two groups (A and B). Group A had then to say all nine words aloud one after the other. After that, I erased one of the words randomly and group B had to do the same. Each time after a group had said the nine words aloud, I erased one word until there were no words left on the whiteboard, so in the end both groups had to say all nine words aloud and in the correct order. This game was intended to help students memorize the form and pronunciation of the target words through repetition in a fun way, so it was not related to meaning or use.

After working with PlayPhrase.me in class I told the students that the next week we would watch the movie, and it took two lessons (one week) to watch it. For homework, they could use PlayPhrase.me to study for the post-test. Accordingly, after a week the post-test was applied, which was a replica of the target words pre-test. These tests were applied to check whether their receptive and productive knowledge had increased. This time, the students were given 30 minutes to do this test so that all students had sufficient time to complete the tasks. It should be noted, though, that this can have affected the results, as mentioned in 4.5.

Five weeks later, during which the students were working on other themes and activities, a delayed post-test was applied. This post-test was a simple test to measure the students' retention of the target words by checking their word knowledge related to meaning (see Appendix 4).

Table 4: Time frame of the method

Two lessons per week for each group		
	Lesson 1 **Groups 1, 2 and 3**	**Lesson 2** **Groups 1, 2 and 3**
Week 10		Baseline Vocabulary Test

Week 11	Pre-movie discussions	Pre-test (18 target words)
Week 12	PlayPhrase.me (9 target words) + memory game	PlayPhrase.me (9 target words) + memory game
Week 13	Movie (1/2)	Movie (1/2)
Week 14	After-movie discussions	Post-test (18 target words)
Week 19		Delayed post-test (18 target words - only meaning and form)
Week 20	Short feedback response about the utility of PlayPhrase.me	

After also obtaining the feedback response from the participants, the last step in the method was to score the three sets of tests. This was done in Excel as shown in Figure 5 below. Each correct component was given one mark. As an example, in relation to the receptive knowledge associated to meaning, where the students were supposed to translate the word/phrase into Swedish, Student 1 in Group 1 totalized 10 marks in the pre-test, 15 marks in the post-test, and 17 marks in the delayed post-test. In relation to the productive knowledge associated to meaning, where the students were supposed to explain the word/phrase in English, Student 1 in Group 1 totalized 11 marks in the pre-test, and 16 marks in the post-test. In relation to the productive knowledge associated to use, where the students were supposed to write a sentence using the word/phrase in English, Student 1 in Group 1 totalized 11 marks in the pre-test, and 16 marks in the post-test.

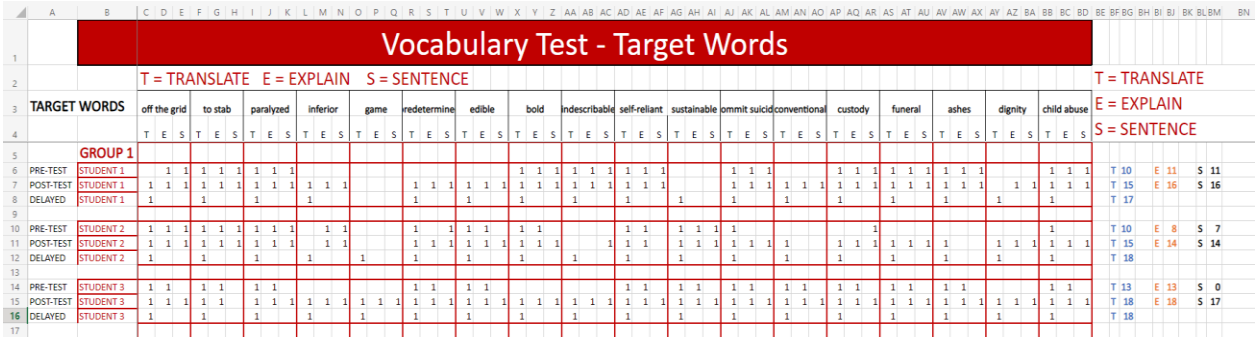

Figure 5: Excerpt from my Excel spreadsheet with the scoring of the tests

4.5 Problems and Limitations

In order to use the results of the applied tests, it was necessary that the students were present in all three vital elements: the pre-test, the post-test and the delayed post-test. Originally, each group of students consisted of approximately 25 students. However, I had to discard many test results since some of the students missed one or more tests due to absence, especially in Group 3 where the total number of students' results were 9. Concerning the three sets of tests, unfortunately there was not enough time to apply a complete delayed post-test (as explained in 4.4), where all three knowledge aspects could be tested, and I chose to simplify it by keeping only the task where their receptive knowledge related to meaning was tested.

Concerning the scoring of the tests, it was quite easy to score the results related to the receptive knowledge related to meaning, because the students only had to write an equivalent word in Swedish. Nevertheless, concerning the productive components, it was a little more complicated. For example, one student wrote these sentences: "That was indescribable", or "She is very self-reliant". These sentences are grammatically correct, but did the student understand the meaning? What I did then was to look at their explanation of the word and check if they understood the meaning. In this case the student wrote: "You can't describe it", and "You relie (sic) on yourself" respectively. Thus, I considered the sentence correct and the student got one mark for the productive knowledge related to use. Misspelled words, as long as I could understand them, had no impact in the results since the knowledge related to form was not being tested.

As mentioned in 4.4, the students had a shorter time for the pre-test than the post-test, i.e. 20 minutes as compared to 30, and this could have had an impact on the results, especially the ones related to the productive components.

It is difficult to measure how much incidental learning contributed to the increase of the students' receptive knowledge of the target words since the post-test was not applied immediately after the introduction and use of PlayPhrase.me due to lack of time. In an authentic environment in a school, there is not enough time to present the target words, teach the students those words with the help of Playphrase.me, and apply the post-test in one lesson. Perhaps if I had chosen fewer words that would have been possible. Although this can be seen as a limitation, as I mentioned before, this limitation was mitigated by the use of a delayed post-test. Also, the students' exposure to the target words/phrases was not limited to PlayPhrase.me. They were exposed to the target words/phrases in the movie we watched, and through the memory game in class. These exposures

may also have influenced their learning, even though in the latter we only worked on the knowledge related to form.

One small problem encountered during the study is related to one of the chosen target words, namely *game,* since it is a polysemous word. The word *game* is well-known by the students as contest, sport or playful activity. Since the target words are associated with the movie *Captain Fantastic*, as mentioned in the method section, the meaning we aimed at in this study was related to animals hunted for sport or for food. It was important for the students to learn this word with the meaning related to the movie, but with the focus of the study in mind I should have substituted that word.

5. Results

In this section I present the results of my investigation. In 5.1, I show the results concerning the students' receptive knowledge related to meaning, where they had to translate the target words/phrases into Swedish. In 5.2, I show the results concerning the students' productive knowledge related to meaning, where they had to explain the target words/phrases in English. In 5.3, I give the results concerning the students' productive knowledge related to use, where they had to write a sentence in English using the target words/phrases. In 5.4, I present the individual gains of the target words/phrases taking into account the students' receptive knowledge related to meaning, where they had to translate the target words/phrases into Swedish. Finally, in 5.5, I give the results of the students' opinion concerning the utility of the app PlayPhrase.me.

5.1 Knowledge Related to Meaning (Receptive)

In Figure 6, which shows the results of all three groups, it is possible to see that the post-test results show an increase in the students' receptive knowledge of the target words/phrases referring to meaning, where the students should translate the words into Swedish. We can also observe a small increase of their knowledge in the delayed post-test in all groups. This is the only type of knowledge in this study where a delayed post-test was applied since there was not enough time in the students' schedule, as explained in 4.4.

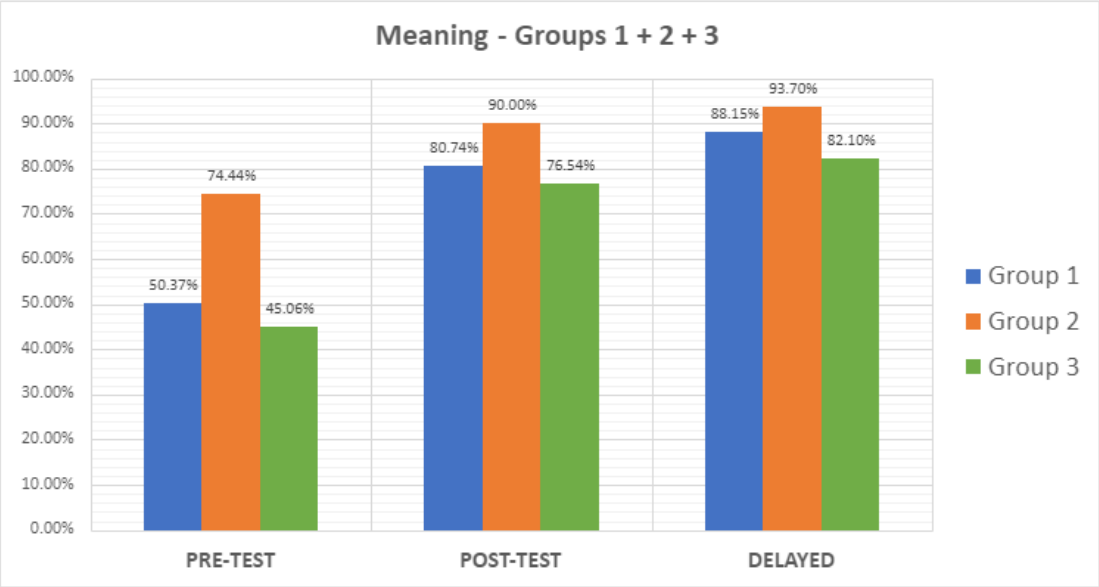

Figure 6: Receptive knowledge of Meaning – All groups

Figure 7 shows the results of Group 1, consisting of 15 students. While observing the blue line representing the pre-test, we can see huge variations ranging from 1 to 15 showing that the group is quite heterogeneous (SD 16.73) in relation to their previous knowledge of the 18 target words/phrases.

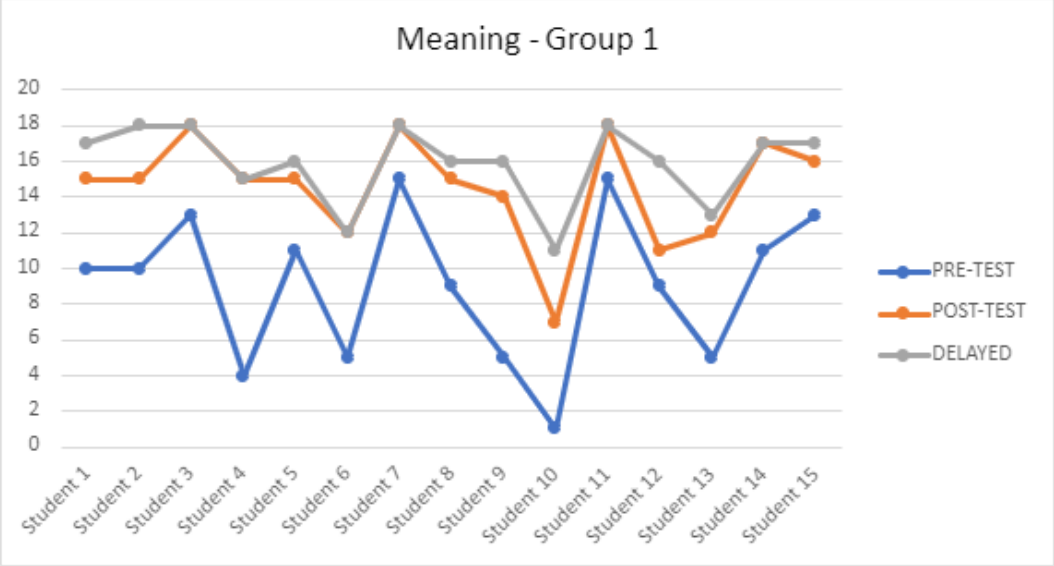

Figure 7: Receptive Knowledge of Meaning – GROUP 1

Figure 8 shows the results of Group 2, consisting of 15 students. Looking at the results for the pre-test, the blue line indicates that it is a more homogeneous group (SD 11.44) than Group 1, with results ranging from 7 to 18. Besides that, their previous knowledge is the highest among the three groups.

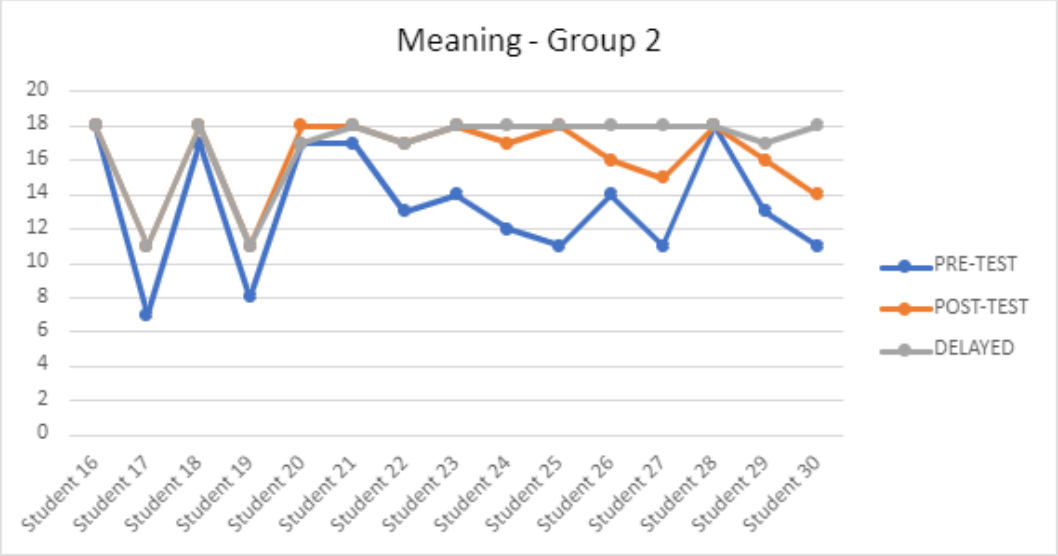

Figure 8: Receptive Knowledge of Meaning – GROUP 2

Figure 9 below shows the results of Group 3, consisting of 9 students. Regarding the pre-test, it is the most homogeneous group (SD 8.32) in this study if we observe the blue line, which ranges from 3 to 13. Observing the orange line, after the post-test the variations in their knowledge diminished considerably (SD 3.73), and even more after the delayed post-test (grey line) where the variation ranges from 13 to 17 (SD 1.28).

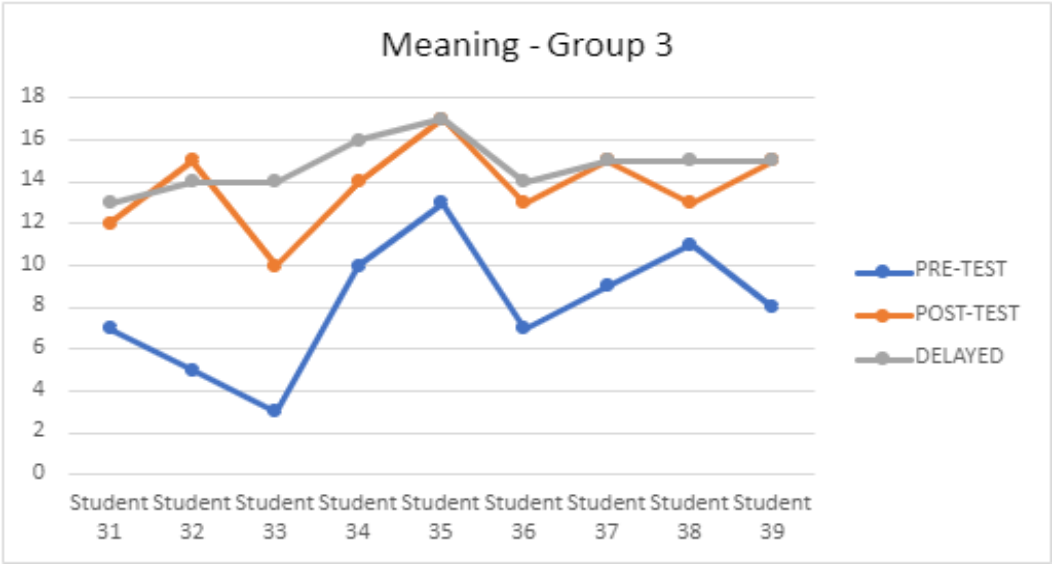

Figure 9: Receptive Knowledge of Meaning – GROUP 3

5.2 Knowledge Related to Meaning (Productive)

Concerning the students' productive knowledge in terms of meaning, where the students had to explain the target word/phrase in English, Figure 10 shows that the post-test results confirm large gains after the use of PlayPhrase.me, even though the standard deviation is very high in all groups according to Figure 11.

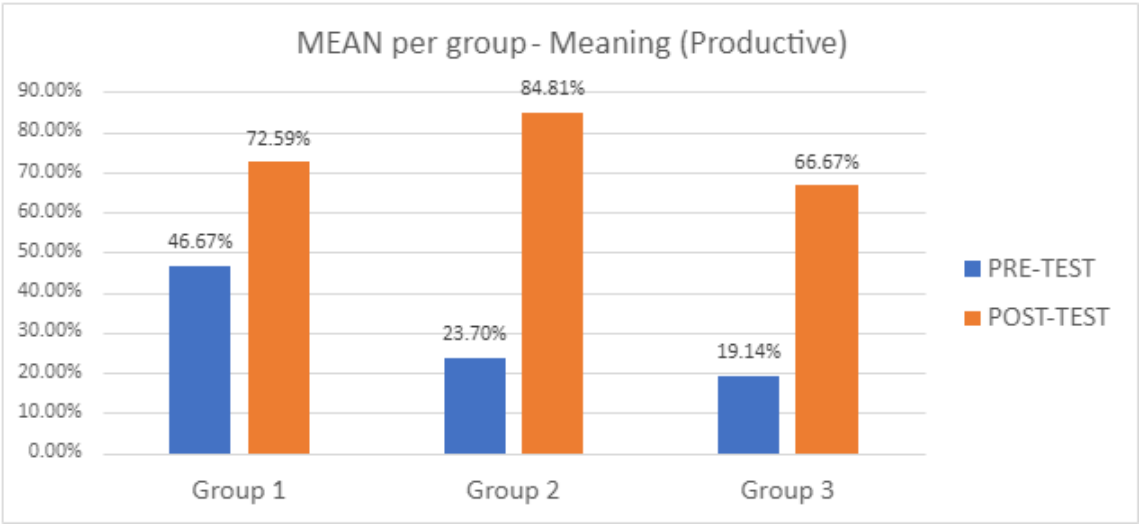

Figure 10: MEAN per group - Productive Knowledge of Meaning

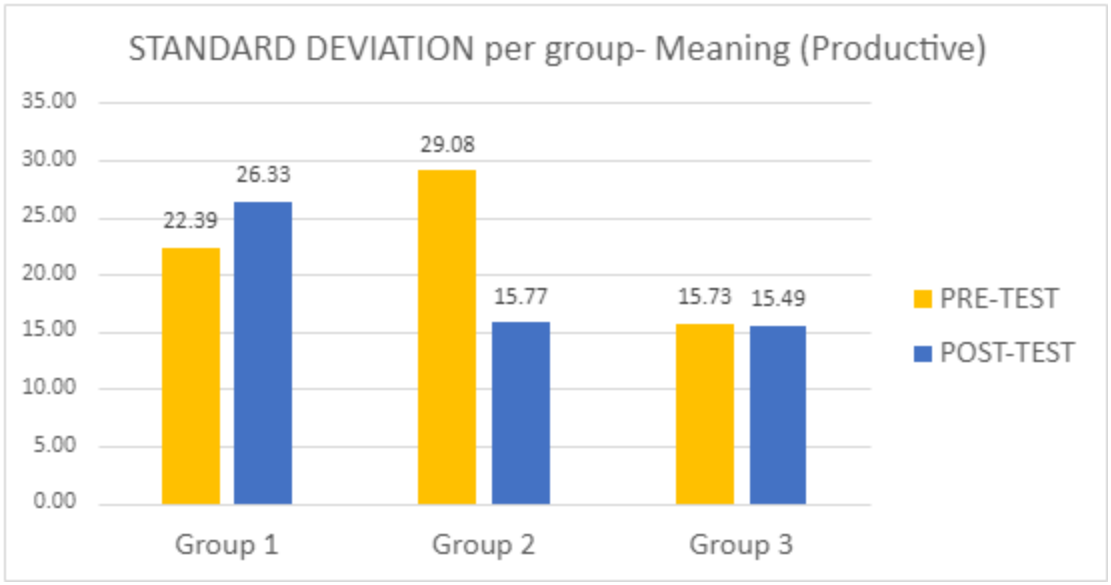

Figure 11: STANDARD DEVIATION per group - Productive Knowledge of Meaning

5.3 Knowledge Related to Use (Productive)

Concerning the students' productive knowledge in terms of use, where the students had to write a sentence using the target word/phrase, Figure 12 shows that the post-test results show large gains after the use of PlayPhrase.me, even though the standard deviation is very high in all groups according to Figure 13.

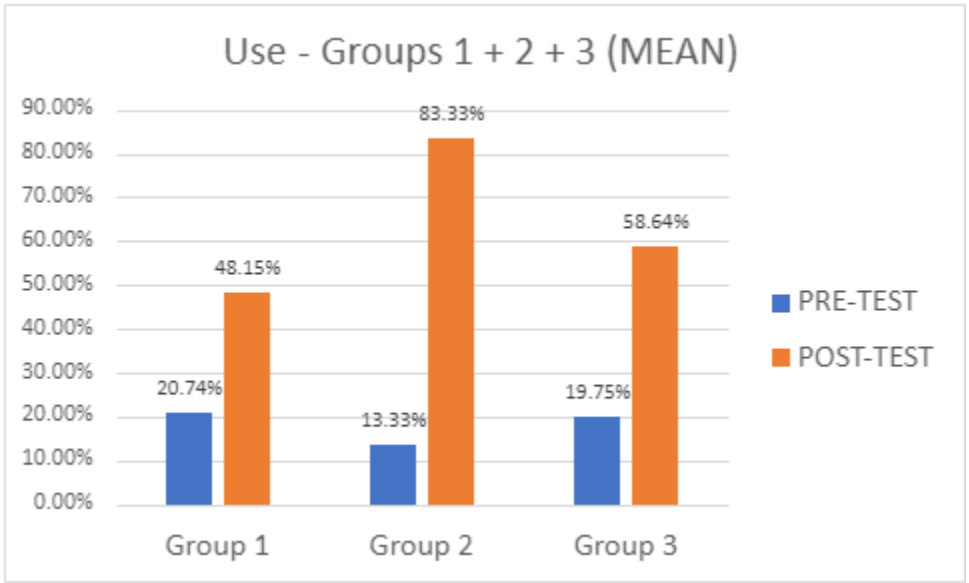

Figure 12: MEAN per group - Productive Knowledge of Use

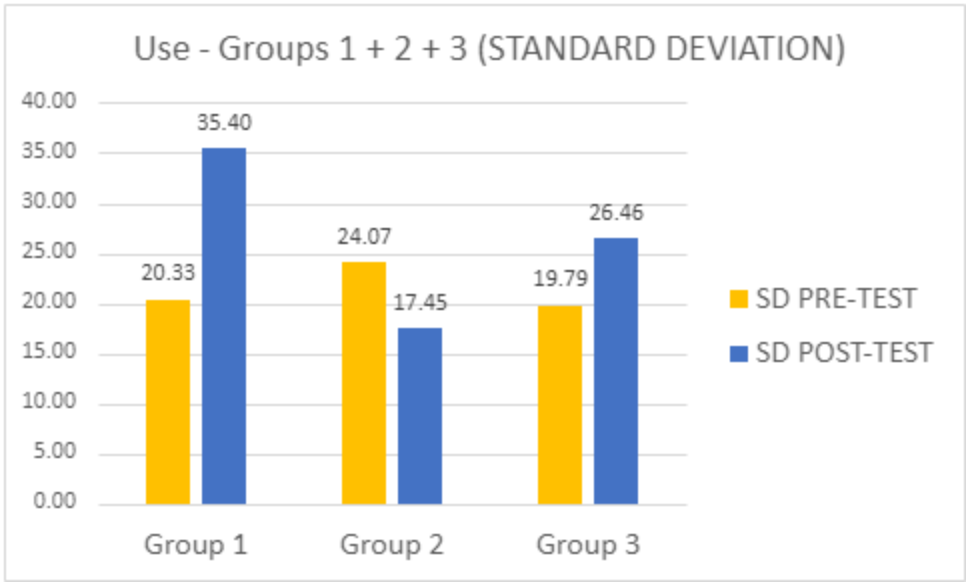

Figure 13: STANDARD DEVIATION per group - Productive Knowledge of Use

5.4 Individual Gains

In relation to the target words/phrases and their individual gains, I have chosen to analyze only the students' receptive knowledge of meaning, since this is the only feature where a delayed post-test was applied and where it is easier to measure the results. The maximum points a word/phrase can get is 39 since this is the total number of participants. Each correct translation equals one point.

Figure 14 shows that some words/phrases, such as *paralyzed, to commit suicide, funeral and child abuse,* were well known in the pre-test, which leaves very little margin for gains. On the other hand, it seems that large gains were made in most words that were not well known in the pre-test – and the graph also shows that there was good retention and even increased knowledge in the delayed post-test. It is also possible to observe that the word *game* was the one with the lowest score in the pre-test, whereas the word *conventional* was the word with the lowest score in the delayed post-test results. Overall, the word *conventional* was the word with less individual gain in the current study.

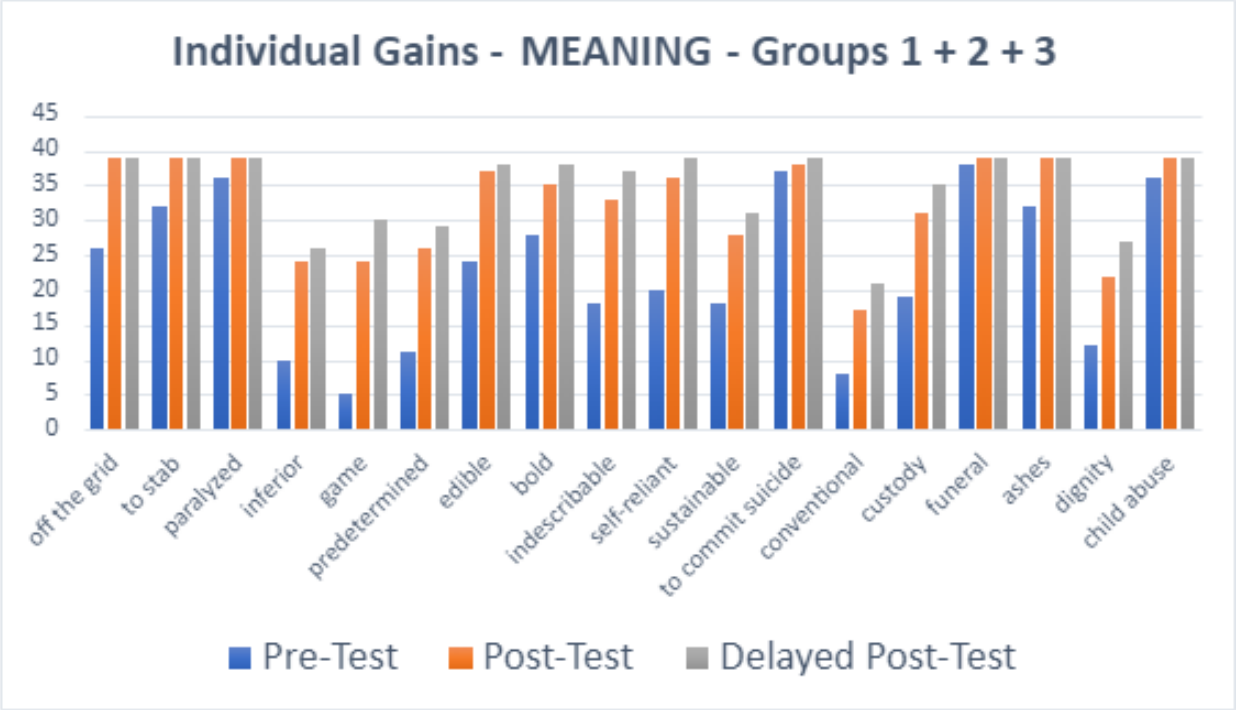

Figure 14: Individual gains (Receptive Knowledge of Meaning – All groups)

5.5 Students' Opinion about PlayPhrase.me

Figure 15 shows the results of the students' opinion about PlayPhrase.me for helping them learn the target words. As we can see, 66.67% of the students in Group 1 believed that PlayPhrase.me has helped them. In Group 2, the percentage of students was the lowest, only 45% of the students believed that PlayPhrase.me has helped them. In Group 3, just over 50% of the students considered PlayPhrase.me an effective tool for vocabulary learning.

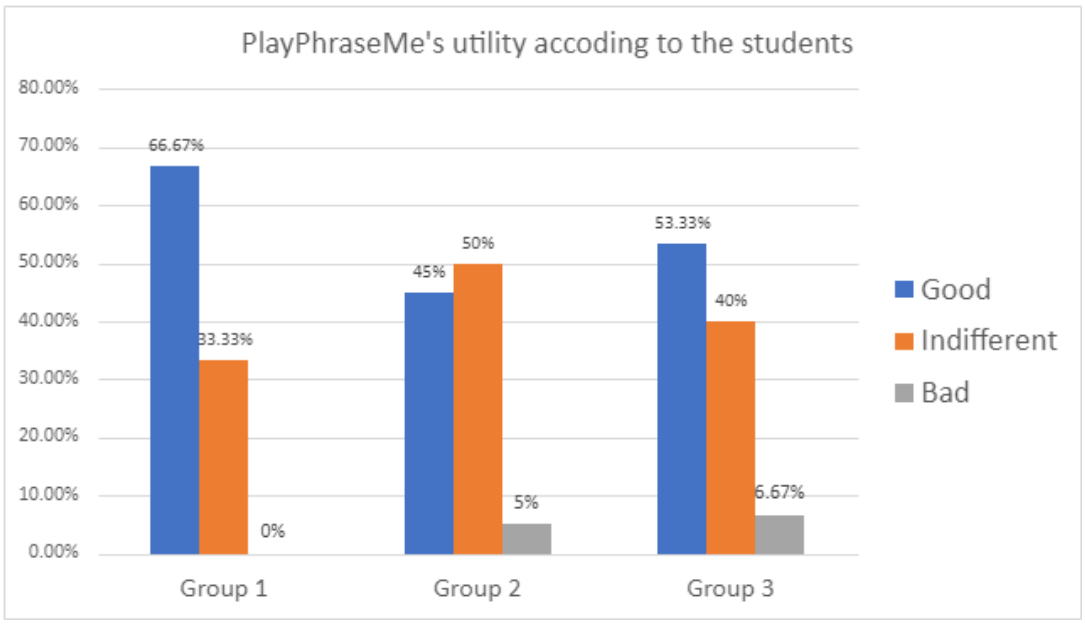

Figure 15: The effectiveness of PlayPhrase.me according to the students (All groups)

6. Discussion

In the following section, I discuss the main findings of this investigation in 6.1, followed by a situation of these findings within the context of previous research in 6.2, and, lastly, my recommendations concerning future research in 6.3.

6.1 Main Findings

Based on the findings of the present investigation there was an increase in the students' receptive and productive knowledge after the use of PlayPhrase.me. However, it is difficult to affirm that this increase has solely to do with the use of PlayPhrase.me, since there are many variables affecting their learning, as explained in 4.5.

According to Figure 6, the groups that increased their receptive knowledge the most after the use of PlayPhrase.me were Groups 1 and 3 – from 50.37% in the pre-test to 80.74% in the post-test, and from 45.06% in the pre-test to 76.54% in the post-test respectively. Furthermore, according to Figure 15, Groups 1 and 3 presented the highest scores in relation to their opinion about the effectiveness of PlayPhrase.me – 66.67% and 53.33% respectively.

Regarding Group 2, this group presented the lowest increase in their receptive knowledge after the use of PlayPhrase.me – from 74.44% to 90.00%. On the other hand, Group 2 presented

the highest score in the pre-test (74.44%) in comparison to Groups 1 (50.37%) and 3 (45.06%). On top of that, according to Figure 15, Group 2 presented the lowest score in relation to their opinion about the utility of PlayPhrase.me – only 45%. This could possibly be interpreted as the lower receptive knowledge a student has about the target words, the greater the utility of PlayPhrase.me. This could also imply that PlayPhrase.me is a good tool to be used with sub-tertiary students, with less-advanced knowledge of the English language.

One interesting aspect is that in all groups the students presented a small increase in their receptive knowledge in the delayed post-test, which shows that students seem to have retained and even consolidated the word knowledge in question.

Regarding the students' productive knowledge, it is possible to see large gains in the post-tests (see Figures 10 and 12), even though the standard deviation for all groups is very high. In addition, if we look at Figures 11 and 13, it is also possible to observe that Group 2 became considerably more homogeneous in the post-test where their standard deviation decreased from 29.08 to 15.77 regarding their productive knowledge of meaning, and from 24.07 to 17.45 in relation to their productive knowledge of use. Contrariwise, Group 1 became more heterogeneous, showing that their standard deviation increased from 22.39 to 26.33, and from 20.33 to 35.40 respectively. Group 3 was more stable regarding their standard deviation with almost no changes related to meaning (from 15.73 to 15.49), and a moderate increase related to use (from 19.79 to 26.46). These large gains can have been affected by the variables discussed in 4.5; on the other hand, the participants were level 9 students about to finish secondary school and they took their Swedish National Exams in the period between the post-test and the delayed post-test. As a result, their motivation for learning new words at that moment was not that high. Based on this, I consider these large gains valuable despite the variables.

Concerning individual gains in relation to the target words, it was not possible to see if PlayPhrase.me is more helpful for learning some words (e.g. nouns / verbs / adjectives) more than others. One plausible reason for the very low gain related to the word *conventional* (see Figure 14) is that some of the factors that affect word difficulty might have contributed, such as word length and number of syllables, as well as concreteness of image and imageability, mentioned by Nation and Webb (2011:314-315). Another possible reason may have been the contexts shown in PlayPhrase.me since some of them are more useful than others, as I mentioned in 2.5.

In terms of qualitative insights, while talking to the students, it was possible to identify that most of them thought that PlayPhrase.me was an interesting, entertaining and fun way to learn that engaged and helped them learn new words in context. Some students commented that it did not feel like they were studying but having fun instead. The students who thought that PlayPhrase.me did not help them at all were the students that already knew the meaning of most of the target words.

6.2 Comparison with Previous Research

Previous research indicates that a corpus-based DDL framework contributes to students' vocabulary acquisition and improvement, because DDL provides learners with repeated exposure to a word or phrase in diverse authentic contexts (Gardner 2013; Nation 2001; Schmitt 2000). At the same time, previous studies point out the necessity of further studies with a larger number of participants and in different contexts in order to provide support for the effectiveness of this approach (Rasikawati 2019; Boontam 2002; Yilmaz and Soruç 2015).

Comparing my findings to those of previous studies, where DDL is used for developing students' vocabulary, we have similar findings, i.e., DDL can facilitate vocabulary learning, and further research with larger sampling groups should be undertaken in order to be able to confirm the effectiveness of this approach.

One of the criticisms of DDL tends to be the time invested for the gains involved (Boulton 2021). As a justification for investing so much time on so few words, it is worth mentioning serendipitous gains, where learners may acquire other insights into language use while using this approach and examining different contexts. Also, simple and free digital tools, such as PlayPhrase.me, help diminish this time investment.

6.3 Future Research

About implications for future research, while carrying out such a study in an authentic environment with younger learners, I would like to recommend the use of fewer words. About 10 words would have been much better, so that the study is more manageable, making it easier to correct the students' answers and to compile the data. From the perspective of ecological validity for the students, too, it will not take too much time from normal classes. This is not to mention that the students' focus can be better, since younger learners lose focus very easily. From the study

perspective, another recommendation is the avoidance of phrases, polysemous words, and homonyms because they bring unnecessary extra variables to the study. Moreover, one more aspect of importance is to apply the post-test directly after the use of PlayPhrase.me in order to lower the effect of intervening variables. Additionally, while planning a study, it is important to make sure the participants will have enough and equal time to do each set of the tests. Furthermore, whenever possible, the three sets of tests should be identical to avoid misinterpretations due to the potential modifications. Lastly, I would like to recommend the use of a comprehensive questionnaire instead of the feedback response I used at the end of my investigation, since the integration of qualitative and quantitative results seems to provide a more complete understanding of issues, and it also gives the researcher and readers a chance to hear the voices of participants.

7. Conclusion

The present empirical study demonstrated the effectiveness of a data-driven learning digital tool, through the web application PlayPhrase.me, in helping level 9 students of English to increase their vocabulary. My hypothesis was that the investigated digital tool would be embraced by the students and that it would help them in expanding their vocabulary.

After processing the results, in answer to my research questions (see Section 3), the students showed large vocabulary gains in the post-test and even further small gains in the delayed post-tests, showing good retention of the target words. The qualitative results corroborate the quantitative results since most students believed that the application helped them in their learning process, and in an entertaining way. This playful aspect, combined with its modern affordances with no focus on concordance lines, makes PlayPhrase.me an appealing digital tool to younger learners, helping in the DDL-ization of vocabulary teaching. With that said, based on the results presented, PlayPhrase.me could be seen as a DDL tool that contributes to learning in a multimodal way with modern interface appeal. Nevertheless, the small number of participants, and the few aspects of word knowledge tested, mean that further studies should be carried out with a larger number of participants and in different settings in order to validate and further demonstrate the positive effects of PlayPhrase.me as an effective data-driven learning tool.

Notably, too, in a world where the workforce is rapidly transitioning and where 6 out of 10 jobs could have more than 30% of their activities automated by 2030 (McKinsey & Company 2017), it is extremely important to teach our students to “learn how to learn”, as suggested by

Johns (1991). As a teacher to be, I believe that the use of corpora adapted to classroom conditions, such as the use of user-friendly digital tools like PlayPhrase.me, helps in developing students' skills for lifelong learning, since DDL promotes students' autonomy, as mentioned in 2.4.

In conclusion, teachers and researchers should work together in order to broaden DDL research, where current affordances of digital tools are taken into consideration, so that the enormous learning potential of DDL becomes finally a common practice in the classroom environment. This investigation is a contribution in this direction.

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Appendix 1 – Consent Letter

Förfrågan om medverkan

Hej!

Mitt namn är Carla Veiga Norlander och jag läser programmet Lärarutbildning - Kompletterande pedagogisk utbildning - Ämneslärare 7-9 på Mittuniversitetet i Sundsvall. Från vecka 11 till vecka 21 kommer jag att genomföra min andra Verksamhetsförlagd utbildning, och den här gången på Vallaskolan.

Jag är inne på mitt sista år och skriver för närvarande ett självständigt arbete om 15 poäng där fokus ligger på att utveckla elevernas ordförråd i engelska (The Effectiveness of "Playphrase.Me" as Part of a Teaching Strategy in Helping Level 9 Students of English to Increase Their Vocabulary). Jag skulle vilja genomföra en studie av hur denna specifika strategi kan hjälpa eleverna utveckla sitt ordförråd i ämnet engelska.

För att kunna göra detta behöver jag mäta elevernas kunskaper i engelska före och efter användandet av denna strategi samt be dem fylla i en kort utvärdering på slutet.

I samband med analys av elevernas testresultat kommer jag att ta hänsyn till Vetenskapsrådets forskningsetiska principer (www.vr.se). Detta innebär att elevernas resultat kommer att behandlas konfidentiellt och resultat kommer enbart att användas i forskningsändamål. Allt material kommer att hanteras med sekretess och de medverkande anonymiseras så att ingen person eller plats kan pekas ut.

Om ni har några frågor eller funderingar är ni välkomna att kontakta mig på ~~mail~~mejl: cave2000@student.miun.se.

Vänliga hälsningar,

Carla Veiga Norlander

Appendix 2 – Vocabulary Levels Test

Type numbers in the boxes

2000 level

1. copy
2. event ____ end or highest point
3. motor ____ this moves a car
4. pity ____ thing made to be like another
5. profit
6. tip

1. accident
2. debt ____ loud deep sound
3. fortune ____ something you must pay
4. pride ____ having a high opinion of yourself
5. roar
6. thread

1. coffee
2. disease ____ money for work
3. justice ____ a piece of clothing
4. skirt ____ using the law in the right way
5. stage
6. wage

1. clerk
2. frame ____ a drink
3. noise ____ office worker
4. respect ____ unwanted sound
5. theatre
6. wine

1. dozen
2. empire ____ chance
3. gift ____ twelve
4. opportunity ____ money paid to the government
5. relief
6. tax

1. admire
2. complain ____ make wider or longer
3. fix ____ bring in for the first time
4. hire ____ have a high opinion of someone
5. introduce
6. stretch

1. arrange
2. develop ____ grow

1. blame
2. elect ____ make

3. lean [ ] put in order
4. owe [ ] like more than something else
5. prefer
6. seize

3. jump [ ] choose by voting
4. manufacture [ ] become like water
5. melt
6. threaten

1. ancient
2. curious [ ] not easy
3. difficult [ ] very old
4. entire [ ] related to God
5. holy
6. social

1. bitter
2. independent [ ] beautiful
3. lovely [ ] small
4. merry [ ] liked by many people
5. popular
6. slight

3000 Level

1. bull
2. champion [ ] formal and serious manner
3. dignity [ ] winner of a sporting event
4. hell [ ] building where valuable objects are shown
5. museum
6. solution

1. blanket
2. contest [ ] holiday
3. generation [ ] good quality
4. merit [ ] wool covering used on beds
5. plot
6. vacation

1. comment
2. gown [ ] long formal dress
3. import [ ] goods from a foreign country
4. nerve [ ] part of the body which

1. administration
2. angel [ ] group of animals
3. frost [ ] spirit who serves God
4. herd [ ] managing business and affairs
5. fort

carries feeling

5. pasture
6. tradition

1. atmosphere
2. counsel _____ advice
3. factor _____ a place covered with grass
4. hen _____ female chicken
5. lawn
6. muscle

1. assemble
2. attach _____ look closely
3. peer _____ stop doing something
4. quit _____ cry out loudly in fear
5. scream
6. toss

1. brilliant
2. distinct _____ thin
3. magic _____ steady
4. naked _____ without clothes
5. slender
6. stable

6. pond

1. abandon
2. dwell _____ live in a place
3. oblige _____ follow in order to catch
4. pursue _____ leave something permanently
5. quote
6. resolve

1. drift
2. endure _____ suffer patiently
3. grasp _____ join wool threads together
4. knit _____ hold firmly with your hands
5. register
6. tumble

1. aware
2. blank _____ usual
3. desperate _____ best or most important
4. normal _____ knowing what is happening
5. striking
6. supreme

5000 Level

1. analysis
2. curb
3. gravel
4. mortgage
5. scar
6. zeal

_____ eagerness
_____ loan to buy a house
_____ small stones mixed with sand

1. circus
2. jungle
3. nomination
4. sermon
5. stool
6. trumpet

_____ musical instrument
_____ seat without a back or arms
_____ speech given by a priest in a church

1. chart
2. forge
3. mansion
4. outfit
5. sample
6. volunteer

_____ map
_____ large beautiful house
_____ place where metals are made and shaped

1. cavalry
2. eve
3. ham
4. mound
5. steak
6. switch

_____ small hill
_____ day or night before a holiday
_____ soldiers who fight from horses

1. artillery
2. creed
3. hydrogen
4. maple
5. pork
6. streak

_____ a kind of tree
_____ system of belief
_____ large gun on wheels

1. contemplate
2. extract
3. gamble
4. launch
5. provoke
6. revive

_____ think about deeply
_____ bring back to health
_____ make someone angry

1. demonstrate
2. embarrass
3. heave
4. obscure
5. relax
6. shatter

_____ have a rest

_____ break suddenly into small pieces

_____ make somone feel shy or nervous

1. correspond
2. embroider
3. lurk
4. penetrate
5. prescribe
6. resent

_____ exchange letters

_____ hide and wait for someone

_____ feel angry about something

1. decent
2. frail
3. harsh
4. incredible
5. municipal
6. specific

_____ weak

_____ concerning a city

_____ difficult to believe

1. adequate
2. internal
3. mature
4. profound
5. solitary
6. tragic

_____ enough

_____ fully grown

_____ alone away from other things

Appendix 3 – Target Words Test (Pre-Test and Post-Test)

Vocabulary Test – Target words related to Captain Fantastic (Ross, 2016)
Name: _____

Please:

- Translate the word from English into Swedish
- Explain the word with other words in English
- Use the word in a sentence

For example:

to love	**Translate:** att älska
	Explain: To like someone very much
The word in a sentence: Suzy and James love each other and they are getting married next week.	

off the grid	**Translate:**
	Explain:
The word in a sentence:	

to stab	**Translate:**
	Explain:
The word in a sentence:	

paralyzed	**Translate:**
	Explain:
The word in a sentence:	

inferior	**Translate:**
	Explain:
The word in a sentence:	

game	**Translate:**
	Explain:

(not ‘spel’)	
The word in a sentence:	

predetermined	**Translate:**
	Explain:
The word in a sentence:	

edible	**Translate:**
	Explain:
The word in a sentence:	

bold	**Translate:**
	Explain:
The word in a sentence:	

indescribable	**Translate:**
	Explain:
The word in a sentence:	

self-reliant	**Translate:**
	Explain:
The word in a sentence:	

sustainable	**Translate:**
	Explain:
The word in a sentence:	

to commit suicide	**Translate:**

	Explain:
The word in a sentence:	

conventional	**Translate:**
	Explain:
The word in a sentence:	

custody	**Translate:**
	Explain:
The word in a sentence:	

funeral	**Translate:**
	Explain:
The word in a sentence:	

ashes	**Translate:**
	Explain:
The word in a sentence:	

dignity	**Translate:**
	Explain:
The word in a sentence:	

child abuse	**Translate:**
	Explain:
The word in a sentence:	

Appendix 4 – Target Words Test – Only Meaning (Delayed Post Test)

Please write the meaning, in Swedish, of the target words below:

off the grid

to stab

paralyzed

inferior

game (not ‘spel’)

predetermined

edible

bold

indescribable

self-reliant

sustainable

to commit suicide

conventional

custody

funeral

ashes

dignity

child abuse