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Mobile applications as a tool for learning English collocations: An evaluative study

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Abstract

Over the last decades several research studies in the fields of Corpus Linguistics, Psycholinguistics and Language Acquisition have provided evidence for the central role of formulaic chunks, in particular collocations, in language use.

Given the increasing popularity of mobile applications as tools for learning English, this study aims to discover whether such an important aspect as the teaching of collocations is given adequate space in three popular EFL apps - Duolingo, Memrise and Busuu.

In particular, the present study seeks to verify whether lexis is given priority over grammar and whether collocations are directly addressed, exploiting various types of exercises and activities.

Our findings show that, overall, Duolingo, Memrise and Busuu are more concerned with the teaching of lexis than with the teaching of grammatical rules.

However, within the units on lexis, Duolingo focuses primarily on single words, whereas Memrise frequently addresses fixed and semi-fixed expressions, but not enough attention is paid to collocations. Only in Busuu are students directly exposed to collocations in a non-negligible way.

Although Memrise and Busuu show a certain degree of lexical sensitivity, we found that lexical and grammatical collocations are still not treated as Lewis (1993, 1997a, 2000) suggests.

Therefore, we conclude that collocations should play a greater role in order for mobile applications to be considered as effective tools in this respect.

Introduction

Vocabulary has long been considered a secondary aspect of foreign language learning. In fact, teachers and syllabus designers have traditionally been more concerned with the teaching of grammatical rules, structures and functions.

The importance of lexis started to be recognised only towards the end of the 20th century, as a result of increasing evidence from the fields of Corpus Linguistics, Psycholinguistics and Language Acquisition, which have shown that we tend to rely heavily on prefabricated lexical chunks.

The first teaching approach to recognise the lexical nature of language and to urge teachers to draw the students' attention to lexical chunks is Lewis' Lexical Approach (1993).

Among the several types of multi-word units, the present dissertation focuses on collocations, defined as "frequently recurring two-to-three-word syntagmatic units which can include both lexical and grammatical words" (Henriksen, 2013:30).

Although extensive research has been carried out on the teaching of collocations in EFL textbooks, little attention has been paid to the same issue in EFL mobile apps.

Given the increasing impact of mobile technology on society and the widespread use of language learning apps, the main aim of this study is to investigate the treatment given to lexical and grammatical collocations in three popular EFL apps – Duolingo, Memrise and Busuu.

In particular, we seek to determine whether the apps recognise the key role played by lexis or they are more concerned with grammatical aspects, and whether collocations are taught and practiced following the suggestions of the Lexical Approach.

Although both quantitative and qualitative methods have been used, our investigation is primarily qualitative.

As far as the overall structure is concerned, this dissertation is divided into two main parts, each of which consists of three chapters and two chapters, respectively.

Part 1 highlights the theoretical framework of the study, while Part 2 concerns the study itself.

In particular, Chapter 1 provides an overview of the main approaches to the teaching of English as a foreign language, with a special attention to the role played by lexis, and

several considerations on the importance of lexis in building the linguistic competence of learners.

All the aspects involved in lexical knowledge will be outlined, from meaning to form, from grammatical behaviour and collocations to register and frequency.

Chapter 2 reviews the main research findings in the fields of Corpus Linguistics, Psycholinguistics and Language Acquisition that revealed the key role of lexical chunks, in particular collocations, in language acquisition and use.

Once the research findings have been outlined, the issues of native-like selection and native-like fluency will be highlighted since they confirm the benefits of knowing collocations.

The aforementioned research findings are first acknowledged in the field of FL education by Lewis, who proposed the so-called Lexical Approach, according to which lexis, and in particular collocations, should be given a prominent role in the syllabus and in the classroom.

Chapter 3 presents its principles and teaching implications, with a focus on collocations. After some clarifications on the definition and classification of collocations, several types of exercises and activities to teach them effectively are illustrated.

Chapter 4 explains the rationale for the present research study, it provides a detailed description of the two research questions, of the target apps as well as of the methodology adopted to analyse them.

Finally, Chapter 5 is dedicated to the analysis of the three apps and the discussion of the findings.

Part 1: Theoretical framework

1. Vocabulary acquisition in EFL

Today vocabulary is recognised as a significant aspect of FL education.

Although it may seem quite obvious, since "when people think of a language, they think almost invariably of words" (Stubbs in Singleton, 1999:8), indeed it is not.

In fact, vocabulary has long been considered a mere subordinate to grammar, which has dominated the scene in the field of language education for many decades.

This chapter is divided into four sections. The first section (1.1) provides a brief overview of the main approaches to the teaching of English as a foreign language, from the beginning of the 19th century to nowadays, with a special focus on the role assigned to lexis; the second section (1.2) focuses on the reasons why vocabulary has long been a neglected aspect in FL education; the third section (1.3) shows that some early vocabulary studies had actually been carried out, while the last (1.4) highlights the value of lexis and outlines all the aspects involved in lexis learning.

1.1 An historical overview of teaching approaches: The role of lexis

Researchers in the field of language education focus on the issue of how to teach languages effectively.

As far as English as a foreign language is concerned, several approaches and methods have been adopted through the years.

Since chapter three will be dedicated to the Lexical Approach and its teaching implications, before a detailed overview of the most important approaches, we deem it necessary to distinguish between *approach* and *method*.

In fact, although these two terms are frequently used as synonyms to refer to the way in which languages are taught, they are not exactly the same (Balboni 1999, 2002, 2012; Celce-Murcia, 1991).

An approach to language teaching is a general theory, it usually "reflects a certain model or research paradigm", while a method is a "set of procedures" which provide specific guidance on how to teach the language (Celce-Murcia, 1991:3). Thus, the term *approach*

is more general and abstract than the term *method*, which is usually a precise consequence of the general way in which language is seen.

To avoid confusion, in our classification we decided to adopt the term *approach,* since it refers to the general perspective on language and language teaching and, thus, it is the basis for the setting of specific methodologies. The term *method* will be used when explicit reference to procedures will be made.

For our purpose we deem it sufficient to provide a brief overview of the general theories to FL teaching, to then focus on lexis, which is our primary concern.

The main approaches to teaching English as a foreign language can be synthetized as follows:

- The Grammar-Translation Approach
- The Direct Approach
- The Reading Approach
- The Audiolingual Approach and the Situational Approach
- The Communicative Approach
- The Lexical Approach

Among these, some treat language as an object and focus on the analysis of rules (e.g., the Grammar-Translation Approach), while others see language as a moving entity, as a process, and thus they focus on actual use (e.g., the Communicative Approach) (Celce-Murcia, 1991).

As a consequence, the former tend to adopt a deductive teaching methodology, while the latter believe that induction is more effective.

The first approach to teaching modern languages is the Grammar-Translation Approach, which started to be widely adopted by the beginning of the 19th century.

According to this approach, modern languages should be taught in the same way Latin and Greek were taught, with a main focus on grammar (Balboni 2002, 2012; Cardona 2004; Celce-Murcia & McIntosh 1979; Celce-Murcia 1991; Richards and Rodgers 2014; Rizzardi & Barsi 2005).

Reading and writing skills have priority over listening and speaking skills, and vocabulary is peripheral and functional to the acquisition of grammatical rules.

The first language is normally exploited by teachers for instruction and explanations and to make comparisons with the target language (Celce-Murcia 1991; Richards & Rodgers 2014; Stern 1983).

Although the Grammar-Translation method was very successful, it raised some important issues too.

Above all, as briefly mentioned before, oral language and lexis were not given adequate attention, written language and grammar being at the centre of the learning path.

In particular, as far as lexis is concerned, words were presented in lists with their corresponding translations and had to be memorized in the same way as verbal paradigms and declensions in Latin and Greek (Cardona 2004; Richards & Rodgers 2014; Rizzardi & Barsi 2005).

Although word lists usually focused on one main topic, semantic relations were not sufficiently considered and vocabulary size was more important than vocabulary depth (Rizzardi & Barsi, 2005:31-32).

Moreover, the words in the literary texts learners were exposed to were usually obsolete and infrequent in actual language use (Cardona 2004; Schmitt 2000).

As a result, students often looked up words in the dictionary, showed low levels of proficiency and had difficulties in communicating effectively in real life situations (Henning, 1973).

Despite all these drawbacks, the Grammar-Translation Method has never disappeared completely and indeed it is still widely used for the teaching of English as a foreign language (Balboni 2012; Richards & Rodgers 2014; Rizzardi & Brasi 2005).

By the end of the 19th century the so-called Direct Approach was seen as a "viable alternative" to the Grammar-Translation Approach (Celce-Murcia, 1991:2). Actually, it developed as a "reaction to the Grammar-Translation Approach and its failure to produce learners who could use the foreign language they had been studying" (Celce-Murcia, 1991:3).

If the Grammar-Translation Approach considers language a system to be analysed, the Direct Approach directs its attention towards actual linguistic phenomena.

The acquisition of grammatical rules was not the primary concern anymore, the L1 was removed from the learning environment and students were asked to use only the target language (Balboni 2002; Cardona 2004; Celce-Murcia & McIntosh 1979; Celce-Murcia 1991; Richards & Rodgers 2014; Rizzardi & Barsi 2005). Oral skills obtained greater

recognition and, in fact, listening and speaking were practiced before reading and writing (Rizzardi & Barsi 2005; Schmitt 2000).

Grammar was taught inductively (Cardona 2004; Celce-Murcia & McIntosh 1979; Celce-Murcia 1991) and it was believed that rules would be acquired quite naturally, as occurs in the L1 (Richards & Rodgers 2014; Rizzardi & Barsi 2005).

As far as vocabulary learning is concerned, Richards and Rodgers (2014:12) specify that "concrete vocabulary was taught through demonstration, objects and pictures, [while] abstract vocabulary was taught by associations of ideas".

The two major drawbacks of this approach are the teacher's level of English, which must be native-like, the lack of a clear methodology and the huge amount of time necessary for learning to take place (Richards & Rodgers, 2014:13).

In addition, at the beginning of the 20th century travelling was not popular, and as a result, "reading [started to be] viewed as the most usable skill to have in a foreign language" (Celce-Murcia, 1991:4). Therefore, the so-called Reading Approach emerged, with the acquisition of the reading skills at its centre. Grammar was taught as long as it was useful for the comprehension of texts and so was vocabulary (Celce-Murcia 1991; Schmitt 2000).

As far as words are concerned, Celce-Murcia (1991) clarifies that they were taught considering the criteria of frequency and usefulness.

The Audiolingual Approach developed during the World War II with the main aim of improving the diplomatic corps' oral skills (Balboni 2012; Celce-Murcia 1991; Richards & Rodgers 2014; Rizzardi & Barsi 2005; Schmitt 2000). It responded to the need to practice oral comprehension and production, which were neglected by the Reading Approach.

The Audiolingual Approach was quite popular, especially in the US, from the 1940s to the 1960s. (Celce-Murcia, 1991).

As previously said, like the Direct Approach, it focused on listening and speaking rather than on reading and writing (Richards & Rodgers 2014:63; Schmitt 2000).

In addition, it borrowed from Behaviourism the idea that language acquisition is the result of habit formation (Richards & Rodgers 2014:63-64; Rizzardi & Barsi 2005:177-179).

This belief had an impact on the way vocabulary was taught. In fact, first vocabulary "was selected according to its simplicity and familiarity", then "it was assumed that good language habits and exposure to the language itself would eventually lead to an increased vocabulary" (Schmitt, 2000:13). Rizzardi and Barsi (2005:180-181) go even further

claiming that, according to this approach, learners do not need to be aware of the rules they are applying, since they will eventually understand everything by analogy.

Memorization and repetition play a very important role in building up one's vocabulary (Celce-Murcia 1991; Rizzardi & Barsi 2005), but no clear methods of extending vocabulary were outlined (Cardona 2004; Schmitt 2000).

The Situational Approach is the British counterpart of the Audiolingual Approach (Celce-Murcia 1991; Schmitt 2000). The two approaches share the reflection on habit formation: in fact, language learning is seen as the acquisition of habits. Through the repetition of words and structures and the imitation of native speakers it is believed that learners will gradually improve their competences and will gradually be able to focus not only on forms but also on meanings.

However, the Situational Approach added something new, emphasizing the importance of being able to communicate in various situations, such as at the restaurant, at the airport, at school, at work (Celce-Murcia, 1991).

Lexis and grammar were taught as they appear to be useful in these situations (Schmitt, 2000:13), and they were contextualized.

At the beginning of the 1970s a new approach emerged: it is the so-called Communicative Approach.

The principle beneath it is that language is a means of communication, it must serve the purpose of communicating the speaker's objectives (Richards & Rodgers 2014; Rizzardi & Barsi 2005).

To be able to reach his/her goals, the learner must develop the so-called "communicative competence" (Hymes, 1972) and the four communicative skills (speaking, listening, writing, reading) should all be practiced. This approach, in fact, developed precisely as a consequence of the spreading of the new concept of *communicative competence* defined by Hymes "not only as an inherent grammatical competence, but also as the ability to use grammatical competence in a variety of communicative situations, thus bringing the sociolinguistic perspective into Chomsky's linguistic view of competence" (Bagarić & Mihaljević Djigunović, 2007:95).

Grammar exercises, repetition and memorization have given way to tasks carried out in groups. Students are asked to negotiate meaning in the foreign language, while teachers have the role of guides (Richards & Rodgers 2014; Rizzardi & Barsi 2005), and fluency is preferred over accuracy (Cardona 2004; Rizzardi & Barsi 2005).

This approach focuses not only on linguistic structures, but also and mainly on social functions (Celce-Murcia, 1991): in fact, students must know how to make a request, ask for permission, make an apology, and so on.

Celce-Murcia (1991) highlights the authenticity of the materials and the activities proposed in class, which serve to prepare learners to be successful in everyday situations. Although materials are authentic and attention is now devoted to the message, vocabulary is presented only as functional to the specific contexts of communication and it is still peripheral. In other words, although vocabulary acquired greater importance (Cardona 2004:53), "as in previous approaches, it [is] assumed that L2 vocabulary, like L1 vocabulary, would take care of itself" (Coady in Schmitt, 2000:14).

However, recently it has been realized that "mere exposure to language and practice with functional communication will not ensure the acquisition of an adequate vocabulary" (Schmitt, 2000:14).

Cardona (2004:54) underlines that a specific scientific interest in the nature of lexis as well as in lexis acquisition and teaching methodology started to grow in the last decade of the 20th century.

One of the most recent approaches in language education that recognises the relevance of lexis is Michael Lewis' Lexical Approach (1993).

The main principle beneath this approach is that "language consists of grammaticalized lexis, not lexicalized grammar" (Lewis, 1993: vii). In other words, the starting point for each language is not grammar but lexis.

As stated by Richards and Rodgers (2014:215), "the building blocks of language learning and communication are not grammar, functions, notions [...], but lexis", which includes not only words, but also and mainly "multi-word combinations". These combinations, also known as "chunks", are "learned and used as single items" (ibid).

Schmitt, cited in Richards & Rodgers (2014:215), clarifies the essence of the Lexical Approach:

> The lexical Approach can be summarized in a few words: language consists not of traditional grammar and vocabulary but often of multi-word prefabricated chunks. The lexical approach is a way of analysing and teaching language based on the idea that it is made of lexical units rather than grammatical structures. The units are words and chunks formed by collocations and fixed phrases.

The Lexical Approach will be analysed in detail in the following chapters and particular attention will be paid to collocations, which are typical combinations of words that are widely exploited in English.

1.2 Vocabulary: a neglected aspect of language education

As can be seen from the developments in the teaching approaches outlined in the previous section, vocabulary has long been neglected in the history of language education.

In fact, before the 1990s the primary concern in FL education was the teaching of grammatical structures and language functions. Vocabulary was considered a secondary aspect and, thus, it was rarely mentioned in EFL syllabuses (Schmitt and McCarthy, 1997:258).

This view, according to which what is most important is that learners are able to correctly use the structural patterns of the language, held sway from the 1940s to the 1960s (Carter and McCarthy, 1988:40). Chomsky's theory of universal grammar and the difficulty of determining what vocabulary is actually useful for the learner, contributed to the success of this approach to foreign language teaching.

The 1970s saw a reaction to the traditional grammar-translation method and to the audio-lingual method. In fact, it was noted that the mastery of grammatical structures alone was not enough for EFL learners to be able to effectively use the language in real situations and reach their goals (Carter and McCarthy, 1988; McCarthy, 1990; Schmitt and McCarthy, 1997). They could translate texts, successfully carry out completion exercises, but "they could not cope with the realities of everyday situations such as buying a railway ticket, apologising for being late or writing a complaint letter in an appropriate way" (Schmitt and McCarthy, 1997:259).

Therefore, syllabus designers started to focus on the functions of the language such as asking information, apologising, asking for help etc., which allow EFL learners to interact and to cope with events. The so-called Functional Syllabus is the result of the realization that the teaching of grammar alone was worthless.

Even though lexis gradually started to be considered of more importance in the 1970s and in the 1980s as a result of this realization, "vocabulary teaching was merely a question of selection of items on a criterion such as frequency" (Carter and McCarthy, 1988:42).

In his essay *Vocabulary Acquisition: a neglected aspect of language learning,* Meara clearly stated that:

Vocabulary acquisition is part of the psychology of second language learning that has received short shrift from applied linguistics, and has been very largely neglected by recent developments in research (1980:121).

Similarly, Morgan and Rinvolucri claim that:

It is curious to reflect that so little importance has been given to vocabulary in modern language teaching.
Both the behaviourist/structural model and the functional/communicative model have, in different ways, consistently underplayed it (1986:3).

There seem to be several reasons behind this tendency.

What prevented teachers from focusing on lexis in the Grammar Translation Approach was the belief that grammatical competence was more important than any other linguistic and extra-linguistic competence. With his theory of generative grammar, which put the regularities of syntax at its centre, Chomsky contributed to strengthen this idea.

And in the following approaches, even though the importance of lexis was eventually recognised, it was still not the primary concern, since it was thought to be acquired naturally, through mere exposure and repetition.

One of the main reasons why vocabulary was – and sometimes still is – a neglected aspect of language education is that vocabulary acquisition is quite complex and it requires a lot of practice.

In fact, Gilanlioglu (2002:21) rightly notes that in any language "there is an infinite number of words, as opposed to finite number of grammar rules" and Carter (2012:178) adds that "significant structural description and generalization is possible within syntax, where relations are finite, but less likely within lexis, where relations are theoretically infinite". Therefore, teaching lexis is far more complex than teaching syntax (Balboni, 2012:207).

Moreover, knowing a word involves knowledge of several different aspects, from semantics to phonology, and from syntax to pragmatics (Cardona 2004; Carter 2012; Nation 1990, 2001; Schmitt 2000).

In addition, usually there is a mismatch between receptive and productive vocabulary: students may understand the meaning of a word, but they won't be able to actually use it in the first place (Gilanlioglu 2002; Nation 1990, 2001).

For this to happen, they "need to have been exposed to this item several times at least and actually to have repeatedly found themselves in a situation where there is a need for that item to communicate a message" (Gilanlioglu, 2002:22). In other words, being able to use words appropriately, considering meaning, form, context etc., requires time and practice.

Thus, it appears evident that learning lexis is far from being easy; rather it is "an on-going process" (Gilanlioglu, 2002:21).

All these issues make it difficult for syllabus designers and teachers to decide which words to teach first, which meaning(s) and aspects of word knowledge prioritize. Quoting Carter, "the syntactic structures to be learned can be more easily specified in a syllabus than can either the number, type or range of vocabulary items which may be required" (Carter 2012:178).

A further reason why grammar was preferred over vocabulary – and sometimes still is – is that teachers did (and sometimes still do) not know exactly how to deal with vocabulary, because of its complexity and because they tend to adopt the same methods and techniques they experienced as learners, which focused mainly on grammatical rules and structures (Balboni 2002, 2012; Gilanlioglu 2002). In other words, they are not confident in teaching vocabulary since they did not receive a proper instruction (Balboni 2012; Berne & Blachowicz, 2008), and therefore they do not give it adequate attention.

Richards and Rodgers add other possible reasons why some teachers still rely on traditional approaches to teaching EFL: one reason may be their "limited command of spoken English", another reason may be that this way they fell they can have a greater "sense of control and authority in the classroom" and they can work well even with lots of students (Richards & Rodgers, 2014:7).

However, teachers must be up-to-date with the most recent discoveries in the field of language acquisition and with the most recent methods to teach lexical items, in order to help learners build up their vocabulary.

In 1990 Nation pointed out the need to teach lexical items and provided a detailed description of all the aspects that have to be considered when learning new words, and from the nineties vocabulary started to be recognised as an important aspect of language acquisition that requires explicit attention.

1.3 Vocabulary studies

Although it is true that before the late 1980s syllabus designers and teachers did not put much attention on vocabulary, their primary concern being grammatical rules and language functions, it has to be highlighted that vocabulary studies did not start to be carried out in the last few years, in fact, they have a long history (Carter and McCarthy, 1988).

In particular, when it comes to English as a foreign language, from the 1930s onwards, several lists containing the basic English vocabulary had been published.

Among these, the most relevant are *Basic English*, proposed by C. K. Ogden and I. A. Richards (1943), which contains 850 words deemed to be "necessary for the clear statement of ideas" (Richards, 1943 cited in Carter and McCarthy, 1988:2) and Michael West's *A General Service List* (GSL) (1953), consisting of 2000 words claimed to allow an understanding of 80 percent of the words in any written texts (Carter and McCarthy, 1988:7).

These word lists, together with others and with the publication of several dictionaries, such as the *New Method Dictionary* (1935), the *Minimum Adequate Vocabulary* (1960) and the *Longman Dictionary of Contemporary English* (1978), show that research studies in the lexical field were being carried out.

However, these works did not consider words in all their aspects and they did not lead to a change in foreign language teaching, which was still focused on linguistic structures and functions.

In other words, the pedagogical attention was still not on vocabulary. And even when syllabus designers and teachers showed little more interest in vocabulary, the focus was still on single words, mainly the most frequent ones.

Only in the last few decades vocabulary acquisition research in English as an L1 and as an L2 has become extensive (Carter, 2012) and, as a result, the learner's lexical competence has started to be seen as highly important.

Not only there has been a growing interest in vocabulary studies, but also a redefinition of what it actually means to learn words.

1.4 The value of lexis

Although it suffered neglect for quite a long time, lexis is now recognised as a crucial aspect of language acquisition, and therefore it should be given a special attention both in the teaching of an L1 and in the teaching of a foreign language.

There are several reasons why lexis should be a teacher's primary concern.

First, as Stubbs points out, "when people think of a language, they think almost invariably of words" (Singleton, 1999:8).

Second, students themselves "feel that many of their difficulties in both receptive and productive language use result from inadequate vocabulary" Nation (1990:2), and it is not surprising that when they go abroad, they carry around dictionaries and not grammar books (Krashen in Serra Borneto, 1998:227).

Wilkins (1972) was rather clear in his statement: "without grammar very little can be conveyed, without vocabulary nothing can be conveyed" (Carter and McCarthy,1988:42). And McCarthy (1990:viii) agrees with Wilkins claiming that "no matter how well the student learns grammar, no matter how successfully the sounds of L2 are mastered, without words to express a wide range of meanings, communication in an L2 just cannot happen in any meaningful way".

All these statements suggest that vocabulary knowledge is what allows language users to communicate effectively and reach their communicative goals.

Moreover, Nation highlights the complementary nature of the relationship between vocabulary knowledge and language use claiming that knowledge of vocabulary enables language use and, conversely, language use leads to an increase in vocabulary knowledge (Nation, 2001).

Having said how significant lexis is in language use, it is necessary to agree on some basic definitions and to clarify what a word is and what it actually means to know a word. As will be explained below, building up vocabulary is not an easy task since it requires knowledge of several different aspects an, thus, great efforts and practice.

1.4.1 What is a word?

According to Carter (1998:20-21), a *word* can be defined as "any sequence of letters bounded on either side by a space or punctuation mark" if we consider orthography, and "the smallest meaningful unit of a language" if we focus on semantics.

The list of items provided by Schmitt (*die, expire, pass away, bite the dust, kick the bucket, give up the ghost*), which mean "to die", shows us that "there is not necessarily a one-to-one correspondence between a meaning and a single word" (Schmitt 2000:1).

In particular, in English there are many *multiword units*, which are "string[s] of words with a single meaning" (Schmitt, 2000:97).

In fact, research showed that multiword units play a significant role in English, and that they are not composed during the communicative exchange, but they are retrieved as wholes (Gilanlioglu, 2002:44).

Compound words, phrasal verbs, fixed phrases, idioms, proverbs, lexical phrases, are all instances of multiword units (Carter, 1998). Some examples are: *as a matter of fact, if I were you, how do you do?, to smell a rat.*

In addition, morphological processes must be considered when dealing with words.

Schmitt (2000:2) raises an important issue in this respect, claiming that "it is not all that clear whether walk, walked, walking, and walks should be counted as a single word or four" as it is not clear whether "stimulate, stimulative, and stimulation" can be considered manifestations of the same word or different words.

Useful definitions to address this issue are provided by both Carter (1998:20) and Schmitt (2000:2) and include the terms *inflection, derivation* and *word families*.

Inflection produces all the word-forms of the lexeme which are semantically determined from the root or roots of a given lexeme; […] it signals grammatical variants of a given root. […] The inflection of the adjective *small* would produce the adjectives *smaller* and *smallest* […].

Derivation is a process which results in the formation of different lexemes. […] It signals lexical variants of a given root; they change nouns into verbs, verbs into nouns, and so on; for example: *adapt/adaptable/adaptation* […].

Although these words have different orthographic (written) shapes, they are closely related in meaning. Sets of words like these are referred to as *word families.*

A word family is usually held to include the base form, all of its inflections, and its common derivatives.

From this first analysis, it seems quite clear that lexical items can take many forms and this has important implications for vocabulary teaching.

In order to teach words effectively, teachers should consider the findings in L2 acquisition research and in particular how the L2 mental lexicon looks like and works.

1.4.2 How many and which words to teach

Another important issue that has to be addressed is how many words and which words a learner of English as a second/foreign language should know.

Answering these questions is not easy since there are several aspects to consider, such as the student' s level, his/her needs and objectives.

However, a reflection on the size of the English vocabulary and on the number of words native speakers know might shed light on this issue.

As far as the size of the English vocabulary is concerned, there is no agreement: in fact, according to Claiborne (1983) the range is from 400,000 to 600,000 words, according to Crystal (1988) from a half million to over 2 million, whereas according to Nurnberg and Rosenblum (1977) the range is about 1 million (Schmitt, 2000:2-3). Schmitt points out that this discrepancy is largely due to no agreement on what a word is.

Therefore, Goulden, Nation and Read (1990) took word families instead of words as the unit of counting, and they produced an estimate of 54,000-word families (Cardona 2004:32; Schmitt 2000:3).

Given the huge number of English lexical items, it seems evident that "mastery of the complete lexicon of English is beyond not only second language learners but also native speakers" (Schmitt, 2000:3).

Knowing the amount of lexical items mastered by native speakers is far more useful to try to establish how many words FL learners should acquire.

According to Nation, the average vocabulary size of English adults is of about 20,000-word families (Nation, 2001:12), which makes it a "feasible, although ambitious, undertaking for a second language learner" (Schmitt, 2000:4).

However, for students who want to be able to communicate in everyday situations, a vocabulary of the most frequent 2,000 word-families can be enough (Schmitt, 2000:142-143).

In fact, to understand the meaning of a text it is not necessary to know all the words contained therein, one just needs to know the most frequent ones. Carter (2012:224) argues that "it is accepted that knowing the most frequent 2,000 words in English delivers understanding of between 80-90 percent of the words likely to be encountered".

Therefore, the most common words should be taught before less common ones.

To facilitate this task, several lists of high frequency words had been created. One of the most famous is Michael West's *A General Service List* (1953) which "consists of 2,000

words with semantic and frequency information drawn from a corpus of two to five million words" (Carter & McCarthy, 1988:7).

Beside frequency and semantic prominence, the main criteria adopted for the selection of these items are "their universality" (they are used in all English-speaking countries), "their utility" (they can be exploited in several subfields) and "their usefulness in terms of definition value" (Carter & McCarthy, 1988:7).

Even though it is not without its disadvantages (it is based on a written corpus only, it is quite outdated and without information on collocations), West's *A General Service List* still represents a great example of word lists, which can prove to be a useful guidance for teachers of English (Carter & McCarthy 1988; Schmitt & McCarthy 1997).

The 1980s saw the publication of other two-word lists: Hindmarsh's *Cambridge English Lexicon* (1980) and McArthur's *Longman Lexicon of Contemporary English* (1981).

Many researchers agree that these works are particularly useful, since vocabulary selection is essential for language learners (Schmitt & McCarthy, 1997:268). Nonetheless, they highlight the need to consider other criteria than frequency when developing these lists (Schmitt & McCarthy, 1997).

First, it is essential that the lists are based on both written and spoken corpora and that these, in turn, cover different text types, so that there are no biases and words used in many contexts are actually taught first (Schmitt & McCarthy, 1997:18).

Thus, it is fundamental to agree on which forms and uses to include in the same word family and to include frequently used multiword units such as *Good morning, never mind* (ibid.).

Other criteria that have to be considered are necessity (i.e. "words that express ideas that cannot be expressed through other words" (Schmitt & McCarthy, 1997:19), cover (i.e. words that "cover different ideas") (ibid.), learnability (i.e. words that are easy to learn, considering factors like their similarity with the L1, their concreteness/abstractness, their length, their regularity), opportunism and centres of interest, which refer to the students' needs and interests respectively (Schmitt & McCarthy, 1997:269).

In fact, when deciding which words to teach first, teachers must bear in mind their students' needs and objectives. In this respect, it may be appropriate to teach beginners words they will need to know during the lessons, such as *pencil, rubber, whiteboard.*

In addition, the reasons why students want to know English must orient the teachers' choices and lead them to focus on specialized vocabulary.

Therefore, students who want to learn general English will be exposed to words and expressions used in everyday situations, while students who need English for specific purposes will focus on the vocabulary that is required in a specific discipline, such as medicine, tourism, business, engineering.

For instance, if students are looking for a job in an English-speaking country as waiters/waitresses, the first words ad expressions to teach them will certainly pertain to the categories of food and cooking.

Moreover, several research studies highlight the need of teaching words not in isolation, but in context, together with other words (Carter & McCarthy 1988; Carter 2012; Schmitt 2000).

1.4.3 Word associations

In order to produce meaningful sentences, we cannot use words in isolation; rather, we must combine words.

This section will go through the main types of word associations within the English language.

As Carter points out, the term *association* refers both to "the additional meanings words can convey as a result of being associated with particular social, pragmatic or cultural contexts" and to "the store of words and the interrelations between them in a speaker's mental lexicon" (Carter, 2012:189).

As far as the first aspect is concerned, word associations are conventionally divided into two main classes of association: syntagmatic and paradigmatic (Cardona 2004; Carter 2012; Carter & McCarthy 1988; Schmitt 2000).

Syntagmatic associations are those which form "some sequential relationship" with the target word (Carter, 2012:191), either preceding it or following it, while *paradigmatic associations* are those among words "from the same grammatical class" as the target word (Carter, 2012:191).

Carter takes the word *dog* as an example.

Responses such as *bark, bite* and *furry*, "would allow the formation of a grammatical sequence to the left or right of the word", thus creating syntagmatic associations with the word *dog*.

On the other hand, responses such as *cat, wolf, animal, pet*, are an example of paradigmatic associations (Carter, 2012:191).

Collocations are an interesting example of syntagmatic associations. In fact, some words are strictly connected with other words and form *ready-made chunks* that are widely exploited in language use.

This kind of word associations seems to be arbitrary and it differs from one language to the other, but within a language they are institutionalised and play a very important role. In fact, they can make a real difference both in language comprehension and in language production, since they are retrieved as wholes and increase fluency (Cardona 2004; Carter and McCarthy 1988; Pawley & Syder 1983).

To show the importance of knowing how to combine words, Cardona (2004) compares the use of the adjective *strong* in English with its Italian equivalent *forte.* "Strong" can be translated as "forte" in collocations such as a *strong man* and a *strong wind*, but not in a collocation like *strong glass*, which in Italian must be translated as *vetro resistente*.

On the other hand, the Italian chunk *forte pioggia* finds its English equivalent in *heavy rain*, instead of *strong rain* (Cardona, 2004:44).

Given their prominence in English, collocations are a primary concern in this study and they will be devoted special attention in the following chapters.

Examples of paradigmatic associations are synonymy, antonymy, hyponymy and hypernymy.

Synonyms are words that have the same meaning and thus can replace one another. Although at a first glance many words seem to be interchangeable, if we consider the context in which they are to be used, we will notice that it is not exactly like this. In fact, "most linguists agree […] that true synonymy (i.e. 100% interchangeability) is very rare" (Carter & McCarthy, 1988:28).

Collinson (1939) provided a guide to distinguish among apparent synonyms:

1. One term is more general than another: *refuse – reject.*
2. One term is more intense than another: *repudiate – refuse.*
3. One term is more emotive than another: *reject – decline.*
4. One term my imply approbation or censure where another is neutral: *thrifty – economical.*
5. One term is more professional than another: *decease – death.*
6. One term is more literary than another: *passing – death.*
7. One term is more colloquial than another: *turn down – refuse.*

8. One term is more local or dialectal than another: *flesher – butcher.*
9. One of the synonyms belongs to child-talk: *daddy – father.*

<div align="right">(Ullmann 1962 in Carter & McCarthy 1988:28)</div>

From this set of principles, it appears that to convey a certain meaning, some words, though not wrong, may sound odd in certain situational contexts.

In addition, similar words are often found in different collocations.

Considering the couple *begin/start*, Carter and McCarthy specify that in the sentence 'Sorry I'm late, I couldn't start the car', we cannot replace the verb *start* with the verb *begin*, as in the sentence 'Before the world began, only God existed', we cannot replace *begin* with *start* (Carter & McCarthy, 1988:29).

Therefore, we can conclude that "words are usually different from one another, whether on one dimension or several" (Carter & McCarthy, 1988:29).

Context plays a crucial role in discriminating among near synonyms and, consequently, lexical items must be contextualised.

Another important paradigmatic relation is that of antonymy. Antonyms can be gradable (*hot/cold, big/small, good/bad, easy/difficult*), and thus presuppose different degrees of quality, such as *warm* and *cool*, *enormous* and *tiny*, *excellent* and *awful* etc., or they can be ungradable (*alive/dead, male/female, left/right*) (Cardona 2004:46; Carter & McCarthy 1988:23).

These word associates should be taught together, since this way they will be retained more easily than if presented in different moments (Balboni 1998 in Cardona 2004:46).

Then, we must consider the relations of hyponymy and hypernymy, which allow a deeper understanding of words and a clearer organization of the lexical items in the mental lexicon.

Carter and McCarthy take the word *flower* as an example:

The words *rose/tulip/pansy* are all hyponyms of *flower*; flower, in turn, is their hypernym (Carter & McCarthy, 1988:25).

As can be seen from this example, going from the hypernym to the hyponyms means going from general to specific; it implies being able to discriminate between common traits that belong to all the terms included in the target category and those traits that belong to the single terms and make them unique (Cardona, 2004: 47).

All the types of word associations – syntagmatic and paradigmatic – mentioned above are analysed in research studies in semantics, sociolinguistics and pragmatics.

Schmitt (2000:38) claims that "it seems logical to assume that these relationships […] reflect some type of underlying mental relationship in the mind".

In fact, another important aspect to consider when dealing with associations is the way in which words are organized within the speakers' mental lexicon, since having some insight into how words are stored in the minds of native speakers and foreign language speakers may prove to be important to teach vocabulary effectively. Psycholinguistic studies provide useful information in this respect.

Findings suggest that "words are stored and remembered in a network of associations" (Stevik in Carter and McCarthy, 1988:64), which can be phonological, semantic, morphological etc.

For the purpose of this study, the focus will be on the literature regarding the nature of the L2 mental lexicon.

In order to understand the differences between word associations in a monolingual native speaker's mental lexicon and in a foreign language learner's mental lexicon, associations tests were carried out (Carter 2012:190-194; Schmitt 2000:38-43). Subjects were given some stimulus words and they were asked to produce the first word they could think of. Responses will reveal something about the way words are related in the mental lexicon. The main types of association produced are the syntagmatic and paradigmatic associations illustrated above and clang associations, which are the result of similar phonology, as in *dog – clog* (Carter, 2012:191).

The stimulus word being equal, Meara (1982) found that "the word associations produced by non-native speakers differ fairly from those produced by native speakers" (Carter, 2012:191).

More precisely, as far as native-speakers are concerned, findings show that associations tend to be mostly syntagmatic with native-adults, while children and L2 learners tend to produce either paradigmatic or clang associations (Carter 2012:191; Schmitt 2000:40-41). It has to be added that L2 learners' responses are far less stable than those given by native-speakers, and sometimes they are totally unrelated with the stimulus word because of failure to recognise its phonology.

Taken together, these findings suggest that in the initial stages of L2 learning phonological relations are stronger than semantic ones (Carter, 2012:192).

However, another significant finding is that not only "responses tend to shift from being predominantly syntagmatic to being predominantly paradigmatic as a person's [L1] matures" (Schmitt, 2000:40), but also that, as the L2 learner's proficiency increases, his/her responses will become similar to those of monolingual native-speakers.

This suggest that with time and practice, the differences between L1 and L2 speakers will decrease, leading to a more similar organization within the mental lexicon, though it is not that easy.

Moreover, psycholinguistic research provide evidence that L2 learners have one mental lexicon for their L1 and another one for their L2 and that these are phonologically and semantically linked (Cardona, 2004:16; Carter & McCarthy, 1988:93-94). Therefore, comparisons between the learner' L1 and L2 should be encouraged at both levels. Of course, the strength of these links may vary depending on the degree of similarity between the L1 and the L2, on whether the learner is studying only one foreign language or more, on the way in which he/she has been taught words etc. (Cardona, 2004:16).

1.4.4 Receptive and productive vocabulary

Vocabulary needs to be taught for both comprehension and production.

In this regard, a crucial distinction has to be made between *receptive and productive vocabulary*: the former "involves perceiving the form of a word while listening or reading and retrieving its meaning", the latter "involves wanting to express meanings through speaking or writing and retrieving and producing the appropriate spoken or written word form" (Nation, 2001:38).

Students often understand the meaning of a word, but they are not able to use it in the first place (Cardona 2004; Carter 2012; Carter & McCarthy 1988; Ellis & Beaton 1993; Nation 2001).

This suggests that vocabulary learning takes place on two different levels.

Ellis and Beaton (1993) claim that productive vocabulary is more difficult to acquire than receptive vocabulary. The main reason is that productive vocabulary requires a greater understanding of meaning and thus greater practice. Since the occasions to actually practice new words are usually insufficient, learners tend to have more difficulties in language production than in language comprehension.

Another important concept is that of *potential vocabulary*, which refers to the words the learner does not know, but whose meaning he/she is able to deduce from the context (Corda and Marello, 2004).

Very often students can grasp the meaning of a message even if they do not know all the words therein contained: if they are familiar with the key words, the others can be guessed.

1.4.5 Conclusions: what it means to know a word

Beside the distinction between receptive and productive vocabulary and that between potential and actual vocabulary, word knowledge involves many other aspects.

Schmitt highlights that knowing a word does not mean simply knowing its form and principal meaning (Schmitt, 2000: 5), indeed it is much more complex than that.

This issue may be clearer if we think of how many times teachers tell their students that what they said is not wrong and the meaning can be grasped, nonetheless "that is not the way to say it" (Lewis, 1997b: 259).

To address this issue, Nation (1990) and Schmitt (2000) clarify the concept of *word* and describe the various aspects that need to be mastered in order to have a deep vocabulary knowledge and "to be able to use a word in the wide variety of language situations one comes across" (Schmitt, 2000: 5).

The table below shows the four aspects involved in vocabulary knowledge, as described by Nation (1990), considering both language production and language comprehension.

Form		
Spoken form	R	What does the word sound like?
	P	How is the word pronounced?
Written form	R	What does the word look like?
	P	How is the word written and spelt?
Position		
Grammatical patterns	R	In what patterns does the word occur?
	P	In what patterns must we use the word?

Collocations	R	What words or types of words can be expected before or after the word?
	P	What words or types of words do we use with this word?
Function		
Frequency	R	How common is the word?
	P	How often should the word be used?
Appropriateness	R	Where would we expect to meet this word?
	P	Where can this word be used?
Meaning		
Concept	R	What does the word mean?
	P	What word should be used to express this meaning?
Appropriateness	R	What other words does this word make us think of?
	P	What other words could we use instead of this one?

Table 1. Knowing a word (Nation, 1990:31)

As can be seen from the table, word knowledge is made up of different components (form, position, function, meaning) which, in turn, are subdivided into two further components each (spoken form and written form, grammatical patterns and collocations, frequency and appropriateness, concept and associations).

To sum up, according to Nation (1990), word knowledge includes the meaning(s) of the word, its written and spoken form, its grammatical behaviour, its associations and collocations, its register and frequency. Together, they all contribute to the mastery of words.

Ellis, Tanaka & Yamazadi provide a similar description, claiming that knowing a word means knowing

> the frequency with which the item is used in speech and writing, its situational and functional uses, its syntactic behaviour, its underlying form and the forms that can be derived from it, the network of association between it and other items, its semantic features and of course the various meanings associated with the item (Ahmed, 2013: 341).

In 2001 Nation developed a more detailed model, considering again the distinction between receptive and productive knowledge.

He takes the word *underdeveloped* as an example.

Receptive knowledge requires:
- Being able to recognise the word when it is heard
- Being familiar with its written form so that it is recognized when it is met in reading
- Recognizing that it is made up of the parts *under-, -develop-* and *-ed* and being able to relate these parts its meaning
- Knowing that *underdeveloped* signals a particular meaning
- Knowing what the word means in the particular context in which it has just occurred
- Knowing the concept behind the word which will allow understanding in a variety of contexts
- Knowing that there are related words like *overdeveloped, backward, challenged*
- Being able to recognize that *underdeveloped* has been used correctly in the sentence in which it occurs
- Being able to recognize that words such as *territories* and *areas* are typical collocations
- Knowing that *underdeveloped* is not an uncommon word and it is not a pejorative word

On the other hand, productive knowledge requires:
- Being able to say it with correct pronunciation including stress
- Being able to write it with correct spelling
- Being able to construct it using the right word parts in their appropriate forms
- Being able to produce the word to express meaning *"underdeveloped"*
- Being able to produce the word in different contexts to express the range of meaning of *underdeveloped*
- Being able to produce synonyms and opposites
- Being able to use the word correctly in an original sentence
- Being able to produce words that commonly occur with it
- Being able to decide to use or not the word to suit the degree of formality of the situation

(Nation, 2001:41-42)

As it was explained above, knowing a word in a foreign language involves knowing how to use it syntactically, semantically and pragmatically.

Therefore, it seems quite evident that learning vocabulary effectively is a challenging task.

In fact, as Carter points out,

the difficulty of a word may result, *inter alia*, from the relations it can be seen to contract with other words, either in the native or target language, whether it is learned productively or receptively; as well as from its polysemy, the associations it creates, its pronounceability […], from the nature of the contexts in which it is encountered (Carter, 2012:188).

Another aspect that can either increase or reduce the difficulties in learning new words is the degree of similarity in semantic and phonology between the learners' L1 and L2 (Carter, 2012:188-189).

Finally, a crucial point to be considered when addressing the issue of vocabulary teaching is whether acquisition of words involves a mental accumulation of discrete items or from an early stage fixed expressions involving groups of words have an important part to play (Carter, 2012:193).

Since knowing a word involves all these aspects, we expect that it is very difficult to know all of them from the start, even for mother tongue speakers.

Schmitt confirms this assumption saying that "vocabulary acquisition must be incremental, as it is clearly impossible to gain immediate mastery of all these word knowledges simultaneously" (Schmitt, 2000:5). For instance, at a certain point in time a person may know only one or two of the several meanings of a word, he/she may know some collocations and some contexts of use but not others.

As the learning process proceeds and the chances for practice increase, the learner will reach a much wider knowledge. In other words, at the beginning of the learning process it is probable that the learner's knowledge of words is partial and fragmented, but if he/she is continuously exposed to the target language and the chances for practice increase, vocabulary knowledge will gradually expand.

This chapter showed that, even though few vocabulary studies date back to the 1930s and 1940s, it is only from the late 80s that linguists started to actually recognise the importance and the complexity of teaching and learning words and, thus, they highlighted the need to focus on lexis.

The following chapter will explore the main research findings that led to this change of perspective, since they represent the basis for this study.

2. Literature review: The central role of lexis

As was outlined in the previous chapter, the belief that lexis should be a teacher's primary concern is quite recent. In fact, this change of perspective was rather gradual, and it was the result of several studies which put to the forefront the learners' inability to reach their communicative goals and of discoveries in the fields of Corpus Linguistics, Psycholinguistics and Language Acquisition.

Carter and McCarthy well synthetize this significant development in foreign language education claiming that:

> Although it suffered neglect for a long time, vocabulary pedagogy has benefited [in the last years] from theoretical advances in the linguistic study of the lexicon, from psycholinguistic investigations into the mental lexicon, from the communicative trend in teaching, which has brought the learner into focus, and from developments in computers (Carter & McCarthy,1988:51).

In this chapter the reader will be provided with a literature review of these findings, which are the basis for the development of Lewis' Lexical Approach and all its teaching implications.

The first section (2.1) briefly illustrates the change of focus from grammar to lexis, which is the result of several research studies that showed the relevance of lexical chunks.

The following sections will summarize the main findings from these studies.

More precisely, the second section (2.2) focuses on research in Corpus Linguistics, the third section (2.3) focuses on research in Psycholinguistics, the fourth section (2.4) provides the main findings in first and second language acquisition and lastly, the fifth section (2.5) highlights the issue of native-like fluency and native-like selection.

2.1 From grammar to lexis

As mentioned before, researchers in the field of language education highlight that grammar had priority over vocabulary in the main teaching approaches for quite a long time, and even nowadays some teachers consider grammar their primary concern, at the expenses of lexis learning.

Although many teachers still prefer to focus on grammatical rules and lack adequate knowledge of how to teach words effectively, there is no doubt that today lexis is recognised as a crucial aspect in FL education.

Before looking at the factors that led to this change of perspective, a terminological clarification has to be made. In fact, so far, we haven't differentiated between *vocabulary* and *lexis*.

However, it is worth pointing out that these two terms are not interchangeable.

As Lewis rightly notes, "the terminology is not a matter of pretention or pedantry, but represents a radical and profound change in the way we see and analyse language" (Lewis, 1993:89), and, consequently, in the way we will teach it.

According to Lewis, the term *vocabulary* refers to single words and their associated meanings, while *lexis* comprehends both single word lexical items and multi-word lexical items (e.g collocations and institutionalised expressions) (1993:89-95), and thus, it is a hypernym of *vocabulary*.

This distinction is quite recent, since, as it was highlighted in Chapter 1, before the 1980s, FL vocabulary teaching was merely a question of selection of single words.

Multi-word units started to be considered as highly important only in the 1990s, when research showed their pervasiveness in language use and their advantages in terms of language processing.

As a result, *lexis* gradually substituted *vocabulary* to include these multi-word units, and the traditional grammar – vocabulary dichotomy was abandoned in favour of a holistic view of language.

In fact, not only it was found that words are as important as grammatical rules, if not more, but also research findings in several fields – first and foremost corpus linguistics and psycholinguistics – revealed that language is for a large percentage made up of prefabricated lexical chunks.

This realization led many scholars to take a step forward, to actually redefine language, which is no longer seen as "grammaticalized lexis", but as "lexicalized grammar" (Lewis, 1993:51), being lexis not the end point, but the starting point.

Quoting Widdowson, "lexis is where we need to start from, the syntax needs to be put to the service of words and not the other way round" (Lewis, 1993:115).

2.2 Findings in Corpus Linguistics

In the last decades, technology made it possible to investigate large amounts of actual language data and to reach a deeper understanding of how meaning is created.

In fact, the quantitative and qualitative analysis of large corpora has proved to be particularly useful to understand the nature of lexis (Cardona, 2004:56).

Besides providing important information about word frequency, corpus research showed that words tend to co-occur quite regularly and that, in fact, much of language production consists of prefabricated lexical chunks, which can be classified along a continuum according to their degree of fixedness (Nattinger & DeCarrico 1992; O'Keeffe & McCarthy 2010; Schmitt & McCarthy 1997; Schmitt 2000; Sinclair 1991).

Before looking at the findings more in detail, it is worth highlighting that *prefabricated lexical chunks* is only one way to refer to these frequently used strings of words, which have been named differently by researchers. Other recurrent expressions are *multi-word lexical items, multi-word units*, *lexical phrases, prefabricated patterns, lexicalised stems, lexical chunks, formulaic chunks, formulaic sequences,* among others.

Not only these recurring patterns of language have been called differently, but also their classification varies from one study to another.

To avoid ambiguity, here we will consider Lewis' taxonomy (1997a), which includes four types of multi-word units: polywords, collocations, fixed expressions and semi-fixed expressions.

- **Polywords** are short "arbitrary combinations", which "sit somewhere between words and the major multi-word categories" (Lewis, 1997a:8) and "have a degree of idiomaticity" (Lewis, 1997b:256).
  Some examples are *by the way, of course, on the other hand, to and fro, bread and butter.* The noun *hand* in *on the other hand* cannot be substituted with other nouns (e.g, *arm, finger, leg* etc.), and the polywords *to and fro*, *bread and butter* cannot be reversed (e.g, *fro and to, butter and bread*).

- **Collocations** are "pairs or groups of words [which] co-occur with very high frequency" (Lewis, 1997b:256) and can be divided into two main categories: grammatical/syntactic collocations and semantic/lexical collocations. The former are typically made up of noun, verb, or adjective, and a preposition (e.g., *abide by,*

access to, acquainted with) (Schmitt, 2000:77), whereas the latter can be verb-noun collocations (e.g., *make an attempt, raise capital, spend money, make mistakes*), adjective-noun collocations (e.g., *a short-term strategy, an initial reaction, rancid butter, nice view, cheerful expression, black coffee, strong tea*), adverb-adjective collocations (e.g., *really useful*).

Collocations are "not equally powerful in both directions": for instance, "*rancid* strongly suggests the collocate *butter*, whereas *butter* only weakly suggests *rancid*" (Lewis, 1997b:256).

- **Fixed expressions** are those expressions that are commonly used in spoken language in everyday situations. They include social greetings like *Good morning* and *Happy New Year*; politeness phrases like *No thank you, I'm fine* and *Not too bad, thanks*; idioms such as *It's raining cats and dogs* and *You're making a mountain out of a molehill* (Lewis, 1997a:9-10).

- **Semi-fixed expressions** are "semi-fixed 'frames' with 'slots' which may be filled in a limited number of ways" (Lewis, 1997b:9).
  Some examples are *If I were you, I'd …, I see what you mean, but I wonder if it wouldn't be better to…, I haven't seen you for/since…, What really surprised me was…,* and those expressions used to structure discourse (e.g. *Firstly…, Secondly…, Finally…, In this paper we examine…*).

As can be seen from this classification, "words tend to cluster together in systematic ways" (Sinclair in Schmitt 2000:96).

Even though the present study will focus on collocations and, in fact, it will analyse the teaching of collocations in some mobile apps, it is important to highlight that not only words collocate, but also strings of words (Nattinger & DeCarrico 1992; Sinclair 1991).

Although corpora of language data are not something new, and, in fact, first corpora date back to the beginning of the 20th century, it is only thanks to the technological progress of the 1990s that they reached a size that "allows them to be reasonably accurate representations of the English language in general" (Schmitt, 2000:69).

In fact, in the past, written corpora outnumbered spoken corpora due to technical difficulties in collecting and transcribing spoken data and, in general, "most corpora [had]

a distinct bias toward written discourse" (Schmitt, 2000:70), whereas in recent years developments in technology allowed to produce and analyse several spoken corpora (e.g., the *Cambridge and Nottingham Corpus of Discourse English*) (ibid).

Moreover, if 'first generation' corpora "showed limited evidence for many multi-word items" and 'second generation' corpora "were able to improve on this situation" (Schmitt & McCarthy, 1997:50), 'third-generation' corpora (e.g., the *COBUILD Bank of English Corpus, the Cambridge International Corpus (CIC), and the British National Corpus (BNC)*) display the existence of a great number of formulaic sequences (Schmitt & McCarthy 1997; Schmitt 2000).

These huge computer corpora made it possible to see how language is actually used and to focus on lexis like never before. Data about word frequency, word associations and contexts of use became quickly available and, as Schmitt and McCarthy rightly note,

> it is no coincidence that 1995 saw the publication of four major new (or new editions of) EFL dictionaries [including the *Longman Dictionary of Contemporary English* and the *Collins COBUILD English Dictionary*], with significant features drawing on the lexical insights provided by massive language corpora (Schmitt & McCarthy, 1997:261).

As previously highlighted, these computer corpora provide detailed information not only about word frequency, but also and most importantly, about patterns of use, which has important teaching implications.

In particular, among the several types of multi-word units, collocations were found to be one of the most frequent.

Results of a study on a written corpus of 240,000 words carried out by Howarth (1996) showed that more than a third of the existing verb-noun combinations were collocations (Nesselhauf, 2004:2).

Similar results are those outlined in Schmitt and McCarthy (1997) and those provided by Stubbs (1995) and O'Keeffe et al. (2007) who, given a particular word, specify the most recurring collocates.

To give an example, Schmitt and McCarthy highlight that in the Bank of English Corpus the adjective *torrential* collocate with rain ninety-nine percent of the time (Schmitt & McCarthy, 1997:41-42).

Stubbs (1995) points out that *cause* "typically collocates with unpleasant things such as *problems, trouble, damage, death, pain*, and *disease*", while *provide* "collocates mainly

with positive things such as *facilities, information, services, aid, assistance*, and *money*"
(Schmitt, 2000:78).

Other interesting examples of co-occurrences of words are those provided by O'Keeffe
and McCarthy, who highlight that the verbs *go* and *turn* can be both used with the
adjectives *grey, brown* and *white*, but they are not interchangeable in other contexts: one
can say "people go mad, insane, bald or blind", but not "people turn made, insane, bald
or blind" (O'Keeffe and McCarthy, 2010:212).

Moreover, looking at concordance lines taken from the British National Corpus, O'Keeffe
and McCarthy state that *reduce* and *expenditure* are collocates, while *decrease* and
expenditure "are an example of lexical repulsion" (O'Keeffe and McCarthy, 2010:219).
This kind of information can be gained through the use of software developed precisely
to find collocations (e.g., *ConcGram* and the *Oxford Wordsmith Tools concordance*), and
it is particularly interesting, since language users not only should know which words are
frequently used together, but also should be aware of which words are not to be combined.
In sum, computer corpora provide several significant information.

An example taken from Carter (2012) is given below.

In the case of a verb such as *add*, for example, it is possible to calculate:

1. a type-token frequency ratio of the item; that is, the number of occurrences of a verb
such as *add* in relation to the number of words in thewhole corpus or to particular genres
or text-types in the corpus;

2. the range of distribution of the item (including, where relevant, differences between
spoken and written text);

3. its typical collocates (e.g., *add* typically takes objects which are ingredients – *salt*, *sugar*,
milk, etc. – or qualities – *interest*, *colour*, *beauty*, etc. – or direct quotation – here the past
tense more frequently ensues);

4. its preferred syntactic patterning relative to genre, e.g., in texts about hobbies or skills,
and much more concentratedly in technical texts, it is regularly used in conjunction with
the passive voice;

5. the frozen collocates or 'prefabs' (Bolinger, 1976, p.1) of which it is a part, e.g., *added
attraction*, *add one more*, *add up to*, etc.;

6. its grammatical dependencies and distributional frequencies when in phrasal verb form,
e.g., in the case of *add up to* two of every four instances are followed by reference to
quantity.

(Analysis based on McKay, 1980a)

It seems clear that, as was briefly explained in Chapter 1, "knowledge of a word includes the fact that it co-occurs with certain […] words [and not others], in certain kinds of context" (Hoey in O'Keeffe and McCarthy, 2010:222).

However, corpus studies went further, suggesting that "lexical patterning […] probably affects the use of most words in discourse" (Schmitt, 2000:102).

Sinclair found that selecting a word "guides and constrains the lexical choices several words away from the initial one" (ibid.).

Schmitt takes the word *sorry* as an example.

Looking at concordance lines for *sorry*, he found that one of its collocates is *so*, creating the sequence *so sorry*. Then, considering the concordance lines for *so sorry*, two main patterns show up: *so sorry for* and *so sorry to*. And further analysis shows that the subject is usually the first person singular *I*, while the most common verbs are *be* and *feel (I'm so sorry to…, I feel so sorry for…)* (Schmitt, 2000:102-104).

O'Keeffe and McCarthy highlight that what Sinclair terms the 'phraseological tendency' characterizes not only everyday conversations but also "discipline-specific texts" (O'Keeffe & McCarthy, 2010:397), and thus, it should be taken into great consideration also in the teaching of English for Specific Purposes (e.g., Academic English, Business English, Scientific English, English for Tourism etc.).

So far, we have provided corpus evidence of the pervasiveness of lexical chunks and collocations in native speakers' production.

As far as non-native learners of English are concerned, comparative analyses of written corpora had been conducted in order to see whether these sequences are exploited to a similar extent by non-natives as well.

Results show that, with respect to collocations, intermediate and advanced learners of English generally use fewer collocations compared to English natives (Durrant & Schmitt 2009; Granger 1998c; Howarth 1998; Kaszubki 2000; Lorenz 1999), and that they tend to overuse the most frequent ones (Durrant & Schmitt 2009; Kaszubki 2000) and those that are similar in their L1 (Granger 1998c; Kaszubki 2000).

In addition, Durrant and Schmitt (2009) found that while English natives produced many infrequent collocations that are strongly associated, this was an issue for non-natives, who rarely produced this kind of collocations, suggesting that frequency is an important factor for L2 learners.

This section has summarized the main findings in corpus linguistics, which provide evidence for the pervasiveness of multi-word lexical items in native speakers' language use and draw attention to the lower ability of L2 learners of English in using the same forms.

These findings together suggest that lexical chunks – in particular collocations – should be given more importance in the EFL classroom.

2.3 Findings in Psycholinguistics

The realization of the importance of focusing on collocations – and multi-word units in general – in the teaching of English as a foreign language is the result of research findings in fields other than Corpus Linguistics, first and foremost Psycholinguistics.

In fact, once it was found that lexical chunks play a significant role in language use, researchers started to ask themselves the reason behind this trend (Conklin and Schmitt, 2008:75) and psycholinguists found an answer.

Research evidence showed that there are "powerful and long-lasting" collocational links in the mental lexicon (Aitchison in Schmitt, 2000:79).

Moreover, several studies suggest that native speakers tend to store and retrieve multi-word lexical items as wholes, as if they were single words (Nattinger & DeCarrico 1992; Pawley & Syder 1983; Schmitt 2000; Schmitt & Carter 2000; Wray 2002), and therefore, they are ready to be used.

Since speakers do not have to look for each word to then put them together according to the syntactic rules during the communication process, language processing is easier and faster.

Schmitt and Carter (2000) give us insights into the human mind, distinguishing between the role and the characteristics of the short-term memory and the role and the characteristics of the long-term memory.

If the short-term memory, as suggested by the adjective itself, has a limited capacity and, in fact, it seems that it cannot process more than eight to ten words at a time (Pawley & Syder, 1983: 202), the long-term memory has an illimited capacity and it can contain "vast amounts of knowledge" (Schmitt & Carter, 2000:7).

Research showed that native speakers tend to rely a lot on the long-term memory by storing ready-made lexical chunks there, to compensate for the limited capacity of the working memory.

This explains why "stretches of pause-free, promptly delivered speech" more than ten words long do occur (Pawley & Syder, 1983:204) and, in fact, are not infrequent to witness.

Pawley and Syder (1983:208) provided the example sentence *You can lead a horse to water but you can't make it drink*, pointing out that native speakers commonly produce this kind of utterances fluently, because in the human mind there are not only single words, which are later put together according to the grammatical rules, but also prefabricated chunks that are stored and retrieved from the long-term memory as wholes (Pawley and Syder, 1983).

It is important to highlight that the use of lexical chunks is particularly helpful in terms of processing effort not only for the speaker, but also for the listener, who can predict the coming words and does not need to spend much time on every single word (Schmitt 2000; Schmitt & Carter 2000).

What has been said so far is widely recognised as far as native speakers are concerned. As to non-natives, many studies have recently tried to understand if this process applies to them as well. Results suggest that lexical chunks are stored and processed as wholes not only in the mind of native speakers, but also in the mind of non-natives (Conklin & Schmitt 2008; Jiang & Nekrasova 2007; Nattinger & DeCarrico 1992; Pawley & Syder 1983; Underwood et al. 2004; Wray 2002).

Underwood et al. (2004) carried out an eye-movement study in which native speakers of English and non-native speakers were asked to read a text containing some formulaic chunks. The aim was to determine whether those chunks had a processing advantage over the non-formulaic ones, using an eye-tracking methodology.

Results showed that even though non-native speakers were not as quick as natives in reading the formulaic sequences, overall, both groups looked at the final words of formulaic sequences less than at the final words of the non-formulaic ones, suggesting that the former require less processing effort than the latter.

Therefore, Underwood et al. (2004) found that multi-word items are stored and processed similarly by L1 and L2 speakers.

A similar study in which reading times of both native English speakers and non-natives were measured was carried out by Conklin and Schmitt (2008) who came to the same conclusions. In fact, their findings provide further evidence that formulaic language has a processing advantage over non-formulaic language for both groups.

In a study carried out by Jiang and Nekrasova (2007) natives' and non-natives' reaction times for formulaic and non-formulaic sequences were compared in a phrase judgement task.

Participants were provided with some phrases and they were asked to decide whether they were grammatically acceptable or not. Results showed that, overall, both groups responded to formulaic sequences faster than to non-formulaic sequences, thus suggesting that they require a lower processing effort and that they are stored as single units in the mental lexicon of both L1 and L2 speakers.

Taken together these studies suggest that lexical chunks are stored and retrieved as wholes by natives and non-native speakers alike.

Nevertheless, it has to be highlighted that proficiency levels and frequency play a significant role in language processing (Conklin & Schmitt, 2012).

In fact, all these studies involved advanced L2 speakers rather than beginners.

In addition, it was found that native speakers display a processing advantage for lexical chunks and collocations that are either frequent or strongly associated, whereas for non-natives only frequency is particularly relevant (Ellis et al. 2008; Siyanova & Schmitt 2008), and the degree of association does not seem to provide any benefits (Ellis et al. 2008).

To sum up, corpus research revealed the widespread use of prefabricated lexical chunks, while psycholinguistic research provided evidence for the main reason behind this phenomenon, that is their privileged processing status.

Experimental studies on the processing of formulaic sequences in general (mainly fixed expressions) provided evidence for benefits not only for native speakers but also for non-natives.

As to collocations, it is a bit more complex: in fact, non-natives seem to recognise and display processing advantages only with frequent collocations, but to have difficulties with collocations that, despite their lower occurrence, have a strong bonding.

This difference between L1 speakers and L2 speakers is not due to fewer processing advantages. Instead, it should be ascribed to the difficulties non-natives have in acquiring collocations, which, in fact, it is one of the reasons why this study addresses the issue of collocation teaching.

2.4 Findings in first and second language acquisition

The previous sections showed the significant role of lexical chunks and collocations in language production and comprehension.

This section will draw attention to their relevance in first and second language acquisition. There is increasing evidence that L1 and L2 children use a large number of unanalysed lexical patterns in the early stages of language acquisition (Nattinger & DeCarrico 1992; Wood 2002).

In fact, it seems that children start using them without being fully aware of their linguistic properties. It is only after they encounter similar items that they gradually understand that those formulaic sequences can be broken down and analysed, thus becoming the basis for "creative rule-forming processes" (Nattinger & DeCarrico, 1992: xv).

Children will gradually understand they can isolate words, they will discover the rules of syntax and learn to produce new sequences.

To clarify this segmentation learning process, two examples taken from Nattinger and DeCarrico (1992) are provided below.

> When children ask the frequent question *what is that?,* they may use it as if its three morphemes were a single, unsegmented unit, *what-is-that?,* just like any single word in their vocabulary. They treat this chunk of language as an unanalysable unit, often reducing many of its sounds under a single tonic stress, and apparently do not recognize, in the earlier stages of language acquisition at least, that it is a phrase with separate lexical components. […] Similar chunks that children frequently use are *go-on, give-me, this-is-mine, I-want-to-go, I-know-how-to-do-it*, and so on (Nattinger & DeCarrico, 1992:24).

> Children may initially use *wannago* holophrastically as a memorized prefabricated routine in certain set situations, and then, after they become aware of similar phrases like *wannaplay* and *wannaget* in other contexts, they begin to analyse this phrase as a pattern with a moveable component, '*wanna* + VP'. As children hear such moveable components in prefabricated patterns, they begin to analyse chunks into their separate pieces, and work their way to the actual rules of syntax (Nattinger & DeCarrico, 1992:25).

Many researchers claim that children widely exploit these unanalysed chunks at the beginning of the process of language acquisition, because they are likely to imitate adults

and because memory plays a crucial role in language learning (Nattinger & DeCarrico, 1992:24).

The processes of segmentation and analysis usually takes place at a later stage "partly as a result of neurological development and a resultant increase in analytic cognitive skills" (Wood, 2002:4).

As previously mentioned, formulaic sequences seem to play a role not only in children first language acquisition, but also in children second language acquisition (Bahns et al. 1986; Hakuta 1974; Peters 1983; Wong-Fillmore 1976).

Moreover, research findings suggest that frequency of exposure to formulas plays an important role in both L1 and L2 production (Bahns et al. 1986; Wray 2012), and that with the passing of time children significantly develop their ability not only to analyse formulas into their component parts, but also to use them in the right communicative situations (Bahns et al. 1986).

Peters (1983) proposed that the acquisition of lexis from formulaic chunks involves three different phases, which are well synthetised by Schmitt and Carter:

> First, chunks are learned that are frozen wholes with no variation possible. At this point they are unanalysed and are single lexemes. Common examples are idioms (e.g., *kick the bucket, burn the midnight oil*) and proverbs (e.g., *An apple a day keeps the doctor away, A stitch in time saves nine*). Also included are some expressions that are tightly related to a functional use (e.g., *Ladies and gentlemen*, which is a typical opening address in a formal situation).
>
> Second, a language learner may realize that some variation is possible in certain chunks, and that they contain open slots. For example, after having heard the phrase *How are you today?* several times, it may be acquired as a chunk with the meaning of a greeting. However, the learner may later notice the phrases *How are you this evening?* or *How are you this fine morning?* and, at that point, may realize that the underlying structure is actually *How are you _____ ?*, where the slot can be filled with most time references. It is then possible for the learner to perceive that what fits in the slot is a separate lexical unit. Thus, chunks can be segmentalized into smaller lexical units, oftentimes individual words. Lexical chunks at this point are partly fixed and partly creative.

> Third, this segmentation process can continue until all of the component words are recognized as individual units by use of syntactic analysis. When this happens, every word in the chunk is potentially available for learning (Schmitt and Carter, 2000:8).

It seems quite evident that this segmentation process can lead not only to increased lexical knowledge, but also to a deeper knowledge of syntax. In fact, as Ellis points out, "grammar can be learned through the implicit recognition of the patterns in strings of language" (Schmitt, 2000:129).

Although lexical chunks may be the starting point for the overall learning process in many cases, in other situations acquisition begins with single words, which are later put together according to the rules of syntax.

These two mechanisms are not mutually exclusive, instead they operate concurrently and they are both necessary in language acquisition (Nattinger & DeCarrico 1992:26; Schmitt & Carter 2000:8).

What seems evident from acquisition research is that formulaic chunks play an important role in language development in L1 and L2 children. Whether adult L2 learners go through a similar process is not clear.

It should be noted that research carried out on L1 acquisition can provide insights into L2 acquisition. In fact, adult L2 learners are able to produce formulas like "How do you do?" from the very beginning, before being capable of naming single items or creatively construct sentences (Schmitt, 2000:18).

However, since they already know a language, their acquisition of the L2 differs from the acquisition of the L1 in several aspects (Schmitt, 2000:19), and, despite the early production of such formulas, there is no agreement whether they go through the same processes of segmentation and analysis of children.

For instance, according to Yorio (1980) adults do not seem to exploit formulaic chunks as a learning strategy, but only to communicate with less effort.

On the contrary, Ellis (1997) found that formulas do play a role in adult L2 acquisition since "much of language learning is the acquisition of memorised sequences of language" (Schmitt & McCarthy, 1997:139) and, in fact, repetition of sequences leads to their consolidation and retention (Schmitt & McCarthy, 1997:124).

Moreover, differently from young children, adults "would be immediately aware that these units could be analysed into smaller pieces by the process of segmentation", since they have already gone through this process in their L1 (Nattinger & DeCarrico, 1992:28). Even though there is no agreement whether formulas are broken down and analysed by adults, thus becoming the basis for language development, as it happens with children, these chunks undoubtedly allow to express a wide range of functions from the start (Nattinger & DeCarrico, 1992: 28), besides having important advantages in terms of fluency and efficacy, which will be discussed in the following section.

However, since this study focuses more specifically on collocations, the main findings on the acquisition of collocations will be summarized.

As it was outlined in the previous sections, the degree of collocations knowledge and use of native speakers is higher than that of non-native speakers, who often produce wrong combinations and tend to overuse the ones the know.

Overall, research findings show that collocations represent a challenge even for advanced learners.

The issue we intend to address here is therefore whether the process of collocation acquisition in non-natives differs from that of natives.

Schmitt and McCarthy highlight that our memory systems "automatically and often unconsciously, abstract regularities" from the language we are exposed to (Schmitt & McCarthy, 1997:124), and they add that "people chunk at a constant rate, every time they get more experience, they build additional chunks" (Schmitt & McCarthy, 1997:126).

According to Ellis (2001), collocations are the product of this process of 'chunking': if learners frequently experience words in certain combinations, they are likely to remember them in that way.

And the more learners are exposed to words that co-occur, the more the chances of retention of those combinations as single entities.

Once collocations are stored in the long-term memory, they will be perceived as units. Even though the process of chunking occurs implicitly, without the conscious awareness on behalf of the learner (Ellis, 2001), there is both corpus and psycholinguistic evidence that this process does occur in the human mind.

Besides the formal association of words, another link is established in the mental lexicon: it is the one between form and function, which, differently from the previous one, requires conscious attention (Ellis, 2001).

What has been described above is the process of collocation learning in L1 and L2 children. Whether this apply to adult L2 learners as well is not clear.

According to Ellis (2003) and Durrant and Schmitt (2010) similar mechanisms regard adult L2 learners too.

However, there is a lack of empirical evidence and, in fact, Wray (2002) argues that adult non-natives have difficulties in noticing collocations and tend to focus on single words instead, which is a possible reason why collocations represent an issue in EFL acquisition. Wray provides the example of the collocation *major catastrophe*, claiming that when encountering it natives would notice and remember the chunk, whereas non-natives would focus on single words, without considering the whole unit. Therefore, in order for them to learn collocations, explicit teaching and memorization exercises are required.

However, there is no empirical evidence that allow us to reach these conclusions.

In fact, there is only corpus and psycholinguistic evidence that the level of collocational knowledge of non-natives is lower than that of natives.

As Durrant and Schmitt rightly note:

> Given the relative rarity of occurrence of individual collocations (in comparison with that of individual words), […] it seems sensible to expect collocation learning to take a relatively long time. Indeed, since learning a collocation will involve retaining some memory trace of any particular word pair met until that pair is met again, it may be that the relatively sparse nature of most second language input (totalling to perhaps a few hours a week) will mean that the extended time that elapses between two exposures to a collocation is usually too long and that trace will be lost, with the result that learning of any but the most frequent collocations can never properly get off the ground (Durrant and Schmitt, 2010:169-179).

Durrant and Schmitt (2009) analysed the production of collocations by L2 learners of English and found that they succeeded in using frequent collocations, but failed to use collocations that, though less frequent, had a stronger association, which are important for mother tongue speakers.

The fact that frequency plays a crucial role in collocation acquisition is confirmed by research carried out by Durrant and Schmitt (2009) and Kaszubki (2000), who found that non-natives tend to overuse the most frequent collocations.

Other research studies that support this view are Durrant and Schmitt (2010) and Peters (2014), who found that repetition has positive effects on collocation acquisition.

Therefore, frequency of exposure increases students' acquisition and accurate use of collocations.

Another factor that positively affects collocation learning is communicative engagement (Fernandez & Schmitt, 2015:98). If learners feel the need to communicate effectively in the L2 environment and perceive collocations as important to reach their communicative goals in society, they will pay greater attention to the input and they will be more likely to acquire collocations. Watching movies or TV series, listening to music, reading books and engaging in social activities may be highly beneficial in this respect (Fernandez & Schmitt, 2015:100-101).

This section reviewed research findings in L1 and L2 acquisition of lexical chunks, in particular collocations.

The next section will provide further evidence for the need to devote special attention to collocations in the teaching of English as a foreign language. The focus will be on native-like fluency and native like selection.

2.5 Native-like fluency and native-like selection

It is now generally recognised that much language consists of lexical chunks and that being able to use them has significant processing advantages.

Moreover, knowledge of lexical chunks provides benefits to language performance, both in terms of fluency (Andrew 1993; Boers et al. 2006; Hill 1999; Lewis 1993; Nattinger & DeCarrico 1992; Pawley & Syder 1983; Towell et al. 1996; Wood 2006, 2009) and in terms of idiomaticity (Andrew 1993; Nattinger & DeCarrico; Pawley & Syder 1983; Lewis 1993).

Against the widespread belief that possessing a wide vocabulary allows to be fluent speakers, Lewis and Hill (1992:99) claim that what makes the difference is quality rather than quantity, and in this respect, collocational knowledge plays a crucial role.

In fact, according to Hill (1999), the reason why many L2 learners do not speak fluently, despite their good vocabulary knowledge, is that they lack collocational competence.

Achieving fluency is a long and challenging process for adult L2 learners.

Nonetheless, several studies suggest that students who are exposed to lexical chunks are more likely to become proficient speakers than those who are taught words in isolation only (Andrew 1993; Boers et al. 2006; Towell et al. 1996; Wood 2006, 2009).

In this respect, Pawley and Syder introduced the concept of 'native-like fluency', which is "the native speaker's ability to produce fluent stretches of spontaneous connected discourse" (Pawley & Syder, 1983:191).

There is research evidence that what enables native speakers of English to produce utterances fluently, exceeding the limit of eight/ ten words that can be encoded in one operation, is precisely the availability of a large amount of ready-made lexical chunks in their mental lexicon (Pawley & Syder, 1983).

As previously highlighted, lexical chunks are of several types and they can be classified according to their degree of fixedness: some are completely fixed, while others permit substitutions or expansions (Lewis 1993, 1997; Nattinger & DeCarrico 1992; Pawley & Syder 1983).

Despite this distinction, researchers agree that, since they are stored in the long-term memory as wholes, they all contribute to facilitate cognitive processes, allowing speakers to attend to other tasks. For instance, they can start planning the following concepts and units of discourse, and they can concentrate on other aspects, such as tone and rhythm (Pawley & Syder, 1983:208).

If adult English speakers can fluently produce utterances more than eight to ten words long because they can rely on hundreds of thousands of lexical chunks (Pawley & Syder, 1983), non-natives tend to make pauses "between every two or three words because of the need to process language as well as thoughts" (Schmitt & Carter, 2000:7).

According to Hill (1999), the only way to increase students' proficiency is to provide them with "good-quality written and spoken input" and to focus on lexical chunks, because vocabulary teaching and speaking activities without the awareness of the role of chunks, are not enough (Hill, 1999:164).

Therefore, to become fluent speakers, it is essential to have a "phrasal mental lexicon" (ibid.).

Possessing a vast repertoire of lexical chunks and collocations not only contributes to greater fluency, it is also fundamental to speak appropriately and to achieve nativelike mastery.

In fact, to be a competent language user it is necessary not only to know the grammatical rules that allow to build up grammatically correct sentences, but also, and mostly, to know how to produce probable sentences, which means sentences that natives are likely to produce.

In this regard, Pawley and Syder provide the concept of 'nativelike selection', defined as "the ability of the native speaker routinely to convey his meaning by an expression that is not only grammatical but also nativelike" (Pawley and Syder, 1983:191).

It is the choice of words that makes the difference between natural and unnatural sentences: in fact, the selection of one or two words instead of others can substantially influence the perception of the utterances produced.

Although grammar is essential to be competent users, "native speakers do not exercise the creative potential of syntactic rules to anything like their full extent" and "indeed if they did so they would not be accepted as exhibiting nativelike control of the language" (Pawley and Syder, 1993:193).

In other words, having a wide grammatical knowledge might be useless if speakers lack adequate vocabulary knowledge and have a low sociolinguistic competence.

Bareggi claims that students tend to "produce possible grammatically correct sentences which, however, are not necessarily probable utterances" (Bareggi, 2006:2), and Pawley and Syder add that this is usually the case when L2 learners put what they learned in grammar books into practice outside the classroom, thus sounding odd to native speakers (Pawley & Syder, 1983:194-195).

In this respect, the distinction between possibility and probability is crucial, since the language system is arbitrary, and possible sentences can be improbable in actual language use (Pawley & Syder 1983).

For instance, sentences like *It's forty past five* or *Your marrying me is desired by me* are correct from a grammatical point of view, but native speakers won't use them (Pawley & Syder 1983: 196-198). They would rather say *It's twenty to six,* and *I want to marry you*, respectively.

That native-like selection is a matter of preferences and conventions is clear if we look at the example provided by Pawley and Syder about the way of telling time in English:

Instead of saying:
It's twenty to six
one might say, no less grammatically and briefly:

It's six less twenty.

It's two thirds past five.

It exceeds five by forty.

It's a third to six.

It's ten minutes after half-past five.

There happens to be a convention in English that one tells the time in half and quarter hours but not in thirds of an hour, and that one uses to H and past H (where H names the hour, rather than, say, the half-hour) instead of before H, preceding H, after H, etc.

(Pawley and Syder, 1983:197-198).

As was outlined in the previous sections, L2 learners frequently misuse collocations and overuse the ones they know, which makes them sound unnatural and immediately reveals that they are not natives.

Although being perceived almost like a native is not the aim of every learner (e.g., some may only need to communicate while on holiday), it has been found that the erroneous use of prefabs can make comprehension more difficult and can annoy the interlocutor (Nesselhauf, 2004:2).

Therefore, being able to correctly use lexical chunks not only signals "competent participation in a given community" (O'Keeffe & McCarthy, 2010:222), it also reduces "the risk of misunderstanding" (Wray, 2012:232), which is of considerable importance for everyone.

This chapter has provided research evidence for the central role of formulaic chunks, and in particular collocations, in language use.

It has been showed that much language consists of multi-word lexical items, which bring with them several advantages.

In fact, since they are stored and retrieved as wholes from the long-term memory, they require less processing effort and, thus, they facilitate both comprehension and production.

In addition, they allow to be more proficient, to sound like-natives and, therefore, to feel part of a community.

Given their pervasiveness both in written and in spoken English, and all their advantages, there is agreement that they should receive a special attention in the teaching of EFL

(Lewis 1993, 1997a; O'Keeffe & McCarthy 2010; Schmitt 2000; Schmitt & McCarthy 1997; Wood 2002).

The following chapter will illustrate Michael Lewis' Lexical Approach, which recognises the importance of lexical chunks and provides examples of how to teach them. Then, attention will be devoted especially to collocations, which are our main subject of interest.

3. The Lexical Approach

As outlined in the previous chapter, several research studies have revealed the significant role of multi-word lexical items in language acquisition and use.

The realization that we tend to rely heavily on prefabricated chunks has led linguists to dismiss the traditional view of language with grammar at its centre, and to focus on lexis, which they all agree should be given a prominent role in the syllabus and in the classroom (Lewis 1993, 1997a, 1997b, 2000, 2005; Nattinger & DeCarrico 1992; O'Keeffe & McCarthy 2010; Schmitt & McCarthy 1997; Schmitt 2000; Willis 1990). As a result, new theories and approaches centred on lexis have emerged.

This chapter will present Lewis' Lexical Approach (1993), which puts in the foreground the nature and the significance of lexical chunks, in particular collocations.

After having highlighted the principles and the teaching implications of the Lexical Approach (3.1), this chapter will devote special attention to collocations (3.2), which, in fact, given their primary importance, have been further explored by Lewis in his book 'Teaching collocation' (2000).

Thus, the reader will be provided with a detailed classification of the types of collocations and with example exercises and activities to teach them effectively.

3.1 The Lexical Approach: Principles and Implications

The image of "grammar as the bones of language and vocabulary as the flesh" (Hill, 1999:162) has dominated the scene in the field of language education for quite a long time.

Far from the traditional teaching approaches which saw the predominance of grammar over lexis, Lewis' Lexical Approach considers lexis its first concern.

In fact, even though it shares several principles with the Communicative Approach – mainly the greater importance attributed to efficacy rather than accuracy and the primacy of oral language over written language – the Lexical Approach focuses on lexis, and in particular collocations, in a way no other approach has done before.

Its key principles are the following:

1. Language consists of grammaticalised lexis, not lexicalised grammar.

2. The grammar/vocabulary dichotomy is invalid; much language consists of multi-word 'chunks'.

3. A central element of language teaching is raising students' awareness of, and developing their ability to 'chunk' language successfully.

4. Although structural patterns are acknowledged as useful, lexical and metaphorical patterning are accorded appropriate status.

5. Collocation is integrated as an organising principle within syllabuses.

6. Evidence from computational linguistics and discourse analysis influence syllabus content and

sequence.

7. Language is recognised as a personal resource, not as an abstract idealisation.

8. Successful language is a wider concept than accurate language.

9. The central metaphor of language is holistic – an organism; not atomistic – a machine.

10. The primacy of speech over writing is recognised; writing is acknowledged as a secondary

encodement, with a radically different grammar from that of the spoken language.

11. It is the co-textual rather than situational elements of context which are of primary importance for

language teaching.

12. Socio-linguistic competence – communicative power – precedes and is the basis, not the product, of grammatical competence.

13. Grammar as structure is subordinate to lexis.

14. Grammatical error recognised as intrinsic to the learning process.

15. Grammar as a receptive skill, involving the perception of similarity and difference, is prioritised.

16. Sub-sentential and supra-sentential grammatical ideas are given greater emphasis, at the expense

of earlier concentration on sentence grammar and the verb phrase.

17. Task and process, rather than exercise and product, are emphasised.

18. Receptive skills, particularly listening, are given enhanced status.

19. The Present-Practise-Produce paradigm is rejected, in favour of a paradigm based on the Observe- Hypothesise-Experiment cycle.

20. Contemporary language teaching methods and material tend to be similar for students at different levels of competence; within the Lexical Approach the materials and methods appropriate to beginner or elementary students are radically different from those employed for upper-intermediate or advanced students. Significant re-ordering of the learning programme is implicit in the Lexical Approach.

(Lewis, 1993:vi-vii)

Many of these principles are the result of the findings in Corpus linguistics, Psycholinguistics and Acquisition Research that have been illustrated in Chapter two. Here we will concentrate on the principles that we deem to be more significant for the purpose of this study, that is investigating the teaching of collocations in the most popular free EFL apps.

What immediately emerges from the first two statements – *Language consists of grammaticalised lexis, not lexicalised grammar* and *The grammar/vocabulary dichotomy is invalid; much language consists of multi-word 'chunks'* – is a new perspective on lexis and grammar as well as on the nature of their relationship.

In fact, stating that *the grammar/vocabulary dichotomy is invalid* negates the traditional slot-and-filler approach, according to which grammar provides the basic structures to be filled up by vocabulary (Lewis 1993, 2000).

Words are no longer seen as "fixed packages of meaning […] to be learned separately" (Lewis, 1993:37), and to be correctly inserted into the existing grammatical frameworks (Hill 1999; Lewis 1993, 1997a, 2000, 2005; Schmitt 2000).

On the contrary, grammar and vocabulary are "partners in synergy, with no discrete boundary" (Schmitt, 2000:14), which "feed into one another" (Schmitt & Carter, 2000:8). This new view of language is the result of evidence from Corpus linguistics and Psycholinguistics that suggests that *much language consists of multi-word 'chunks'*.

Two years before the publication of Lewis' Lexical Approach (1993) Sinclair claimed that:

it is folly to decouple lexis and syntax […]. The model of a highly generalized formal syntax, with slots into which fall neat lists of words, is suitable only in rare uses and specialized texts. By far the majority of text is made of the occurrence of common words in common patterns, or in slight variants of those common patterns. Most everyday words

do not have an independent meaning, or meanings, but are components of a rich repertoire of multi-word patterns that make up a text. This is totally obscured by the procedures of conventional grammar (Sinclair, 1991:108).

What Sinclair calls the 'idiom principle' is far more exploited than the 'open-choice principle' (Sinclair, 1991:109-110), since "most syntactic structures tend to have an associated set of words or phrases that are frequently used with them" (Lewis, 2000:148). In other words, even though sometimes we happen to create sentences from scratch, in most cases we actually rely on prefabricated chunks that are stored and retrieved as wholes, thus turning out to be "much less original in using language than we like to believe" (Lewis, 1997a:11).

Therefore, actual language seems to be the result of probability rather than possibility, and "lexical items rather than words and structures […] the units of language" (Lewis, 1993: viii).

Since "grammar/vocabulary represents a continuum rather than a dichotomy" (Lewis, 1993:117), grammar mastery and a wide vocabulary alone are not enough for effective communication (Lewis 1993; 1997a, 2000, 2005).

As Lewis and Hill rightly note, "the ability to use the language depends on the ability to bring grammar and vocabulary together" (Lewis & Hill, 1992:104), using word patterns.

Although grammar and vocabulary are not separate entities and are both fundamental in FL acquisition, the Lexical Approach emphasises the role of lexis, stating that *language consists of grammaticalised lexis, not lexicalised grammar* (Lewis, 1993: vi).

Sinclair argues that "grammatical generalizations do not rest on a rigid foundation, but are the accumulation of the patterns of hundreds of individual words and phrases" (Sinclair, 1991:100). Therefore, the starting point seems to be lexis rather than grammar. In fact, according to the lexical view of language "it is the word which determines the patterning around it – grammar", not the other way round (Lewis, 2005:8).

As Lewis rightly notes, "language is first about meaning, and meaning is primarily conveyed by the lexis – words, collocations and fixed expressions" (Lewis, 2000:147), thus, "grammar, although important, plays a subordinate role" (ibid.).

However, it is worth noting that although the Lexical Approach highlights "the lexical nature of language, and the centrality of lexis in the creation of meaning" (Lewis, 1997a:16), it does not deny the value of grammar (Lewis 1993; 1997a; 2000, 2005).

In fact, Lewis recognises that "courses which totally discard grammar are doing learners a serious disservice" (Lewis, 1997a:41). What changes, however, is the way in which grammar is conceived, which has important teaching implications as well.

In fact, as far as grammar is concerned, the Lexical Approach claims that too much attention has traditionally been paid to "sentence grammar and the verb phrase" (Lewis, 1993: vii), and it suggests that greater emphasis should be given to word grammar instead (Lewis, 1993:142).

Lewis highlights the importance of learning grammar as part of lexis, since "every word has its own grammar – the set of patterns in which it occurs" (ibid.).

Knowledge of word grammar is what allows speakers to produce actual language rather than "grammatically accurate" but "improbable language" (Lewis, 2000:45).

In fact, traditional grammar teaching, which starts from "broad syntactic patterns" (Lewis, 2000:44), is likely to lead students to produce possible "well-formed sentences", which are not necessarily probable and to which natives may respond "*You could say that, but you wouldn't*" (Lewis, 2000:149).

A word grammar approach, on the other hand, begins with single words and it directs "the students' attention to the syntactic constraints on the use of lexis" (Lewis, 2000:45), thus providing them with "natural – and therefore successful – language" (Bareggi, 2006:2).

This new perspective on language has important teaching implications, which Lewis illustrates in his book 'The Lexical Approach' (1993), and further develops in 'Implementing the Lexical Approach' (1997a) and in 'Teaching collocation' (2000).

Given the prominent role of chunks in both language production and comprehension, syllabuses and teaching methods should take them into great consideration with the aim of facilitating their acquisition (Lewis 1993, 1997a, 2000). In fact, Lewis highlights the importance of "raising students' awareness of, and developing their ability to chunk language successfully" (Lewis, 1993: vi).

In order to reach these goals, students should be made aware of the existence of lexical chunks – polywords, collocations, fixed expressions, semi-fixed expressions – and they should be trained to recognise them and to use them effectively (Lewis 1993, 1997a, 2000).

Lewis urges both teachers and learners to "look at texts through new, lexically aware, eyes" (Lewis, 2005:9), to explore the textual environment in which words occur as well as their "collocational possibilities" (Lewis, 2005:10).

Noticing activities in which, for instance, learners are asked to underline all the chunks they can find in a text or a particular type of collocation, are considered fundamental to turn 'input' into 'intake' (Lackman 2011:8; Lewis 2000:159). In fact, it is widely accepted that being able to recognise certain linguistic patterns facilitates their acquisition (Lackman 2011; Lewis 1993, 1997a, 2000).

However, noticing alone is not enough: for acquisition to take place Lewis suggests that patterns should be recorded in a lexical notebook and that exercises should be repeated (Lewis 1993, 1997a, 2000). In fact, learners benefit from repetition because the second time they carry out a task "they have more processing capacity available" than the first time (Lewis, 1997a:102).

Therefore, instead of doing many exercises it is better to repeat the ones that have already been done the day before or a few days before (ibid.).

Moreover, Lewis encourages "the use of dictionary as a source of active learning" (Lewis, 1997a:15) and "activities based on L1/L2 comparisons and translation" (ibid.).

In this respect, it is worth pointing out that the kind of comparisons and translation suggested by Lewis are not word for word but chunk for chunk (Lewis 1997a, 2000).

Michael Lewis' Lexical Approach discusses four main kinds of lexical chunks.

For the sake of clarity, the classification, which has already been provided in Chapter 2, will be given below.

- **Polywords** are short "arbitrary combinations", which "sit somewhere between words and the major multi-word categories" (Lewis, 1997a:8) and "have a degree of idiomaticity" (Lewis, 1997b:256).

  Some examples are *by the way, of course, on the other hand, to and fro, bread and butter.* The noun *hand* in *on the other hand* cannot be substituted with other nouns (e.g, *arm, finger, leg* etc.), and the polywords *to and fro*, *bread and butter* cannot be reversed (e.g, *fro and to, butter and bread*).

- **Collocations** are "pairs or groups of words [which] co-occur with very high frequency" (Lewis, 1997b:256) and can be divided into two main categories:

grammatical/syntactic collocations and semantic/lexical collocations. The former are typically made up of noun, verb, or adjective, and a preposition (e.g., *abide by, access to, acquainted with*) (Schmitt, 2000:77), whereas the latter can be verb-noun collocations (e.g., *make an attempt, raise capital, spend money, make mistakes*), adjective-noun collocations (e.g., *a short-term strategy, an initial reaction, rancid butter, nice view, cheerful expression, black coffee, strong tea*), adverb-adjective collocations (e.g., *really useful*).

- **Fixed expressions** are those expressions that are commonly used in spoken language in everyday situations. They include social greetings like *Good morning* and *Happy New Year*; politeness phrases like *No thank you, I'm fine* and *Not too bad, thanks*; idioms such as *It's raining cats and dogs* and *You're making a mountain out of a molehill* (Lewis, 1997a:9-10).

- **Semi-fixed expressions** are "semi-fixed 'frames' with 'slots' which may be filled in a limited number of ways" (Lewis, 1997b:9).
  Some examples are *If I were you, I'd …, I see what you mean, but I wonder if it wouldn't be better to…, I haven't seen you for/since…, What really surprised me was…,* and those expressions used to structure discourse (e.g. *Firstly…, Secondly…, Finally…, In this paper we examine…*).

(Lewis, 1997a:8-11)

Among these four types of multi-word lexical items, Lewis devotes special attention to collocations, which he considers "much more than just words which go together" (Lewis, 2000:15).

The greater importance attributed to collocations is made clear by the fact that Lewis makes explicit reference to collocations in the key principles of the Lexical Approach, stating that "collocation is integrated as an organising principle within syllabuses" (Lewis, 1993: vi).

Given their key role in the Lexical Approach and given the fact that they represent a challenge even for advanced students, collocations will be our focus of attention in the following sections and in the following chapters.

In the sections below the reader will be provided with some basic definitions, a detailed classification of the different types of collocations, and some example exercises and activities.

3.2 Collocations

Collocations have been defined in several ways by different scholars.

A general definition that all agree on is "the tendency of two or more words to co-occur in discourse" (Schmitt, 2000:76).

However, it is worth pointing out that this definition leaves the door open for various interpretations.

In fact, the term 'collocation' has been frequently used as a synonym for 'lexical chunk'. In this sense it is considered to be an umbrella term: thus, idioms and phrasal verbs are defined as "completely fixed collocations" since "mutual expectancy has become fixed" (Nattinger & DeCarrico, 1992:20), while semi-fixed expressions are less-fixed collocations that allow some variation and therefore are less predictable (ibid.).

On the other hand, many linguists have interpreted collocations as "frequently recurring two-to-three-word syntagmatic units which can include both lexical and grammatical words" (Henriksen, 2013:30) (e.g., verb + noun, adjective + noun, preposition + noun), and which, therefore, are to be considered a subcategory of lexical chunks.

In addition, in corpus linguistics, the co-occurrence of words is often considered evidence for collocation not only when words are in the "immediate proximity" (Lewis, 2000:136), but also when they are separate.

According to this view, for words to collocate, there must be "a certain mutual expectancy" (Nattinger & DeCarrico, 1992:21) and "an element of exclusiveness" (Schmitt, 2000:77), regardless of the distance.

To clarify this point an example sentence taken from Lewis (2000:136) is provided below. *'I didn't get the job, by the way. The application was in too late'.*

Even though the words 'job' and 'application' are not adjacent, they "collocate quite strongly" (ibid.).

In this study we do not refer to 'collocation' as a synonym for 'chunk' in the broader sense.

We consider collocations in the strict sense, as a type of lexical chunk, whose role in language is particularly important, as illustrated by Lewis (1993, 1997a, 2000, 2005).

Collocations can be divided into two main categories: semantic/lexical collocations and grammatical/syntactic collocations.

The former "combine two equal lexical components (open class words)" (Lewis, 2000:134), such as adjective + noun, verb + noun, adverb + adjective, whereas the latter "combine a lexical word, typically a noun, verb or adjective, with a grammatical word (one open class word and one closed class word)" (ibid.).

Examples of lexical collocations are *strong coffee, make a mistake, terribly sorry*, while examples of grammatical collocations are *reason for*, *depend on, guilty of.*

Another important distinction is that between strong collocations and weak collocations. In fact, the relationships between collocates can "have varying degrees of exclusivity" (Schmitt, 2000:77): when words have an exclusive or almost exclusive relationship, meaning that the presence of one word strongly suggests the presence of the other, that is a strong collocation, whereas "when collocates can vary a great deal" (Lewis, 2000:74) the resulting collocation is weak (Schmitt 2000; Lewis 2000).

Examples of strong collocations are *golden opportunity* (Lewis, 1993:82), *drug addict* (Rizzardi & Barsi, 2005:567), *blonde hair* (Schmitt, 2000:77).

On the other hand, collocations which contain adjectives such as *nice, good* or *bad,* are said to be weak, since these words are rather common and, in fact, they can be used to describe many different things (Hill 1999:163; Rizzardi & Barsi 2005:567; Schmitt 2000:77).

This is particularly evident if we consider how many nouns can occur with the adjective *nice*, thus resulting in collocations like *nice meal, nice guy, nice weather* (Rizzardi & Barsi, 2005:567), *nice view, nice car,* or *nice salary* (Schmitt, 2000:77).

Moreover, it has to be highlighted that the relationship between collocates "is not equally strong in both directions" (Lewis, 1997a:27). In fact, Lewis points out that usually "one word suggests the presence of the other more strongly than the reverse" (Lewis, 1997a:27): for instance, "*rancid* strongly suggests the collocate *butter*, whereas *butter* only weakly suggests *rancid*" (Lewis, 1997b:256), and "*non-alcoholic* suggests *drink* more than *drink* suggests *non-alcoholic*" (Lewis, 1997a:28).

As far as collocations are concerned, the other fundamental aspect that requires our attention is their arbitrary nature. Schmitt claims that "there does not seem to be any

principled reason behind many of them" (Schmitt, 2000:87), and Lewis agrees with him adding some examples.

There is no reason why in English we say *make a decision* rather than *do a decision* (Lewis, 2000:30), *high/tall building, tall boy* but not **high boy*, as well as there is no reason why we can *look at a person* or *problem* and we can *gaze at a person* but not *at a problem* (Lewis, 1997a:26).

This is simply the way in which words are combined in actual language use, and, in fact, knowing collocations is what allows us to produce "actual language" rather than "theoretically possible language" (Lewis, 1997a:17).

Today the teaching of collocations still represents an issue for both teachers and materials developers, who tend to privilege the teaching of individual words and to provide misleading examples (Lewis 1993, 1997a, 2000).

Lewis argues that since "words are not normally used alone", "it makes sense to learn them in [their] typical pattern[s] of actual use" (Lewis, 1997a:32). In addition, it requires less effort for students to "learn the whole and break it into parts, than to learn the parts and have to learn the whole as an extra arbitrary item" (ibid.).

Moreover, many textbooks and teaching materials frequently present collocations such as *drink coffee* (Lewis, 1997a:26) which, despite being apparently easier for learners, are unlikely to be produced by native speakers, who would say *have coffee* instead.

Lewis urges teachers and materials developers to "focus on collocations which do occur, rather than combinations which ought to exist, or which are easy for learners to understand" (ibid.), because learning the right partnerships from the very beginning will prevent them to make mistakes in the future. In other words, what seems to be more difficult at first, will prove to be highly beneficial at a later time. Therefore, it seems clear that learning collocations has several advantages.

Besides the ones outlined here, there are many more advantages, and thus, before moving to the main teaching procedures, we deem it important to summarise them below.

First, it is widely agreed that collocation is a significant aspect of word knowledge (Lewis 1993, 1997a; Nation 1990; Nattinger & DeCarrico 1992; Schmitt 2000).

In fact, as Lewis rightly notes, "knowing a word involves a great deal more than being able to establish a one-to-one relationship between words and real objects" (Lewis, 1993:119): what allows us to go beyond naming things and to actually express ourselves

is collocational knowledge (Lewis, 2000:20-21). For instance, to talk about an *exam,* we need to know verb + noun collocations such as *take an exam, re-take an exam, pass an exam, fail an exam* (ibid.), and we cannot say that we know the word *speak* if we do not know collocations such as *speak a foreign language, speak (French), speak fluently, speak in public* (Hill, 2000:56).

Moreover, collocations often make it possible to express complex concepts in a very simple and concise way, thus reducing students' risk to make grammatical mistakes or to sound unnatural (Hill 1999, 2000; Lewis 2000).

Below are two examples of "natural collocations and students' attempts to construct the same ideas" taken from Lewis (2000:16).

Collocation	Student's attempt
Major turning point	*A very important moment when things changed completely*
Revised edition	*A new book which is very similar to the old one but improved and up-to-date*

Another interesting example is provided by Hill, who notes that a student could either say *His disability is forever* (Hill, 1999:164) or *His disability will continue until he dies* (Hill, 2000:49), because he/she lack the collocation *He has a permanent disability* (Hill 1999:164; Hill 2000:49).

In addition, "many collocations have immediate pragmatic force or are situationally evocative" (Lewis, 2000:15).

In this respect, Lewis takes the adjective + noun collocation *dangerous corner* as an example.

> it is hard to think in which situation someone might say: *This is a corner.* But if I say to you: *This is a dangerous corner,* it immediately suggests two people in a car as they approach a corner where lots of accidents have happened. The collocation *dangerous corner* is immediately evocative of a situation or a speech event. […] it is not simply that an adjective has been added to the word *corner.* The item *dangerous corner* exists as a prefabricated chunk with its own sanctioned meaning (Lewis, 2000:15).

Lewis notes that "although such items may be only two or three words, a great deal of meaning may be packed into them", so that they "can evoke a complex situation very precisely" (ibid.).

As far as meaning is concerned, it is particularly important to highlight that collocations have a "meaning-generating power" (Lewis, 1993:82), since "words are defined in relation to each other" (Carter, 2012:206).

Thus, providing students with collocations will help them to understand what single words mean and, "more importantly, how they are used" (Lewis, 2000:13-14).

In this respect, Lewis claims that:

> it is almost impossible to explain the meaning of the verb *bark* without reference to *dog*. To a large extent the meaning of bark is more or less completely expressed by the sentence *Dogs bark, but pigs grunt and ducks quack* (Lewis, 1993:82).

Collocations are particularly useful not only to understand the meaning of words such as *bark* with little effort, but also to see the difference between similar words such as *wound* and *injury*.

In fact, checking their definitions in a dictionary may only lead to "problems and what are at best half-truths" (Lewis, 2000:13).

In order to comprehend their different meanings and uses, it is helpful to look at their main collocates. For instance, *wound* and *injury* "share some collocates (*nasty, fatal, serious,* etc.)" (Hill, 1999:162), but not others (e.g., we say *internal injury* but not *internal wound*, and *stab wound* but not *stab injury* (Hill, 1999:162; Lewis, 2000:13). This is true for many other groups of words such as *date/appointment/meeting*, *broad/wide* (Hill, 2000:60), *say/tell* (Lewis, 1997a:113): "the difference between [them] is only clear from a knowledge of their different collocational fields" (Hill, 2000:60).

Since collocations greatly contribute to meaning creation, Lewis suggests that teachers spend more time showing the main collocates of the target words rather than explaining their meaning without considering their actual contexts of use (Lewis, 2000:14).

Other important benefits that collocations bring with them – which are shared with the other types of lexical chunks – are increased fluency, less cognitive effort both for the speaker and the hearer, and better pronunciation.

Since we have already dwelt on these aspects in the previous chapter, we will now move on to outline the methods that have been suggested to teach collocations.

3.2.1 Teaching collocations

The teaching procedures illustrated by Lewis in 'The Lexical Approach' (1993) and further explained in 'Implementing the Lexical Approach" (1997a) are valid for all types of multi-word units, including collocations.

Noticing and consciousness-raising activities are deemed to be necessary for learning to take place (Hill 2000; Lewis 1993, 1997a, 2000, 2005) and, in fact, quoting Lewis, "the key idea of 'noticing' informs all exercises and activities in the Lexical Approach" (Lewis, 1997a:52).

Therefore, first, teachers should make their students aware of the existence of collocations; second, they should draw their students' attention to the most significant ones. The following step would be to train students to notice and record collocations themselves in a lexical notebook (Hill 2000; Lewis 1997a, 2000; Redman 1997).

Since "collocation is a feature of all languages […], comparisons between the L1 and the L2 can be very useful" (Lewis, 1997a:66), and particular attention should be paid to those collocations that vary greatly from one language to the other (Lewis, 1993:93).

Lewis proposes several types of lexical exercises: from noticing collocations to words matching, from gap filling to deleting the wrong collocate, and many others.

Since "the emphasis on input runs through the Lexical Approach" (Lewis, 1997a:75), many exercises suggested within the Lexical Approach ask learners to identify collocations in a text and to record them in a notebook.

Students can be asked either to underline all the collocations they can find in the text or to look for a particular type of collocation (Lewis 1997a:108-111; Lewis 2005:10) (e.g., verb-noun collocations such as *have a bath, have fun*).

Since "nouns tend to be the focus of information in a text" (Lewis, 2000:35), a further possibility is to ask students first to identify all the nouns in the text and then to look for all their possible collocates, namely adjectives, verbs, adverbs (Lewis 2000:35; Lewis 2005:10).

Another recurring lexical exercise is matching, in which students have to match parts of collocations.

An example of a matching exercise taken from Lewis (1997a) is provided below.

Healthy life-style

Match a word or phrase from List 1 with a word or phrase from List 2.

List 1   List 2

1. to balance   a. fit
2. to keep   b. your weight
3. to lose   c. carefully
4. to watch   d. your diet
5. to eat   e. weight

6. fresh   a. diet
7. daily   b. lifestyle
8. balanced   c. routine
9. healthy   d. exercise
10. regular   e. fruit

(adapted from Lewis, 1997a:88)

In exercises like the one above, students obtain collocations by matching the right pairs. According to Lewis, this kind of task is particularly fruitful if the collocations have been previously met and identified in a text (Lewis, 1997a:116-117).

A slightly different matching exercise consists of a list of key words – usually nouns – and a number of collocates of those words.
Learners are asked to associate the key words with their corresponding collocates.

Food

A. What nouns form strong word partnerships with all the words in each line below?

1. salad chicken cheese freshly-made club
2. rare medium well-done rump fillet
3. mixed green side fruit potato

4. delicious light heavy three-course evening

5. light full-bodied robust fruity complex

6. dry medium sweet crisp fruity

7. Indian fast plain spicy rich

8. traditional Thai vegetarian fish trendy

food   meal   white wine   red wine

steak   salad   sandwich   restaurant

(Lewis, 1997a:68)

Another recurring exercise within the Lexical Approach is the gap-fill. Lewis highlights that gaps must be "partner-words from relatively fixed collocations" (Lewis, 1997a:89) and he adds that this kind of exercise can be used to practice both lexical and grammatical collocations.

Below is a gap-fill exercise from Lewis (1997a), which followed the matching exercise presented above, asking students to complete the sentences using the collocations that they had just obtained.

B. Now complete these so that they are true for you:

1. How would you like your steak?

>…………, please.

2. I (don't) really like ……… wines, (but) I prefer ………

3. I don't dislike ………. food, but I'd never choose it. I prefer ……… (food).

4. There's a very nice ………. restaurant near my ………. but it is rather ……….

5. At lunchtime I usually have quite a ……….. meal, but my evening meal is usually quite a lot ……….

(Lewis, 1997a:68)

As mentioned before, completing exercises are useful also to work with grammatical collocations (e.g., verb-preposition, preposition-noun, adjective-preposition). The example exercise provided below, for instance, is on preposition-noun collocations.

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Complete these sentences with the correct preposition.

1. I saw it ………. TV.
2. They came ………. car.
3. They are all ………. strike.
4. He is here ………. business.
5. I did it ………. my own.
6. It was written ………. Goethe.
7. We went ………. a walk.
8. I read it ………. a magazine.
9. He's ………. holiday this week.
10. She took it ………. mistake.

<div align="right">(Redman, 1997:35)</div>

So far, we have presented the main types of lexical exercises that ask to identify collocations and to form the right word-partnerships.

Besides these exercises, Lewis proposes tasks in which students are required to reflect both on the actual collocations and on non-existent collocations of some target words (e.g., Collocation grid in Figure 1), and tasks in which students only have to delete the word that has no collocational relation with the others (Odd one out in Figure 2 and Figure 3) (Lewis 1997a, 2000).

	events	forniture	history	Ideas	movies
Old		+		+	+
Antique		+			
Ancient			+		
New		+		+	+
Recent	+		+	+	+
Current	+			+	
modern	+	+	+	+	+

<div align="right">(Lewis, 2000:78)</div>

Figure 1.

Cross out the incorrect verbs in these sentences. Both verbs may be correct.

1. I couldn't do/make the homework last night.
2. She's going to make/have a party for her birthday.
3. Did he do/make many mistakes?
4. I often make/do the housework.
5. Did you make/take many photos?
6. When do you take/do your next exam?
7. I want to do/make a decision soon.
8. We must take/make a decision soon.
9. He is doing/making research in chemistry.
10. They did/made a lot of noise during the party.

(Redman, 1997:43)

Figure 2.

One word in each group does not make a strong word partnership with the word in capitals. Which is the odd one?

1. BRIGHT   idea   green   smell   child   day   room
2. CLEAR   attitude   need   instructions   alternative   day   conscience   road
3. LIGHT   traffic   work   day   entertainment   suitcase   rain   green   lunch
4. NEW   experience   job   food   potatoes   baby   situation   year
5. HIGH   season   price   opinion   spirits   house   time   priority
6. MAIN   point   reason   effect   entrance   speed   road   meal   course
7. STRONG   possibility   doubt   smell   influence   views   coffee   language
8. SERIOUS   advantage   situation   relationship   illness   crime   matter

(Lewis, 1997a:94)

Figure 3.

Collocational grids, together with "sets and networks of various kinds, offer a systematic basis for vocabulary development". In addition, they are particularly useful to distinguish between the different behaviours and contexts of use of near synonyms such as *old, antique, ancient*, and *new, recent, current, modern* (Lewis, 2000:78). Lewis highlights that this format can be exploited "for many groups of words with similar or related

meanings, and for different kinds of grammatical pairs such as subjects and verbs, verbs and objects, adjectives and nouns, etc." (ibid.).

On the other hand, "odd one out practices are one non-threatening way of providing […] negative evidence (Lewis, 1997a:91) and thus, they allow to prevent possible mistakes (ibid.).

The last main type of exercise among those suggested by Lewis requires learners to write all the collocates that come to their mind, given some key words.

Collocations can be recorded in spidergrams, as in figure 4, or they can simply be written beside the target word, as in figure 5.
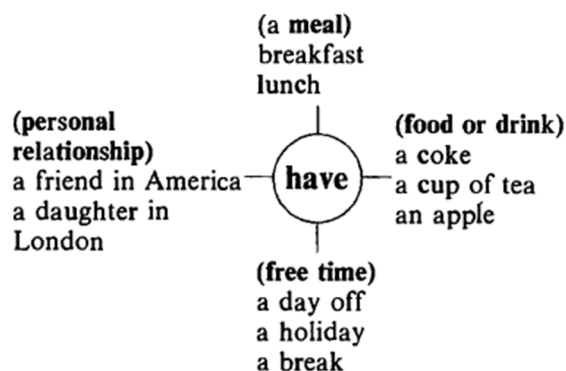
(Lewis, 1993:126)

Figure 4.

Write as many collocates as you can for the following words

How many nouns do you know which can go immediately after these words?

a. market (research, price, penetration, etc)

b. price (rise, stability, promise, etc)

c. football (match, stadium, player, etc)

d. train (timetable, ticket, crash, station, times etc)

(Lewis, 2000:151)

Figure 5.

These exercises can be used to work on delexicalised verbs such as *have, make, do, get* or they can be exploited to learn collocations linked to a specific topic (e.g., *Food, Health,*

Clothes, Sports) or situation (e.g., *In the kitchen, At the restaurant, On holiday, At the beach*) (Lewis 1997a; Redman 1997).

Alongside these main types of lexical exercises, there are some helpful resources that learners can take advantage of: namely traditional dictionaries, collocation dictionaries and Concordancers (Lackman 2011; Lewis 1997a, 2000; Schmitt 2000), which are computer software that allow "a constructive search of large amounts of text for examples of a particular word" (Lewis, 2000:40).

As already mentioned, dictionaries are not simply "decoding devices, designed to help students understand the meaning of words they are not sure of" (Hill, 2000:60): in fact, they are also, and most importantly, encoding devices that allow them to see how to combine words to communicate effectively (ibid.).

To show the wealth of information provided by these tools, an example taken from Lewis (2000) is given below.

> The new play has *attracted considerable criticism.*
> The head teacher *came under* a lot of *criticism* from the parents.
> There was *growing criticism* of the government's conduct of the war.
> I'm sick to death of your *endless criticism.*
> She *received* a lot of *unjustified criticism.*
>
> (Lewis, 2000:38)

Lewis notes that this was only a small selection from a hundred sample phrases or sentences taken from the CD-ROM version of the *Oxford Advanced Learners Dictionary* (ibid.).

Besides traditional dictionaries, another useful resource is represented by collocation dictionaries, which have been developed precisely to provide collocational information and, thus, they are more complete (ibid.), as the information for the word *criticism* provided by *The LTP Dictionary of Selected Collocations* displays.

CRITICISM

V: accept, agree with, answer, arouse, attract, be discouraged by/exposed
to/impervious to/rattled by/subjected to/upset by, blunt, come in for/under/up

against, crush, defend oneself against, deflect, deserve, encounter, escape, evoke, express, forestall, give rise to, ignore, invalidate, justify, level - against sb, meet with, offer, overcome, provoke, react to, reject, reply to, rise above, lun into, shrink from, silence, soften, stifle, subject sb to, suffer, voice, weather, withstand, yield to –

V: - centres on sth, comes from sb, died down, grew, hardened, hit home, is relevant, mounted, revolved around 00'

A: adverse, basic, biased, bitter, blunt, common, constant, destructive, devastating, (un)fair, ferocious, fierce, friendly, fundamental, furious, harsh, helpful, hostile, implicit, incisive, lively, merciless, mild, muted, objective, oblique, open, overt, penetrating, perceptive, personal, savage, searing, severe, sharp, sincere, stinging, stringent, strong, Subjective, tough, trenchant, unjust, unprecedented, useful, useless, (thinly) veiled, widespread -

P: chorus of, flood of, spate of, torrent of, wave of, whiff of -

The entry uses the following system:

V: verbs which come before the noun

V: - verbs which usually come after the noun

A: adjectives

P: phrases which contain the noun

<div align="right">(Lewis, 2000:38)</div>

A further resource that is worth mentioning since it allows "to explore the possible environments of a word more fully" is Concordancers.

Lackman (2011) provides an example for the word *home* and another example for the word *house* taken from *Lextutor* and *the COBUILD Concordance & Collocations Sampler (Bank of English)* respectively.

Lextutor
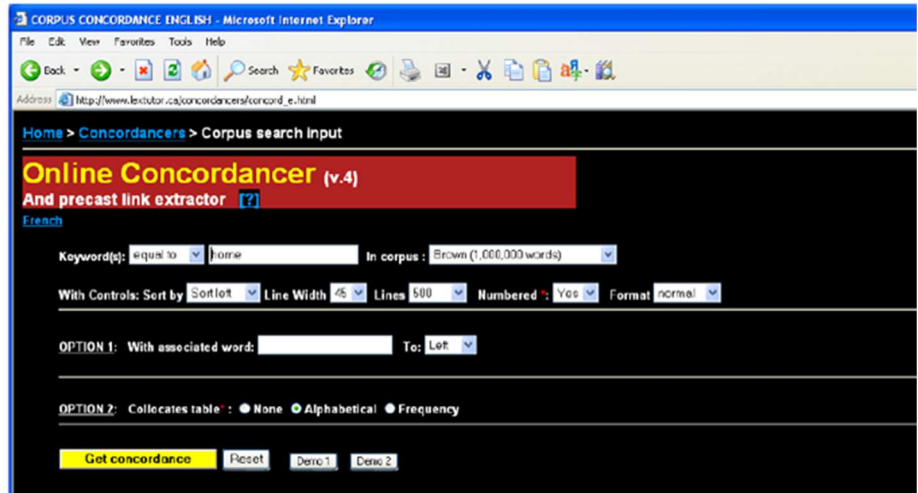

```
323  matter of fact you could probably find a new home development in every populated county in
324  oad sweep of the Hudson River there is a new home development called "Oakwood Heights". As a
325  re 12 is based on such a room built in a new home in the Washington, D.C. area in the Spring
326   idea of including its facility in their new home projects, by financing and installing the
327  ps to the attic room which was to be his new home. Airless and dingy though it was, the
329  3 1070 13    _2._     Full payment of nursing home bills for up to 180 days following
330  ould receive up to 300 days paid-for nursing home care under a "unit formula" allowing more
331     of general, not payroll, taxes. #NURSING HOME CARE# The aged care plan carries these
332  ion dollar a year federal grants for nursing home construction. He asked for another 10
```

(Lackman, 2011:10)
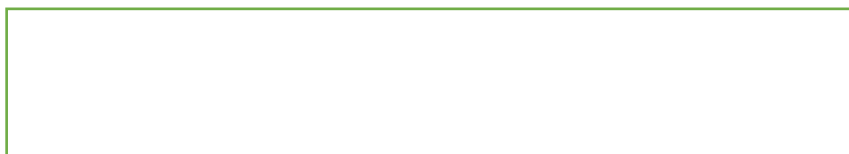
```
boundaries, as a visit to any historic house in the United Kingdom will prove. Whilst
       have been brought into the White House.  One adviser has suggested that there
I'm well connected. A widower. My own house. Nice car." He was mocking himself. Some
and seems to remember that the whole house cost less than that to buy. It is hard
who lives in Joseph's magnificent old house overlooking Scarborough harbour, said: `
important match in front of a 43,000 full house at the Parc des Princes.  [p] At the
I mean [ZF1] and [ZF0] and it was a lovely house up [ZGY] barn [F01] Mm. [F02] a
to come into [ZF1] the [ZF0] the large house where the father's got the banquet set.
       Anyway we think it's a nice house don't we. [F0X] Oh I'm sure MX'll like it.
I wish we had time to look at a cheaper house because if I'd known that I only had six
   achieved his goals Jaguar detached house Managing Directorship. But his comfortable
```

Bank of English
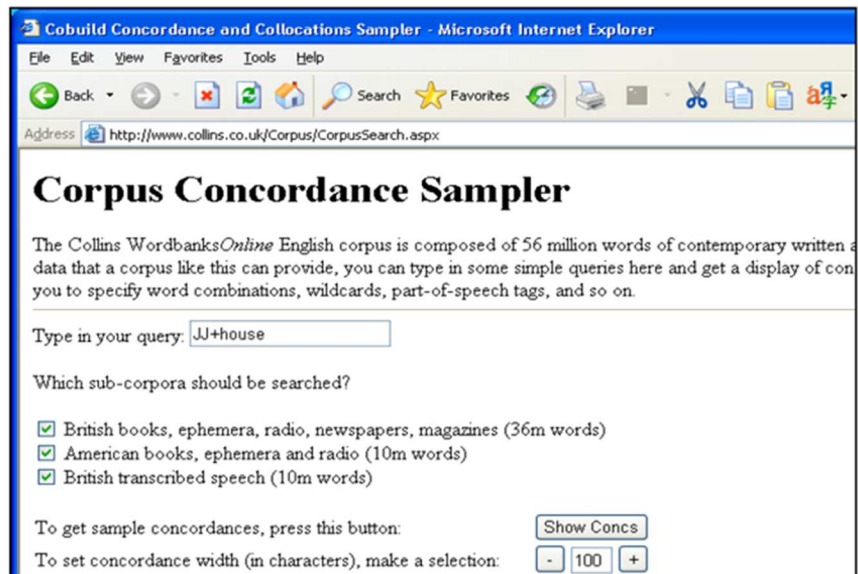
(Lackman, 2011:11)

Concordancers can be exploited in the classroom to help learners familiarize with word partnerships. In activities that involve the use of Concordancers students are usually asked to look at concordance examples and write down the main collocates of a target word. Students can either be asked to look at the concordance examples themselves, using a Concordancer, or they can be already provided with them by teachers.

An example exercise proposed by Tribble and Jones (1990) is given below.
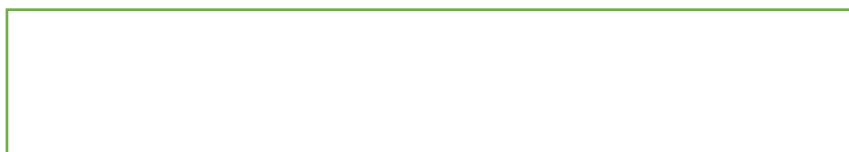
Keyword: Adverb
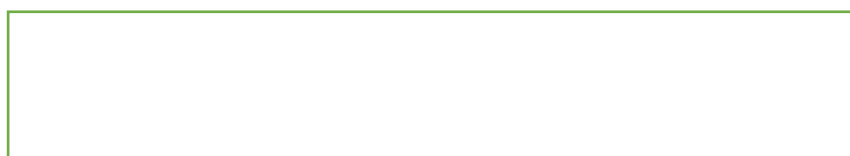
Left sort
Are there any words (or word classes) that appear frequently before the keyword? Write any you find in the box below.

Right sort
Are there any words (or word classes) that appear frequently after the keyword? Write any you find in the box below.

(adapted from Schmitt, 2000:86)

As shown by its key principles and the teaching implications outlined above, the Lexical Approach is the first approach that actually recognises the lexical nature of language and in particular the significant role of lexical chunks – mainly collocations – in language use.

However, it is worth noting that as far as materials and teaching methods are concerned, the Lexical Approach has some limitations.

In fact, although Lewis highlights that the exercises and the activities for beginners must be different from those for upper-intermediate and advanced students (Lewis, 1993: vii), the levels of proficiency required for each type of exercise are not specified.

Nevertheless, since other authors provided some clarifications (Bareggi 2006; Carter 2012; Redman 1997; Schmitt 2000), we can be more precise in suggesting which exercises and tasks to carry out.

When it comes to noticing activities, for instance, advanced learners can be asked to look for all the collocations in a text, whereas with pre-intermediate and intermediate students it would be better to have texts or sentences with the target collocations already written in bold (Redman, 1997).

In this way, students can immediately identify some important word partnerships, as the extracts from Redman (1997) provided below clearly show.

What is a collocation?

If you want to use a word naturally, you need to learn the other words that often go with it (word partners). These can be very different from language to language. For example. In English we say:

I **missed the bus** (= I didn't **catch the bus**) [NOT *I lost the bus]

She **made a mistake** [NOT *she did a mistake]

A **heavy smoker** (=someone who smokes a lot) [NOT *a strong smoker or *a big smoker]

It was a **serious illness** [NOT *a big illness or *a strong illness]

(Redman, 1997:30)

Redman applies the same procedure for both lexical collocations and grammatical collocations.

Two examples (one from each category) of the way in which these word partnerships are presented are given below.

Verb + noun

The meaning of many of these examples may be clear, but did you know these verbs and nouns go together? Is it same or different in your language?

Start the car (= turn on the engine)   Start a family (= think about having your first child)

Tell a story   Tell the truth (≠ tell a lie)

Tell a joke   Run a shop/company (= manage/ control it)

Miss a person (= be unhappy because that person is not there)

Miss a lesson (= when you don't come to a lesson)

Verb (+ preposition)

Here are some common examples of verbs which are usually followed by a particular preposition. You will probably know most of these verbs, but do you always get the preposition right? Pay special attention to any that are different in your language.

Listen to: I often **listen to** the radio

Agree with: My brother never **agrees with** me. (= he never has the same views/ opinion as me)

Depend on: I may go to the match; it really **depends on** the weather. (= the weather will decide for me)

Suffer from: He **suffers from** (= has the unpleasant/ bad experience of) a type of diabetes.

Apologise for: I'm going to **apologise** (= say sorry) **for** the mistakes we made.

Wait for: They were **waiting for** me when I arrived.

Worry about: Don't **worry** (= be nervous) **about** your exam; it'll be OK.

(adapted from Redman, 1997:32)

The other important type of collocation that receives the same treatment in Redman (1997) is that of de-lexicalised collocations, which require particular attention since they usually cause difficulties (Lewis, 1993:94).

Make, do, have, take

Things we make

Make a mistake (= an error)   He **made** a few **mistakes** in the exam.

Make a meal (= prepare and cook   I had to **make** my own **dinner** last night.
        something to eat)

Make money (= become rich)   He **made** a lot of **money** when he worked
                                      in America.

Make friends	It's not always easy to **make friends** in a foreign country.
Make a decision	We can have the red ones or the green ones, but we must **make a decision** (choose the red or green) before 6 p.m.

Things we do

Do homework	I forgot to **do** my English **homework** last night.
Do the housework (= cleaning)	My mother **does** all **the housework** in our house.
Do the shopping (= buy food)	I always **do the shopping** at the weekend.
Do something/anything/nothing	I didn't **do anything** last night. That boy **has done nothing** all day.

Things we have

Have a rest (= relax/ do nothing)	They **had a** long **rest** after the game.
Have food (= eat food) food	I **had pasta**.
Have a drink (= drink something)	Let's **have a drink** before dinner.
Have a bath/ shower	I always **have a bath** when I get up.
Have a party	I'm **having a party** for my birthday.
Have a baby (= be pregnant or give birth)	Mary is **having a baby** next month.
Have a (nice/great/terrible) time	We **had a very nice time** in Switzerland last year.

Things we take

Take an exam (also 'do an exam')	I'm going to **take** four **exams** next month.
Take a photo	She **took** lots of **photos** on holiday.
Take a decision (also 'make a decision')	I'm not very good at **taking decisions**.
Take a shower (also 'have a shower')	I'm just going to **take a shower** before lunch.
Take a bus/train/plane/taxi	We were late, so we **took a taxi** to the airport.

(adapted from Redman, 1997:42)

In the case of grids or spidergrams, beginners who have never met the target words could be shown the appropriate combinations instead of being asked to provide them on their own. A secondary step could be carrying out either a matching exercise or a gap-filling exercise; only at a later time, learners can be asked to write the collocations themselves, without any guidance.

Therefore, it seems that every format can be exploited with all learners. What is important is that the target students are familiar with the key words and collocations, otherwise they can merely guess (Schmitt, 2000:88).

More example exercises suggested for the different proficiency levels can be found in Bareggi (2006), Carter (2012), Redman (1997), Schmitt (2000).

This chapter has outlined the main principles and teaching implications of the Lexical Approach with a particular focus on collocations.

Lewis' view of language is supported by many other scholars, namely Willis, Nattinger and DeCarrico, who urge teachers and material developers to give lexis, in particular collocations, the importance they deserve.

In the next two chapters, given the increasing importance of technology in the educational field, we will examine three popular EFL mobile applications with the aim of understanding if collocations are given adequate space from the very beginning of the learning process. In particular, we want to find out whether collocations are directly addressed or not and we want to investigate which type of lexical exercises are included, to see if the suggestions from the Lexical Approach have been put into practice.

Part 2: The study

4. Learning English collocations with mobile applications

In the previous chapter we illustrated the main principles and teaching implications of the Lexical Approach with a particular emphasis on collocations.

After having provided some basic definitions and a classification of the main types of collocations, we showed some example activities and exercises suggested by Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000).

Given the prominent role of collocations in language use and given the fact that relatively little attention has been paid to them, this study seeks to understand whether both lexical and grammatical collocations are given adequate space in three popular EFL mobile apps – Duolingo, Memrise and Busuu.

In order to illustrate our research study, this chapter is divided into four sections.

The first section (4.1) will briefly explain the reasons for the present study and it will outline its main objectives; the second section (4.2) will focus on the research questions; the third section (4.3) and the fourth section (4.4) will describe the materials that have been chosen for the study and the methodology adopted to collect and analyse the data, respectively.

4.1 The rationale for the study

As already mentioned, the present study aims to find out whether three of the most popular free language learning apps – Duolingo, Memrise and Busuu – can be considered effective tools for learning English collocations.

We have decided to focus specifically on collocations (defined as "frequently recurring two-to-three-word syntagmatic units which can include both lexical and grammatical words" cfr Chapter 3) rather than on lexical chunks (defined as "recurring patterns of language" cfr Chapter 2) in general because of their pervasiveness in the English language and because of the benefits they bring to the communication process, all of which have been illustrated in detail in Chapter 2.

A further reason is that among multi-word units, collocations seem to be those that have received less attention, compared to idioms and phrasal verbs (Hill, 2000:51).

Moreover, given their "arbitrary nature" (Lewis, 2000:28) and given the fact that, unlike phrasal verbs and idioms, collocations are semantically transparent, they are "ideally suited to independent learning" (Lewis, 2000:35).

The reasons why we have decided to analyse mobile applications rather than other learning materials are twofold: on the one hand, the increasing importance of technology in the educational field and, in particular, the spread of mobile apps for English learning; on the other hand, the lack of previous research studies on the topic.

In fact, as Deng and Trainin (2015:50) rightly note, mobile devices "have proliferated in educational use since the advent of the iPad in 2010", and we cannot ignore the fact that "the future is increasingly mobile" (Hockly in Deng & Trainin, 2015:49).

As far as Mobile Assisted Language Learning (MALL) is concerned, many studies have focused on the students' overall perception of mobile apps (Abarghoui & Taki 2018; Castañeda & Cho 2016; Cheng & Chung 2008; Deng and Shao 2011; Steel 2012; Guaqueta & Castro-Garces 2018; Hao et al. 2018; Rosell-Aguilar 2018) and on the teachers' evaluations of the apps (Ali & Ghazali 2016).

In addition, several experimental and quasi-experimental studies with pre-tests and post-tests have been carried out to evaluate the effectiveness of some mobile applications in terms of learning outcomes (Ajisoko 2020; Fathi, Alipur & Saeedian 2019; Guaqueta & Castro-Garces 2018; Hao et al. 2018; Rachels and Rockinson-Szapkiw 2018; Rahimi & Miri 2014; Wu 2015).

Although many scholars have shown an increasing interest in MALL over the last few years, only a few papers have been concerned with the teaching of collocations in language learning apps.

Moreover, this issue has been addressed only with respect to language apps that have been specifically created to teach multi-word lexical items (Amer 2014; Dagdeler, Konca & Demiroz 2020) and not with respect to more complete language apps.

Overall, collocations have been extensively investigated with reference to English-Language textbooks (Abello-Contesse & Lopez-Jimenez 2010; Hsu 2008; Koprowski 2005; Lopez-Jimenez 2013; Mcaleese 2013; Meunier& Gouverneur 2007; Nordlund 2016; Vassiljev et al. 2015; Wistrom 2020). In addition, it is worth mentioning a research study that has been carried out in the field of Computer Assisted Language Learning (CALL) by Nesselhauf and Tschichold (2002), who have investigated the teaching of collocations in some CALL programs.

However, despite the widespread use of language learning apps and the recognized importance of acquiring collocations, no research study has addressed the issue of teaching collocations via EFL mobile apps, which is the rationale for the present study.

Now that the reasons for our analysis have been outlined, we can move on to describe the research questions.

4.2 Research questions

In order to determine whether the above-mentioned language apps are useful tools for learning English collocations and whether Lewis' suggestions have been put into practice, this study seeks to address the following research questions:

1. Do the language learning apps focus primarily on lexis or on grammar?
2. Within the units that deal with lexis how are collocations treated?

As outlined in the first part of the present dissertation, over the last few decades lexis has been taken into greater consideration and its prominent role in language acquisition and use is now widely recognised.

However, this change of perspective has been rather gradual. In fact, a decisive factor that led to actually reconsidering the old beliefs about grammar and vocabulary was the publication of Lewis' 'Lexical Approach', which is the first teaching approach to put in the foreground the significance of lexis and in particular collocations.

Since "language consists of grammaticalised lexis, not lexicalised grammar" (Lewis, 1993: vi) and "grammar, although important, plays a subordinate role" (Lewis, 2000: 147), our first goal is to find out whether the selected apps are more concerned with lexis or with grammar.

Once the main focus of the three apps has been determined, we aim to understand whether collocations are directly addressed within the units on lexis and in which ways.

More precisely, we want to assess whether the various types of activities and exercises proposed by Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000) have been included in the apps. In particular, we are interested in understanding if there are consciousness-raising activities in which explicit attention is drawn to the target

collocations, and, in general, if different types of exercises are used to help students learn and retain collocations – mainly spidergrams, collocation grids, word matching, gap-fill and deletion exercises.

Finally, we want to verify whether attention is paid to "L1/L2 comparisons and translation" (Lewis, 1997a: 15), "the use of a dictionary as a resource for active learning" (ibid.) and the use of a lexical notebook to keep a record of the new word-partnerships, as suggested by Lewis (1993, 1997a, 2000).

This section has been dedicated to the description and explanation of the research questions. The following section will focus on the characteristics of the language learning applications that have been chosen for the present research.

4.3 Materials

As already mentioned, the materials that we have decided to analyse are three popular language learning mobile apps – Duolingo, Memrise and Busuu.

Even though they all offer several different languages to choose from, the present paper is concerned only with English as a foreign language.

As far as proficiency levels are concerned, Busuu covers four levels (Beginner A1, Elementary A2, Intermediate B1, Upper-Intermediate B2) according to the Common European Framework of Reference for Languages (CEFR), whereas Duolingo and Memrise have five levels and seven levels respectively, and they are not linked to the CEFR levels.

A probable reason for this difference may be that Busuu has been developed in Europe, while Duolingo and Memrise have been created in the United States.

In our study we will analyse all levels for three main reasons: first, in Duolingo and in Memrise there are no clear differences between one level and the other in terms of difficulty; second, Lewis and many other scholars encourage the teaching of collocations from the very beginning of the learning path; finally and most importantly, the Common European Framework of Reference clearly indicates that even basic users are expected to understand and use a "basic range of simple expressions" (A1 level), "basic sentence patterns", "memorised phrases, groups of a few words and formulae" (A2 level) (CEFR, 2001: 110).

Although collocations represent a challenge even for advanced learners (Carter 2012; Lewis 1993, 2000; Nesselhauf 2004; Schmitt 2000), "collocational awareness is not 'advanced' language" and "it can be introduced from the earliest stages" (Lewis, 1993: 120).

In fact, according to several scholars these lexical patterns should be introduced from the beginner level precisely to prevent collocational errors at the upper-intermediate and advanced levels (Hill 1999; Lewis 1993, 1997a; Lopez-Jimenez 2013).

However, materials developers should carefully consider the students' proficiency levels when designing the types of activities and exercises.

In this respect, some suggestions have been provided in the previous chapter, in the section dedicated to the teaching of collocations.

Furthermore, as mentioned above, the CEFR highlights the importance of knowing lexical chunks also at the beginner and elementary levels, as the extract taken from the table titled *'General linguistic range'* shows.

	Has a repertoire of basic language which enables him/her to deal with everyday situations with predictable content, though he/she will generally have to compromise the message and search for words.
A2	Can produce brief everyday expressions in order to satisfy simple needs of a concrete type: personal details, daily routines, wants and needs, requests for information. Can use basic sentence patterns and communicate with memorised phrases, groups of a few words and formulae about themselves and other people, what they do, places, possessions etc. Has a limited repertoire of short memorised phrases covering predictable survival situations; frequent breakdowns and misunderstandings occur in non-routine situations.
A1	Has a very basic range of simple expressions about personal details and needs of a concrete type.

(CEFR, 2001: 110)

In addition, it is worth mentioning that the CEFR makes explicit reference to collocations both in the paragraph on lexical competence and in the paragraph on semantic competence, as shown below.

5.2.1.1 **Lexical competence**, knowledge of, and ability to use, the vocabulary of a language,

consists of lexical elements and grammatical elements.

Lexical elements include:

a)   Fixed expressions, consisting of several words, which are used and learnt as wholes.

Fixed expressions include:

• sentential formulae, including:

direct exponents of language functions such as greetings, e.g., *How do you do? Good morning!* etc. proverbs, etc., relict archaisms, e.g., *Be off with you!*

• phrasal idioms, often: semantically opaque, frozen metaphors, e.g.: He *kicked the bucket* (i.e. he died). It's *a long shot* (= unlikely to succeed). He *drove hell for leather* (i.e. very fast), intensifiers. Their use is often contextually and stylistically restricted, e.g., *as white as snow* (= 'pure'), as against *as white as a sheet* (= 'pallid').

• fixed frames, learnt and used as unanalysed wholes, into which words or phrases are inserted to form meaningful sentences, e.g.: *'Please may I have . . .'.*

• other fixed phrases, such as: phrasal verbs, e.g., *to put up with, to make do (with)*; compound prepositions, e.g., *in front of*.

• fixed collocations, consisting of words regularly used together, e.g., *to make a speech/mistake*.

b) Single word forms. A particular single word form may have several distinct meanings (polysemy), e.g., *tank*, a liquid container or an armoured armed vehicle. Single word forms include members of the open word classes: noun, verb, adjective, adverb, though these may include closed lexical sets (e.g., days of the week, months of the year, weights and measures, etc.).

(CEFR, 2001: 110-111)

5.2.1.3 **Semantic competence** deals with the learner's awareness and control of the organisation of meaning.

Lexical semantics deals with questions of word meaning, e.g.:

• relation of word to general context:

reference;

connotation;

exponence of general specific notions;

• interlexical relations, such as:

synonymy/antonymy;

hyponymy;

collocation;

part-whole relations;

componential analysis;

translation equivalence.

(CEFR, 2001: 115)

Although reference is repeatedly made throughout the document not only to collocations but also to the other types of multi-word units, for the purpose of this study we deem it important to highlight that knowledge of idiomatic expressions and colloquialisms is expected only at C1 and C2 levels, as the *'Vocabulary range'* table provided below shows.

On the contrary, no clear indication is provided as to when collocation knowledge is expected.

	VOCABULARY RANGE
C2	*Has a good command of a very broad lexical repertoire including idiomatic expressions and colloquialisms; shows awareness of connotative levels of meaning.*
C1	*Has a good command of a broad lexical repertoire allowing gaps to be readily overcome with circumlocutions; little obvious searching for expressions or avoidance strategies. Good command of idiomatic expressions and colloquialisms.*
B2	*Has a good range of vocabulary for matters connected to his/her field and most general topics. Can vary formulation to avoid frequent repetition, but lexical gaps can still cause hesitation and circumlocution.*
B1	*Has a sufficient vocabulary to express him/herself with some circumlocutions on most topics pertinent to his/her everyday life such as family, hobbies and interests, work, travel, and current events.*
A2	*Has sufficient vocabulary to conduct routine, everyday transactions involving familiar situations and topics.*
	Has a sufficient vocabulary for the expression of basic communicative needs. *Has a sufficient vocabulary for coping with simple survival needs.*
A1	*Has a basic vocabulary repertoire of isolated words and phrases related to particular concrete situations.*

(CEFR, 2001: 112)

Now that we have briefly introduced the three applications and that we have provided the reasons for investigating the teaching of collocations in all levels, we can describe the selected materials more in detail.

<u>Duolingo</u>

Duolingo was launched in 2011 "with a mission to develop the best education in the world and make it universally available" (Duolingo, 2020). In fact, it is free and today it is the most popular language learning app with "over 500 million total users and around 40 million monthly active users" (Duolingo, 2020).

The Duolingo Language Report (2020) emphasises the impact of Covid-19 on language education, highlighting that the number of new users between March and April 2020 was 67% higher compared to the same period in the previous year.

Duolingo offers 39 language courses – English, Spanish, Italian, Russian, Turkish, Polish, Greek, Arabic, Vietnamese, Korean, Japanese, among many others – and English is the most studied language.

The app website claims that "learning with Duolingo is fun and addictive". In fact, it has been designed as a game: students lose a life when they make mistakes and they earn virtual coins and obtain new lives when they manage to complete the lessons.

As previously mentioned, the app is divided into five levels, which are named 'checkpoints'.

Each level or checkpoint consists of a varying number of units, for a total of 62 units.

Below is a screenshot of level one (checkpoint 1), which shows how the English course is structured on Duolingo.

Figure 6. Screenshot of Level 1 on Duolingo

As can be seen from the image, units are organised around topics (e.g., 'Family', 'Languages') or situations ('At the restaurant'), which are written in the student's L1 – in this case Italian.

Each unit of each checkpoint covers five levels in turn.

Therefore, once learners have finished one unit in one checkpoint, they can either start another unit in the same checkpoint or they can continue to work on the same unit up to level 5.

For instance, once the unit 'Famiglia' in chekpoint one is complete, it is possible to go through the same topic up to four more times or to change unit, jumping to the unit 'Viaggi'.

Consequently, in the end, the 62 units can be done five times, for a total of 310 units.

Moreover, Duolingo has an additional section with forty stories which allow learners to practice their reading and listening comprehension skills.

Memrise

Memrise was launched in 2010 and today it has more than 50 million users (Memrise, 2021).

It offers 23 language courses, which include Italian, Spanish, French, German, Japanese, Korean, Turkish, to provide a few examples.

The app website emphasises the importance of learning phrases which are used in real life situations and, in fact, Memrise allows students to familiarize with the correct pronunciation and with different accents, by showing students several video clips with mother tongue speakers.

Like Duolingo, Memrise has a playful design: learners earn points when they answer correctly. However, in Memrise if learners keep answering wrong, they do not lose points; instead, they are asked the same questions until they provide the correct answer.

In particular, the Memrise app uses the metaphor of sowing and plant growth for vocabulary learning.

More precisely, when students meet a word or a phrase for the first time, the app shows the image of a hand with a seed. Once vocabulary has been practiced, the seeds become either flowers or plants. In order for words and expressions to be retained in long-term memory, students are regularly asked to revise them. This revision process is symbolised by a watering can which, if used periodically, allows flowers and plants to grow.

The app is divided into seven levels, each of which includes a varying number of units, for a total of 166 units.

Below are two screenshots of the Memrise app: the first shows the first two units of level one ('1- Parole e Frasi. Partenza!' and '2- Grammatica'), while the second displays some of the items of unit one which need to be revised.
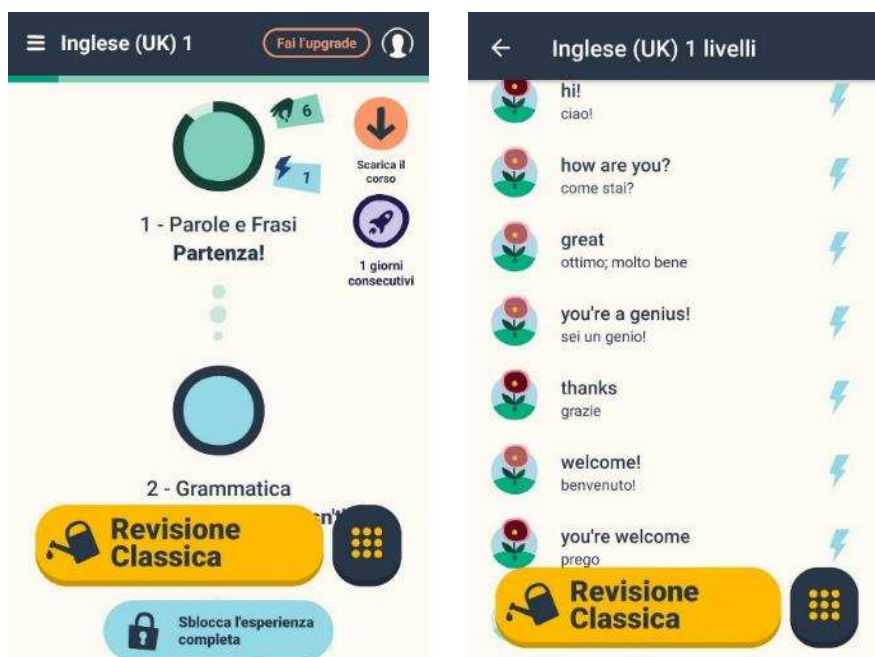
Figure 7. Screenshots of Level 1 and examples of lexical items on Memrise

As can be seen from the images above, the titles of the units are written in the students' L1 (in this case Italian), and the English items are presented along with their L1 equivalents (e.g., 'how are you?' – 'come stai?'; 'great' – 'ottimo, molto bene').

Busuu

Busuu was launched in 2008, it has over 100 million users to date and it includes 12 language courses (Busuu, 2021).

The app's distinctive feature is that it allows its users to interact with native speakers, receiving "personalised feedback" on both writing and speaking exercises (Busuu, 2021). Another aspect that distinguishes Busuu from the apps described above is that it has been developed

following the Common European Framework of Reference (CEFR): in fact, it covers four of the six levels included in the CEFR, from A1 to B2.

Students can either practice the language following the order in which units are presented or "pick and choose the topics that are most relevant" to them (Busuu, 2021).

Busuu consists of 175 units and 36 additional activities, which include videos, articles and recaps of the topics that have been covered in the units.

The image provided below shows the first units of level one (Principiante A1), the content of which is introduced in Italian, like in Duolingo and in Memrise.

Figure 8. Screenshot of Level 1 on Busuu

The three applications illustrated above offer both a free version and a paid version. However, in our analysis we have considered only the free versions of the apps.

In this respect, it has to be highlighted that the distinctions between Duolingo and its paid version (Duolingo Plus) do not affect the learning contents, whereas in the case of Memrise and especially in the case of Busuu the learning experience is significantly different.

In fact, Duolingo Plus only gives the additional opportunity to download the lessons and to learn offline, to avoid advertisements and to jump from one level to the other according the students' needs, but the units and the activities available remain the same.

On the contrary, Memrise Pro and Busuu Premium, besides providing the possibility of learning offline, they allow learners to have access to additional listening and pronunciation activities as well as to watching video clips with native speakers. Moreover, the paid version of Busuu includes grammar lessons, reading, speaking and writing tasks, level tests which offer the possibility of receiving the McGraw-Hill Education certificates.

However, given the purpose of our study, these differences between free apps and paid apps do not pose an obstacle. In fact, after having compared the percentages of units that deal with lexis with the percentages of units that deal with grammar, our main focus will be on lexis.

Although we cannot determine whether grammar is taught following lexical principles, as suggested by Lewis, nor we can verify the treatment given to collocations in all the

comprehension and production activities, we will manage to understand the general approach towards collocations and the other types of lexical chunks in the units that are available.

In fact, despite the above-mentioned limitations in the free versions of the apps, it has to be highlighted that the units on lexis allow learners to practice also their listening, reading, writing and speaking skills to a certain extent.

Therefore, the learning content at our disposal permits to evaluate the effectiveness of the mobile apps as far as collocation teaching is concerned as well as to determine their overall lexical sensitivity.

This section has provided a description of the three mobile applications that have been selected for the present study. The following section will explain the methodology adopted to answer the research questions.

4.4 Methodology adopted

The significant role of lexis – and in particular collocations – in language use is now widely recognised, mainly as a result of the findings in Corpus Linguistics, Psycholinguistics and FL acquisition that have been explained in Chapter two.

However, despite the acknowledged importance of lexis, the adoption of new teaching methods in line with these discoveries has not been immediate.

In fact, as illustrated in the previous chapter, the first teaching approach to actually emphasise the lexical nature of language and to provide guidance on how to deal with lexical items was Lewis' Lexical Approach (1993).

Given the central role of lexis in language use, our main goal has been to determine whether the EFL mobile apps consider lexis their primary concern.

In particular, since grammar plays a secondary role in the Lexical Approach (Lewis 1993, 1997a, 2000, 2005) we were interested in understanding the amount of attention paid to lexis compared to grammar in the target apps.

In order to do so, firstly, we counted the number of units that focus on lexis and we compared them with the number of units that deal with grammar; secondly, we calculated the corresponding percentages.

In our analysis we did not consider the units and the additional sections that only address either comprehension or production skills.

The reasons behind this choice are threefold: first of all, we were primarily concerned with the importance given to the teaching of lexis compared to grammar; second, the words and the expressions used in those units and sections are addressed also in the units on lexis; finally, even though it was not possible to actually compare the three apps because of the different number of levels and units as well as because of their different underlying structure, we tried to level them out to reach a greater understanding of their sensitivity towards lexical chunks – in particular collocations – in the units devoted to the teaching of lexis.

In fact, as mentioned in the previous section, the free version of the Memrise app includes only units on lexis and grammar, whereas Duolingo and Busuu offer additional sections which do not focus primarily on these aspects of language. However, in Busuu only a few additional sections are available for free.

Therefore, for all these reasons, in our investigation we have considered only those units that focus on lexis and those units that focus on grammar.

For instance, in Duolingo we have not analysed the section titled 'Storie Duolingo' (Duolingo stories) which includes stories that are deemed to improve the students' reading and listening skills (Figure 9), while in Busuu we have not analysed the units and the additional sections on pronunciation, listening and reading comprehension, and the summaries.

A few examples of the units that we have not included in our investigation are provided in Figure 10 below.

Figure 9. The section 'Storie Duolingo' which has not been considered in the analysis of Duolingo

Figure 10. Examples of units which have not been considered in the analysis of Busuu

It has to be highlighted that once the above-mentioned units and sections had been excluded from the analysis, the classification of some units in Duolingo and in Busuu was not straightforward.

In fact, Memrise clearly indicates which units deal with lexis ('Parole e frasi') and which units deal with grammar ('Grammatica'), thus enabling us to answer the first research question quite easily.

On the contrary, the way in which content is presented in both Duolingo and Busuu might be open to different interpretations.

As far as Duolingo is concerned, units are organised around topics. There are some units that undoubtedly address lexis (e.g., *Greetings, Family, Food, Animals, Clothes*, etc.), and others that clearly deal with grammatical aspects (e.g., *Plurals, Questions, Possessive adjectives and pronouns, Relative pronouns, Reflexive pronouns,* etc.), which, consequently, could be classified easily.

However, there are some other units that seem to focus on grammar (e.g., *Adjectives, Adverbs, Prepositions, Verbs: Present, Verbs: Past, Verbs: Future,* etc.) which have posed some difficulties during the process of categorisation.

In fact, given the main goal of the present study (evaluate the effectiveness of the apps with respect to the teaching of lexical and grammatical collocations), the units that focus on prepositions, nouns, adjectives, adverbs and verbs can prove to be particularly relevant.

In order to determine whether the focus was on lexis or on grammar we have completed the first level of the ambiguous units, which, after a careful analysis, have been classified as follows.

Units on lexis	Units on grammar
Prepositions (Preposizioni)	Verbs: Present 1 (Verbi: Presente 1)
Adjectives (Aggettivi)	Verbs: Present 2 (Verbi: Presente 2)
Adverbs (Avverbi)	Verbs: Present 3 (Verbi: Presente 3)
Attributes (Attributi)	Verbs: Past 1 (Verbi: Passato 1)
	Verbs: Infinitive (Verbi: Infinito 1)
	Verbs: Past 2 (Verbi: Passato 2)
	Adjectives (Aggettivi flessibili)
	Present Perfect (Presente Perfetto)
	Verbs: Infinitive 2 (Verbi: Infinito 2)
	Past Perfect (Passato Perfetto)
	Present Perfect (Participio Presente)
	Verbs: Future (Verbi: Futuro)
	Foreseeable Future (Futuro Immediato)
	Future Perfect (Futuro Perfetto)
	Modal Verbs (Verbi Modali)
	Conditional (Condizionale)

Table 2. Units whose classification was not immediate

The table above shows the classification of the units that were difficult to categorise at first.

The labels have been translated into English and the original Italian equivalents have been provided in parentheses in the order in which they appear in the app.

As can be seen from the table, all the units on verbs have been classified under the Grammar category because in most exercises the students' attention was drawn to the correct use of verb tenses rather than on possible word partnerships such as verb + noun combinations, adverb + verb combinations.

On the contrary, the units labelled *Prepositions, Adjectives, Adverbs, Attributes* have been classified under the Lexis category since the focus is not on grammatical aspects (e.g., word formation), but on meaning.

A word class that deserves special attention is that of adjectives. In fact, as can be seen, two of the three units that address adjectives have been put in the left column (*Adjective, Attributes*), while the third has been put in the right column (*Adjectives*).

The reason behind this decision is that the latter is primarily concerned with the comparative and the superlative forms of the adjectives, rather than with meaning.

As far as Busuu is concerned, the difficulty did not lie in distinguishing between grammar and lexis, since the app clearly identifies the units with grammar contents.

The main issue was that some units, besides introducing lexical items, include comprehension and production activities.

In order to distinguish between the units with a focus on lexis and the units which mainly address either comprehension or production skills, we considered the contents of the lessons of each unit.

After a careful analysis, we included in the Lexis category the units that contain the sections *Lexis* (Lessico) or *Practice* (Pratica) combined with other sections (e.g., *Dialogue, Memorise, Revision*).

To clarify which kind of units we have considered as primarily concerned with vocabulary learning and practice, three example units from the B1 level are provided below.

Lezione 1
Ciao!

Comincia con inglese B1!
3 minuti

Lezione 1 - Ciao!
Comincia con inglese B1!

Lessico
Impara nuove parole e frasi.

Ripeti

Lezione 2
Vado in vacanza!

Quando sarà la tua prossima vacanza?
12 minuti

Lezione 2 - Vado in vacanza!
Quando sarà la tua prossima vacanza?

Lessico
Impara nuove parole e frasi.

Ripeti

Lezione 2 - Vado in vacanza!
Quando sarà la tua prossima vacanza?

Memorizza
Rafforza la memoria delle
nuove parole e frasi.

Ripeti

Lezione 2 - Vado in vacanza!
Quando sarà la tua prossima vacanza?

Revisione
Mettiti alla prova su ciò che
hai imparato.

Ripeti

92
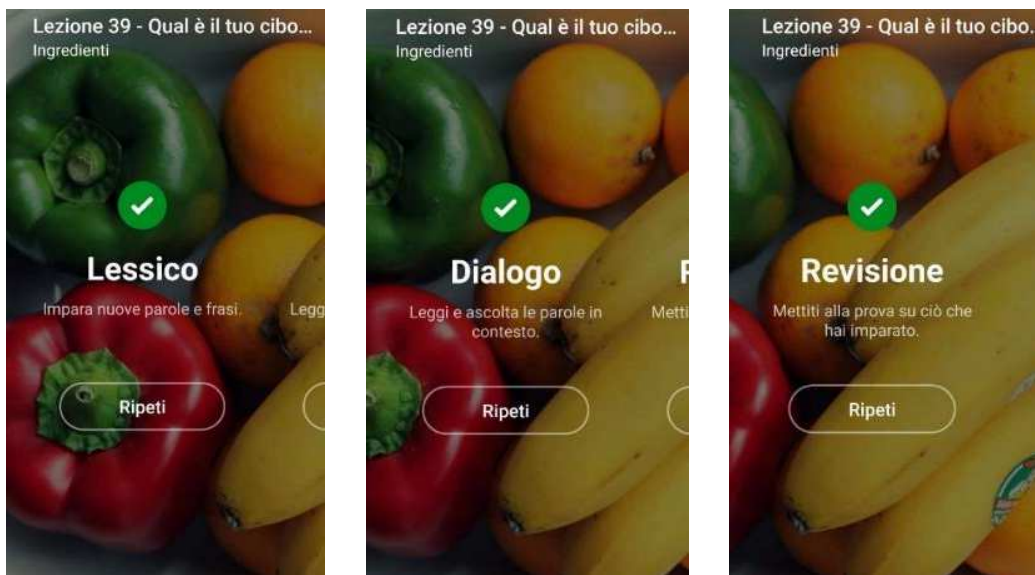
Figure 11. Examples of units which have been categorised under the Lexis Category on Busuu

Once all the units in the three applications had been categorised, we directed our attention to the teaching of collocations.

Before explaining the methodology adopted to establish whether collocations are directly address and whether Lewis's suggestions have been put into practice, we shall explain which pairs and groups of words we have classified as collocations.

In fact, even though some basic definitions have already been provided in the theoretical framework, we deem it important to be more specific in this second part of the dissertation, which is dedicated to the study.

In our investigation we have followed Henriksen's definition of collocations as "frequently recurring two-to-three-word syntagmatic units which can include both lexical and grammatical words" (Henriksen, 2013:30). In particular, we have decided to exclude all the combinations that are not semantically transparent (e.g., *A Couch potato, A pain*

in the neck) and free combinations such as *eat + food* (e.g., *eat an apple/ a sandwich*), *wear + clothes* (e.g., *wear a t-shirt/ a skirt/ a dress*), *with milk/sugar/ice* etc.

The lexical and grammatical collocations that we have included in our analysis appear in the following combinations:

Lexical collocations	Grammatical collocations
Verb + Noun (e.g., *make a mistake, have a bath*)	Adjective + Preposition (e.g., *afraid of, keen on*)
Noun + Verb (e.g., *dogs bark, lions roar*)	Noun + Preposition (e.g., *access to, kind of*)
Adjective + Noun (e.g., *hard work, strong accent*)	Verb + Preposition (e.g., *listen to, depend on*)
Adverb + Adjective (e.g., *fully aware, terribly sorry*)	Preposition + noun (e.g., *on holiday, by accident*)
Verb + Adverb (e.g., *speak loudly, whisper softly*)	
Adverb + Verb (e.g., *fully understand, totally agree*)	
Noun + Noun (e.g., *piece of advice, sheet of paper*)	

Table 3. Lexical and grammatical collocations considered in the analysis of the apps

Despite our detailed definition of collocations, the boundaries between collocations and fixed expressions on the one hand, and between collocations and compounds on the other, were not always easy to delineate.

As far as the first distinction is concerned, there were lexical chunks such as *the man of my dreams, give me a kiss, to give someone a call, to do something justice* which posed challenges to our classification.

After careful consideration, we have categorised these types of items as fixed expressions. In fact, we decided to exclude from the Collocation category those groups of words which consist of more than three lexemes and include possessive adjectives (e.g., *the man of my dreams*) and those which, despite containing a collocation, do not pay attention to it. For instance, the collocations *give a kiss, give a call, do justice* included in the aforementioned

lexical items are not emphasised; on the contrary, those word combinations are presented as fixed, always with indefinite pronouns such as *someone, something*.

The other distinction that was not always clear is the one between collocations and compounds.

In order to determine whether some word partnerships fall under the first or the second category, the definition of compounds provided by the Cambridge Dictionary as "two or more words linked together to produce a word with a new meaning" was not sufficient.

In fact, compounds can be written as single words (e.g., *eyelashes, homesick*), with a hyphen (e.g., *eco-friendly, well-known*) or as separate words (e.g., *nail polish, car park*) (Cambridge Dictionary).

While the first two types of compound words were easy to detect, the third type (especially noun + noun e.g., *dress code, crime scene*) posed some challenges.

In order to categorise the ambiguous noun + noun lexical items, we looked at the entries in the Collins COBUILD Advanced Dictionary and the online Cambridge English Dictionary, which both provide information that proved to be decisive for our classification.

In fact, compounds have dictionary entries, whereas collocations are usually labelled as 'collocations', 'word partnerships' or 'expressions'.

To clarify this distinction two examples taken from the Collins COBUILD Advanced Dictionary (*beach holiday, dress code*) are provided below.

> **beach** /biːtʃ/ (**beaches, beaching, beached**)
> 1. N-COUNT A **beach** is an area of sand or stones beside the sea. A beautiful sandy beach. I just want to lie on the beach in the sun.
> *2.* VERB If something such as a boat **beaches**, or if it **is beached**, it is pulled or forced out of the water and onto land. [v n] *We beached the canoe, running it right up the bank.* [v] *The boat beached on a mud flat.*
> Word Partnership   Use **beach** with:
> PREP. **along the** beach, **at/on the** beach
> N. beach **chair**, beach **club/resort**, beach **holiday**
> V. **lie on the** beach, **walk on the** beach
> ADJ. **nude** beach, **private** beach, **rocky** beach, **sandy** beach

> **dress code** (**dress codes**) N-COUNT The **dress code** of a place is the rules about what kind of clothes people are allowed to wear there. *There is a strict dress code: no trainers or jeans.*

As can be seen, even though both *beach holiday* and *dress code* are noun + noun combinations, the former is presented as one of the several word partnerships of *beach,* whereas the latter is categorised as a countable noun, with a precise definition and an example sentence.

Following the same procedure for each ambiguous lexical item, we have managed to distinguish between noun + noun collocations and noun + noun compounds.
A small selection of the lexical items that we have put under the Compounds category and under the Collocation category is provided below.

Compounds: *dress code, bag check, party animal, party pooper, city centre, credit card, boarding pass, security guard, blood pressure, crime scene, shopping list, smart casual, land owner, social security, opinion poll, target market, product launch.*

Collocations: *city break, beach holiday, life sentence, board member, board game, food truck, account number.*

Once the collocations in the three mobile apps had been identified, we were interested in understanding whether collocations are directly addressed and in which ways.
As far as the first point is concerned, we have discriminated between units in which collocations are either highlighted or assessed in various types of exercises and units in which collocations happen to be included in some sentences but are not addressed in a systematic way.
The following step was to verify which types of exercises and activities are exploited to raise students' awareness of collocations and assess their collocation knowledge.
In particular, we were concerned with verifying whether the suggestions of Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000) had been put into practice and to what degree.
To reach this objective, we wrote a list of the main types of exercises and activities, to check whether they were exploited in the target apps.
The list included the following categories:

- Noticing collocations:
  1. the students' attention is drawn to collocations, which are either written in bold or highlighted
  2. students are asked to notice and highlight collocations themselves
- Use of a lexical notebook to record collocations
- Comparison between the students' L1 and L2 with chunk-by-chunk translations
- Words matching
- Gap filling
- Deleting the wrong collocate
- Multiple choice
- Spidergram
- Collocation grid
- Use of a dictionary

Besides evaluating the overall variety of tasks, we were also interested in understanding whether collocation teaching and assessment varied between levels.

This chapter has illustrated the rationale for the present study. It has described the three mobile applications that have been analysed as well as the methods adopted to carry out the analysis.
In the following chapter the reader will be provided with the results of our investigation for each app.

5. Results and discussion

In the previous chapter we described the research questions, the target mobile apps and the methodology adopted to analyse them.

In this chapter the reader will be provided with a detailed analysis of Duolingo (5.1), Memrise (5.2) and Busuu (5.3), followed by a discussion of the findings and their implications (5.4).

5.1 Duolingo Results

As mentioned in the previous chapter, to verify whether the three apps focus primarily on lexis or on grammar we analysed all the units and we classified them either under the 'Lexis Category' or under the 'Grammar category' according to the contents.

Although the classification in Duolingo was not straightforward (see Section 4.4), in the end we managed to distinguish between units that are primarily concerned with word meaning and units that pay more attention to grammatical aspects such as word formation and verb tenses.

The results obtained from our analysis are presented in the graph below.

Graph 1 – Percentages of units dealing with lexis and grammar in Duolingo
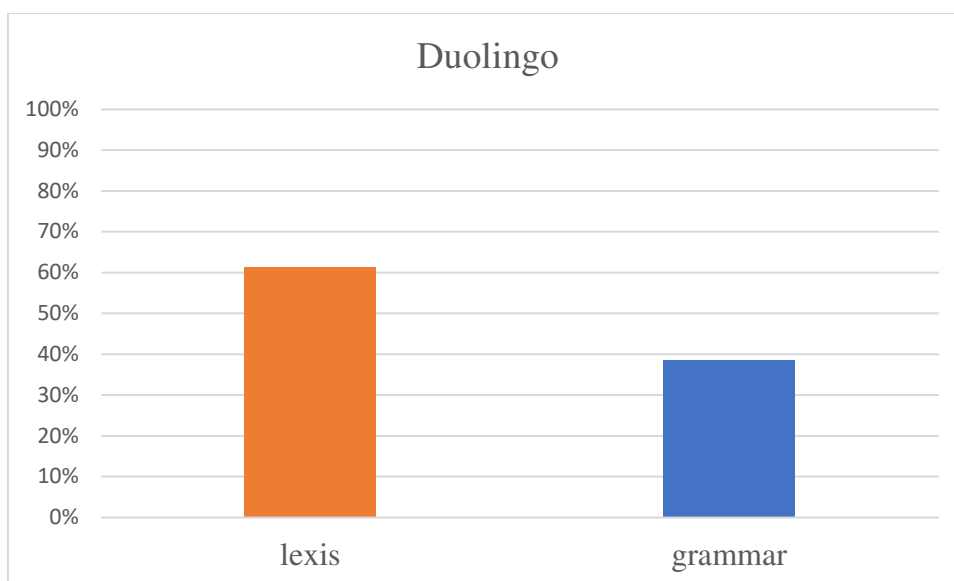
Percentages are rounded to the nearest whole number.

As can be seen from the chart, Duolingo seems to be more concerned with lexis than with grammar: in fact, 38 out of 62 units are on lexis (61%), while the other 24 cover grammar topics (39%).

Although this data seems to suggest that in Duolingo lexis is recognised as an important aspect of FL learning, to reach a better understanding of how lexis is treated an in-depth analysis of the exercises and activities is needed.

In particular, as mentioned in section 4.4, a qualitative approach was employed in order to gain insights into the teaching of lexical and grammatical collocations, which are our primary concern.

Firstly, we distinguished between exercises that deal specifically with collocations and exercises in which collocations are casually included; secondly, we evaluated the types and variety of exercises devised to teach collocations in relation to those suggested by Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000).

Our analysis revealed that in Duolingo none of the exercises on lexis address collocations directly.

In fact, the word 'collocation' never appears in the app and when collocations happen to be included in some sentences, they are neither highlighted nor explicitly assessed.

However, learners can find both lexical and grammatical collocations in some translation exercises, which are the most recurring type of exercise in the app.

The screenshots of a few example exercises in which collocations are present, though not explicitly addressed, are provided below.
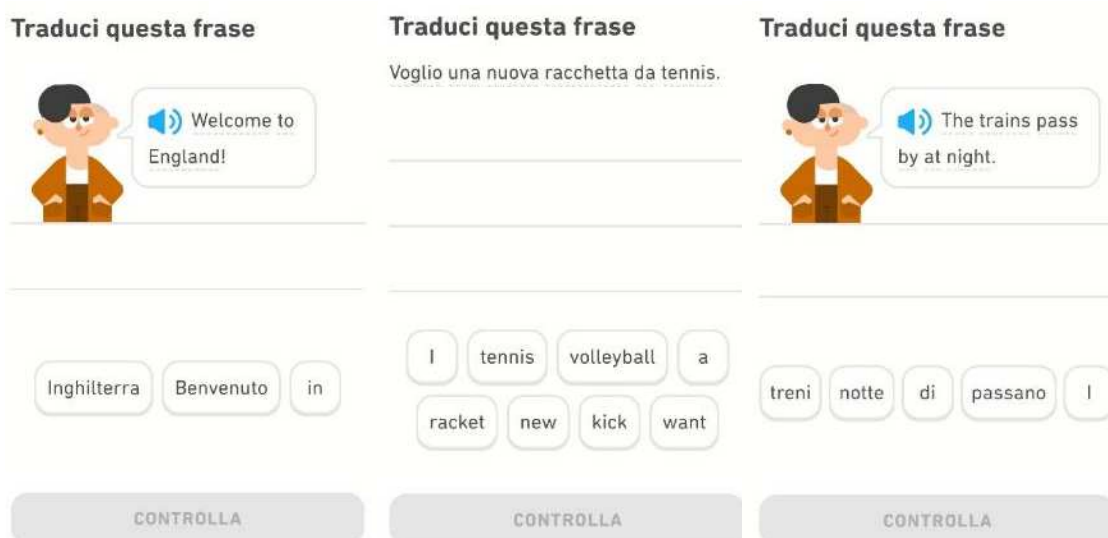
Figure 12. Examples of translation exercises which show the presence of collocations on Duolingo.

The exercises above are taken from different units and different levels to better illustrate the overall treatment of collocations in the app.

As can be seen from the screenshots, students are either asked to put the given words in the correct order to obtain sentences or to write the translation of a given sentence (both from the L1 to the L2 and vice versa), sometimes with the help of an audio clip.

The collocations that can be detected in the translation exercises above are both lexical (*tennis racket, need a favor, cup of tea, open a business*) and grammatical (*welcome to, at night, by bus, by bike, responsible for*).

However, as already highlighted, collocations are not practiced following Lewis' suggestions: in fact, in Duolingo there are neither consciousness raising activities, in which students are asked to notice linguistic features, nor non-consciousness raising activities that simply involves item selection or language production.

The only chance students have to learn collocations is through mere exposure and repetition.

To clarify this point, a few example exercises which include the verb-noun collocation *speak* + *a language* are given below.

Figure 13. Examples of exercises which include the verb-noun collocation *speak + a language.*

The exercises above are taken from different levels of the unit 'Lingue' (Languages).

As can be seen, learners are exposed to the collocations *speak English, speak Spanish, speak a little Spanish, speak Italian and Spanish, speak Italian.*

In some cases, the same sentence is repeated, though in different types of exercises (e.g., *This is my friend, he speaks English*, first addressed in a reordering of words exercise and at a later time in a L2-L1 translation exercise and in a L1-L2 translation exercise), whereas in other cases, sentences display some degree of variation (e.g., *My friend speaks English – This is my friend, he speaks English*; *Yes, I speak Spanish – My cat speaks a little Spanish*).

However, it is worth mentioning that very frequently the same sentences are repeated with no variation and in the same type of exercise.

From our analysis it seems apparent that sentences that contain collocations are not repeated on purpose, in order for students to learn and retain collocations.

In fact, repetition is the distinctive feature of the app: words, phrases and sentences are continuously repeated within units, in the same level and across different levels, in the same types of L1/L2 translation exercises, and no special treatment is given to collocations.

Not only are collocations not directly addressed, but when they happen to be included in some sentences, their presence may be confusing.

For instance, in the unit labelled 'Cibo' (Food), the combinations *eat + food* (e.g., *eat a sandwich/ a salad/ pasta/ chicken/ fish*) and *drink + type of drink* (e.g., *drink*

wine/beer/juice) are preferred over the collocations *have + food* (e.g., *have a sandwich/a salad* etc.) and *have + type of drink* (e.g., *have wine/beer* etc.).

When students find sentences like *You have a soup, He has beef*, the Italian translations provided by the app are *Voi avete una zuppa, Lui ha del manzo,* which do not refer to the act of eating.

As far as the collocations *have breakfast/ lunch/ dinner* are concerned (in Italian *Fare colazione/ Pranzare/ Cenare*), sometimes the app uses the verb 'eat' (e.g., *We eat lunch, I eat dinner*), other times it uses the verb have (e.g., *The women have lunch at the restaurant, The man has dinner*), thus creating confusion.

Moreover, in the same unit, none of the collocations that allow to talk about food and drinks are highlighted.

A few example collocations which could have been presented together with different types of food and drinks are provided below:

- Instead of *egg* on its own, the Adjective + Noun collocations *a boiled/ fried/ poached/ scrambled egg*.
- Instead of *beef* on its own, the Adjective + Noun collocations *a lean/ fatty/ tender/ tough/ medium/ rare/ well done beef*.
- Instead of drinks such as *water, wine, tea, coffee* alone, the Noun + Noun collocations *a bottle of water/ wine, a glass of water/ wine, a cup of tea/ coffee*; the Adjective + Noun collocations *still/ sparkling/ tap/ fresh water*, *red/ rose/ white/ fizzy/ sparkling/ dry/ sweet/ full-bodied wine, strong/ weak/ black/ green/ lemon/ mint tea, strong/ weak/ black/ dark/ milky/ white coffee*.

As already said, even though the examples provided here are taken from a few units, the same reasoning apply to all the units in the app.

Although no special treatment is given to collocations throughout the English course on Duolingo, the lack of attention to this type of lexical chunks is particularly evident in the first two levels, in which emphasis tends to be on single words.

For instance, in the first level new words are written in bold and attention is never paid to word partnerships.

Even though learners may be provided with sentences like *I speak English*, with the collocation *speak + a language* (in this case English) written in bold, it is apparent that collocations are not highlighted on purpose.

To clarify this point, some examples that follow the sentence *I speak English* on the app are given below.

My **friend speaks** English.

This is my friend, **he** speaks Italian.

This is my mum, **she** speaks Italian.

My friend **only** speaks Italian.

Your mom speaks English, **right**?

I only speak English, **sorry**!

The sentences above are taken from exercises of the first level of the unit 'Lingue' (Languages), which has already been referred to, but the rule applies to the first level of any unit.

In addition, in the first two levels students are frequently asked to carry out matching exercises in which they have to associate the Italian word with the English equivalent (Figure 14, 15, 16) or to write single words (Figure 17).

Figure 14. Examples of a type of matching exercise that focus on single words (Match the pairs).

Figure 15. Examples of another type of matching exercise on single words (How do you say …
in English?)

Figure 16. Examples of the third type of matching exercise on single words (Match the Italian
word with the corresponding English word and image).

Figure 17. Example of a writing exercise on single words (Provide the English translation for the Italian word).

From Figure 14, we can see that not only is the focus on single words, but items are not contextualised. In fact, students are not provided with near synonyms or alternatives and the English words on the app are presented as the only possible translations for the Italian words.

To give an example, students would not know that the Italian adjective 'carino' could be translated in English as 'nice', 'pretty', 'lovely' too, or that the Italian verb 'penso' could be translated as 'reflect', 'ponder', 'meditate', each of which has its context of use.

In addition, adjectives are addressed together with nouns, verbs, interjections and conjunctions, which has the effect of increasing the discrepancy between the lexical items on the app and actual language use.

Finally, in this kind of matching exercise the names of countries which are either similar or identical in the L1 and the L2 (e.g., *America, Canada, Italy*) are frequently included, and no attention is paid to words and collocations that differ greatly from one language to the other, as suggested by Lewis (1993, 1997a, 2000).

It is worth highlighting that, besides offering a very narrow view of language, translations on Duolingo tend to be imprecise.

To give a few examples, the possessive adjectives *my* and *our* have to be matched with *mio* and *nostra* respectively, and no mention is made to the feminine *mia* and the masculine *nostro* (second exercise in Figure 14); the possessive *its* is presented as the equivalent of *la*, which is confusing since no reference is made to the Italian masculine

pronoun and since *la* in Italian is also the definite singular feminine article which corresponds to English *the* (third exercise in Figure 15).

The fact that the app does not show a sensitivity towards actual language is further confirmed by the amount of sentences which would not be used in real life situations (e.g., *I am an apple, My cat speaks a little Spanish, I drink the oil, You are not a turtle, I am a spider, The plate is your plate*).

Overall, the analysis of Duolingo has revealed that despite the importance attributed to L1/L2 comparisons, the app lacks a sensitivity towards collocations and actual language use in all levels.

In addition, the tools recommended by Lewis (1993, 1997a, 2000) to learn and retain collocations – a lexical notebook and a dictionary – are not available on the app.

Taken together, these results indicate that Lewis' suggestions have not been put into practice.

This section has outlined the results obtained from the analysis of Duolingo.

The following section will provide the results for Memrise.

5.2 Memrise Results

As far as the first research question is concerned, the distinction between lexis and grammar in Memrise is made clear by the app itself.

In fact, the units that focus on lexis are labelled 'Parole e Frasi' (Words and Phrases) (e.g., *Parole e Frasi: **Fare amicizia***), whereas the units that cover grammar topics are labelled 'Grammatica' (Grammar) (e.g., *Grammatica: **Il presente: semplice o progressivo?***).

After using Memrise for a while, we noted that grammar seemed to play a subordinate role in the app. To confirm our first impression, we counted the units that focus on lexis and we compared them with the units that cover grammar topics, as we did with Duolingo.

We found that only 7 out of 166 units address grammar, while the other 159 units deal with lexical aspects.

The graph below illustrates these different proportions of lexis and grammar in Memrise.

Graph 2 – Percentages of units dealing with lexis and grammar in Memrise

Memrise
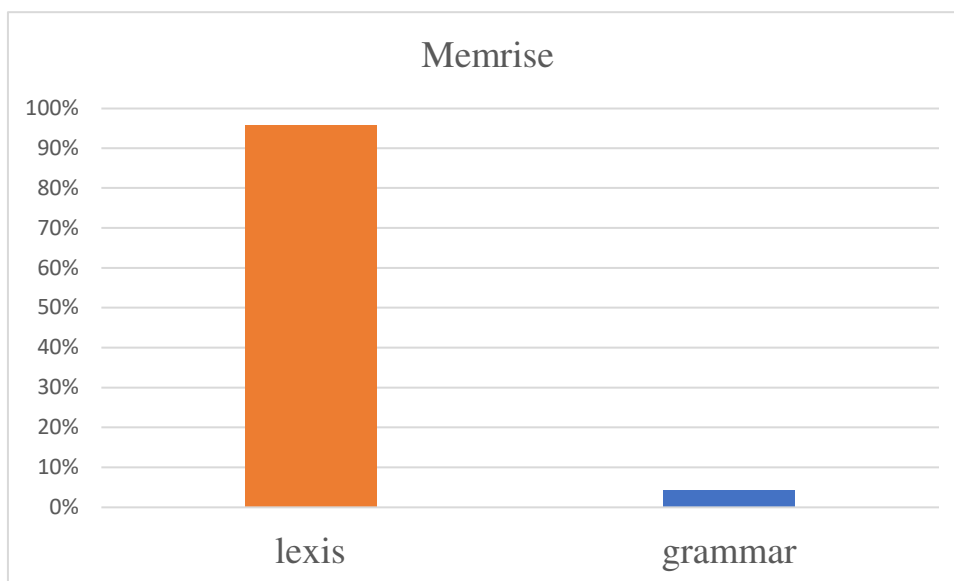
Percentages are rounded to the nearest whole number.

As can be seen from the chart, the percentage of units that focus on lexis (96%) is significantly higher than the percentage of units that deal with grammar (4%).

The crucial role played by lexis becomes increasingly evident from level to level: in fact, the percentage of units dealing with lexis increases from 75% and 81% in the first two levels, respectively, to 100% in the other five levels.

To evaluate the treatment given to collocations within the units on lexis, we adopted the same method used with Duolingo.

The figures below show an overview of how collocations are taught and practiced in the app.

Figure 16. How collocations are shown on Memrise.

una bottiglia d'acqua

| a teacher | a tour guide |
| a bottle of water | a brother |

un bicchiere di vino

| a tour guide | a language |
| a side | a glass of wine |

una tazza di caffè

| at ten o'clock | a cake |
| a cup of coffee | a country |

bottle   a   of   teacher   water   eat

Salta

of   a   coffee   wine   grandfather

glass

Salta

glass   of   see   coffee   cup   a

Salta

una bottiglia d'acqua

Seleziona l'audio per la parola riportata sopra.

Salta

una tazza di caffè

Seleziona l'audio per la parola riportata sopra.

Salta

un bicchiere di vino

Seleziona l'audio per la parola riportata sopra.

Salta

Figure 17. The three main types of exercises in which collocations are addressed on Memrise.
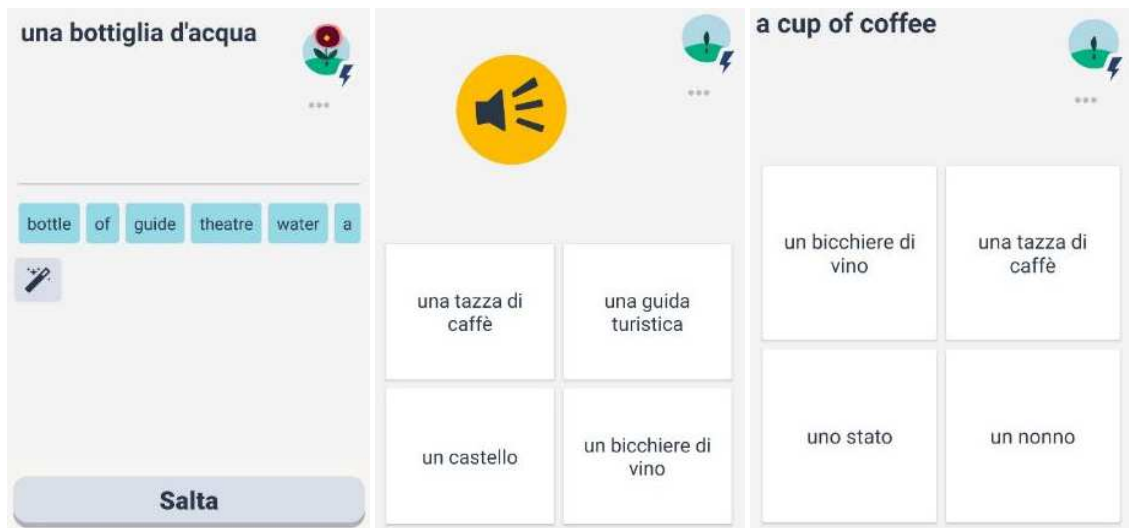
Figure 18. Other types of exercises in which collocations are addressed on Memrise.

As can be seen from the screenshots above, collocations are both presented as ready-made chunks (Figure 16) and practiced with matching, reordering of words and listening exercises (Figure 17 and 18).

Although the screenshots in Figure 16 present only three types of collocations (Verb + Noun, Preposition + Noun, Verb + Preposition), they provide a clear picture of the way in which collocations are highlighted in the app.

Interestingly, not only are collocations highlighted, but students have the opportunity to listen to their correct pronunciation and to see the difference between a literal and a nonliteral translation in their L1.

Likewise, the exercises in Figure 17 and 18 are taken from one unit (Unit 10, Level 1) and they show the treatment of only three Noun + Noun collocations (*a bottle of water, a glass of wine, a cup of coffee*). Nevertheless, they are representative of the overall treatment of collocations in all the units and levels of the app.

As can be seen, L1 – L2 translations play a central role in Memrise: in fact, learners are frequently asked to associate the Italian collocations (e.g., *una bottiglia d'acqua*) with their English equivalents (e.g., *a bottle of water*), either choosing from written options or selecting the right audio clip.

On the other hand, in the reordering of words exercises students are asked to select some of the given words and to put them in the correct order to obtain collocations, usually with the aid of an audio.

It is apparent from these screenshots that among all the exercises and activities proposed by Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000), only matching exercises are exploited, though without following Lewis' suggestions.

In fact, the Lexical Approach encourages materials' developers to create exercises in which learners have to match parts of collocations (e.g., the verb *to lose* and the noun *weight* to make the Verb + Noun collocation *lose weight*) (see Section 3.2.1), whereas in Memrise collocations have already been formed.

It seems evident that in the first type of matching exercise students have to reflect deeply on the possible combinations, while the second type requires less effort on the part of the students, even more so if we consider that the alternatives usually do not pose difficulties. For instance, for the Italian collocation *una bottiglia d'acqua* the three options other than *a bottle of water* are *a teacher, a tour guide, a brother* (first screenshot in Figure 17).

A distinctive feature of Memrise is that all the units clearly show the lexical items they are going to address, including collocations.

Moreover, these lists of items are always available to students, regardless of whether the unit has been completed or not.

Figures 19 and 20 below show how some collocations are presented in Memrise, together with words and sentences.
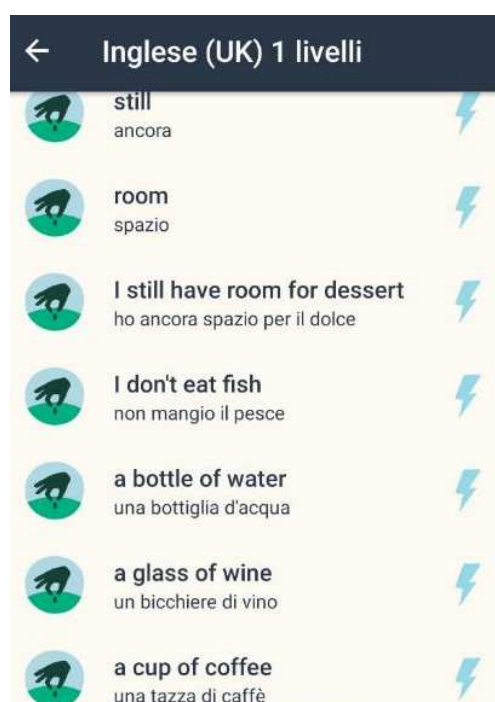
Figure 19. Some collocations from Unit 10 Level 1 ('Cosa si mangia') on Memrise.
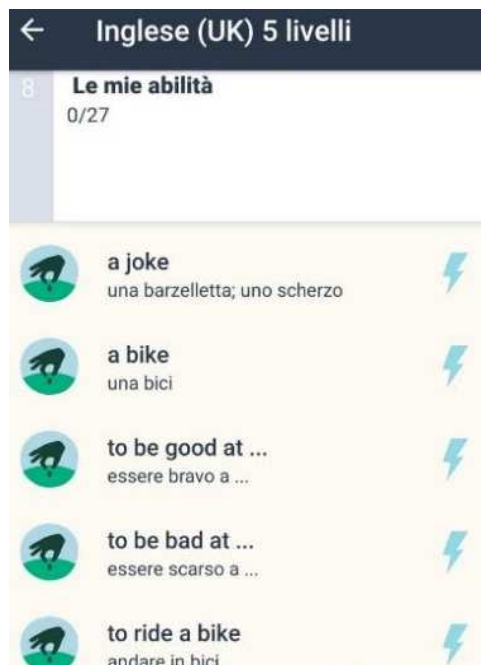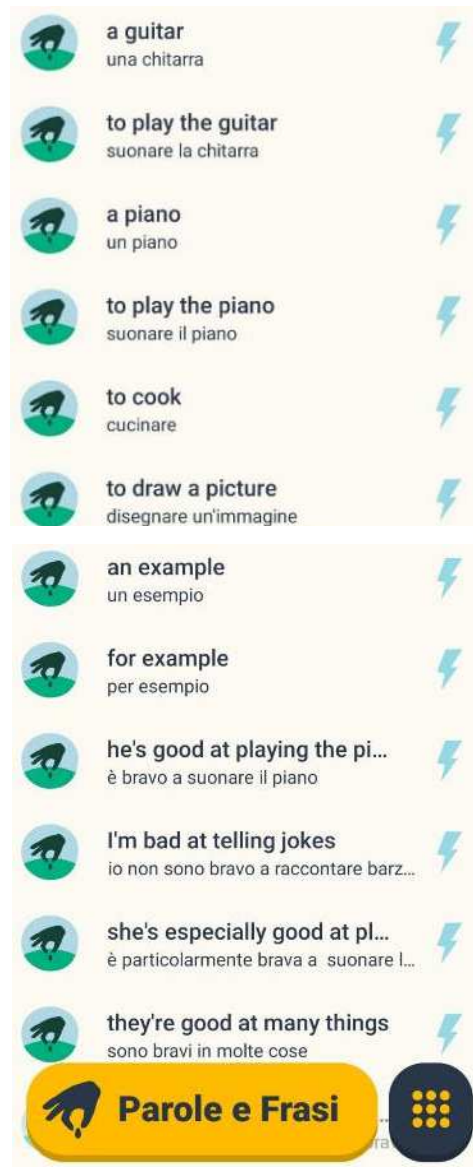
Figure 20. Some collocations from Unit 8 Level 5 ('Le mie abilità') on Memrise.

From the screenshots above, we can see that collocations can be immediately presented as such (e.g., *a bottle of water*), they can be preceded by one of their component parts (e.g., *to have breakfast* preceded by *breakfast*; *to ride a bike* preceded by *bike*) or they can be only included in sentences (e.g., *allergic to* in the sentence *he's allergic to nuts*). Finally, it is interesting to note that in some other cases first collocations are introduced and at a later time they are combined together in sentences, as shown by the co-presence of *good at* and *play the piano* in the sentence *he's good at playing the piano*.

However, from Figure 19 and Figure 20 it seems apparent that while highlighting some collocations (e.g., *to ride a bike*), Memrise does not pay attention to other similar

collocations (e.g., *to ride a horse*), which according to the Lexical Approach should be taught together.

In fact, our analysis revealed that the app tends to highlight a limited number of collocations per unit, ignoring other collocations that are closely linked either by topic or by a shared component word (adjective, noun, verb etc.).

To clarify this point, a list of collocations taken from different units and different levels is provided below.

Levels	Units	Collocations
Level 1	Unit 10 ('Cosa si mangia?')	a bottle of water, a glass of wine, a cup of coffee, to have breakfast
	Unit 15 ('Visita guidata')	a tour guide
Level 2	Unit 8 ('In viaggio')	a single ticket, a return ticket
	Unit 9 ('Arrivare a destinazione')	by train, by bus, on the Underground, a train station, a bus stop
Level 3	Unit 3 ('Nutrirsi')	red wine, white wine, to have dinner, to have breakfast
	Unit 26 ('Negoziare')	to make a deal, to make an offer
	Unit 35 ('Restare a bordo')	to do the dishes, to do the laundry, to clean the house
Level 4	Unit 4 ('Vita e morte')	to take a shower
	Unit 7 ('Socializzare')	a love life, to tell about…, to talk about…
Level 5	Unit 4 ('Esplorazione')	a bus trip, a tour guide
	Unit 8 ('Le mie abilità')	to be good at…, to be bad at…, to ride a bike, to play the guitar, to play the piano, to draw a picture
	Unit 10 ('Guerra e pace')	to keep a promise
Level 6	Unit 3 ('Confrontarsi')	to make a mistake
	Unit 21 ('Ambizioni')	a pop star, to do a degree, to travel the world
	Unit 26 ('Una folle ambizione')	a dream job

Level 7	Unit 11 ('Il potere')	to reach an agreement
	Unit 24 ('Presentazione alla stampa')	to run a campaign
	Unit 33 ('Fai rifornimento di vocaboli')	to think highly of, to lose weight, to gain weight

Table 4. Some lexical and grammatical collocations on Memrise divided by level and unit.

As can be seen from the table, units are organised around topics or situations and collocations are addressed accordingly.

Therefore, collocations such as *to have breakfast* and *to have dinner* are practiced in units that focus on food rather than together with collocations that include the same delexicalised verb (e.g., *to have a rest, to have a bath/shower*).

Although this organising principle is useful, it is not employed to its full extent.

For instance, the collocation *to have breakfast* is introduced in Level 1 and it is repeated together with the collocation *to have dinner* in Level 3, but no mention is made of *to have lunch*.

In addition, the collocations *to have + food* (e.g., *have pasta/ a sandwich/ a salad*) and *to have + drink* (e.g., *have a beer/ a glass of wine/ a cup of coffee*) are not highlighted.

A few additional comments on some of the collocations that are shown in Table 4 are given below:

- In Unit 35, Level 3 many other housework collocations could have been addressed (e.g., *to set the table, to clear the table, to make the bed, to sweep the floor, to water the plants* etc.).
- In Unit 4, Level 4 no reference is made to the collocation *have a bath* nor to the fact that *have a shower* is a synonym of *take a shower.*
- In Unit 21, Level 6, the noun *star* could have been combined with nouns other than *pop* to obtain collocations such as *rap/rock star, tennis/football star, movie/TV star*, and other collocations related to ambitions could have been provided (e.g., *to work in* + field e.g., *to work in fashion/ finance, to get a promotion, to build a career* etc.).

- In Unit 24, Level 7 no attention is paid to other possible collocations with the word *campaign* (e.g., *advertising/marketing/political/election campaign, a campaign for/against something* etc.).

As far as the additional tools recommended by Lewis are concerned, Memrise does not encourage students either to record collocations or to use dictionaries to improve their collocational knowledge.

Nevertheless, it is worth highlighting the fact that it provides its users with a section ('Mem') in which they can take notes for any lexical item on the app (single words, collocations, phrasal verbs, fixed expressions etc.).

Figure 21 shows the 'Mem' section for the collocation *to have breakfast*.
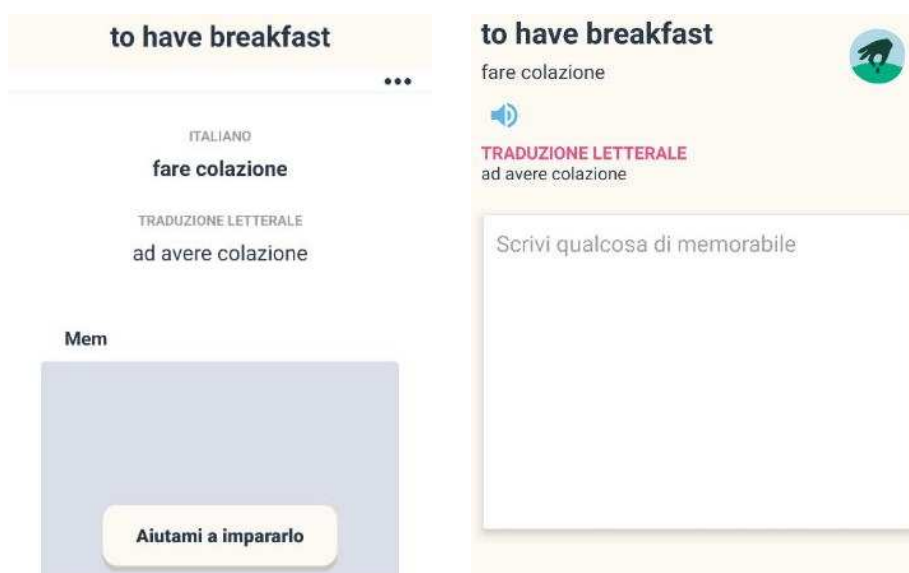
Figure 21. 'Mem' section for the collocation *to have breakfast* on Memrise.

As shown in Figure 21, in the 'Mem' section students are not led to record collocations in a systematic way; instead, they are free to write whatever may help them to learn lexical items, as the suggestions 'Aiutami a impararlo' (Help me to learn it) and 'Scrivi qualcosa di memorabile' (Write something memorable) clearly indicate.

Overall, although the word 'collocation' is never used in the app and there are no units which pay attention exclusively to collocations, Memrise shows some degree of sensitivity towards both lexical and grammatical collocations.

However, from the analysis of the collocations addressed and of the types of exercises devised to address them, it has emerged that collocations are not treated as suggested by the Lexical Approach.

Moreover, we found no variation in the way collocations are treated from one level to the other.

This section has provided a detailed analysis of the space given to collocations in Memrise.

The following section will describe how these significant multi-word units are treated in Busuu, which is the last app that we analysed in the current study.

5.3 Busuu Results

As mentioned in Section 4.4, Busuu clearly indicates the contents of the units, distinguishing among lexis, grammar, language comprehension and language production. For the purpose of our study, we compared the units dealing with lexis with the units dealing with grammar.

The results of the analysis are shown in graph 3 below.

Graph 3 – Percentages of units dealing with lexis and grammar in Busuu
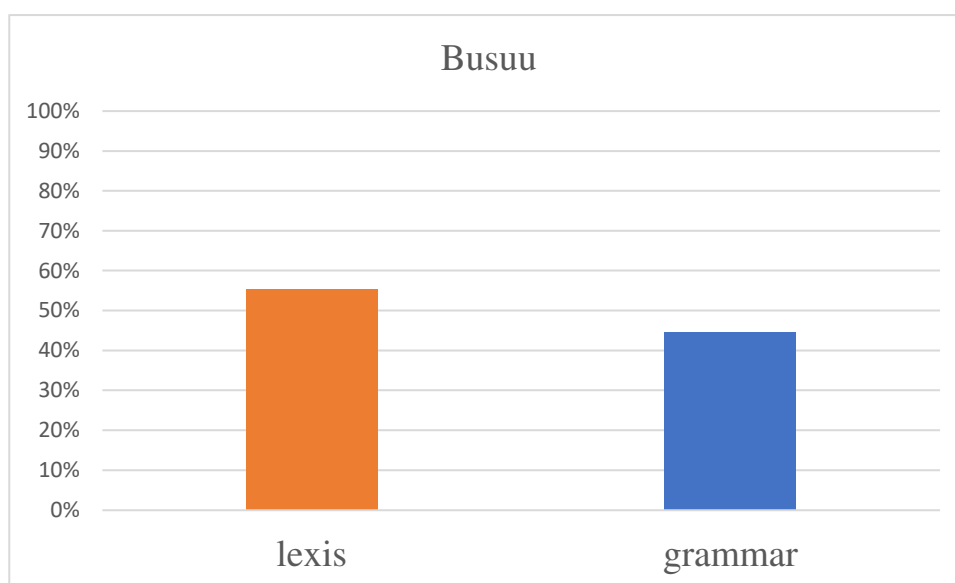
Percentages are rounded to the nearest whole number.

As can be seen from the chart, there is no significant difference between the space given to the teaching of lexis and the space given to the teaching of grammar.

In fact, the percentage of units that focus on lexis is slightly higher than the percentage of units that deal with grammar (55% and 45% respectively).

This data suggests that lexis and grammar both play an important role in the app.

To understand how collocations are treated within the units that focus on lexis, we followed the procedure that has already been outlined in Section 4.4.

Our analysis revealed that in Busuu collocations are both highlighted (Figure 22 and Figure 23) and directly addressed in various types of exercises, including matching (Figure 24,25,26), multiple choice (Figure 27), gap filling (Figure 28,29,30), reordering of words (Figure 31), true or false (Figure 32), speaking (Figure 33) and listening (Figure 34).
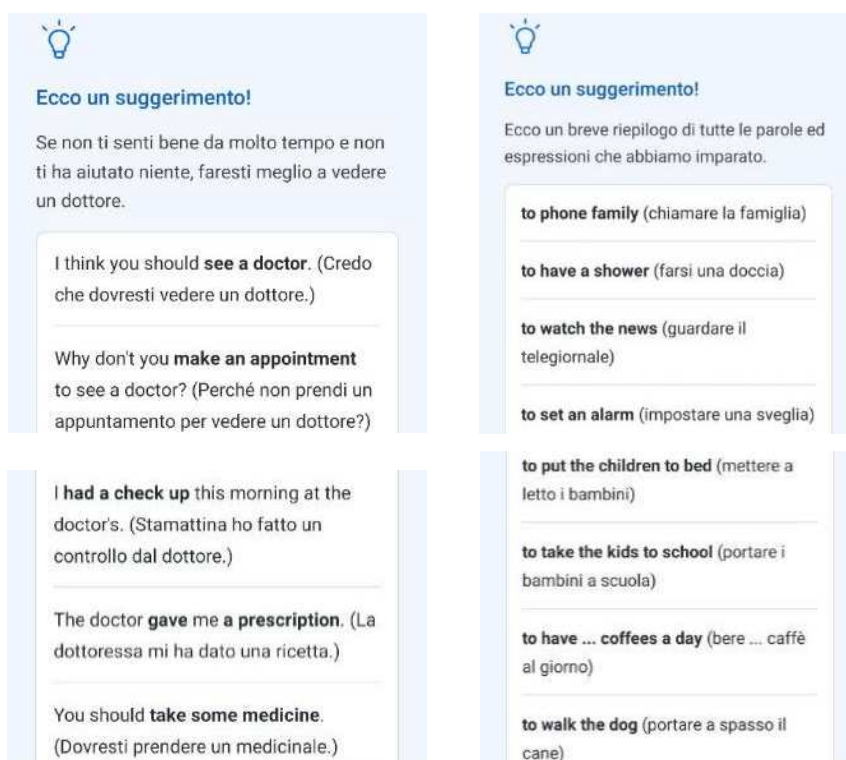
Figure 22. Example sections which show how collocations are highlighted at the beginning and at the end of the units on Busuu.

Figure 23. Example sections which show how collocations are highlighted within the units on Busuu.

Figure 24. Examples of one type of matching exercise on Busuu

Figure 25. Examples of the second type of matching exercise on Busuu.

Figure 26. Examples of the third type of matching exercise on Busuu.

Figure 27. Examples of multiple choice exercises on Busuu.

Figure 28. Examples of one type of gap-fill exercise on Busuu.
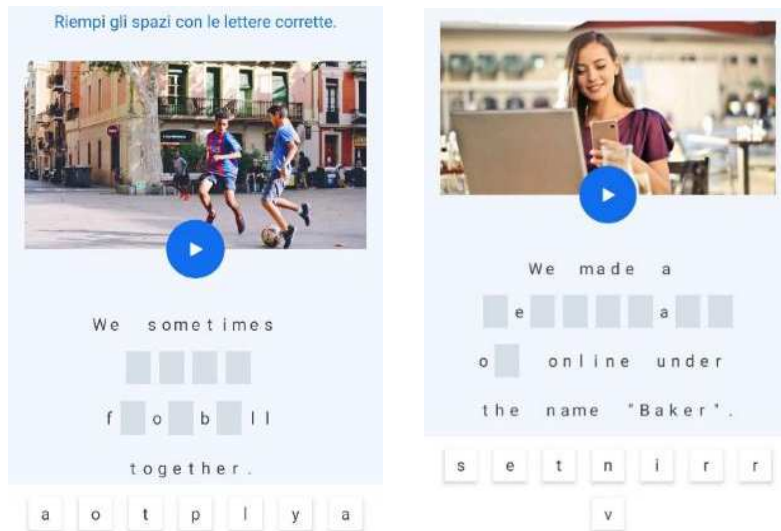
Figure 29. Examples of the second type of gap-fill exercise on Busuu.

Figure 30. Examples of the third type of gap-fill exercise on Busuu.

Figure 31. Examples of reordering of words exercises on Busuu.

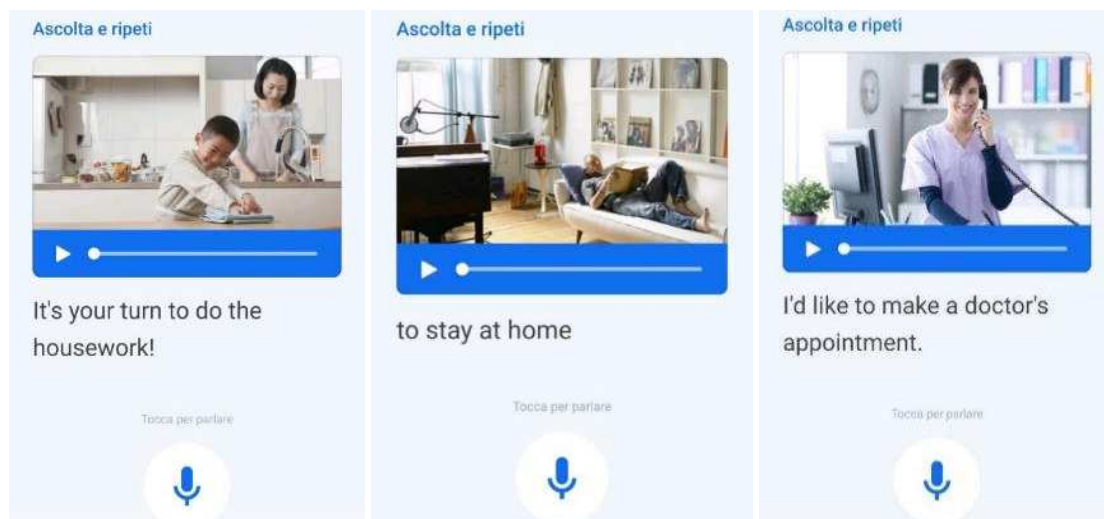Figure 32. Examples of true or false exercises on Busuu.

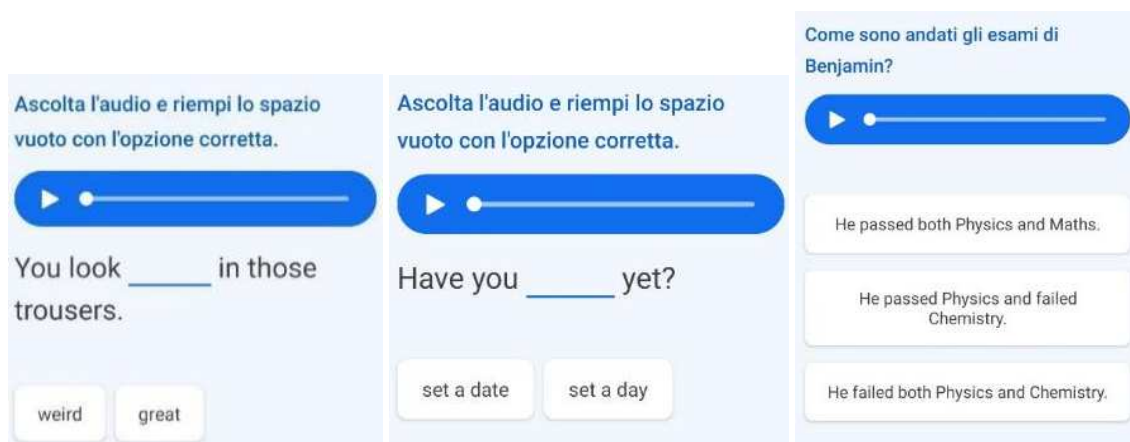Figure 33. Examples of speaking exercises on Busuu.

Figure 34. Examples of listening exercises on Busuu.

As shown in figure 22, in Busuu collocations tend to be highlighted both at the beginning of the units and at the end of the units in a summary section, and they are either presented in sentences, written in bold, (e.g., *I think you should **see a doctor***) or individually (e.g., ***to phone family***).

From Figure 23 we can see that the students' attention is drawn to collocations in an additional way: in fact, in the section 'Memorizza la parola o le parole' (Memorize the word or the words), collocations are first presented as ready-made chunks (e.g., *to make the bed*) and later contextualised in sentences (*I've already made the beds*).

Moreover, students are provided with L1-L2 comparisons and audios which may help them to learn the collocations and to pronounce them correctly.

As far as the exercises are concerned, from the figures above we can see that Busuu allows its users to improve their collocational knowledge in different ways.

In fact, the app offers a wide range of exercises – from matching to gap-fill, from multiple choice to reordering of words etc. – as well as some variations within the same type of exercise.

To clarify this point, we are going to comment on some of the example exercises provided above, which are representative of the overall treatment of collocations in the app.

Matching exercises in Busuu are of three types: students can be asked to match the given words to obtain the correct collocations (e.g., *last – night, yesterday – evening*) (Figure 24), or they can be asked to match the English collocations with their corresponding definitions/descriptions which are written either in Italian (Figure 25) or in English (Figure 26).

Likewise, multiple choice exercises assess the students' ability to exclude options that contain either grammatical mistakes or that are semantically incorrect (Figure 27).

As far as gap-fill exercises are concerned, students can be asked to fill in the gaps by selecting the appropriate word from the ones given (Figure 28), by putting the given letters in the right order (Figure 29) or by writing the missing word without guidance (Figure 30).

Listening exercises can assess the students' comprehension of single words and collocations or they can test the students' understading of an event (e.g., exam results) (Figure 34).

It has to be highlighted that the types of exercises exploited to practice collocations do not differ from level to level: in fact, students will encounter the above-described exercises throughout the entire course on Busuu.

Our analsyis has revealed that not only are collocations addressed in various types of exercises, but there are units that focus entirely or mostly on collocations in all levels. Table 5 shows the collocations addressed in some of these units.

Levels	Units	Collocations
Level 1 (A1)	Unit 55 ('Fai qualche sport?')	*to play football/tennis/, to go swimming/running, to do yoga/karate*
Level 2 (A2)	Unit 35 ('Ho lavato i piatti!')	*to do the housework, to do the laundry, to do the washing up, to make the bed, to take out the rubbish/recycling, to feed an animal e.g., feed the cat/the dog.*
	Unit 38 ('Avete un tavolo per quattro?')	*to have a reservation, fully booked, vegan/vegetarian/gluten-free/diary-free options, main course, to tip the waiter, enough of a tip, to leave a tip, allergic to.*
	Unit 52 ('Una volta ogni tanto…')	*to phone family, to have a shower, to set an alarm, to watch the news, to put the children to bed, to take the kids to school, to have coffee, to make lunch/ breakfast, to walk the dog, to take the dog for a walk.*
	Unit 68 ('Mi sento meglio!')	*to get rest, enough/some/plenty of rest, to eat well, to get/feel better, to see a doctor, to make an appointment, to have a check-up, to give a prescription, to take medicine.*
Level 3 (B1)	Unit 2 ('Vado in vacanza')	*romantic gateway, city break, mini break, beach/laid-back/active/budget/all-inclusive/luxury holiday, on holiday.*

	Unit 9 ('Mi trasferisco all'estero')	*to rent an apartment, to open a bank account, to fill out/to complete forms, to pay rent, to sign an employment contract/a bank card, to get a phone contract, a phone contract, to look up the meaning.*
	Unit 14 ('Da dove vengo io le cose sono diverse')	*lively areas, old town, cosmopolitan feel, traditional dish, polluted/noisy city, expected to, picturesque/historic place.*
	Unit 17 ('Domani ho un colloquio di lavoro!')	*to look for a job, job hunting/seeking/searching, a job advert, to send an application, to update the CV.*
	Unit 46 ('Vorrei presentare una lamentela')	*cancelled/delayed flight, to lose suitcase, badly located, hot water, dirty room, unhelpful staff.*
Level 4 (B2)	Unit 27 ('È un film da non perdere!')	*to binge on + films/food/alcohol, highlight of a film, to spoil a film.*
	Unit 33 ('Pubblicità')	*target market, advertising agency, marketing department, advertising campaign, product launch.*

Table 5. Some collocations on Busuu, divided by level and unit

Although the table above includes only a few examples of all the units that focus on collocations, it provides a clear picture of the types and of the amount of collocations addressed in the app.

Three results emerge from the data: first, collocations are grouped by topics; second, the units are more concerned with the teaching of lexical collocations than grammatical collocations; third, the two levels in which collocations seem to be taken into greater consideration are the A2 level and the B1 level.

From table 5 we can see that in some units collocations could have been explored further. To give a few examples, in Unit 55 Level 1 other collocations with *play, go, do* could have been considered (e.g., *play volleyball/ basketball/ badminton/ baseball, go skiing/ riding/ sailing/ dancing, do aerobics/ gymnastic/ judo* etc.); in Unit 27 Level 4 other

collocations with the word *film* could have been addressed (e.g., *watch a film, a film about, classic/ horror/ gangster film, film director/ producer/ critic/ festival* etc.).

However, the app tends to address about ten common collocations per unit and, overall, it tries to highlight more than one or two collocations of a given key word (e.g., for the noun *holiday*: *beach/laid-back/active/budget/all-inclusive/luxury holiday, on holiday*), thus showing a certain degree of sensitivity towards these multi-word units.

As far as the additional tools recommended by Lewis are concerned, no reference is made either to the use of a lexical notebook and to the use of a dictionary.

Overall, the analysis of Busuu has revealed that collocations are both clearly identified and explicitly addressed through a variety of exercises, including matching, gap filling and multiple choice, which have been suggested by Lewis.

In some cases, collocations are addressed together with other types of lexical items; in other cases, units focus primarily or entirely on them.

However, it has to be highlighted that grammatical collocations play a minor role and many suggestions from the Lexical Approach have not been put into practice, from the use of a lexical notebook and a dictionary to the use of spidergrams, collocation grids and deletion exercises.

This section has illustrated how collocations are treated in the last of the three EFL app we have analysed.

In the following section we are going to discuss the findings, comparing the treatment of collocations in Duolingo, Memrise and Busuu

5.4 Discussion

Given the significant role of lexis in language use (see Section 1.4), the first question in this study sought to determine whether Duolingo, Memrise and Busuu are more concerned with the teaching of lexis or with the teaching of grammar.

Our analysis revealed that the percentage of units dealing with lexis is higher than the percentage of units dealing with grammar in all the apps. However, the difference is significant only in Memrise (96% lexis, 4% grammar).

Taken together, these results suggest that grammar is not the main focus of the apps and that the importance of lexis in FL acquisition seems to have been recognised.

As outlined in Section 2.1, lexis includes both single-word lexical items and multi-word lexical items such as collocations, fixed and semi-fixed expressions, whose relevance has been highlighted by several scholars in the fields of Corpus Linguistics, Psycholinguistics and FL acquisition (see Chapter 2).

Given their prominent role in the Lexical Approach and given the fact that relatively little attention has been paid to them, among the various types of multi-word lexical items, we decided to focus on collocations.

In fact, our main goal was to determine whether the selected EFL apps can be considered effective tools for learning lexical and grammatical collocations.

More precisely, the second question of this study sought to verify whether collocations are directly addressed and in which ways, considering the suggestions of Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000).

Our analysis showed that in Duolingo collocations are never addressed directly: in fact, they only happen to be included in some translation and reordering of words exercises, which are continuously repeated within the same level and across different levels, with little or no variation.

As mentioned in Section 5.1, repetition is the distinctive feature of the app: hence, students might learn some grammatical and lexical collocations thanks to this repeated exposure.

Although repetition was considered particularly important in the audio-lingual and the situational approach, according to which 'language acquisition is the result of habit formation' (cfr Section 1.1), and although some studies have found a correlation between repetition and collocation acquisition (Durrant & Schmitt 2010, Peters 2014), repetition alone is not enough (Lewis 1993, 1997a, 2000).

In addition, in Duolingo no reference is made either to a lexical notebook and to a dictionary, which are considered very useful tools for learning and retaining collocations (Lackman 2011; Lewis 1993, 1997a, 2000).

Overall, none of the suggestions from the Lexical Approach have been put into practice. Therefore, we concluded that Duolingo cannot be considered an effective app with respect to the teaching of collocations.

On the other hand, in Memrise and in Busuu there are units in which collocations are directly addressed, though in different ways.

In Memrise lexical and grammatical collocations are both clearly identified as chunks and practiced in matching, reordering of words and listening exercises.

Although the app shows a greater sensitivity towards collocations compared to Duolingo, we did not found units that focus exclusively or mainly on collocations. Instead, collocations tend to be addressed together with other lexical items, mainly single words, and fixed and semi-fixed expressions.

Moreover, of all the exercises suggested by scholars, only matching exercises are used to assess collocation knowledge. However, our analysis showed that the type of matching exercise in which collocations are practiced in the app differs greatly from the ones proposed by Lewis.

In fact, students do not have to combine parts of collocations (e.g., *make – the beds, do – the laundry*), they only have to match the English collocations with the correct translations in their L1 (e.g., *make the beds – fare i letti*).

It seems evident that the second type of exercise does not stimulate the students' thinking to the same degree.

Like in Duolingo, repetition plays an important role in the app: in fact, the above-mentioned exercises are repeated several times within the units and no variation was found from one level to another.

As far as the additional tools suggested by Lewis are concerned, no reference is made to the use of dictionaries and lexical notebooks. However, as shown in Section 5.2, for each lexical item addressed in the app there is a section ('Mem') in which students can take notes.

In addition, the app allows its users to review the lexical items of all the units at any time. Although the 'Mem' section has not been devised to improve the students' collocational knowledge and students are free to write whatever they want, its presence, together with the possibility of quicky reviewing all the lexical items in the app, seems to suggest a general lexical sensitivity.

However, it has to be highlighted that among the various types of lexical chunks, Memrise is primarily concerned with the teaching of fixed expressions (e.g., *Get well soon, Can I ask you a question?, You made it, And they lived happily ever after*).

In addition, overall, the app pays equal attention to collocations, phrasal verbs and idioms. This finding was unexpected: in fact, while collocations have a literal meaning, phrasal verbs and idioms are semantically opaque and therefore they are more difficult to learn with the only aid of a mobile app.

Furthermore, in everyday situations knowledge of idioms such as *the elephant in the room, that's the way the cookie crumbles* is not as useful as collocational knowledge.

Therefore, we concluded that despite the overall sensitivity towards both single-word lexical items and multi-word lexical items, collocations are not treated as the Lexical Approach suggests.

Finally, as outlined in Section 5.3, in Busuu collocations are clearly emphasised and directly addressed in a variety of exercises, many of which have been recommended by Lackman (2011), Lewis (1993, 1997a, 2000), Redman (1997) and Schmitt (2000).

The most interesting finding was that in Busuu there are units that focus entirely or mostly on collocations, in all levels.

Moreover, it has to be highlighted that although not all the exercises suggested to learn and retain collocations have been exploited – mainly spidergrams, collocation grids and deletion exercises – Busuu offers alternative ways of practicing collocations.

For instance, it asks its users to reflect on collocations in true or false exercises and it allows them to listen to collocations pronounced by natives and to repeat with an audio recording.

However, as far as the additional tools recommeneded by Lewis are concerned, the use of a lexical notebook and a dictionary are not an option.

Overall, our investigation revealed a certain sensitivity towards collocations, and even though collocations are not practiced to their full extent, the way in which they are treated in Busuu is an important step forward.

Conclusion

The aim of the current study was to investigate the treatment given to lexis, and in particular collocations, in three popular EFL mobile apps – Duolingo, Memrise and Busuu.

Our analysis revealed that over half of the units deal with lexical aspects in all the apps. In fact, although the significant role played by lexis is particularly evident in Memrise, also Duolingo and Busuu seems to be more concerned with the teaching of lexis than with the teaching of grammatical rules.

As far as collocations are concerned, the overall picture is different in the three apps.

In Duolingo collocations are never addressed directly, and the results show that the app lacks a sensitivity towards all types of multi-word units.

On the other hand, in Memrise and Busuu collocations are both clearly identified as chunks and practiced in different types of exercises.

Nevertheless, only in Busuu are collocations addressed in a significant way, in a wide variety of exercises and activities.

With regard to the additional tools suggested by Lewis to learn and retain collocations, none of the apps mention either the use of a lexical notebook and the use of a dictionary.

Our findings suggest that although the lexical nature of language seems to have been recognised in all the apps, especially in Memrise and Busuu, only in Busuu are collocations addressed in a non-negligible way, following some of the suggestions of the Lexical Approach.

Although Busuu seems to be going in the right direction as far as collocations are concerned, it should be further improved and provide its users with greater opportunities in order for collocations to be retained.

Although the present study offers some important insights into the teaching of collocations in EFL mobile apps, its scope was limited to three free apps. Further studies on the topic are therefore recommended. In particular, it would be interesting to assess the treatment given to collocations in other free apps as well as in paid apps to discover whether there are any differences and to understand the general trend in Mobile-Assisted Language Learning.

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