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EFFECTS OF AN ONLINE VERB-NOUN COLLOCATION ASSISTANT
ON THE USE OF VERB-NOUN COLLOCATIONS IN THE TURKISH EFL
LEARNERS' PARAGRAPH WRITING

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ABSTRACT

EFFECTS OF AN ONLINE VERB-NOUN COLLOCATION ASSISTANT ON THE USE OF VERB-NOUN COLLOCATIONS IN THE TURKISH EFL LEARNERS' PARAGRAPH WRITING

The objective of this study was to investigate whether using an online collocation tool could enhance the use of verb-noun collocations in the paragraphs of Turkish EFL learners, as compared to paper-based exercises. Both the collocation tool and paper-based exercises were developed based on the principles of the lexical approach, explicit teaching, and cognitive load theory. The study employed a quasi-experimental design and involved 24 A2 level students, with 12 students in each group – the web group and the paper group. Data collection involved a pretest/posttest, paragraph writing, a quality review checklist, and a background information form. Verb-noun collocations in students' paragraphs were identified and evaluated for errors. The Mann-Whitney U test was used to compare the web group and paper group, and the sign test was used to determine intragroup differences. Data from the background information form and the quality review checklist were analyzed using descriptive statistics. Results indicated that there was no significant difference between the web group and paper group regarding their receptive and productive knowledge of verb-noun collocations or errors in target verb-noun collocations. However, there was a significant difference in some errors of non-target verb-noun collocations between the groups. Additionally, students in the web group expressed overall satisfaction with the web tool. In conclusion, the study demonstrated that learning material based on the principles of the lexical approach, explicit teaching, and cognitive load theory can

enhance both receptive and productive knowledge of verb-noun collocations, regardless of the tool used, among Turkish EFL learners.

Keywords: collocations, verb-noun collocations, collocation assistant, lexical approach, explicit teaching, and cognitive load theory



ÖZET

BİR ÇEVİRİMİÇİ FİİL-İSİM EŞDİZİMLİLİKLERİ YARDIMCISININ, İNGİLİZCE ÖĞRENEN TÜRK ÖĞRENCİLERİN PARAGRAF YAZIMLARINDA FİİL-İSİM EŞDİZİMLİLİKLERİ KULLANIMA ETKİLERİ

Bu araştırma, bir çevrimiçi fiil-isim eşdizimlilikleri aracının, İngilizce öğrenen Türk öğrencilerin paragraflarında, fiil-isim eşdizimlilikleri kullanımını geliştirip geliştirmediğini göstermek ve bunu kağıt üzerinde verilen egzersizlerle karşılaştırmak için yapılmıştır. Her iki yöntemde kullanılan öğrenme materyali sözcüksel yaklaşım, doğrudan öğretim, ve bilişsel yük teorisinin ilkelerine dayalıdır. Araştırmanın örneklemini A2 düzeyinde İngilizcesi olan 24 öğrenci oluşturmuştur. Bu öğrencilerin 12'si web grubunu ve kalan 12'si kağıt grubunu oluşturmuştur. Veriler, ön test/son test, paragraf yazımı, nitelik kontrol listesi ve kişisel bilgi formu ile toplanmıştır. Öğrencilerin paragraflarındaki fiil-isim eşdizimlilikleri tespit edilmiş ve hatalar açısından kontrol edilmiştir. Elde edilen verilerde, web grubu ile kağıt grubunu karşılaştırmak için Mann-Whitney U testi ve grup içi farklılıkları belirlemek için Wilcoxon rank sum testi kullanıldı. Kişisel bilgi formu ve nitelik kontrol listesinden elde edilen veriler tanımlayıcı istatistiksel yöntemler kullanılarak değerlendirilmiştir. Gruplar, algısal ve üretken fiil-isim eşdizimlilikleri bilgisi açısından farklılık göstermemiştir. Hedef fiil-isim eşdizimlilikleri hataları bakımından da farklılık göstermemişlerdir. Ancak, öğretilmemiş fiil-isim eşdizimliliklerindeki bir kaç hata gruplar arasında anlamlı farklılık gösterdi. Web grubundaki öğrenciler kullandıkları web aracı ile ilgili olarak genel olarak memnuniyet duyduklarını bildirmişlerdir. Sonuç

olarak, kullanılan araca bakmaksızın, sözcüksel yaklaşım, doğrudan öğretim, ve bilişsel yük teorisinin ilkelerine dayalı öğrenme materyali, A2 İngilizce düzeyindeki Türk öğrencilerde algısal ve üretken fiil-isim eşdizimlilikleri bilgisini geliştirebilmektedir.

Anahtar sözcükler: eşdizimlilikler, fiil-isim eşdizimlilikleri, sözcüksel yaklaşım, doğrudan öğretim, ve bilişsel yük teorisi



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CHAPTER I. INTRODUCTION

1.1. Introduction

Learning vocabulary is essential to create a large mental lexicon, readily accessible when needed (Morgan Lewis, 2000). It is the cornerstone of comprehending and expressing oneself through not only speaking but also writing. There is accumulating evidence that a rich vocabulary is a prerequisite for developing language proficiency, encompassing reading (Harkio & Pietilä, 2016), writing (Yang et al., 2019), speaking (Uchihara & Clenton, 2020) and listening skills (Jerotijevic-Tisma, 2016).

Although the importance of having a large vocabulary is widely acknowledged, learning it can be challenging (Morgan Lewis, 2000). Every time learners encounter a new word, they need to re-evaluate what they already know to assimilate the new item. Therefore, teachers should assist students in internalizing new words. An effective approach to achieving this is to teach "word grammar," which involves teaching how words are used (Woolard, 2000, p.44). As Firth (1968) stated that one can grasp a word with its accompaniments, knowledge of individual words is insufficient for vocabulary mastery. Learners should be encouraged to pay attention to the words that commonly accompany each other.

A part of vocabulary, formulaic language, which refers to fixed patterns of words and is readily available to native speakers, is a crucial aspect of vocabulary as it facilitates expressing ideas under time constraints (Cowie, 1992). When non-native speakers and writers have access to this formulaic language, they can achieve higher language proficiency (Men, 2015).

Collocations (colloc. for both singular and plural forms herein), a significant component of formulaic language, constitute almost half of English (O’Keeffe et al., 2007). Nevertheless, there is no agreement on the precise definition of colloc. (Fontenelle, 1998). Its definition varies according to the research approaches adopted, namely "frequency-based" and "phraseological" approaches (Nesselhauf, 2005, pp.34-36). According to the former approach, a colloc. is the existence of multiple words in close proximity in written work (Sinclair, 1991), while the latter defines colloc. based on the degree of fixedness of word combinations: "restricted, less restricted, and free combinations" (Nesselhauf, 2005:34-36). Colloc. are further grouped into two major classes: grammatical and lexical colloc. Grammatical ones refer to a word with a preposition or a syntactic structure (e.g. depend on), and lexical ones refer to a word combination consisting of a noun, adjective, verb, or adverb (e.g. commit a crime) (Benson M. et al., 2010). Despite the efforts of researchers to classify colloc. into different groups, learners struggle to use all types of colloc., and even native speakers may not agree on the degree of restriction (Nesselhauf, 2005). Furthermore, the literature suggests that learners need help in noticing formulaic language to facilitate their learning (Schmidt, 1995). The difficulty in learning colloc. and the lack of awareness about them emphasize the need for developing effective strategies to overcome these challenges.

Vocabulary knowledge involves awareness of a word's form, meaning, and use, which includes knowing its colloc. (Nation, 2001). This awareness can involve two types of knowledge, i.e. receptive and productive. Receptive knowledge of colloc. can be acquired through implicit exposure, but productive knowledge of colloc. requires explicit instruction (Nesselhauf, 2003). This means that students should be exposed to

explicit teaching of the use of colloc. so that they can effectively incorporate colloc. into their own speech and writing.

1.2. Background of the Study

In the role of an English instructor, I have endeavored to enhance my students' productive collocational knowledge. However, I have observed that students' focus on learning individual words hinders their ability to learn colloc., which is also highlighted in the literature. For instance, Wu et al. (2021) analyzed 1,500 words/phrases searched using the colloc. aid *Flax* and found that 92.8% of the entries were single words. The users did not endeavor to learn more colloc. or read sample sentences.

Colloc. make up approximately 40% of the English language (O'Keeffe et al., 2007), yet research indicates that students struggle to learn them, particularly verb-noun colloc. (V-N colloc.) (Bahns & Eldaw, 1993; Granger, 1998; Nesselhauf, 2003). Nesselhauf's study of 32 compositions created by German learners of English at university (2003) discovered that the most common mistakes were in the choice of verbs in colloc., followed by the choice of nouns. The researcher noted that L1 played a significant role in students' erroneous choices. Nesselhauf recommended that colloc. be explicitly taught, with priority given to acceptable and frequent ones, while also acknowledging the influence of L1. For this reason, learners' awareness about distinction between their native language and target language should be raised.

There are various methods available to aid colloc. learning, including textual enhancement techniques, paperback dictionaries, paperback colloc. dictionaries, online dictionaries, online colloc. dictionaries, colloc. learning assistants, and concordancers. Several studies have focused on the effectiveness of these tools. Nurmukhamedov

(2016) conducted a study comparing *the Longman Dictionary of Contemporary English* (a web-based tool), *the MacMillan Collocation Dictionary* (a book dictionary), and *www.wordandphrase.info*. The study found that online tools were more effective in helping students use correct colloc. than book dictionaries. The researcher also noted that students preferred *www.wordandphrase.info* due to its ease of use and support to detect accurate colloc. However, Hu (2015) found that paper-based tasks did not improve correct colloc. production. The researcher used three textual enhancement techniques to improve students' colloc. production but reported that none of the techniques were helpful. Woolard (2000) recommends using a combination of techniques in a book chapter *Teaching Collocation – Encouraging Learner Independence*, such as combining dictionaries with concordancers. However, it is still unclear which techniques and how many of them significantly contribute to the correct use of colloc. Amer (2014) investigated the effects of a cellular software for teaching idioms and colloc. in 45 students with different TOEFL scores and levels of interest in cellular software technologies. The study found a noteworthy link between utilization of the software and language performance, mean time spent on cellular software technologies, motivation, and educational objectives. Besides, the researcher reported that the learners had a notable, favorable disposition to use cellular technologies to learn a language.

1.3. The Theoretical Basis for the Study

The current study aimed to create an online V-N colloc. assistant to encourage students to internalize and use V-N colloc. correctly in their writing. The lexical approach, explicit teaching, and cognitive load theory served as the foundation for the assistant's development. The lexical approach focuses on teaching words that are

commonly used together to facilitate expressing ideas (Morgan Lewis, 2000; Woolard, 2000). In line with this approach, the online tool was designed to teach V-N colloc. The explicit teaching approach involves focusing on key content, breaking down difficult skills into smaller units, and organizing lessons (Archer & Hughes, 2011). The online V-N colloc. assistant focused on V-N colloc. as important content and included exercises and writing tasks to help students learn and use these colloc. The cognitive load theory posits that acquisition of new knowledge can be facilitated by eliminating extraneous cognitive load; that is, omission of the amount of mental work entailed in processing information unhelpful for learning (Paas et al., 2003). The online V-N colloc. assistant in this study was designed to minimize extraneous cognitive load and help students use their working memory efficiently to learn and use V-N colloc. To this end, a list of V-N colloc. was created from the reading book *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) to avoid overwhelming the students with a large corpus of unfamiliar language.

1.4. Statement of Problem

As previously mentioned, the literature on colloc. teaching suggests that further investigation is necessary to explore and compare various approaches. Furthermore, the researcher of the present research observed that learners frequently encounter difficulties in selecting and using appropriate colloc. to express their ideas in writing. These challenges are often compounded by incorrectly utilized verbs and nouns in V-N colloc., which may be influenced by the students' native language, Turkish. Moreover, educators may struggle to create suitable materials for teaching V-N colloc., while students may struggle with colloc.-related questions on exams.

To address these challenges, the researcher sought to develop an online V-N colloc. assistant and evaluate its effectiveness in enhancing students' accuracy in V-N colloc. usage in their written work. The objective was to determine whether the online tool could improve students' collocational awareness and ability to use colloc. more effectively than paper-based exercises.

1.5. Aim of the study

The current research is directed towards determining whether using an online colloc. tool, www.collocationassistant.com, can enhance the usage of V-N colloc. in the paragraphs of Turkish EFL learners of English, and to compare its effectiveness with that of paper-based exercises.

1.6. Research Questions

The research questions that will be dealt with in the current research are as follows:

Research Question 1. Does the use of the online colloc. tool (www.collocationassistant.com) result in a significant improvement in the knowledge of V-N colloc. compared to paper-based exercises?

Research Question 2. Is there a significant difference in the types of V-N colloc. errors made by the web group compared to the paper group?

Research Question 3. Is there a significant difference in the types of errors between target V-N colloc. and non-target V-N colloc.?

Research Question 4. What types of errors do students in the web and paper groups make in V-N colloc.?

Research question 5. What are the perceptions of Turkish EFL learners on the colloc. tool?

1.7. Significance of the study

The online V-N colloc. assistant is designed to address the difficulties that Turkish-speaking learners of English face when utilizing V-N colloc. in their writing tasks. The tool is intended to provide learners with a more interactive and engaging experience than traditional paper-based exercises. It offers an immediate response to learners' performance in exercises about usages of V-N colloc., allowing them to recognize what ought to be improved.

For the purpose of judging the effectiveness of the online aid, the investigation will compare the performance of learners who use the online V-N colloc. assistant with the performance of those who use paper-based exercises. The performance of both groups will be assessed using writing tasks that require the use of V-N colloc. The investigation will also collect feedback from learners about their experience in using the online tool.

The findings of the research will offer enlightenment about the effectiveness of online tools in supporting the mastery of V-N colloc. They will also contribute to the development of new strategies for teaching and learning V-N colloc.

1.8. The Role of the Researcher

The researcher played a crucial role in this study, not only in identifying the problem but also in designing and implementing the solution. The development of the online V-N colloc. assistant and the paper-based exercises required careful planning and attention to detail. The researcher was responsible for creating content that was suitable for both groups and could effectively contribute to their command of V-N colloc.

Recruiting participants was also an arduous task that the researcher had to undertake. The researcher needed to ensure that both the web group and the paper group were representative of the population that is studied. This required careful consideration of factors such as age, gender, English proficiency, and academic background.

Throughout the study, the researcher had to teach both groups to ensure that they were exposed to the same content and had an equal opportunity to learn. This involved not only teaching the participants how to use the online tool and complete the paper-based exercises but also providing feedback on their writing assignments.

Collecting and analyzing data was a crucial aspect of the study, and the researcher had to guarantee that the data collected was accurate and dependable. Compiled data was compared and analyzed to determine the effectiveness of the online V-N colloc. assistant in enhancing productive knowledge of V-N colloc.

Finally, the researcher was responsible for writing up the dissertation, which required synthesizing the findings of the study and presenting them in a clear and concise manner. This involved reviewing the literature, describing the methodology, reporting the results, and deriving conclusions from the findings.

1.9. Assumptions of the Study

In the current research, the assumptions rest upon the theoretical framework and data collection tools employed. The learning material for both the web-based intervention and paper-based exercises was created by taking account of the lexical approach, explicit teaching, and cognitive load theory. It is assumed that the learning material developed using the lexical approach will enable learners to learn, retrieve, and use V-N colloc. more easily and accurately in their writing. Additionally, explicit

teaching is expected to facilitate the learning and recall of V-N colloc. The V-N colloc. driven from a course book are expected to be transformed into writing tasks more easily by the learners.

Furthermore, the cognitive load likely to be created by the learning material is minimized by creating a concise list of V-N colloc. The objective is to present the learning material as clearly as possible through a web page and paper-based exercises to decrease extrinsic load on the working memory.

The other assumption of the study is concerned with the data collection tools. It is believed that collecting data through paragraph writing three times throughout the study period will provide rich data about the use of V-N colloc. This is expected to offer a clear description of errors likely to appear in the production of V-N colloc. The pretest and posttest given at an 11-week interval are assumed to provide reliable data about the alterations in the receptive knowledge of V-N colloc.

1.10. Outline of the study

The current research will be documented in five chapters. Chapter I gives a precis of the study, covering its background, theoretical basis, purpose, research questions, significance of the study, researcher's role, assumptions, and definitions of key terms. Chapter II will explore the concept of word knowledge, the role of colloc. in writing, their relationship with computer-assisted language learning (CALL) technology, and theoretical underpinnings. Chapter III will detail the research framework and research questions, including the research context, participants, data gathering instruments, instructional materials, data gathering process, and data analysis. Chapter IV will present the findings on the differences in verb-noun collocational knowledge between the web and paper groups and over time, the

differences in types of V-N colloc. errors between the groups, the differences in types of errors between target and non-target V-N colloc., the distribution of types of V-N colloc. errors, and participants' perceptions of the web tool. Chapter V will discuss the results in the context of the relevant literature, addressing the same topics presented in Chapter IV.

1.11. Definition of Terms

The following terms are key to understanding the present study and are used extensively throughout this dissertation:

Collocation: In this study, the term colloc. encompasses both free colloc., less restricted colloc., restricted colloc., and idioms, as described in Howarth's continuum model (Howarth, 2013).

Verb-noun collocation: A V-N colloc. refers to both free V-N colloc., less restricted V-N colloc., restricted V-N colloc., and idioms (Howarth, 2013). The V-N colloc. selected and derived from various texts in a book were not categorized into idioms, restricted colloc., less restricted colloc., or free combinations. Topic-specific combinations were chosen and included in the learning tools (www.collocationassistant.com and paper-based exercises) since students could encounter difficulty in using all of them and were expected to utilize target V-N colloc. in their paragraphs related to certain topics.

Target verb-noun collocation: Target V-N colloc. refer to combinations that were derived from the reading book *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014), taught through the web tool www.collocationassistant.com and paper-based exercises, and expected to be used by the students in their paragraphs during the research period. **Non-target verb-noun collocations**, however, are

combinations that were not taught during the study period, but were used by the students to articulate thoughts in their paragraphs, as well as the target ones.

Receptive knowledge of verb-noun collocations: In the current research, the term receptive knowledge of V-N colloc. is the capability of identifying appropriate collocates for verbs/nouns among given options in the pre/posttest (Hu, 2015). On the other hand, **productive knowledge of verb-noun collocations** is the capability of retrieving and using V-N colloc. in a different task, such as using them in writing tasks. The term **knowing a verb-noun collocation** encompasses both receptive and productive knowledge of V-N colloc. This distinction hinges upon the definition provided by Hu (2015).

The Collocation Assistant: The colloc. assistant is an online tool designed to aid learners in analyzing, acquiring, and practicing colloc. It accomplishes this by utilizing a library of correct colloc. and offering various exercises for practice.

Error: An error in this study refers to a deviation from the norms of British English and American English in V-N colloc. The norms were determined using resources such as *Oxford Learner's Dictionaries* (2023), *Collins English Dictionary* (2023), *MacMillan Dictionary* (2023), *the British National Corpus (BNC)* (2004), and *the Corpus of Contemporary American English (COCA)* (2008).

Lexical approach: The lexical approach to teaching languages focuses on teaching learners to comprehend and generate multiword expressions as set phrases, rather than focusing on individual words (Michael Lewis, 2000; Woolard, 2000).

Explicit teaching of verb-noun collocations: Explicit teaching of V-N colloc. involves directly exposing learners to these colloc. and vocabulary exercises related to them, including multiple-choice and gap-filling exercises (Le-Thi et al., 2017).

Cognitive load theory: Cognitive load theory is a paradigm emphasizing reducing the mental demand on the working memory, allowing learners to absorb more knowledge at once and holding new knowledge in their memory permanently (Kanokpermpoon, 2013).

Corpus: A corpus is aggregation of a bountiful quantity of speeches and texts such as *COCA* and *BNC* (Biber et al., 1998). In this study, *COCA* and *BNC* were utilized to help determine errors in the V-N colloc. used by the students in their writing.

Concordancer: A concordancer is software that can present multiple models of a keyword or phrase and hence help students to analyze beneficial data of authentic language (Chan & Liou, 2005).

Concordance: Concordance is a sorted list of words-terms in a corpus accompanied by their respective contexts (McEnery et al., 2006).

Computer-assisted language learning: Abbreviated as CALL, it refers to a discipline leveraging computer technology to teach and learn a language (Chapelle & Jamieson, 2008).

CHAPTER II. LITERATURE REVIEW

2.1. Introduction

This chapter summarizes knowledge from the scholarly works about vocabulary and language learning, with a precise emphasis on colloc. The chapter begins by defining colloc. from different perspectives and exploring various approaches to classifying them. The chapter also examines the role of colloc. in writing, learners' difficulties with them, and effective strategies for teaching colloc. Additionally, it surveys current research on collocational aids and their relation to CALL technology. Finally, the chapter summarizes theoretical underpinnings for the colloc. assistant tool used in this study.

2.2. Vocabulary and Language Learning

There is widespread support for the idea that vocabulary knowledge, including both single words and colloc., significantly promotes the language proficiency of foreign/second language learners (Crossley et al., 2011; González-Fernández & Schmitt, 2020; Miralpeix & Munoz, 2018; Nesselhauf, 2003; Zareva et al., 2005). The concept of vocabulary knowledge and semantic grasp of a word have various interpretations in the literature. One recent perspective on the notion of lexical acumen is presented by Nation, who identifies 3 kinds of word mastery: “form, meaning and use, including written form, spoken form, meaning, grammatical behavior, register, associations, frequency and colloc., which include subcategories such as receptive and productive levels” (Nation, 2001, pp. 23-49). (Table 1).

Table 1*Constituents of mastery of a word*

Form	Speech	R	Recognition of how a word sounds
		P	Pronouncing a word
	Writing	R	Recognition of spelling of a word
		P	Writing and spelling a word
	Parts	R	Recognition of parts of a word
		P	Retrieving parts of a word required for a given meaning
Meaning	Form and Meaning	R	Recognition of the meaning of a form
		P	Producing the form necessary to express a given meaning
	Concepts and Referents	R	Recognition of the elements of a concept
		P	Producing the elements of a concept
	Associations	R	Recognizing associated words
		P	Using associated words
Use	Grammatical Functions	R	Recognizing grammatical structures of a word
		P	Usage of a word in accurate grammar
	Collocations	R	Recognition of cooccurring words
		P	Using cooccurring words
	Constraints on use (register, frequency...)	R	Recognition of the place, time and frequency of encountering a word
		P	Using a word in the correct place, time and frequency

In column 3, R=receptive knowledge, P=productive knowledge

Note: Adapted from Nation (2001)

Nation (2001) specified “receptive vocabulary knowledge” as perception of the form of a spoken or read word and recalling what it means (Nation, 2001, p. 24). Receptive lexicon includes recognizing the word during listening, familiarity with its spelling during reading, understanding its parts (prefixes and suffixes), knowing its correct use and collocates, and understanding its meaning, relevant words, and whether it is common or not.

Productive lexicon means capability of defining a word through speaking or writing, retrieving and producing its suitable form, and using it in the correct parts of speech, meaning, and context, as well as recognizing its synonyms, antonyms, and collocates (Nation, 2001).

Nation's categorization of word expertise and distinction between receptive and productive lexicon have provided a framework for understanding the challenges that students face when learning new words. Alharbi (2017) found that learners may struggle with productive vocabulary knowledge due to a lack of opportunities to use their receptive knowledge in practice. Additionally, learners may be good at recognizing the form and meaning of words but struggle to use them in appropriate contexts or retrieve the appropriate words for a given situation. Alharbi (2017) also highlighted the tendency for learners to memorize individual words rather than making connections between words and learning colloc. Thus, language learners must navigate various complex variables when learning words, including pronunciation, lexico-grammatical peculiarities, and colloc. (Nurmukhamedov, 2015). Moreover, acquiring collocational knowledge can greatly benefit second language (L2) learners in various aspects of language learning. One significant advantage is that it enables L2 learners to deduce correct word combinations and enhance their ability to produce natural-sounding oral and written communication. According to McIntosh et al. (2009), L2

learners who have a good understanding of colloc. are better equipped to form accurate and appropriate phrases and sentences, as they are able to recognize and use cooccurring words commonly preferred in authentic contexts created by native speakers. The foregoing can greatly improve the fluency and accuracy of L2 learners' communication, making their language use more effective and persuasive. Moreover, by paying attention to collocational patterns, L2 learners can deepen their understanding of the vocabulary- and syntax-related features of the target language, resulting in improved linguistic proficiency overall.

2.3. Collocations

This section will deal with the definitions provided by researchers having different perspectives about colloc., the definition of colloc. adopted in the current research, classification of colloc., relation of colloc. with writing, L2 learners' problems with colloc., teaching colloc. and collocational aids for improvement of receptive and productive knowledge of colloc.

2.3.1. Defining Collocations: Different Perspectives

The word colloc. originated from the Latin word *collocatio* (n-), derived from *collocare*, which carries a technical definition of “putting together or arranging items adjacent to each other or in a particular location”, as per the Oxford English Dictionary (Oxford English Dictionary, 2023). In fact, two notable approaches are embraced to define colloc., namely, frequency-based and phraseological (Nesselhauf, 2005; Sinclair, 1991; O’Keeffe et al., 2007). The former emphasizes the statistical co-occurrence of words, and uses frequency measures to identify colloc. In contrast, the latter focuses on multiword units, such as idioms and formulaic expressions, which are treated as single units of meaning. This approach emphasizes the immutable structure

of word groups and their use in specific discourse contexts. Both approaches have been shown to be effective in helping learners develop collocational competence and produce more natural-sounding language.

2.3.1.1. The frequency-based approach:

Firth (1968) coined the word colloc. in the language context and is renowned for his idea that one may not know a word without its accompaniments. The concept of colloc., initially introduced by Firth, was later refined by Sinclair who delineates colloc. as the occurrences of more than one word neighboring one another in written-spoken utterances (Sinclair, 1991). With these in mind, the method adopting frequency data describes colloc. in accordance with their co-occurrence frequency and strength of association measures, such as raw frequency scores and mutual information (MI) scores (McEnery & Wilson, 2001; Sinclair, 1991). Raw frequency means how often a word appears together with another word in a corpus (Nurmukhamedov, 2015). However, since this method alone is not considered sufficiently reliable, MI scores are also used to evaluate the strength of a colloc. MI scores compare the prevalence of a colloc. to the prevalence of each of its constituents (Biber, 2009). Higher individual word frequencies suggest that co-occurrence of word combinations is based on random chance, and such combinations are not considered important as colloc. MI scores can therefore indicate colloc. strength. This approach is highly quantitative and relies on corpus analysis to identify word combinations that occur frequently with short distance between them in texts.

The frequency-based approach has a notable disadvantage of emphasizing the production of linguistically uninteresting combinations, like *animal food*, which co-occur frequently because of logical, instead of linguistic, reason. One more drawback of this approach pertains to the connection between frequency and formulaicity.

According to Wray and Perkins (2000), defining colloc. exclusively by frequency is not sufficient. This is because many sequences that meet other formulaic criteria are not common in general language usage (Wray, 2000).

The limitations mentioned regarding the frequency-based approach make it imperative to adopt the phraseological, a qualitative strategy for delineating colloc.

2.3.1.2. The phraseological approach:

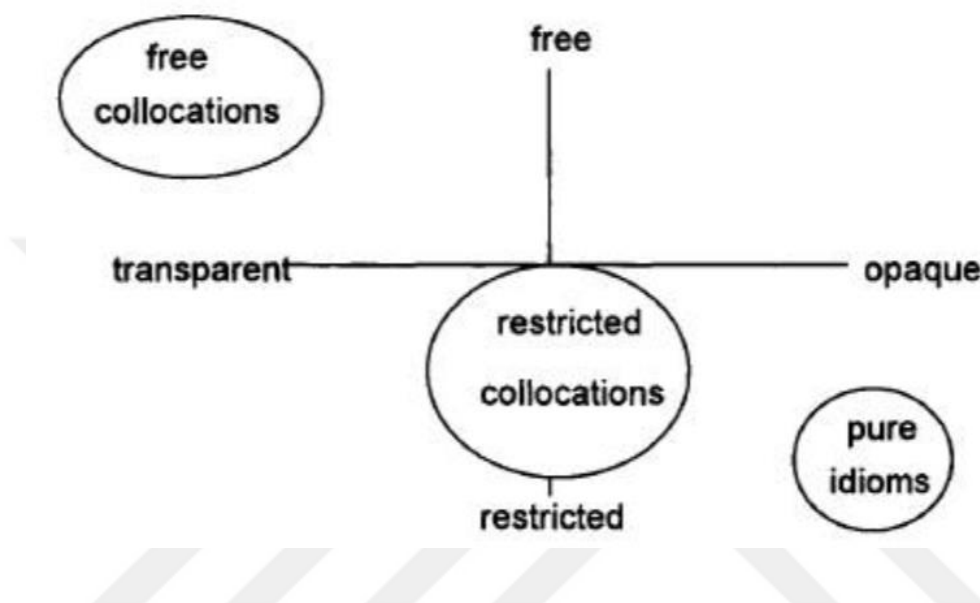
As opposed to the frequency-based strategy, the phraseological strategy defines colloc. based on the restrictions in the co-occurrence of words. Indeed, their constituents can only be substituted to a finite degree in a certain syntactic structure (Firth, 1968). This approach is characterized by two types of combinations: formulaic and compositional (Cowie, 1994). Formulaic combinations serve pragmatic functions, while compositional combinations serve syntactic functions. They are differentiated according to two principles: transparency and substitutability (Howarth, 1998). The former means the literalness of the lexeme that make them up, while substitutability is concerned with the constraints on replacing the components of word combinations.

This approach also categorizes colloc. that form a cline, ranging between less constrained and more constrained pairings: "free combinations", "restricted collocations", "figurative idioms", and "pure idioms" (Figure 1). In "free combinations", the components of word combinations can be restricted only for meaning-related reasons and all components are used literally (e.g., buy a book). In "restricted collocations", restrictions over substitutions of components depend on arbitrariness. Moreover, minimum one element is utilized literally, and minimum one element has a figurative meaning, but they have transparency. In "figurative idioms", components can rarely be substituted, and the combinations have a figurative meaning,

but they can still be interpreted literally. Regarding "pure idioms", none of the elements are substituted and they are used non-literally (Howarth, 1998, pp. 24-44).

Figure 1

Howarth's Continuum Model



Note: Obtained from Howarth (2013) with permission

Colloc. are distinct from free combinations because the individual words in colloc. cannot be substituted with just any other word that fits the syntax and semantics (Nesselhauf, 2005). Similarly, colloc. differ from idioms, which are fixed expressions whose meaning cannot be deduced from the individual words. Colloc. are positioned between free combinations and idioms, as solely specific words can replace a constituent. For instance, people speaking English as their mother tongue use the expression *do the ironing* but not *make the ironing* even though the latter is grammatically plausible.

This perspective allows for a more nuanced understanding of the nature of colloc. and offers an organized system to study and teach them. By recognizing the

changing character of colloc. and the range of variables that affect its complexity, the continuum model helps to enhance learners' awareness of colloc. and support their development of more native-like language use.

Scholars embracing the phraseological method depend upon the knowledge of people speaking English as their mother tongue and corpora when studying colloc. (Nurmukhamedov, 2015). Therefore, this study defines the term colloc. according to the continuum model, which encompasses a range of ready-to-use chunks from free colloc. to pure idioms. This model recognizes the complexity of colloc. and emphasizes the importance of learners being aware of all types of colloc. to use language effectively. By adopting this model, practitioners can focus on teaching all types of colloc. and provide learners with the tools they need to navigate the complex world of colloc. This approach recognizes that learners or language users are not restricted to using only a certain type of word combinations and emphasizes the importance of understanding and being aware of all categories of colloc. to effectively express ideas.

In sum, the frequency-based approach emphasizes the statistical concomitance of words, and uses frequency measures to identify colloc. In contrast, the phraseological approach focuses on multiword units, such as idioms and formulaic expressions, which are treated as single units of meaning. This approach emphasizes the static state of these pairings and their use in specific discourse contexts. Hence, it is imperative to point out that the two delineated strategies for the definition of colloc. must not be considered as conflicting, but instead mutually supportive. Both approaches have been shown to be effective in helping learners develop collocational competence and produce more natural-sounding language. However, in this study, the

phraseological approach is adopted for identifying V-N colloc. ranging from free combinations to idioms.

2.3.1.3. Lexical, semantic and grammatical collocations

The phraseological approach further categorizes colloc. as lexical or grammatical (Schmitt & Carter, 2004). The former category is composed of two content words, while the latter includes one content word and one function word. The node word, often utilized literally, restricts the variety of words that accompany it, and neither logical nor semantic rationale can be found behind this limitation. In the following section, examples of colloc. classified according to each of these approaches will be supplied.

Howarth (1998) classifies grammatical and lexical colloc. based on their restrictedness and transparency, while Nesselhauf (2003, 2005) categorizes lexical and grammatical colloc. in accordance with the parts of speech of their constituents. He has employed a broader categorization of colloc. based on structural features (linguistic class of parts), meaning-related features (limitations on meaning), and substitutability of parts (the capacity to substitute one or both elements).

2.3.1.3.1. Lexical Approach

According to the lexical approach, in which sense a word is utilized is influenced by the words accompanying it, and lexis is considered separate from grammar (Firth, 1968). This approach was first proposed by Firth, who coined the word colloc. that denotes frequently cooccurring words. Halliday (1966) later argued for the separation of lexis from grammar and used the term "lexical set" to describe colloc (Halliday, 1966, p.275). Lyons further expanded on this idea, noting that a lexeme often appears with a limited number of lexemes in a colloc., and

"encapsulates" their sense, such as "shrug" in "shrug shoulders" (Lyons, 1977, pp. 262-301). Sinclair (1966) also emphasized the importance of separating the analysis of lexis and grammar, but later acknowledged that both lexical and grammatical features of colloc. should be considered. While these researchers all supported the lexical analysis of colloc., there are other approaches that focus on semantic and grammatical aspects. In this section, we will classify colloc. and provide examples of colloc. according to these different approaches.

In accordance with the principles of the lexical approach, colloc. are frequently cooccurring words and comprised of word classes: i.e. verbs, nouns, adjectives and adverbs (Benson et al., 2010). Their syntactic structure and semantic features allow their classification into various groups. One classification is as follows:

verb + noun/pronoun/prepositional phrase, which usually refers to an action or creation, such as respond to emails

- verb + noun, which often indicates an eradication or cancellation, such as demolish a theory
- adjective + noun, such as brilliant idea
- noun + verb, such as insects bite
- quantifier + noun, such as a flock of sheep
- adverb + adjective, such as politically correct
- verb + adverb, such as perform brilliantly

This classification system is one example of how colloc. can be grouped and analyzed according to their syntactic and semantic properties.

Based on a categorization proposed by Tsai (2011), Nesselhauf (2003, 2005) has employed a broader categorization of colloc. based on syntactic features, such as the parts of speech of the constituents, semantic characteristics, such as limitations on

sense, and the interchangeability of elements, where one or both elements can be substituted. (Table 2)

Table 2

Lexical collocations

Type	Example
Verb+noun	Make progress
	Take responsibility
Adjective+noun	Strong coffee
	Bright sun
Noun+verb	Dogs bark
	Children cry
Noun+noun	Water bottle
	Coffee mug
Adverb+adjective	Absolutely delighted
	Bitterly cold
Verb+adverb	Speak clearly
	Drive safely

Note: Adapted from Tsai (2011, p.25)

A verb/noun pair has a restricted sense when it is used with a maximum of five verbs/nouns and is not used in the same sense with other verbs/nouns that are possible from semantic and syntactic perspectives (e.g., "dial a number"). Conversely, if a verb/noun combination has a less restricted sense, it can be used with more than five verbs/nouns (e.g., "read a newspaper"). When a verb/noun combination has no arbitrary restrictions on its combinations and can be utilized with a substantial rate of verbs/nouns, that is classified into a free combination (e.g., "want a car"). Finally, if

both the verb and the noun in a combination are restricted or cannot be replaced by another verb/noun, that is regarded as an idiom (e.g., grease someone's palm) (Nesselhauf, 2003, 2005, p.4).

Nesselhauf (2003, 2005) considered the verb+noun (V-N) syntactic relation to be the most important among a predefined collection of syntactic associations such as adjective-noun, noun-noun, and noun-verb. This is because V-N combinations constitute the central message conveyed in communication and represent the fundamental meaning in complete sentences, making them very difficult to comprehend and use for EFL learners. V-N colloc. can be further classified into verb-object (VO), verb-preposition-object (VPO), verb-object-preposition-object (VOPO), verb-object-to-infinitive (VO + to + inf), and verb-adverbial phrase (VA). Therefore, in this research, a phraseological approach is employed to define colloc., and Nesselhauf's categorization of V-N combinations is utilized.

2.3.1.3.2. Semantic Approach

The semantic strategy for colloc. places emphasis on the meaning and context in which words are used together (Martyńska, 2004). Proponents of this approach argue that the reason certain words collocate with each other is not only due to their lexical properties, but also due to the semantic relationship between them. For example, we use the phrase "strong coffee" but not "strong telescope" because the adjective "strong" collocates with "coffee" in the context of taste or flavor, while it does not collocate with "telescope" in the context of physical strength or power (Martyńska, 2004, pp.1-11).

Sinclair (1966, 1991), a prominent figure in the development of the semantic approach to colloc., argued that the sense conveyed by colloc. is not merely a result of the individual meanings of the words involved, but rather created through the

combination of words used together. He propounded the notion of *lexical priming* to explain the phenomenon of words being primed to collocate with certain other words due to their shared semantic associations. In other words, the semantic relationship between words influences their collocational tendencies. For example, the word *fast* may prime the word *food* to create the phrase *fast food*, which refers to a type of restaurant that serves quickly-prepared meals. This colloc. is a result of the shared semantic association between *fast* (referring to quickness or speed) and *food* (referring to a type of sustenance).

The semantic approach emphasizes the importance of understanding the meaning and context in which colloc. are used, as well as the semantic relationships between words that contribute to their collocational tendencies. It also acknowledges that certain colloc. may not be easily explainable based solely on grammar or syntax, and require consideration of semantic factors.

2.3.1.3.3. Grammatical Approach

As opposed to the lexical and semantic approaches, the structural approach to colloc. involves defining it through the use of grammar and patterns of words (Gitsaki, 1996). The structural approach acknowledges that lexis cannot be considered as an independent entity from grammar. Therefore, a grammatical colloc. consists of a verb, noun, or adjective followed by either a preposition, a to-infinitive, or a noun clause with that, such as *leave a deep impression on someone* (Bahns, 1993).

2.4. The Relationship between Collocation Knowledge and Writing

Colloc. knowledge is essential for writing, as colloc. usage may considerably impact the accuracy, fluency, and appropriateness of written work. Deprivation of colloc. mastery can lead to errors in word choice, which can result in a failure to

convey the intended meaning effectively. On the other hand, a rich and varied knowledge of colloc. can enhance the quality of writing and make it more engaging and effective. Conzett (2000) underlines the importance of colloc. in writing by citing examples of errors, such as "Be careful. That snake is toxic" and "A Ferrari is a very potent car." Conzett suggests that teaching colloc. can eliminate such errors and improve students' output accuracy. If students are aware of the appropriate colloc. to use, such as "poisonous" for describing "a snake" and "powerful" for describing "a car," they can convey their intended meaning more precisely. Identifying the causes, sources, and types of students' errors is crucial for eradicating errors in writing tasks (Conzett, 2000, pp.70-86).

Empirical evidence has proven that colloc. usage in writing can positively impact the quality of the text, making it more coherent and cohesive, as well as more sophisticated and precise. Therefore, it is essential to gain an insight into colloc. to enhance writing skills. This could be attained via explicit teaching and practice, as well as exposure to authentic language materials.

2.5. Learners' Problems with Collocations: causes, sources and types of errors

So as to ease elimination of erroneous usages, it is crucial to identify their causes, sources, and types. Nesselhauf (2003) conducted a detailed examination of collocational inaccuracies in compositions by students with advanced English and classified them into two groups based on his findings: intra-linguistic and extra-linguistic factors. The former group pertains to "the level of restriction of a colloc., the fact that a pairing is a colloc. the fact that a given multiword unit is an extended verb phrase, syntactic patterns, and the mismatch of a colloc. in L1 and L2." The latter

group may be related to "the circumstances of production and the duration of exposure to English" (Nesselhauf, 2003, pp. 199-234).

The level of restriction of a colloc. determines its difficulty level, with verbs collocating with few nouns being easier for advanced learners than those collocating with a vast quantity of nouns. Additionally, V-N colloc. that pertain to concrete, everyday actions such as zip up a jacket may be easier to learn than those that relate to abstract concepts (Nesselhauf, 2003).

Learners are prone to exhibiting nearly as many inaccuracies in free combinations as they do in colloc., but they tend to make more errors when using verbs in colloc. and nouns in free combinations. This can be ascribed with their inclination to use nouns in free combinations carelessly (Nesselhauf, 2003).

According to Nesselhauf (2003), students tend to use "stretched verb constructions" incorrectly, particularly with frequently used "light verbs" such as do, make, give, have, and take, when they should only use a verb. Additionally, there are various syntactic patterns that can create different levels of difficulty for learners, such as verb-object (such as draw a comparison), verb-preposition-object (such as arrive at a compromise), verb-object-object (such as send sb. a letter), verb-object-preposition-object (such as give sth. in view), verb-object-complement (such as elect sb. president), verb-object-adverbial phrase (such as complete a project ahead of schedule), verb-adverbial phrase (such as drive to work), verb-complement (such as fall out of favor), and verb-complement-preposition-object (such as hold an opinion about sb.) (Nesselhauf, 2003, pp. 211-214).

Congruence, i.e. ability for an expression or a colloc. to have an exact counterpart in the target language for expressing what is in one's mind and non-congruence, i.e. inability for an expression or a colloc. to have word-by-word

translation equivalent for expressing what is in one's mind are also considered to play a role in difficulty in creating appropriate colloc. during speaking and writing actions (Nesselhauf, 2003). To illustrate, deal with a problem in English and bir sorunla uğraşmak in Turkish are congruent since they are translation equivalents. Non-congruent colloc. are more likely to be misused. Nevertheless, the presence of congruence does not always help to avoid colloc. errors for various reasons such as the interaction between restriction and congruence/non-congruence, presence of more than one translation equivalent and a tendency to use more common expressions.

Regarding extralinguistic factors causing difficulty in producing V-N colloc., “timed” writing, inability to use the right dictionary or understand collocational information in the dictionary and lack of collocational awareness can be classified into production-related conditions. Besides, “the length of exposure to English” in a classroom environment or an English-speaking country might have effects on colloc. use and errors (Nesselhauf, 2003, pp.229-236).

Sufficient knowledge of the causes and sources of colloc. errors can provide guidance for colloc. teaching. Colloc. need to be taught effectively and guidance about how to learn them needs to be provided by taking account of colloc. errors.

2.6. Teaching Collocations

According to several researchers such as Nation (2001), Wray (2002, 2008), and Howarth (1998), colloc. knowledge is essential for language output by individuals learning a second language. When faced with difficulties in colloc. production, L2 learners may rely on synonyms or their native language, which can result in errors and make their language sound unnatural. To achieve mastery closer to that of linguistic natives, L2 learners must enhance their repertoires of colloc. as it is tightly linked with

advanced language production and its correct use (Conzett, 2000; Nation, 2001). Therefore, it is important to focus on teaching colloc. to L2 learners, as this can help them overcome the intermediate level stagnation and reach the native-like level in their language production.

Despite being exposed to new vocabulary in context, learners often struggle with selecting appropriate words to express their ideas, and may not pay enough attention to colloc. Therefore, explicit teaching of colloc. and improving learners' mental lexicon are crucial (Conzett, 2000). To expand collocational knowledge, teachers can first introduce the concept of colloc. and highlight some commonly used word pairs. Second, teachers can provide learners with examples of colloc. for the words they encounter in reading and listening materials. Third, learners can be encouraged to keep a notebook to record new words with their colloc. and contexts (Conzett, 2000). Fourth, learners can be trained to learn colloc. that are specific to the themes they are studying, which can greatly enhance their writing. Fifth, teachers can prompt learners to learn colloc. by asking questions about the types of things that certain words are commonly associated with, such as "what kind of things are toxic?" Finally, learners can be motivated to use monolingual dictionaries to explore how words are used after initially translating them with a bilingual dictionary (Conzett, 2000, p.76).

Despite these efforts, learners may still face difficulties in recognizing and using colloc. effectively. To address these challenges, researchers have developed various collocational aids to enhance not only receptive but also productive colloc. knowledge.

Over the last fifteen years, there has been a surging enthusiasm for exploring the most efficient ways to teach colloc. to L2 learners. Colloc. are word combinations

that tend to occur together in natural language, such as make a decision, take a shower, or run out of time. Learning colloc. is essential for L2 learners to communicate fluently and effectively in the target language.

Thorough investigations have been carried out in this field, and some of the key findings suggest that teaching colloc. in context, through the use of authentic materials such as newspaper articles, is more effective than teaching them in isolation. Using technology such as concordance tools or corpora can also be beneficial, as it allows learners to explore how words are used in context and to identify common colloc.

Another important aspect of teaching colloc. is the necessity to spur awareness of the significance of colloc. and the frequency with which they occur in a language. This is attainable through explicit instruction, as well as by furnishing individuals with chances of using colloc. in authentic interactive tasks.

To conclude, efficient teaching of colloc. is crucial for L2 learners to develop high proficiency in the language learned. The growing body of research in this area provides valuable insights into effective teaching methods and strategies that should be pursued in language classrooms to enhance the teaching and learning of colloc.

2.7. Current Research about Collocational Aids for Improvement of Receptive and Productive Knowledge of Collocations

Numerous studies have highlighted the effectiveness of using both traditional paper-based tools and modern technological tools for improving collocational knowledge. Paperback dictionaries and colloc. dictionaries, for instance, have been shown to be valuable tools for learners to expand their collocational knowledge. These resources not only provide definitions and translations of words, but also offer

examples of colloc. in context, enabling learners to better understand how to use words in combination with other words. Additionally, paper-based exercises such as gap-fill exercises and cloze tests have been found to be useful for consolidating and reinforcing collocational knowledge.

On the other hand, modern technological tools have also been found to be highly effective in enhancing collocational knowledge. Online dictionaries and colloc. dictionaries, for instance, provide a vast array of collocational information, often including synonyms, antonyms, and example sentences that demonstrate how the colloc. is used in context. short message service (SMS) and concordancers are also useful technological tools that can help learners identify and understand colloc. Furthermore, online collocational aids, such as corpus-based tools, can provide learners with access to real-world examples of how words are used in natural language, thereby helping them to develop more accurate and authentic collocational knowledge.

Per Snoder (2017) executed research to analyze the utility of different parameters on the productive knowledge of V-N colloc. in 59 Swedish individuals. The research was designed to test the effectiveness of "motivational cognitive load" of learning material, "spreading out learning opportunities," and "intentionality" on learning colloc. To achieve this, the researcher created learning material consisting of 10 factual reading texts and writing tasks that incorporated the principles of "motivational cognitive load" to teach 28 target colloc. The material was divided into four tasks, each designed to aid learning colloc. in different ways. For example, task 1 required participants to fill in the blanks in a text using seven colloc., while task 2 required writing sentences using colloc. The participants were offered the learning material at different intervals and with or without being informed about the posttest, to

test the effects of "spacing" and "intentionality." The study found that increased "motivational cognitive load" and "spreading out learning opportunities" did not enhance collocational knowledge. However, intentional learning of the colloc. for a test was verified as beneficial in improving productive knowledge of V-N colloc. The study highlights the importance of intentional learning and testing in improving collocational knowledge. It suggests that learners should be motivated to learn colloc., but the load on learning material should be manageable. Moreover, the study emphasizes the significance of organizing learning material into tasks that aid learning and recommends that tasks ought to be created in a way that enhances understanding and retention of colloc. (Snoder, 2017, pp. 143-146).

Nizonkiza (2017) implemented a colloc.-focused syllabus to improve the academic literacy of 218 third-year students studying English language and literature at Burundi University. The syllabus aimed to increase collocational awareness by having participants identify 131 nouns from the academic word list Coxhead 2000, search for their collocates in the Oxford Collocations Dictionary for Students of English, create a map with definitions and colloc. (adjective-noun, noun-verb, and verb-noun), collect model sentences, and deliver a presentation about what they learned. The researcher administered a pre/post-colloc. test that included cued filling-in-the-blank questions and writing tasks on two topics. The posttest scores of the participants were significantly higher, indicating an improvement in their productive collocational knowledge. Furthermore, the rate of accurately used colloc. significantly increased in the writing task at the end of the term. The explicit and awareness-raising approach used in the syllabus appears to have been effective in enhancing the participants' collocational knowledge.

Yuzhen Chen (2016) aimed to study the outcome of employing a dictionary on colloc. production and recollection among 57 entry-level students of English at a college in China. The students completed a gap-filling task comprising 12 V-N colloc. along with Chinese translations of the colloc. and the electronic version of the Oxford Advanced Learner's English-Chinese Dictionary, which was accessible through custom-designed software. Following the task, the researcher observed a significant improvement in accurate production of colloc. in the post-test. However, one week later, the retention rate was found to be notably low. Yuzhen Chen also examined whether the post-test scores correlated with the frequency of dictionary use but did not discover any significant association between the two variables. The researcher noted that the students lacked proficiency in using a dictionary for collocational knowledge, as they struggled with functions such as the "hyperlink function," distinguishing between the different senses in which verbs are used, and comprehending lengthy entries (Y. Chen, 2016, p.240).

Murnani and Selahi's (2016) study involved assigning learners in the intervention group to utilize the electronic version of the Oxford Collocation Dictionary to learn the meanings of 64 colloc., whereas the control group was exposed to the traditional method. The immediate follow-up test, which consisted of gap-filling questions, unveiled a substantial surge in collocational knowledge of the intervention group. However, in the late follow-up test, which included the same questions, there was no significant difference. Therefore, it can be suggested that using an electronic dictionary is not more effective than traditional in-class activities in improving productive collocational knowledge in the long term since gap-filling questions require students to produce colloc.

Tabrizi and Moghadam (2016) conducted a study where students in the experimental group received definitions of 90 colloc. and model sentences through SMS, whereas the non-experimental group received the same information on paper in classes throughout a five-week period. The post-test, consisting of multiple-choice items, highlighted a marked dissimilarity in favor of the SMS group. This finding suggests that SMS can enhance receptive collocational knowledge, as multiple-choice questions do not require learners to produce colloc.

In Daskalovska's (2015) study, the impact of concordancer BNC-based activities on improving receptive and productive verb-adverb colloc. knowledge was compared with that of traditional activities. The corpus-based activities included finding the most frequent adverb collocates for ten verbs, recognizing the positions of the adverbs, creating and examining concordance lines for the colloc. detected, and outlining the findings in a presentation. The traditional activities consisted of matching ten verbs with adverb collocates, highlighting the correct adverb, selecting the accurate adverb for ten verbs, and matching sentence halves, where the first half included verb-adverb colloc. The pre/post-test required the students to write adverb collocates for the verbs supplied in sentences in gap-filling questions, select appropriate adverb collocates for the verbs given in the sentences in multiple-choice questions, write adverbs for the given verbs, and write sentences using the given verbs and appropriate adverb collocates. The researcher found that corpus-based activities significantly improved receptive and productive verb-adverb collocational knowledge of the students.

Reynolds (2015) developed a bilingual parallel corpus collocational concordancer to improve productive collocational knowledge among students. The students were instructed to utilize the concordancer to revise their descriptive and

opinion essays. The tool helped the students to improve V-N colloc. in the descriptive essays, but not in the opinion essays. However, the students found using the tool tiring. It is worth noting that students may face difficulties in searching concordancers and may not be satisfied with online assistants as they can easily get lost in concordancing when provided with plenty of examples.

The teaching of colloc. has been approached from different angles, with various methods and tools being employed. Traditional methods such as paperback colloc. dictionaries have been commonly utilized to teach colloc. However, with the advent of technology, new instruments have been constructed to pave the way for instructing and internalizing colloc. These tools range from simple online colloc. dictionaries to complex concordancers and online assistants.

Research has shown that using concordancers can be more effective in teaching colloc. compared to traditional methods (Daskalovska, 2015). Concordancers allow learners to explore language corpora and observe how words are used in real-life contexts, which enhances their understanding of how words are employed alongside other words. Nonetheless, some researchers recommend a combination of concordancers and traditional methods to maximize the effectiveness of colloc. teaching.

In conclusion, both paper-based and technological tools have been proven effective in enhancing learners' receptive and productive collocational knowledge. By utilizing a combination of these tools, learners can expand their collocational knowledge and improve their ability to use words effectively in combination with other words, thereby enhancing their overall mastery in the language learned. However, it is essential to consider the learners' needs and preferences when selecting the appropriate tools to teach colloc.

2.8. Collocations and CALL/Technology

Over time, several technological tools have been developed and used to help learners overcome problems with colloc. Most of them are typically based on concordancers and the analysis of learner errors in colloc. For instance, researchers Chan and Liou (2005) reported that many EFL learners with a Chinese background would say "eat medicine" instead of "take medicine" (p. 232). Through investigations of collocational errors in Chinese students, Liu (2002) also discovered that V-N colloc. errors were the most common, with the wrong use of verbs being the most frequent. Many of these errors resulted from learners' using synonyms in place of the correct verb. In response, the researchers provided explicit colloc. instruction to students, which resulted in positive developments in their understanding of colloc.

Based on the abovementioned evidence, Chan and Liou (2005) proposed using a Chinese-English bilingual concordancer to aid EFL learners in mastering V-N colloc. To test their hypothesis, they conducted an experimental study on 32 non-English major college freshmen in Taiwan in 2005. The study utilized a single-group time-series design, with three sets of tests given at intervals. The tests comprised 36 questions in total and were designed to test the participants' V-N colloc. knowledge through fill-in-the-blank questions. The study found that the participants' colloc. knowledge significantly improved, with greater gains observed in the early post-test. However, the positive effects of the concordancer were retained in the long-term as well, with better effects observed in the delayed post-test.

The study also compared results based on prior colloc. levels and ascertained that while the higher-level group initially outachieved, the lower level group had higher gain scores. The students' V-N colloc. knowledge and awareness significantly increased, and they reported finding colloc. learning with CALL helpful. Overall, the

study showed that using a Chinese-English bilingual concordancer could assist EFL learners in improving their V-N colloc. knowledge.

Chan and Liou (2005) demonstrated that explicit colloc. instruction, including the use of a bilingual concordancer in an online format, considerably increased EFL learners' colloc. knowledge, particularly for lexical verb pairs. While some verbs, like *get*, can have multiple meanings depending on the nouns they are paired with, the researchers showed that overall, the explicit CALL colloc. instruction with a bilingual concordancer led to an improvement in verb-noun lexical colloc. However, the researchers also observed that the knowledge of V-N colloc. regressed after two and a half months, although it still preserved its superiority compared to the baseline values.

Evidence from Chan and Liou's (2005) study suggested that low-level students derived more benefit from explicit colloc. instruction using a bilingual concordancer. Bilingual concordancers that provide reciprocal translations in both Chinese and English seem to be particularly effective in improving the learning of non-congruent verb colloc., which may be adversely affected by learners' L1. The study also emphasizes that a multifaceted approach merging concordancing and conventional instruction methods could be more effective than relying on a single method alone. However, Chan and Liou's study is not without limitations. For example, it did not incorporate a control group, and only V-N colloc. were evaluated. Nevertheless, the research pinpointed several factors likely to affect acquiring colloc., including previously obtained knowledge level and teaching methods. The researchers recommended that larger studies could explore these factors in greater detail.

Tabrizi and Moghadam (2016) conducted a non-randomized, five-week study with 75 students, consisting of 25 males in one intervention group, 25 females in another intervention group, and 25 males and females in a control group, to investigate

the effects of colloc. instruction via SMS. The intervention groups received 90 colloc., their definitions, and example sentences through SMS, while the control group was offered the same material in paper during classes. Although the groups did not display a difference in their pretest scores, the analysis of posttest scores using two-way ANOVA showed that the intervention groups unarguably surpassed the control group, without a difference between males and females. The researchers concluded that SMS could be a useful tool to help students learn colloc.

Murnani and Selahi (2016) carried out research to determine whether utilizing an electronic colloc. dictionary affected colloc. learning and retention in Iranian EFL learners. They first assessed the English proficiency levels of 340 learners from six institutions using the Oxford Placement Test and selected 100 intermediate-level learners from four institutions for the study. The learners were then randomized to an intervention or a control group. The intervention group was taught 64 unknown colloc. and requested to utilize the Oxford Collocation Dictionary to look up the meaning of each colloc., while the control group received traditional instruction on the same colloc. over eight 45-minute sessions. The scores on the immediate posttest demonstrated that the intervention group exhibited a substantial enhancement in their knowledge of colloc. in comparison to the control group. However, the posttest administered two weeks later did not significantly differ between the two groups, implying that the electronic colloc. dictionary did not have a long-term impact on colloc. retention.

Reynolds (2015) undertook action research to investigate the impact of using a bilingual parallel corpus collocational concordancer, TANGO, on academic English writing of 25 Taiwanese undergraduate medical students with an intermediate or low-intermediate level of English. The study also aimed to examine the attitudes of the

students towards the concordancer as a tool for self-editing their academic writing. The research was carried out over an eight-week Academic English Writing course, with three hours of class per week. During the course, the students wrote two essays, a descriptive essay and an opinion essay, each of 300-500 words. They were instructed to use the concordancer to edit their essays three times. The study found that there was a significant improvement in accurate V-N colloc. between the first and third drafts, as well as between the second and third drafts of the descriptive essays, but not in the opinion essays. However, some students had a negative attitude towards the concordancer. Students with a low level of English found the Chinese translations of the colloc. in the concordancer challenging to understand. Some students also found it laborious to search for colloc. in the concordancer and even perceived teachers as being lazy for asking them to use software instead of correcting their mistakes. While the study demonstrated the usefulness of concordancers in improving colloc. acquisition, it also highlighted the importance of considering learners' attitudes and proficiency levels when using concordancers as a learning tool

Shei and Pain (2010) aimed to address the difficulty of colloc. learning by developing an online correcting program. Their tool utilized a learner corpus for the study of known collocational errors and a reference corpus for Standard English colloc. In addition, a dictionary of synonyms was used to discover potential errors in learners' input. Colloc. were extracted from the British National Corpus as a reference corpus. The researchers developed a questionnaire to test the intuition of native speakers in V-N colloc. Three groups were administered the questionnaire: 119 native speakers, 31 non-native speakers (mostly European language speakers), and 40 Chinese speakers. Z scores were calculated based on the British National Corpus, and the answers gathered from the three groups and z scores were compared to determine

the harmony between them. The researchers concluded that the z score is suitable to test proficiency in colloc. and created an ESL writer's collocational aid. The aid includes a colloc. library, an error library, a lexicon of synonyms, and a definition library. When a student writes an incorrect colloc., the system provides a warning and prompts the student to check the colloc. library. If there is a mistake, it is compared with others in the error library, and the correct colloc. is provided. The tool is designed to help ESL writers learn colloc. and improve their writing skills

Commercially available vocabulary-building software for EFL learners is also available. Nesselhauf and Tschichold (2010) conducted a study in which they examined seven programs that were primarily designed for German-speaking learners. They suggested some modifications to make the programs more user-friendly and effective for learners. The researchers found that the programs did not prioritize colloc., and only a few exercises were included for unsystematically selected colloc. To improve the programs, they recommended specifying proficiency levels, providing feedback, and introducing more exercises with better variation.

M. H. Chen et al. (2015) identified a gap in the CALL literature and developed a computer-aided tool for paraphrase learning (PREFER) to address the need for L2 learners to improve their paraphrasing skills and create writing variety. The study aimed to compare the effectiveness of PREFER with that of Longman English Dictionary Online and Thesaurus.com in a sample of 55 intermediate-level Chinese-speaking EFL college freshmen. The researchers employed a pretest-posttest design and used a questionnaire to investigate the EFL learners' perceptions of the tools. Results revealed that PREFER significantly improved students' paraphrasing skills, including those who were less proficient but more motivated. Additionally, approximately 90% of the students were satisfied with the support provided by

PREFER. However, some students made grammatical errors due to a lack of consideration for "grammatical cohesion" (Chen, p. 34).

The use of corpora and concordancers, which is based on the data-driven learning approach, has been shown to offer several advantages in language learning. These advantages can be summarized as follows (Flowerdew, 1996; Johns, 1991; and Woolard, 2000):

Learners are able to:

- have the opportunity to access a large amount of authentic language data.
- benefit from this authentic material to solve their language problems.
- become more autonomous while learning a language.
- become aware of invisible linguistic generalizations.
- discover good examples to use.
- test their own assumptions about the language they learn.
- distinguish between synonyms.

Overall, the use of corpora and concordancers can be an effective and engaging way to develop language skills by providing learners with access to authentic, varied, and relevant language data, and empowering them to take control of their learning through discovery and informed learning.

Despite their value as language learning tools, corpora and concordancers also have some drawbacks. Hao-Jan Howard Chen (2011) identified three important ones:

- Technical skills: Using corpora and concordancers requires technical skills that not all learners possess, which can hinder their ability to effectively use these tools.

- Time-consuming: Analyzing language data using corpora and concordancers can be time-consuming, especially for learners who are not familiar with these tools.
- Over-reliance: Learners may become overly reliant on corpora and concordancers, leading to a lack of independence in their learning and a reduced ability to use language spontaneously.

Overall, while corpora and concordancers offer several advantages in language learning, it is important to acknowledge their drawbacks and provide learners with appropriate guidance and support to overcome these challenges. This can help learners develop the necessary technical skills, use their time more efficiently, and avoid over-reliance on these tools.

To address difficulties in finding suitable colloc., Hao-Jan Howard Chen (2011) developed WebCollocate, a web-based colloc. learning aid. The effectiveness of WebCollocate was evaluated by comparing it to the Hong Kong Polytechnic web concordancer in two groups of EFL learners with an intermediate level of English. The study also sought to determine whether WebCollocate could improve colloc. use in a translation task and to assess the perceptions of preservice English teachers about the tool. In the study, the two groups of EFL college students were given a translation test consisting of 30 short sentences, each of which included a colloc. selected based on high-frequency colloc. errors reported in the literature. After the test, the students were divided into two groups: one using WebCollocate and the other using the Hong Kong Polytechnic Web Concordancer. Each group received a 10-minute tutorial on how to use their respective tool and were then asked to answer the same set of questions in the translation task. The results showed that the WebCollocate group achieved significantly better scores on the task than the other group. However, they noted that it

took a long time to find the most suitable collocate. In addition, 35 preservice English teachers were asked to use WebCollocate and several other web concordancers, including the Hong Kong Polytechnic Web Concordancer, Cobuild Concordance and Collocation Sampler, and the British National Corpus website. They were requested to search for and use colloc. for several words in the laboratory for three hours and to write an evaluation report. The preservice teachers found WebCollocate to be useful in identifying suitable collocates by using keywords and POS tags, accessing the frequency summary of words, spending a short time to detect collocates, seeing all examples, and benefiting from a large corpus in their writing. Overall, the study suggests that WebCollocate can effectively improve colloc. use in EFL learners and is perceived as a useful tool by preservice English teachers. However, the issue of the tool being time-consuming to use should be addressed to ensure that learners can effectively use it in their language learning.

Chang et al. (2008) found that EFL learners struggled with colloc., particularly V-N colloc., which are crucial for achieving native-like fluency in writing. They attributed the miscollocations to L1 interference in Taiwanese EFL learners, which they divided into split category and direct translation. Split category refers to cases where one word in one language can be covered by two words in another, while direct translation results from the tendency of learners to think in their own language and translate directly into the target language. To address these challenges, the researchers developed an online miscollocation aid called Writing Assistant that integrated natural language processing (NLP) technology. The system determined miscollocations based on the literature and a standard colloc. library (the British National corpus) to provide accurate colloc. It relied on translation equivalents between learners' first language, Chinese, and English. However, the system had several limitations. First, it sometimes

failed to provide adequate colloc. candidates due to insufficient bilingual translation data. Second, even when it offered colloc. candidates, it could not always provide correct ones because they did not match those in the reference library. The researchers suggested using an electronic colloc. dictionary as an additional source of data. Finally, the system struggled to match de-lexicalized verbs with their Chinese equivalents, leading to inappropriate colloc. Overall, the study highlights the importance of colloc. in achieving native-like fluency in writing and the challenges that L1 interference can pose for EFL learners. The development of technology like Writing Assistant shows promise for addressing these challenges, but more work is needed to improve its accuracy and effectiveness.

In 2015, Daskalovska conducted a study to compare the effectiveness of corpus-based versus traditional learning of colloc. in a group of 46 university students in their first year of undergraduate studies in English Language and Literature in the Republic of Macedonia. Of the 46 students, 21 were assigned to the experimental group and 25 to the control group. The study aimed to answer two questions: whether corpus-based activities are more effective than traditional activities and whether minimal training can help students use concordancers effectively. Two weeks prior to the treatment, the students completed a pre-test that included four types of questions related to verb-adverb colloc. The experimental group was exposed to the British National Corpus and taught how to use the concordancer in one hour. They were asked to perform four tasks related to verb-adverb colloc., while the control group was given traditional exercises to complete in one hour. Both groups were given a post-test soon after the treatment and another two weeks later. The results of both post-tests showed that the experimental group performed better in all four types of exercises, especially in the third and fourth exercises. Daskalovska concluded that the students exposed to

corpus-based activities had better results than the control group. Overall, the study suggests that corpus-based learning can be more effective than traditional learning for improving students' understanding and use of colloc. It also highlights the potential benefits of minimal training for helping students effectively use concordancers in corpus-based activities.

Cowie and Howard (1996) classified colloc. as "familiar and memorized lexical combinations that vary to a limited extent" and identified three types of "restricted collocations": those with limited choice at one point, those with limited choice at both points, and overlapping colloc. However, they noted that overlapping colloc., which have limited intercollocability, can be difficult for learners to acquire. For example, "convey/express/communicate/get across" can co-occur with "point/message/opinion," but only "convey/express" is used with "regrets/condolences" (pp. 80-93).

To help learners overcome the challenges stated by Cowie and Howard (1996), Huang and Tsao (2019) developed a web tool that displays colloc. networks and identifies relevant co-occurring words based on data from BNC and Wordnet. When a user searches for a wrong colloc., the tool highlights the mistake and provides a list of correct options. Huang and Tsao found that their tool accurately identified 93.1% of wrong V-N colloc. and 97.5% of wrong adjective-noun colloc. Additionally, their tool suggested correct verbs for 55.6% of the wrong V-N colloc. and correct adjectives for 45.1% of the wrong adjective-noun colloc. However, the researchers acknowledged that their tool did not incorporate translation equivalents from learners' native language, which may have limited its effectiveness for some learners. Despite this limitation, Huang and Tsao claimed that their web tool could be useful for EFL learners, even those with low English proficiency, to improve their colloc. use in

writing tasks. In a pilot test with 13 EFL learners, the students corrected around 88% of their colloc. errors by consulting the tool. Compared to dictionaries and concordancers, Huang and Tsao's tool has the advantage of identifying incorrect colloc. and providing correct options, rather than simply listing available colloc. with example sentences.

Frankenberg-Garcia et al. (2019) argued that language corpora do not necessarily facilitate the use of colloc. and may even distract writers during text production. To address this issue, they developed a web-based program that utilizes data-driven learning to suggest colloc. and enrich vocabulary and collocational knowledge during text production. The program incorporates the Academic Keyword List developed by Paquot, the Academic Collocation List prepared by Ackermann and Chen, and a subset of the Gardner and Davies, Academic Vocabulary List by Durrant. The researchers made some modifications to the lists, such as disambiguating words with multiple meanings and excluding words with few collocates. They also integrated academic words commonly used in many disciplines. Collocates were added using Sketch Engine created by Kilgarrieff et al., and model sentences containing colloc. were included for each word. The program uses the TinyMCE text editor. To evaluate the effectiveness of the program, the researchers assessed its usability with a System Usability Scale survey among 122 L2 writers with varying levels of experience attending international meetings. The survey showed that the attendees considered the program to be good or excellent.

Hao-Jan Howard Chen et al. (2023) highlighted the challenges faced by ESL/EFL learners when it comes to using colloc., and pointed out that existing dictionaries and corpora are not very user-friendly for learners. They explained that learners are required to search through all word entries in a dictionary, and some

corpora impose limitations on the number of daily queries. To address these issues, the researchers utilized PLOS ONE and AntCorGen to create a practical corpus with a simple interface that is easy to use for academic writers. AntCorGen is a free software used to obtain journals from the internet, while PLOS ONE is a group of journals from various disciplines. Hao-Jan Howard Chen, Lee, and Yang collected 100,000 articles across ten scientific disciplines, including the sections Introduction, Methods, Results, and Discussion to create an academic corpus for “an academic collocations and phrases search engine (ACOP)”. The tool provides learners with a variety of options to look up colloc. such as “word strings, phrases, key words and parts of speech”. If learners type one of them, they are offered colloc. from the most to the least common. The researchers compared this new tool with COCA by using a gap-filling quiz. They found out that “ACOP” was as effective as COCA in provision of the best collocates. Besides, the participants expressed their satisfaction with the tool (H. H. Chen et al., 2023, pp. 641-668).

Based on the findings of previous studies, the present study aims to investigate whether an online colloc. tool, specifically www.collocationassistant.com, can help students overcome the difficulties they encounter while using concordancers. Concordancers and online colloc. assistants can be challenging, especially for students with lower levels of English proficiency. The challenges arise from the extraneous load inherent in these tools, and how they are presented to learners is crucial for effective learning of colloc. Inadequate training due to time constraints can also contribute to an increase in extraneous load on the working memory and discourage learners from using these tools. The use of www.collocationassistant.com is expected to reduce cognitive load, enhance working memory storage, and help learners

remember more V-N colloc. while writing paragraphs, particularly when expressing ideas.

2.9. Theoretical Background for the Online Verb-Noun Collocation Assistant Tool

The primary objective of this study was to develop an online V-N colloc. assistant to aid students in acquiring and correctly utilizing V-N colloc. in their writing. In order to achieve this goal, in this study, the colloc. assistant, www.collocationassistant.com was developed based on the principles of the lexical approach, explicit teaching of V-N colloc., and cognitive load theory. The tool was designed to facilitate students' acquisition and effective use of V-N colloc. in their writing, while minimizing cognitive load. To achieve this, the colloc. assistant was developed with three primary principles in mind. First, it derived V-N colloc. from a course book to ensure that the language taught was relevant and useful for students. Second, the colloc. assistant was designed to present these colloc. in a way that did not create extra load on the working memory, allowing students to easily incorporate them into their writing without undue cognitive effort. Finally, the tool was developed to enable students to transfer the knowledge they acquired from using the tool to another medium, that is, writing. By incorporating these principles into the design of the colloc. assistant, the study aimed to provide students with an effective and efficient tool for learning and using V-N colloc. in their writing.

2.9.1. Lexical Approach

The importance of learning vocabulary in chunks, such as colloc., rather than as individual words is a central tenet of the lexical approach. This approach emphasizes the importance of understanding how words are commonly used together to develop a more intuitive understanding of the language.

According to Morgan Lewis (2000) and Michael Lewis and Cherry Gough (2008), colloc. are essential components of lexical patterns. They refer to words that commonly occur together and should be learned as a whole rather than broken down into separate parts for better retention in learners' mental lexicon. Michael Lewis (2000) identified 20 different types of colloc. ranging from a V-N colloc. like *undermine credibility* to adjective-noun colloc. like *arduous struggle*, verb-adverb colloc. like *spuriously inflate* and unfinished set expressions like *more or less*. In this research, the researcher focused on the former type of colloc., which was also specified by Woolard (2000).

According to Morgan Lewis (2000), learners often struggle to connect grammar rules and individual words to express their ideas effectively, leading to frustration. However, if teaching focuses on colloc. rather than complex single words, learners can communicate their thoughts more confidently. Lewis illustrates this point by comparing the single word "corner" with the colloc. "dangerous corner." When a learner recalls the colloc. "dangerous corner," they can describe a situation more comprehensively. For instance, the sentence "This is a dangerous corner" conveys a scenario where two people are driving and approaching a corner where several accidents have occurred. Therefore, it is crucial to draw students' attention to colloc. in the classroom, even if it means translating them into their mother tongue. Students may recognize the meaning of individual words like "run" and "risk," but may not notice the colloc. "run the risk of." Teachers need to provide guidance initially, and once students become familiar with colloc., they can become independent learners over time (Morgan Lewis, 2000, p.15).

Students may sometimes struggle to generate ideas when beginning to write a paragraph or an essay. However, teachers can leverage such challenges as

opportunities to emphasize the importance of colloc. during brainstorming. This approach will enable students to articulate their thoughts with greater ease and confidence (Morgan Lewis, 2000).

2.9.2. Explicit teaching

Explicit teaching involves providing learners with direct instruction and explanations about the target language feature. In the case of the colloc. assistant, students were explicitly taught the meaning and usage of various verb-noun combinations through interactive exercises and feedback.

In regards to teaching colloc., there is a debate over whether they should be taught implicitly or explicitly. Some researchers argue that implicit teaching helps learners recognize and remember colloc. (Pellicer-Sanchez, 2015), while others suggest that explicit instruction can be more effective (Nesselhauf, 2003; Gheisari and Yousofi, 2016). In a study by Pellicer-Sanchez (2015), 41 intermediate L2 learners were divided into two groups (Group A and Group B) and exposed to a story containing target adjective-pseudoword colloc. Group A heard the colloc. repeated eight times, while Group B heard them repeated only four times. Both groups read the stories without going back and answered comprehension questions. One week later, all the learners were given a test to measure their recognition and recall of the colloc. The results showed that learners can incidentally acquire knowledge of the form of colloc. through reading, regardless of frequency. However, the ability to recall colloc. was more difficult than recognizing them, and recalling the correct colloc. was the most difficult task for both groups. Pellicer-Sanchez (2015) concluded that learners can acquire knowledge of the form of colloc. incidentally, but explicit instruction may be necessary for more effective collocational recall.

While Pellicer-Sanchez (2015) found that learners can acquire collocational knowledge incidentally through reading, other studies such as Gheisari and Yousofi (2016), Chan and Liou (2005), and Nesselhauf (2003) recommend explicit instruction for learning colloc. Gheisari and Yousofi (2016) conducted a study with 90 university students to compare the effectiveness of implicit and explicit instruction in enhancing collocational knowledge. The students were randomly assigned to three groups: an implicit instruction group, an explicit instruction group, and a control group. The course book and a book of texts prepared by the researchers were used during 16 two-hour sessions, covering different types of colloc. The implicit group received an input flood intervention, while the explicit group was taught strategies to increase their awareness of colloc. The control group received regular classes. The researchers measured short-term and long-term effects of the instructions through pretests, early post-tests, and late post-tests. Both the implicit and explicit groups showed significant improvement in their collocational knowledge, but the explicit group did better. Thus, the study suggests that explicit instruction can improve learners' knowledge of colloc. more effectively.

Explicit teaching involves a range of elements, including focusing on essential content, sequencing skills logically, breaking complex skills into smaller parts, planning organized lessons, stating clear goals and expectations at the beginning of each lesson, summarizing previously learned knowledge and skills, demonstrating skills in a step-by-step manner, using appropriate language for students' level, providing ample examples and non-examples, offering guidance and support during practice, creating an interactive classroom environment, carefully assessing student performance, utilizing instructional time effectively, providing immediate, constructive feedback, using appropriate teaching strategies to connect information,

and providing opportunities for both new and previously acquired knowledge practice (Archer & Hughes, 2011). Effective explicit teaching is grounded in several principles, such as ensuring that students spend enough time on tasks, facilitating accurate student responses, covering content effectively and efficiently, allocating sufficient time for group work, and providing appropriate scaffolding (Archer & Hughes, 2011).

The present study utilized the online tool www.collocationassistant.com, which is based on scaffolding. Unlike concordancers, which can overwhelm learners with large amounts of data, this tool helps learners review V-N colloc. from the book "*Q: Skills for Success 3 Reading and Writing*" (Ward & Gramer, 2014) that they covered during a 12-week course. The tool categorizes these colloc. according to various topics and provides exercises for learners to practice them. By organizing the V-N colloc. into topics, learners can use them in their writing to develop and express their ideas effectively, both major and minor.

2.9.3. Cognitive load theory

Cognitive load theory suggests that learning can be impeded by excessive cognitive demands placed on working memory. To minimize cognitive load, the colloc. assistant was designed to be user-friendly and intuitive, with clear and concise explanations and examples provided. The use of concordancers to access a large amount of data may increase the cognitive load on learners' working memory, which could limit their ability to learn a high number of colloc. at once. To address this issue, various instructional designs based on cognitive load theory can be employed to reduce the cognitive load.

Moreno and Park (2010) have highlighted that cognitive load theory focuses on organizing cognitive constructs that occur during learning and designing teaching materials that facilitate learning. Sweller's (2016) psychological construct comprises

working memory and long-term memory. When learners are exposed to new information, they use their senses to process it in their working memory. According to Baddeley (1983), learners use the "visual spatial scratch pad" and "phonological loop" to store visual and phonological information as unitary short-term memory in their working memory (p. 315). However, Sweller (2016) posits that working memory has a limited capacity and can only retain up to seven pieces of information for 30 seconds to two minutes. Long-term memory is another component of the cognitive construct. As learners continue to practice new information, they can store large amounts of data and form schemas and background knowledge that aid in learning new information. Long-term memory allows for the automatic retrieval of previously practiced information. In summary, reducing the cognitive load on working memory is crucial for the formation of new schemas in long-term memory (Kanokpermpoon, 2013).

According to Kanokpermpoon (2013), there are three types of cognitive load: intrinsic cognitive load, extraneous cognitive load, and germane cognitive load. Intrinsic cognitive load refers to the amount of information that needs to be processed in working memory. When students are presented with a reading text and are required to process colloc. in the text and use them in their writing, the intrinsic cognitive load increases. To reduce the intrinsic cognitive load on working memory, an explicit approach through computer-assisted materials, such as tables, could be used instead of relying on implicit learning strategies and expecting learners to acquire colloc. spontaneously.

Sweller (2016) proposed that extraneous cognitive load is caused by ineffective learning materials that add extra load on working memory and reduce its capacity for learning new information. For instance, a PowerPoint presentation with excessive sound effects and numerous pictures can create extraneous cognitive load and prevent

learners from focusing on the content. Element interactivity is another type of extraneous cognitive load. For instance, if students have to deal with multiple scientific terms outside their specialization field while trying to grasp the main idea of a text, the resulting extraneous cognitive load can decrease the capacity of working memory (Kanokpermpoon, 2013).

Germane cognitive load is the cognitive load that promotes learning. It involves the processes that occur during the construction of schemas and the creation of automaticity. For example, a student who has already mastered the skill of forming simple sentences can quickly learn compound sentences with lower cognitive load (Kanokpermpoon, 2013).

It is suggested that designing instructional material that considers intrinsic load, extraneous load, and germane load can help decrease cognitive load on working memory, allowing learners to store new information for longer periods. The literature suggests that computer-assisted learning can help students increase their working memory capacity and recall words more effectively (Kanokpermpoon, 2013).

2.10. Summary of the chapter:

Learning vocabulary, particularly colloc., poses a significant challenge for language learners. The ability to use words effectively in context requires a solid grasp of their collocates. The definition of colloc. varies across textual and phraseological perspectives, resulting in differing classifications into three categories based on lexical, semantic, and structural approaches. However, the consensus is that learners find it difficult to learn all types of colloc. To address these issues, researchers and practitioners have developed various strategies such as traditional exercises, dictionary

usage, and CALL. Even so, there is still a need for ongoing research to develop effective instructional approaches and materials to facilitate the acquisition of colloc.

In conclusion, the challenge of learning colloc. in an L2 is a complex issue that requires a multifaceted approach. Further research and practical efforts are needed to help learners overcome these difficulties and achieve proficiency in using colloc. appropriately and effectively. By incorporating these theoretical frameworks into the development of the colloc. assistant, the study aimed to provide an effective and efficient tool for improving students' V-N colloc. knowledge and usage in their writing.



CHAPTER III. METHODOLOGY

3.1. Introduction

This chapter aims to outline the methodology of the present study, which investigates the impact of an online colloc. tool on the use of V-N colloc. in writing tasks among Turkish EFL learners compared to paper-based exercises. The chapter is structured as follows: first, the research design and research questions are presented. Second, the setting of the study is described. Third, the general characteristics of the participants are provided. Fourth, the instructional materials, including the selection of target V-N colloc., the online collocational tool, and the paper-based exercises, are described. Fifth, the data collection tools, such as the pretest/posttest, paragraph writing, quality review checklist, and background information questionnaire, are presented. Sixth, the data collection process is explained. Finally, the data analysis methods, including data extraction and statistical tools used for analysis, are described.

3.2. Setting

The study was conducted at a preparatory school of a foundation university in Istanbul, Turkey. Ethical approval was obtained from the university's ethical committee. All students who participated in the study provided oral informed consent.

During the term when the study was conducted, all the students learning English to achieve B1 level at the preparatory school took the course of Reading-Writing. This course was offered three hours daily, four days a week for 12 weeks. Throughout the course, the students practiced writing five types of paragraphs: order of importance, comparison, contrast, cause and effect, which were in the course syllabus (Appendix A). They also practiced various reading skills such as scanning, skimming, inferencing, reference words, and guessing meanings of words from

context. The course materials included the reading book *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) and the writing book *Ready to Write 2* (Blanchard & Root, 2017).

During the term, the students covered various reading texts from *Q: Skills for Success 3 Reading and Writing*, such as the texts titled Small Talk: Big Deal, Job Interviews 101, Knowing Your Tastes, Finding Balance in Food, Fast cars, Big Money and Practice Makes Pain. They also covered specific units from *Ready to Write 2*, such as Getting Organized, Understanding Paragraphs, Supporting the Main Idea, and Comparing and Contrasting.

As part of the course, the students wrote each type of paragraph at least once in class and once at home, with topics selected by the class teacher. They were provided feedback based on a set of assessment criteria out of 20 points provided by the school administration (Appendix B: Writing Assessment Criteria). Additionally, the students took an exam for each type of paragraph, which was also assessed using the same set of criteria. The topics for these exams were assigned by the testing center of the school. The students' three highest grades were selected, and the mean value of these three grades was added to their grade point average.

In addition, the students took a course that focused on improving their use of English, vocabulary, listening, and speaking skills. During the term, they took one official quiz, one mid-term exam, and one final exam that included questions related to their use of English, vocabulary, and reading skills.

3.3. Participants

This study has a non-equivalent control group design, in which randomization as in true experimental design was not possible. Therefore, convenience sampling was

used, involving the selection of intact foreign language classes. The researcher had access to two intact classes that had been assigned by the university administration. The sample for this quasi-experimental study consisted of 24 Turkish EFL learners.

At the beginning of the study, the sample consisted of 48 students who were enrolled in two different classes. The web group comprised 25 students and the paper group had 23 students. However, four students from the web group and two students from the paper group never showed up in classes. During the term when this study was carried out, it was acceptable for students to miss 69 class-hours, which was determined by the school administration. One student from each group missed 70 class hours and dropped out of school. Those who missed more than 69 hours were considered to have failed by the administration. Additionally, eight students from the web group and eight students from the paper group missed one or two sessions when they had to write paragraphs using the colloc. assistant or paper-based exercises. After accounting for these factors, the final sample consisted of 24 Turkish EFL learners, aged 17-21 years, who were taking a pre-intermediate English course. The web group and paper group each had 12 students.

The sample of this study consisted of 24 participants with an A2 level of English according to The Common European Framework of Reference for Languages, consisting of 11 females and 13 males. Sixteen participants were graduates of private high schools, while eight were graduates of state high schools. The duration of prior English education varied from 2 to 12 years. The number of classes missed by the participants ranged from one to 68 hours. Most of the participants were first-year university students who had passed the university entrance exam.

The web group consisted of 12 students, with five female and seven male students, all aged between 17 and 19 years. Five students were state high school

graduates while seven were from private high schools. The number of classes missed by the web group students ranged from 1 to 68. The students had varying levels of prior exposure to English, with some having been exposed for as little as 2 years and others for as long as 12 years during primary, secondary and high school. The students received a mean score of over three on a four-point scale for their comfort level in using a computer, writing English assignments on the computer, and using the internet, with one indicating “not comfortable” and four indicating “very comfortable”. All the students in the web group reported having access to the internet.

Out of the 12 students in the paper group, six were female and six were male. Three students were state high school graduates, while nine were private high school graduates. The paper group consisted of students aged 18-21 years and skipped 5-68-class hours. Their exposure to English during primary school, secondary school, and high school ranged from four to 12 years.

Table 3

Information on the Features of the Participants (N=24)

Features	Gender	Age (yrs.)	Type of High School	Duration of Prior Exposure to English	Classes Missed (hrs.)
web group	F: 5 M: 7	17-19	S: 5 P: 7	2-12 years	1-68
paper Group	F: 6 M: 6	18-21	S: 3 P: 7	4-12 years	5-68

F: female; M: male; S: state high school; P: private high school

3.4. Research Design and Research Questions

The present study utilizes a non-equivalent (pre-test/post-test) control-group quasi-experimental design. This involves selecting an experimental group and a control group without random assignment (Creswell, 2014). Both groups take a pre-

test and a post-test, but only the experimental group receives the treatment. In this study, the experimental group received a colloc. instruction treatment through a web tool, while the control group received the same collocation instruction through paper-based exercises and took the pre- and post-tests. The inclusion of a control group allows for a baseline comparison. The study utilized convenience sampling and collected both quantitative and qualitative data using various data collection tools.

The study was conducted in a preparatory school of a university where the medium of instruction is English, and students are required to reach a certain level of English proficiency to enroll. To determine their proficiency, students are given a test consisting of 80 questions about the use of English, vocabulary, and reading skills, and are also asked to write a 350-word essay on a given topic, which is marked out of 20 points. Those who score 60 or higher on the proficiency test pass and continue to study in departments determined through a university entrance exam. Students who score lower than 60 attend the preparatory school to improve their English skills. They take a placement test, and based on their scores, are assigned to A, B1, or B2 levels, which correspond to A1-A2, B1, and B2 levels in the Common European Framework of Reference for Languages respectively. The students in each level are randomly assigned to classes by a computerized system, with two different teachers assigned to each class. One teacher offers Reading-Writing and the other offers Listening-Speaking-Grammar. However, the researcher does not have control over this randomization process. Therefore, the sampling procedure used in this study is convenience sampling, and the results obtained may not be generalized to the entire population of students attending the preparatory school or other preparatory schools in the country.

The study has two independent variables: the online tool www.collocationassistant.com, which was used to teach and raise awareness about V-N colloc. in the web group, and paper-based exercises offering the same content to the paper group. The online tool and paper-based exercises were integrated into the syllabus.

The dependent variables are correct answers on the pre/posttest (receptive knowledge of colloc.), the correct use of target V-N colloc. in three paragraphs written by the students after exposure to the online tool or paper-based exercises (productive knowledge of V-N colloc.), the differences in the correct use of target V-N colloc. in three paragraphs between the web and paper groups, the differences in types of errors in target and non-target V-N colloc. between the groups, the differences in types of errors between target and non-target V-N colloc., and the opinions of the students about the colloc. assistant.

The following research questions were addressed in the study:

Research Question 1. Does the use of the online colloc. tool (www.collocationassistant.com) result in a significant improvement in the knowledge of V-N colloc. compared to paper-based exercises?

Research Question 2. Is there a significant difference in the types of V-N colloc. errors made by the web group compared to the paper group?

Research Question 3. Is there a significant difference in the types of errors between target V-N colloc. and non-target V-N colloc.?

Research Question 4. What types of errors do students in the web and paper groups make in V-N colloc.?

Research question 5. What are the perceptions of Turkish EFL learners toward the colloc. tool?

To address these research questions, data was collected using pre/posttests, paragraph writing, a checklist, and a background information form. The collected data was analyzed using descriptive statistics as well as non-parametric tests, namely the Mann-Whitney U test and the Wilcoxon signed rank test, as presented in Table 4.

Table 4

Research questions, methods and instruments of the study

Research Questions	Methods	Instruments
1. Does the use of the online colloc. tool (www.collocationassistant.com) result in a significant improvement in the knowledge of V-N colloc. compared to paper-based exercises?	Mann-Whitney U test	Pretest/posttest Paragraph writing
2. Is there a significant difference in the types of V-N colloc. errors made by the web group compared to the paper group?	Mann-Whitney U test	Paragraph writing
3. Is there a significant difference in the types of errors between target V-N colloc. and non-target V-N colloc.?	Wilcoxon signed rank test	Paragraph writing
4. What types of errors do students in the web and paper groups make in V-N colloc.?	Numbers and percentages	Paragraph writing
5. What are the perceptions of Turkish EFL learners toward the colloc. tool?	Mean values	Quality review checklist

3.5. Data Collection Tools

In this section, we will first provide a detailed explanation of the design and purpose of the data collection tools. Then, we will describe the piloting process. The data were collected through pre- and post-tests, student-produced paragraphs, a quality review checklist that consisted of questions regarding students' opinions on using the online colloc. assistant, and a background information questionnaire.

3.5.1. The pre- and post-test

The pre- and post-test consisted of 20 multiple-choice questions about V-N colloc. selected from the reading texts in *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) (Appendix C). A sample item is presented as follows:

If you _____ eye contact, you can easily build trust.

- a) communicate b) maintain c) ignore d) succeed

Two researchers who teach evaluation and assessment courses at a university, as well as two practitioners with five years of experience in the testing office of the preparatory school of English where this study was conducted, provided expert feedback on the questions in the pretest/posttest. The questions were revised based on this feedback. The test was piloted on 50 students with similar characteristics to those in the study, and the students found the questions clear and understandable. Its Cronbach's alpha was found to be 0.79 on the pilot test, which indicates that the test is adequately reliable (Pallant, 2020; Nizonkiza, 2015). In addition to the pre- and post-tests, data were also collected through paragraphs produced by the students, a quality review checklist consisting of questions about students' opinions on using an online colloc. assistant, and a background information questionnaire.

The students in the web group utilized www.collocationassistant.com to study the V-N colloc. derived from the course book and then incorporated them into their writing tasks, while the students in the paper group studied the same V-N colloc. through paper-based exercises and then incorporated them in their writing tasks. Both groups were administered the pretest in the first week of the term and the posttest in the last week of the term.

3.5.2. Paragraph Writing

The students in both the web and paper groups were instructed to write three paragraphs throughout the term to demonstrate their productive V-N colloc. knowledge.

The web group received a 45-minute training session on how to use the online colloc. assistant, www.collocationassistant.com. The tool was used to teach the target V-N colloc. selected and derived from the reading texts covered during the term. The web group utilized this tool to acquire and practice the target V-N colloc. in the classroom environment. The preselected, topic-specific V-N colloc. with their definitions and sample sentences were made available to the web group through the online colloc. assistant, after which the students were asked to do exercises (matching, fill-in the blanks, and cloze test). They wrote a paragraph each time when they were exposed to the online colloc. tool in the classroom and were asked to use the practiced V-N colloc. in 130-word paragraphs in the fifth, ninth and eleventh weeks. The topics for the paragraphs were how to impress an employer, advantages of using a driverless car, and why we need advertisements (Appendix D. Topics of Writing Tasks).

The students in the paper group were given the same target V-N colloc. derived from the reading texts covered during the term through paper-based exercises. They were asked to use these colloc. in three 130-word paragraphs about the same topics

(Appendix D. Topics of Writing Tasks). The paper-based exercises included a concept map of the V-N colloc., followed by their definitions and translations, model sentences containing them and matching exercises, fill-in-the-blanks exercises, and cloze tests. The exercises were designed based on the same target V-N colloc. as those offered to the web group through the online colloc. tool.

3.5.3. A quality review checklist

The quality review checklist used in this study was created by the researcher based on the relevant literature (Nurmukhamedov, 2015) to determine the effectiveness of the colloc. assistant tool in improving productive verb-noun colloc. knowledge and learner satisfaction with the tool. The checklist included six questions evaluated on a four-point scale ranging from helpful/sure/easy to unhelpful/unsure/difficult in addition to one open-ended question. The questions asked students to rate if the activities offered by the tool were helpful in recalling and using V-N colloc. automatically, if the V-N colloc. categorized by topics helped them express their ideas in paragraphs, if the tool was easy to use, and if they wanted to use the online colloc. assistant in the future. Additionally, the students were asked to provide their reasons for their response to the question about their willingness to use the assistant in the future in one to three sentences. The checklist can be found in Appendix E.

To ensure the reliability and validity of the checklist, it was piloted on a small sample of 30 students with similar characteristics to the study sample. The pilot study aimed to determine whether the questions were clearly understood by the students and whether they were able to provide meaningful responses.

The results of the pilot study revealed that the students did not have any difficulty understanding the questions on the checklist. They were able to provide

comprehensive and meaningful responses to all the questions. Based on the feedback received from the pilot study, no changes were made in the questions on the checklist.

Furthermore, to assess the reliability of the checklist, Cronbach's alpha coefficient was calculated in the pilot study. The coefficient was found to be 0.68, which indicates moderate internal consistency. This suggests that the checklist items are somewhat related to each other and can be used together to evaluate the effectiveness of the colloc. assistant tool in improving productive V-N colloc. knowledge (van Griethuijsen et al. 2015; Taber, 2018).

3.5.4. A background information questionnaire

A background information form (Appendix F) was designed to collect important demographic data about the participants. It consists of six questions that ask about age, gender, type of high school the students graduated from, total duration of studying English (years/months), and how comfortable the students are in writing their English assignments on the computer.

Before administering the form to the study sample, it was pilot tested on 30 students who had similar characteristics to the participants. The purpose of the pilot test was to ensure that the questions were clear and easily understandable by the participants. Based on the feedback received, the questions were found to be clear and easily understood by the students.

The background information form is an important tool to gather information about the participants and their background. It can help to identify any potential differences between groups that may impact the results of the study. By collecting information about the students' age, gender, type of high school they graduated from, and total duration of studying English, researchers can better understand the sample and ensure that it is representative of the population they are studying.

Furthermore, the question about the students' comfort level in writing their English assignments on the computer is important because it can impact the results of the study. If some students are more comfortable with computer-based tasks than others, this could affect their performance on the use of the online aid, paragraph writing, the pretest and posttest. Collecting this information will allow researchers to account for any potential differences between participants and ensure that the results are not biased due to these factors.

3.5.5. Instructional Materials

The present study utilized two types of instructional materials: an online colloc. assistant, and paper-based tasks. The following subsections will provide a detailed explanation of each of these materials.

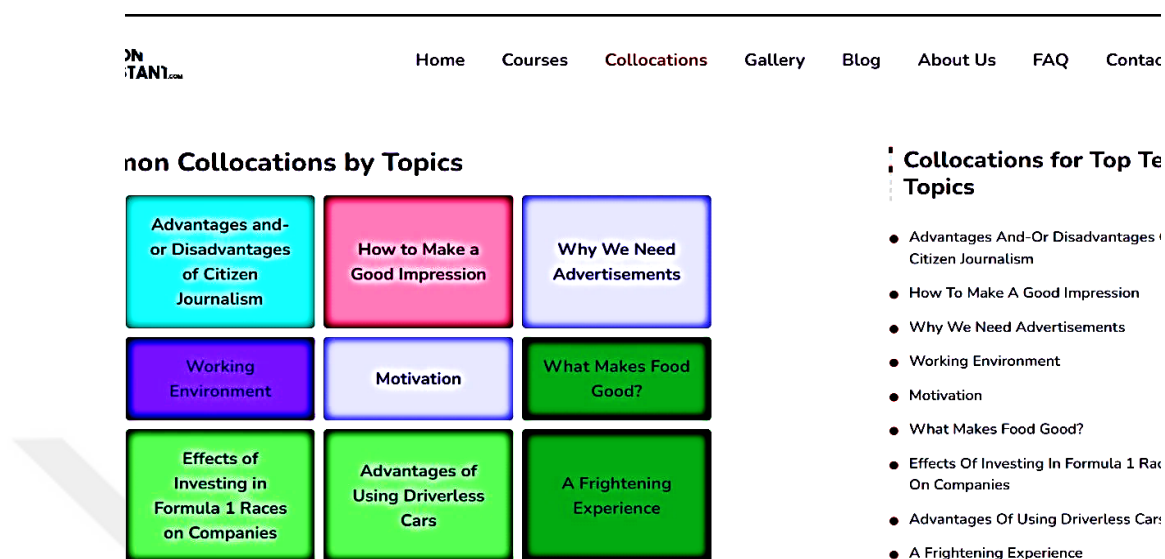
3.5.5.1. Online Collocation Assistant

The online colloc. assistant used in the study included lists of topic-specific V-N colloc. selected and derived from *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014), which was the course book used by the school during the study period, colloc. webs for the selected V-N colloc., their definitions in English, their translations to Turkish, model sentences using them and various exercises about the selected colloc. The content of the website for the colloc. assistant was created in six stages: 1) selection and collection of topic-specific V-N colloc. from several texts in the book *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) and drawing a colloc. web for each topic, 2) searching for and writing their definitions in English, translations into Turkish and model sentences containing the selected colloc., 3) developing exercises including matching, sentence-based fill in the blanks exercises and cloze tests, 4) obtaining expert opinion about definitions, translations, model

sentences and exercises, 5) recording the content on the website and 6) piloting the online colloc. assistant.

In the first stage, two books, i.e. *Ready to Write 2* (Blanchard & Root, 2017), *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) and the syllabus for the course of Reading and Writing prepared by the school administration were examined. The syllabus required covering an order of importance, cause/effect and similarity/difference paragraphs in the book *Ready to Write 2* (Blanchard & Root, 2017) throughout the term. Besides, the topics addressed in the reading texts of the book *Q: Skills for Success 3 Reading and Writing* (Ward & Gramer, 2014) were examined. Three units titled “How do you make a good first impression”, “How has technology affected our lives?” and “Does advertising help or harm us?” were selected from the book since they were considered to contain ideas and V-N colloc. to use in paragraph writing. V-N colloc. in the reading texts in these units were screened and each potential V-N colloc. was examined by using Oxford Learner's Dictionaries, Collins English Dictionary, MacMillan Dictionary, BNC, and COCA. A list of 14 target V-N colloc. about how to impress an employer, another list of nine target V-N colloc. about advantages of using driverless cars and one more list of nine target V-N colloc. about the reasons why we need advertisements were made (Appendix G. Topic-Specific Collocations Derived from the Book *Q: Skills for Success 3 Reading and Writing*).

The website www.collocationassistant.com offers users the ability to view V-N colloc. related to specific topics displayed in boxes. The following figure shows the distribution of the V-N colloc. by various topics students can access at present (Figure 2).

Figure 2*Verb-Noun Collocations by Topics*

The colloc. assistant allows users to easily search for V-N colloc. related to a specific topic of their interest. By simply clicking on the topic they want to write about, users can visualize a list of V-N colloc. that they can use to construct a coherent paragraph (Figure 3).

For example, if a user wants to write about making a good impression, they can select this topic and the system will generate a list of relevant V-N colloc. that can be used in the paragraph. This makes it easier for users to find appropriate V-N colloc. to use in their writing, thereby improving the overall quality of their work.

To provide users with a better understanding of the available V-N colloc., the colloc. assistant can also display examples of how these colloc. can be used in a sentence. By providing these examples, users can get a better sense of how the colloc. can be used in context, and this can help them to choose the most appropriate colloc. for their writing.

Overall, the colloc. assistant provides users with an efficient and effective way to search for V-N colloc. that can help them to improve the quality of their writing,

and this can be particularly useful for individuals who are learning a new language or who are trying to improve their writing skills.

Figure 3

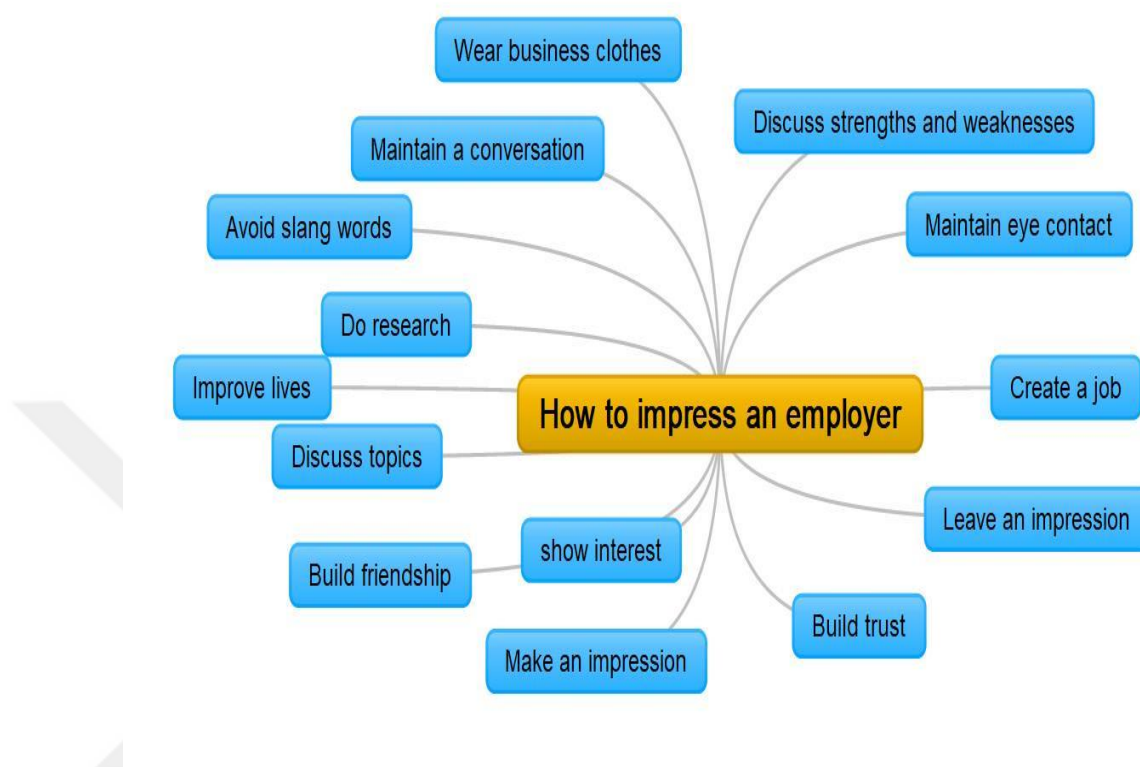
Verb-Noun Collocations about a Topic

How to Make a Good Impression



The colloc. assistant also offers a unique feature that allows users to view topic-specific V-N colloc. in the form of colloc. webs (Figure 4). These webs are accompanied by their definitions in English as well as translations and sample sentences. By presenting the colloc. in this way, users can gain a deeper understanding of the words and phrases that they are using in their writing.

For instance, if a user is writing about a specific topic, they can select the corresponding topic and view the related colloc. web. This web will illustrate the relationships between the different V-N colloc. and provide a visual representation of how they are used in context.

Figure 4*Collocation Web*

To further enhance users' understanding of the colloc., the colloc. assistant provides definitions and translations for each of the colloc. This ensures that users have a clear understanding of the meaning and context of each colloc., which can help them to choose the most proper words for their writing.

In addition, sample sentences are also included with each colloc., which can give users a better idea of how the colloc. are used in practice. By accessing these examples, users can see how the colloc. can be utilized in context and get a sense of how they can be integrated into their own writing.

Overall, the colloc. assistant's presentation of topic-specific V-N colloc. in the form of colloc. webs, accompanied by definitions, translations, and sample sentences, provides users with a comprehensive understanding of the V-N colloc. that they are

using in their writing. This feature can be especially helpful for individuals having lower levels of language skills and struggling to attain mastery in writing skills (Figure 5).

Figure 5

Entries for Verb-Noun Collocations

1. maintain a conversation

ENG: to continue a conversation

TR: konuşmayı devam ettirmek

e.g. You should find things in common to maintain a conversation.

2. wear business clothes

TR: iş kıyafetleri giymek

e.g. You should wear business clothes to look elegant.

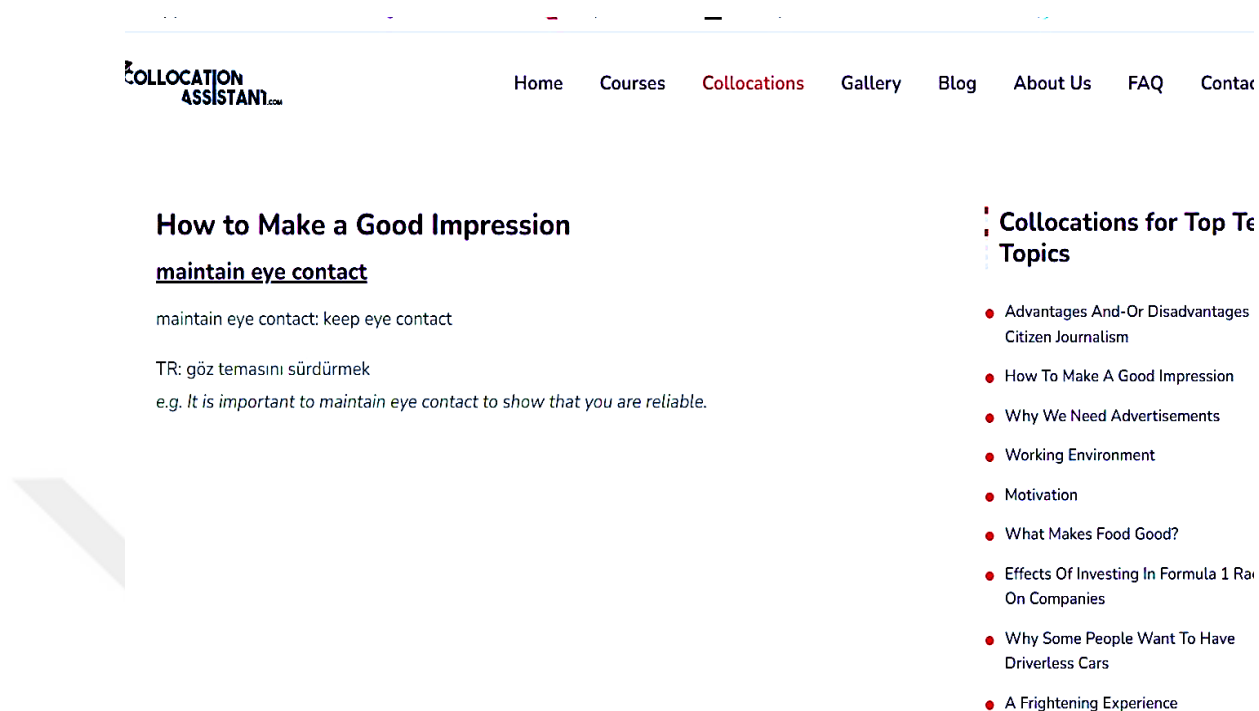
3. discuss strenghts and weaknesses

ENG: to talk to somebody about what you can do and what you can't do

TR: güçlü ve zayıf yönleri tartışmak

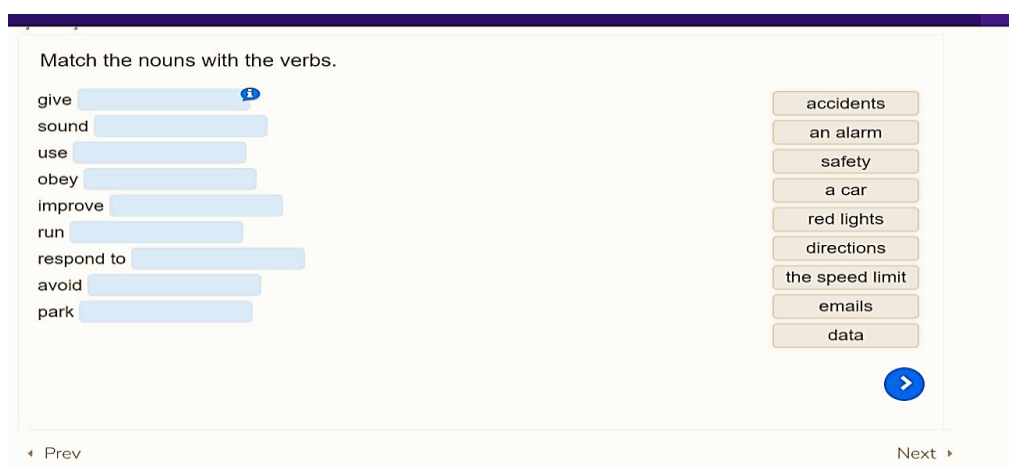
Next ▶

In the second stage, definitions of the selected and derived V-N colloc. were made according to Oxford Learner's Dictionaries, Collins English Dictionary, MacMillan Dictionary, BNC, and COCA and they were translated into Turkish (Figure 5). Each colloc. was also exemplified with a model sentence. When students click on a colloc., they can access its definition in English, its Turkish equivalent, and sentence(s) in which it is used. Below is a typical colloc. entry in the online assistant (Figure 6).

Figure 6*An Entry for a Verb-Noun Collocation*


The screenshot shows the COLLOCATION ASSISTANT website. The header includes the logo and navigation links: Home, Courses, Collocations, Gallery, Blog, About Us, FAQ, and Contact. The main content area is titled 'How to Make a Good Impression' and features a section for 'maintain eye contact'. Below this, it provides the definition 'maintain eye contact: keep eye contact', the Turkish translation 'TR: göz temasını sürdürmek', and an example sentence: 'e.g. It is important to maintain eye contact to show that you are reliable.' On the right side, there is a sidebar titled 'Collocations for Top Topics' with a list of topics including 'Advantages And-Or Disadvantages Citizen Journalism', 'How To Make A Good Impression', 'Why We Need Advertisements', 'Working Environment', 'Motivation', 'What Makes Food Good?', 'Effects Of Investing In Formula 1 Race On Companies', 'Why Some People Want To Have Driverless Cars', and 'A Frightening Experience'.

In the third stage, various exercises such as matching, fill-in-the-blanks, and cloze tests, which allow explicit teaching of colloc., were created to increase awareness and understanding of V-N colloc. (Lewis, 2000; Conzett, 2000). Below are examples of each type of exercise (Figures 7, 8, 9).

Figure 7*Matching Exercise*


The screenshot shows a matching exercise interface. The instruction is 'Match the nouns with the verbs.' On the left, there is a list of verbs: give, sound, use, obey, improve, run, respond to, avoid, and park. Each verb is followed by a blue rectangular box for the user to write the matching noun. On the right, there is a list of nouns: accidents, an alarm, safety, a car, red lights, directions, the speed limit, emails, and data. At the bottom right, there is a blue circular button with a white right-pointing arrow. At the bottom left, there is a 'Prev' button, and at the bottom right, there is a 'Next' button.

Figure 8*Sentenced-Based Fill in the Blanks Exercises*

Fill in the missing words

You should adopt a few strategies to the interviewer.

One way is to eye contact.

You should trust to get the job.

Another strategy is to interest in the company.

If you some research, you can get enough information about the company.

You should topics which the interviewer can be interested in.

Finding common ground helps you eye contact.

When you get prepared, it is easy to a good impression on the interviewer.

[◀ Prev](#) [Next ▶](#)

Figure 9*Cloze Test*

Fill in the missing words

There are several ways to impress an interviewer. First, you should eye contact. Looking in the eyes demonstrates that you are confident. In addition, it helps you trust. The second way to impress the interviewer is to interest in the company which you want to work for. You should some research about the company and ask questions about it at the interviewer. Most importantly, you should topics which the interviewer can be interested in. To achieve this, you should common ground. You should look around and find something about the interviewer such as a photograph of the interviewer and his/her family. In conclusion, if you adopt abovementioned strategies, it can be easy to a good impression on the interviewer.



[◀ Prev](#) [Next ▶](#)

After being exposed to a reading text, students can use the online colloc. assistant to view the appropriate V-N colloc. covered in the text. They can see their definitions and translations, sentences containing them, and access exercises to practice, which can aid in recording them in their long-term memory. It is expected that this will enable them to easily recall the V-N colloc. when writing a paragraph about a certain topic.

In the fourth stage, expert opinion about the definitions and translations of the V-N colloc., model sentences and exercises was obtained from two faculty members who specialized in English language teaching. In accordance with their suggestions, necessary revisions were made.

In the fifth stage, the definitions and translations of the colloc., model sentences and exercises were recorded in the web tool based on WordPress. Finally, the web tool was piloted with a group of students who shared similar characteristics to the study sample. Feedback from the students indicated that the website was not very practical to navigate. As a result, the website was redesigned to make it easier for students to quickly access the library of V-N colloc. and exercises. Additionally, the students expressed discomfort with the website tracking their performance, which hindered their use of the website. Therefore, the latest version of the website does not include this feature.

The website www.collocationassistant.com was used by the web group during classes and they were also given the opportunity to access it from their mobile phones and personal internet connections at home. Six students in the web group utilized the tool outside of class and had more exposure to the V-N colloc. The paper group received the same content as the web group but through paper-based exercises.

3.5.5.2. Paper-based exercises

The paper-based exercises comprised of a word map illustrating the V-N colloc. extracted from the book *Q: Skills for Success 3 Reading and Writing* (Ward and Gramer, 2014), followed by definitions and translations of the V-N colloc. and various exercises such as matching, fill-in-the-blanks, and cloze tests (Appendix K). Before commencing the study, these tasks were pilot-tested on a group of students who shared similar characteristics to the study sample. The students reported that the tasks were clear, comprehensible, and useful.

3.6. Data collection procedure

A pre/posttest consisting of 20 questions was administered to the students assigned to both the web and paper groups in the classroom, on the first and last day of school. The students were allotted 20 minutes to complete the test, and their responses were manually checked to determine the number of correct answers for each student.

The test was designed to evaluate the students' knowledge and understanding of the target V-N colloc. By administering the test both before and after the course, it was possible to assess the effectiveness of the teaching methods used and determine how much the students had learned.

After grading the tests, the number of correct answers in the pre/posttest was calculated for both the web and paper groups. This allowed for a comparison of the two groups' performance and provided insight into whether the use of a digital tool, such as a colloc. assistant, had any impact on the students' learning outcomes. Overall, the pre/posttest was a useful assessment tool that provided valuable data about the students' learning progress and helped to measure the effectiveness of the teaching methods used.

Following the administration of the pretest, a background information questionnaire was given to students in both the web and paper groups. On average, it took the students 5 minutes to complete the questionnaire. The questionnaire included questions about age, gender, type of high school the students graduated from, and duration of prior education to learn English.

In addition, the questionnaire included questions about internet access and computer usage, which were only asked to the web group. The responses to the questions were manually derived, and the information obtained was used to determine the number of male and female students, the number of students graduating from state and private high schools, the range of age and prior English education in both groups.

For the web group, the responses to the internet access and computer usage questions were analyzed to determine the extent to which the students had access to the internet and were comfortable using a computer. This information was used to assess whether any differences in internet access or computer usage could have impacted their use of the web tool and performance in the pre/posttest and paragraph writing.

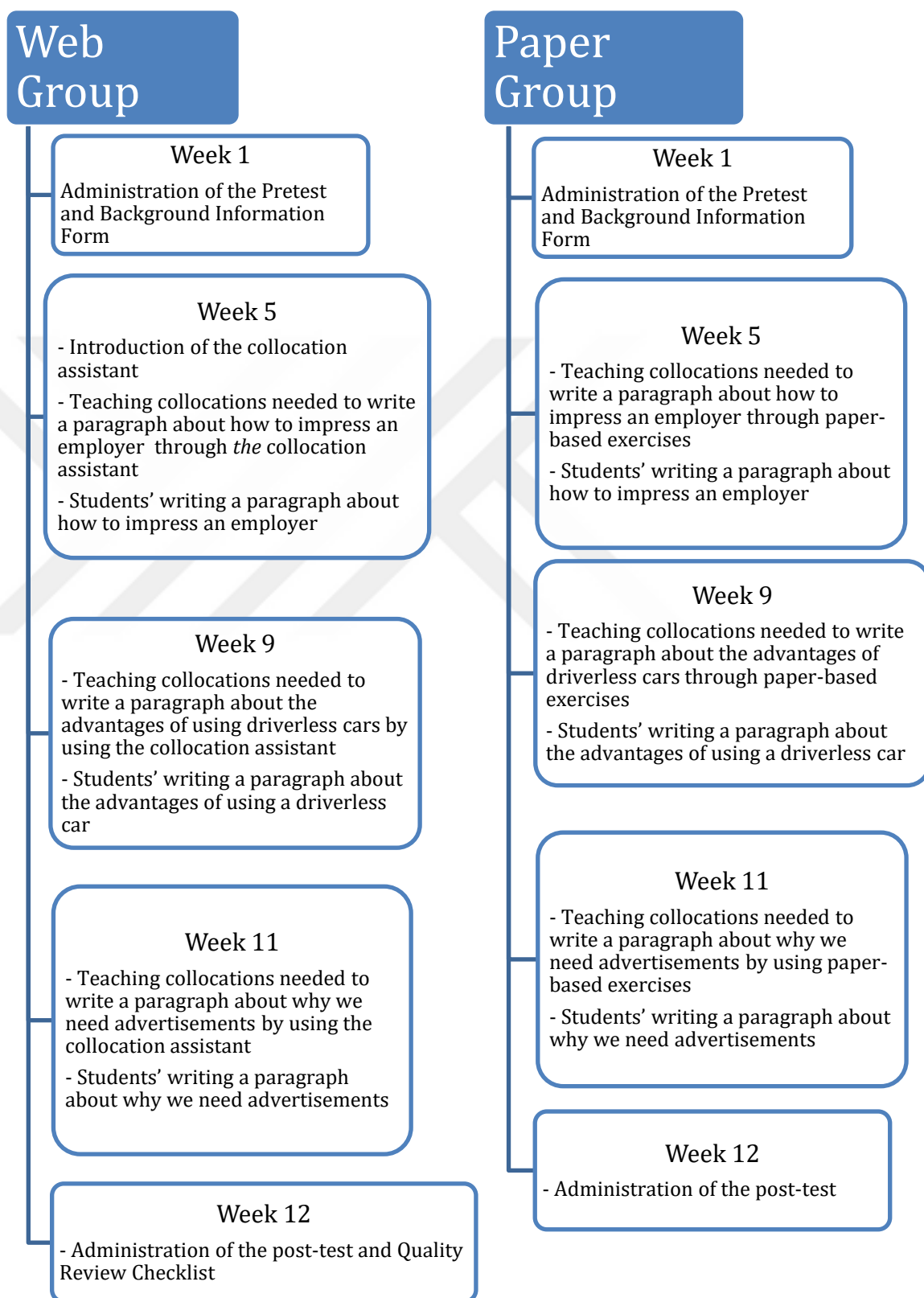
Overall, the background information questionnaire provided important insights into the characteristics of the students in both the web and paper groups, which were essential in understanding the results of the pre/posttest and paragraph writing.

As part of the study, both the web group and paper group students were asked to write a paragraph on a given topic each time they were exposed to the online colloc. tool and paper-based exercises in the fifth, ninth, and eleventh weeks of the semester. The topics of the paragraphs were "how to impress an employer," "advantages of using a driverless car," and "why we need advertisements."

On the last day of school, the quality review checklist was given to the students in the web group. The students were asked to provide feedback on their satisfaction with the online colloc. tool. The responses to the questions in the checklist were manually derived to determine the extent to which the students were satisfied with the tool's effectiveness.

In addition to the pre/posttest, both the background information form and quality review checklist were completed by the students in a classroom environment. The study flow is outlined in Figure 10.



Figure 10*The Study Flow*

The paragraph writing exercises and quality review checklist provided valuable feedback on the students' experience with the online colloc. tool, which was an essential component of the study. The completion of these exercises and checklists in a classroom environment ensured consistency in data collection and provided reliable results.

3.7. Data analysis

In this section, we first discussed the process of data extraction from paragraph writing. Next, an overview of the statistical analysis techniques commonly used for quantitative data were presented. These techniques can help us to identify patterns, similarities/differences, and trends in the data, and to draw meaningful conclusions from our analysis.

3.7.1. Data Extraction

The researcher and another Reading-Writing teacher manually analyzed the paragraphs written by both groups. The aim was to identify correct V-N colloc. and V-N colloc. errors, as reported by Wang Chen (2019) and Nesselhauf (2003). The paragraphs were collected from the students and photographed, and these photographs were stored using a file storage service.

To conduct the analysis, all V-N colloc. in each paragraph were highlighted, and then categorized into two groups: target (Appendix G) and non-target V-N colloc. (Appendix H). The former referred to topic-specific V-N colloc. selected and derived by the researcher from the reading texts that the students had read during the semester, as per the syllabus prepared by the administration. The latter referred to V-N colloc. used by the students based on their background knowledge.

Both groups of V-N colloc. were examined by two researchers for types of errors (Appendixes I and J), using the classification system proposed by Nesselhauf (2005):

- “determiner errors” refers to incorrectly using or not using a determiner (articles, demonstratives, possessives and quantifiers).
- “preposition errors” refers to incorrectly using or not using a preposition of the verb or the noun in a V-N colloc.
- “verb errors” is missing or wrong choice of a verb
- “noun errors” is missing or wrong choice of a noun
- “usage 1 errors” refers to using a V-N colloc. in the sense not required in a sentence in spite of availability of that V-N colloc.
- “usage 2 errors” refers to using a nonexistent combination and impossibility of correction by changing one element
- “numbers errors” is using a noun in the singular form although it has to be plural or vice versa
- “structure errors” means using a wrong syntactic structure in a colloc.

To identify and classify errors, each V-N colloc. was searched in the following dictionaries and databases in order:

- Oxford Learner’s Dictionaries,
- Collins English Dictionary
- MacMillan Dictionary,
- British National Corpus (BNC)
- Corpus of Contemporary American English (COCA)

To determine the correctness of the V-N colloc. used by the students, a two-step process was employed. First, the colloc. was searched in the dictionaries, and

when it was found and matched the sense in which it was used by the student, it was considered correct. However, when it was not found in the dictionaries, it was searched in databases.

If the colloc. was found in five different sources within the database and matched the sense in which it was used by the student, it was considered correct. Otherwise, it was deemed a usage 1 or 2 error depending on the principles adopted above. The types of errors were also identified using both dictionaries and databases, allowing for a thorough analysis of the data.

By using this method, the researcher were able to assess the correctness of the V-N colloc. used by the students and identify any errors in their usage. This approach ensured that the analysis was systematic and comprehensive, and that the results were based on a rigorous evaluation of the data.

Once the correct and incorrect V-N colloc. and errors were identified, they were quantified by obtaining the number of correctly used target and non-target V-N colloc., as well as the number of each type of error. This allowed for a quantitative analysis of the data, enabling the researchers to compare the performance of the students and identify any patterns or trends in their usage of V-N colloc.

By quantifying the data, the researchers were able to provide clear and concise results that could be easily interpreted and used to draw meaningful conclusions. This approach also allowed for a more objective assessment of the students' performance, as it was based on numerical data rather than subjective judgments. Overall, quantifying the data was an important step in the analysis process, as it provided a solid foundation for the researchers' conclusions and recommendations.

3.7.2. Statistical tools

To assess the normality of the data, the Shapiro-Wilk test was used. In addition, various statistical tests and measures were utilized to evaluate the results of the pre- and post-tests, as well as the data obtained from the students' paragraphs, quality review checklist, and background information form.

These included numerical measures such as percentages, minimum-maximum values, and mean values, as well as non-parametric tests such as the Mann-Whitney U test and Wilcoxon signed rank test. By using a variety of statistical tests and measures, the researchers were able to analyze the data from multiple perspectives, gaining a more comprehensive understanding of the results and their implications.

In order to reveal the distribution of correct answers in the pretest and posttest by groups, the distribution of correctly used V-N colloc. in the paragraphs written by the students by tasks and groups, and the distribution of types of errors in the paragraphs written by the students by target/non-target V-N colloc. and groups, numbers and percentages were used. Despite the relatively low number of the students included in the web and paper groups (12 in each group), the number of observations was higher with regards to the data collected to answer some research questions.

To determine whether the data collected for each research question had a normal distribution, the Shapiro-Wilk test was employed. However, the test did not indicate a normal distribution of the data, even for data with a high number of observations (higher than 30). Therefore, among non-parametric tests, the Mann-Whitney U test was utilized to compare the groups and the Wilcoxon signed rank test was used to determine intragroup differences.

In order to address the first research question, which was whether there was a significant difference in the knowledge of V-N colloc. between the web group and the

paper group, and whether this knowledge varied over time, both groups were given a pretest in the first week of the term, followed by a posttest in the last week of the term. The purpose of these tests was to evaluate how much the student's recognized correct V-N colloc., and to determine if there were any differences in performance between the two groups, or if there were any changes in performance over time.

The number of correct answers in both the pretest and posttest was determined for each student, and the Mann-Whitney U test was used to evaluate whether there was a significant difference in the test results between the web group and the paper group. Additionally, the Wilcoxon signed rank test was utilized to determine the difference between the pretest and posttest results within each group.

Furthermore, the paragraphs written by the students in both groups were analyzed to determine whether the target V-N colloc. were used correctly. The number of correctly used target V-N colloc. was quantified, and the Mann-Whitney U test was employed to compare the groups and evaluate if there was a significant difference in performance.

To address the second research question, "Is there a significant difference in the types of errors between the web group and the paper group?", the types of errors in target and non-target V-N colloc. were counted and compared between the groups. This was done by analyzing the paragraphs written by the students in both groups and utilizing the Mann-Whitney U test to evaluate if there was a significant difference in error types between the two groups.

To answer the third research question, "Is there a significant difference in the types of errors between target and non-target V-N colloc.?", the paragraphs written by the students in both the web and paper groups were analyzed to identify and quantify the types of errors in both target and non-target V-N colloc. The Wilcoxon signed rank

test was used to compare the types of errors between the target and non-target V-N colloc.

The fourth research question, "What types of errors do students in the web group and paper group make in V-N colloc.?" was addressed by examining the paragraphs written by the students in both groups. The errors in both target and non-target V-N colloc. were identified, classified, and quantified. The number and percentages of errors were determined, and the distribution of error types was analyzed.

To assess the usefulness of the colloc. assistant tool and whether the students in the web group found it helpful and user-friendly, a quality review checklist was administered to the group. Mean scores were used to analyze their responses to the items in the checklist, and manual analysis was performed on their responses to one open-ended question. Additionally, the data collected through the background information form was analyzed using numbers, percentages and min/max. values to gain insights into the participants' demographic information and language learning backgrounds.

3.8. Summary of the chapter:

The present study has a quasi-experimental design as it was not possible to randomly assign participants to the web or paper group. Instead, convenience sampling was used to form the two groups, with the web group receiving access to an online colloc. assistant and the paper group completing traditional paper-based exercises.

Data were collected using a variety of methods including a pretest and posttest to measure participants' knowledge of target V-N colloc., paragraph writing tasks to evaluate their ability to use these colloc. in context, a quality review checklist to gather

feedback on the usefulness of the online colloc. assistant, and a background information form to collect demographic data.

Descriptive statistics were used to analyze the collected data, including numbers, percentages, mean values, minimum-maximum values, and distributions of correct answers, correct usage of V-N colloc., and types of errors. Nonparametric tests such as the Mann-Whitney U test and Wilcoxon signed rank test were also employed to compare groups and to determine significant differences between pretest and posttest results and between target and non-target V-N colloc. errors.

Overall, this study provides insights into the effectiveness of an online colloc. assistant in improving students' knowledge and use of V-N colloc., as well as identifying common errors made by students and providing suggestions for future language learning research.

CHAPTER IV: RESULTS

4.1. Introduction

This chapter presents the results of a comparison regarding the collocational knowledge and types of colloc. errors between the web and paper groups and over time, as well as the distribution of colloc. errors among these groups. Additionally, the chapter describes students' feedback on the web tool.

4.2. Knowledge of Collocations

The first research question asked whether the web tool results in a significant improvement in the knowledge of V-N colloc. compared to paper-based exercises. According to the Mann-Whitney U test results, there was no significant difference between the groups in their pretest ($p=0.831$) and posttest scores ($p=0.2327$). Additionally, there was no significant difference between the groups in the correct production of target V-N colloc. in their paragraphs ($p=0.155$). However, the Wilcoxon signed rank test revealed a significant improvement in colloc. knowledge from pretest to posttest for both groups ($p=0.0005$ for both groups).

Table 5 shows the performance of the web group in using target V-N colloc. in three different writing tasks, as well as their overall performance across all tasks. The web group attempted 65 V-N colloc. in the first writing task, and they used them correctly in 48 cases, which corresponds to 73.85%. In the second writing task, the group attempted 19 V-N colloc., and they used them correctly in 13 cases, which corresponds to 68.42%. In the third writing task, the group attempted 42 V-N colloc., and they used them correctly in 37 cases, which corresponds to 88.10%. Overall, across all three tasks, the web group attempted 126 V-N colloc. and used them correctly in 98 cases, which corresponds to 77.78%.

Table 5

The Distribution of Correctly Used Target Verb-Noun Collocations in the Web Group by Tasks

Tasks	Task 1		Task 2		Task 3		Total	
	attempts (n)	Correct (n/%)	attempts (n)	correct (n/%)	Attempts (n)	correct (n/%)	attempts (n)	correct (n/%)
Web group	65	48/ 73.85%	19	13/ 68.42%	42	37/ 88.10%	126	98/ 77.78%

Table 6 shows the performance of the paper group in using target V-N colloc. in three different writing tasks, as well as their overall performance across all tasks. The paper group attempted 68 V-N colloc. in the first writing task, and they used them correctly in 58 cases, which corresponds to 85.29%. In the second writing task, the group attempted 10 V-N colloc., and they used them correctly in 9 cases, which corresponds to 90%. In the third writing task, the group attempted 46 V-N colloc., and they used them correctly in 39 cases, which corresponds to 84.78%. Overall, across all three tasks, the paper group attempted 124 V-N colloc. and used them correctly in 106 cases, which corresponds to 85.48%.

Table 6

The Distribution of Correctly Used Target Verb-Noun Collocations in the Paper Group by Tasks

Tasks	Task 1		Task 2		Task 3		Total	
	attempts (n)	Correct (n/%)	Attempts (n)	Correct (n/%)	Attempts (n)	correct (n/%)	attempts (n)	correct (n/%)
Paper group	68	58/ 85.29%	10	9/ 90%	46	39/ 84.78%	124	106/ 85.48%

4.3. Types of Verb-Noun Collocation Errors

In relation to the second research question, "Is there a significant difference in the types of errors in the web group when compared to the paper group?", types of errors in target V-N colloc. derived from the students' paragraphs were compared between the web group and the paper group. The Mann-Whitney U test results indicated no significant differences in determiner ($p=0.172$), preposition ($p=2384$), verb ($p=1$), noun ($p=1$), usage 1 ($p=7465$), numbers ($p=6737$), and structure ($p=1$) errors in the target V-N colloc. between the two groups. Neither group made usage 2 errors. Additionally, the errors in non-target V-N colloc. were compared between the groups. The Mann-Whitney U test showed a significant difference in determiner ($p=0.0458$), noun ($p=0.045$), and usage 2 errors ($p=0.002$) between the groups. The web group made significantly more determiner, noun, and usage 2 errors than the paper group.

In relation to the third research question, "Is there a significant difference in the types of errors between target and non-target V-N colloc.?", the Wilcoxon signed rank test revealed significant differences in determiner ($p= 0.0072$), verb ($p= 0.0225$), noun ($p= 0.0078$), and usage 2 ($p= 0$) errors between target and non-target colloc. in the web group. The non-target V-N colloc. errors of the web group in determiners, verbs, nouns, and usage 2 were significantly higher than in target colloc. Furthermore, the Wilcoxon signed rank test results showed significant differences in determiner ($p= 0.0309$), verb ($p= 0.0018$), and usage 2 errors ($p= 0.0313$) between the target and non-target colloc. in the paper group. The non-target colloc. errors of the paper group in determiners, verbs, and usage 2 were significantly higher than in target colloc.

To seek an answer to the fourth research question "What types of errors do students in the web group and paper group make in V-N colloc.?", the errors made by

the students in both target and non-target V-N colloc. in their paragraphs were determined and quantified.

Table 7 shows the types of errors in target V-N colloc. made by students in the web group in three different tasks (Task 1, Task 2, and Task 3) as well as the total number and percentage of errors across all tasks. The types of errors include determiner, preposition, verb, noun, usage 1, usage 2, numbers, and structure errors. In Task 1, there were a total of 19 errors, with the highest number of errors in the determiner category (9/47.37%). In Task 2, there were a total of 10 errors, with the highest number of errors in the determiner category (2/60%). Overall, there were a total of 33 errors across all tasks, with the highest number of errors in the determiner category (15/45.45%), followed by prepositions (8/24.24%).

Table 7

Types of Errors in Target Verb-Noun Collocations in the Web Group

Types of Errors	Task 1 (n/%)	Task 2 (n/%)	Task 3 (n/%)	Total (n/%)
Determiner	9/47.37%	6/60%	0	15/45.45%
Preposition	5/26.32%	2/20%	1/25%	8/24.24%
Verb	1 / 5.26%	0	1/25%	2/6.06%
Noun	2 / 10.53%	0	0	2/6.06%
Usage 1	0	0	1/25%	1/3.03%
Usage 2	0	0	0	0
Numbers	2 / 10.53%	1/10%	1/25%	4/12.12%
Structure	0	1/10%	0	1/3.03%

Table 8 shows the types of errors in non-target V-N colloc. made by students in the web group in three different tasks (Task 1, Task 2, and Task 3) as well as the total number and percentage of errors across all tasks. The types of errors analyzed are determiner, preposition, verb, noun, usage 1, usage 2, numbers, and structure errors. In Task 1, the highest percentage of errors was usage 2 errors (35.71%), followed by determiner errors (23.21%). In Task 2, the highest percentage of errors was in determiners (34.09%), followed by verb errors (22.73%). In Task 3, the highest percentage of errors was in determiners (42.86%), followed by usage 2 errors (20%). Overall, the most common type of error was determiner errors (31.85%), followed by usage 2 errors (25.19%). The least common type of error was structure, with only 2.22% of total errors.

Table 8

Types of Errors in Non-Target Verb-Noun Collocations in the Web Group

Tasks	Task 1 (n/%)	Task 2 (n/%)	Task 3 (n/%)	Total (n/%)
Determiner	13/23.21%	15/34.09%	15/42.86%	43/31.85%
Preposition	7/12.50%	3/6.82%	1/2.86%	11/8.15%
Verb	1/1.79%	10/22.73%	4/11.43%	15/11.11%
Noun	5/ 8.93%	3/6.82%	2/5.71%	10/7.41%
Usage 1	3/5.36%	1/2.27%	2/5.71%	6/4.44%
Usage 2	20/35.71%	7/15.91%	7/20%	34/25.19%
Numbers	4/7.14%	5/11.36%	4/11.43%	13/9.63%
Structure	3/5.36%	0	0	3/2.22%

Table 9 shows the different types of target V-N colloc. errors made in three different tasks by the paper group. The errors are categorized into eight types: determiners, prepositions, verbs, nouns, usage 1, usage 2, numbers, and structure. In Task 1, the most common type of error was in determiners with 3 errors (30%), and in verbs with 3 errors (30%), followed by prepositions with 2 errors (20%). The least common types of errors were in numbers and structure, with 1 error each (10%). There were no usage 2 errors in Task 1. In Task 2, the only error type detected was determiner errors, with 2 errors (100%). In Task 3, the most common type of error was usage 1, with 3 errors out of all 8 errors (37.5%). The least common types of errors were in numbers and nouns, with 1 error each (12.5%). Again, there were no usage 2, verb or structure errors in Task 3. Overall, the most common type of error across all tasks was erroneous use of determiners, with 7 out of all 20 errors (35%). The second most common type of error was usage 1 (15%), prepositions (15%) and verbs (15%). The least common types of errors were in structure and nouns, with 1 error each (5%).

Table 9

Types of Errors in Target Verb-Noun Collocations in the Paper Group

Types of Errors	Task 1 (n/%)	Task 2 (n/%)	Task 3 (n/%)	Total (n/%)
Determiners	3/30%	2/100%	2/25%	7/35%
Prepositions	2/20%	0	1/12.5%	3/15%
Verb	3/30%	0	0	3/15%
Noun	0	0	1/12.5%	1/5%
Usage 1	0	0	3/37.5%	3/15%

Usage 2	0	0	0	0
Numbers	1/10%	0	1/12.5%	2/10%
Structure	1/10%	0	0	1/5%

Table 10 presents the different types of non-target V-N colloc. errors made by the paper group in three different tasks (Task 1, Task 2, and Task 3) and their total in each category. In Task 1, the most common type of error was determiner errors, accounting for 32.14% of all errors, followed by usage 1 errors (21.43%) and usage 2 errors (21.43%). In Task 2, the most common error was determiner errors (27.91%) and verb errors (27.91%), followed by numbers errors (16.28%). In Task 3, the most common type of error was numbers errors (27.27%), and determiner errors (18.18%), preposition errors (18.18%) and verb errors (18.18%) were similar. Overall, the most common type of error across all tasks was determiner errors, accounting for 28.04% of all errors, followed by verb errors (23.17%), numbers errors (13.41%) and usage 2 errors (10.97%). The least common type of error was structure errors, accounting for only 3.65% of all errors.

Table 10

Types of Errors in Non-Target Verb-Noun Collocations in the Paper Group

Types of Errors	Task 1 (n/%)	Task 2 (n/%)	Task 3 (n/%)	Total (n/%)
Determiner	9/32.14%	12/27.91%	2/18.18%	23/28.04%
Preposition	0	6/13.95%	2/18.18%	8/9.75%
Verb	5/17.86%	12/27.91%	2/18.18%	19/23.17%

Noun	0	3/6.98%	0	3/3.65%
Usage 1	6/21.43%	0	0	6/7.31%
Usage 2	6/21.43%	1/2.33%	2/18.18%	9/10.97%
Numbers	1/3.57%	7/16.28%	3/27.27%	11/13.41%
Structure	1/3.57%	2/4.65%	0	3/3.65%

4.4. Students' Opinions about the Online Collocation Assistant

After analyzing the responses to the first, second, and third items in the quality review checklist, which measured the helpfulness of www.collocationassistant.com for using V-N colloc., writing paragraphs, and expressing ideas, it was found that the students scored over 3 on a four-point scale, where one and four correspond to "not helpful" and "helpful," respectively. Additionally, the students received a mean score of over 3 on the fourth and fifth items, which measured the ease of use and navigation of the tool. The students also had a mean score of over two on a four-point scale, with one corresponding to "not sure" and four to "sure," on the sixth item measuring their willingness to use the tool in the future.

Congruent with the mean score on the responses to the sixth item, five students had a positive attitude towards using the tool in the future. One of them reported benefitting from the web tool while learning vocabulary, retrieving new words in the long term thanks to the exercises and achieving fluency in paragraph writing. The student requested addition of games and more vocabulary to the web tool. Another student commented that the web tool facilitated paragraph writing and showed how to use new words. The rest of the students with a positive attitude to the web tool agreed

that it would be useful later in their lives or when they needed. Three students made some recommendations about modifications in the tool although they admitted that the tool was useful. One of them said that the web tool would be useful to recall colloc. without difficulty. The students also added that the tool should evolve into a more comprehensive website allowing practices and revisions of the language. Another student asked for addition of more colloc. and exercises although she found it beneficial. Another student reported that she could use the tool in the future since she would always need English. Unlike eight students, the remaining four students were not in favor of the idea of using the tool in the future since they believed they might not need it or find the things they needed.

4.5. Summary of the chapter:

The pretest ($p=0.831$) and posttest results ($p=0.2327$) did not significantly differ between the web and paper groups. Besides, the groups were not significantly different regarding the correct production of target V-N colloc. ($p=0.2327$). However, there was a significant difference between the pretest results and posttest results in both groups ($p=0.0005$ for both groups). The web group used 77.78% of the target V-N colloc. correctly. Similarly, the paper group used 85.48% of the target V-N colloc. correctly. Concerning target V-N colloc. errors, the web group and paper group did not display a significant difference in determiner ($p=0.172$), preposition ($p=0.2384$), verb ($p=1$), noun ($p=1$), usage 1 ($p=0.7465$), numbers ($p=0.6737$), and structure errors ($p=1$). However, there was a significant difference in determiner ($p=0.0458$), noun ($p=0.045$) and usage 2 errors ($p=0.002$) in non-target V-N colloc. between the groups. Also, a significant difference was found in determiner ($p=0.0072$), verb ($p=0.0225$), noun ($p=0.0078$), and usage 2 errors ($p=0$) between target and non-target colloc. in the web

group and in determiner ($p= 0.0309$), verb ($p= 0.0018$), and usage 2 errors ($p= 0.0313$) between the target and non-target colloc. in the paper group. Additionally, the students found the web tool helpful and easy to use.



CHAPTER V: DISCUSSION AND CONCLUSION

The current investigation was chiefly directed towards showing whether an online colloc. assistant improved V-N colloc. in Turkish EFL learners' paragraphs as compared with paper-based exercises. This chapter will dissect the results of the study pursuant to the literature under the headings of knowledge of V-N colloc., V-N colloc. errors and students' opinions about the online colloc. assistant.

5.1. Knowledge of Verb-Noun Collocations

Knowledge of colloc. will be dealt with under two categories: receptive and productive. Receptive knowledge of V-N colloc. refers to identifying and recalling them in written work or speech whilst productive knowledge of colloc. refers to recalling and employing them in a different task such as paragraph writing (Hu, 2015). Receptive collocational knowledge has been measured in several studies by using multiple choice questions (Tabrizi & Moghadam, 2016; Daskalovska, 2015), while productive collocational knowledge has been measured by requiring subjects to supply appropriate collocates for the given single words or blanks in sentences and to make sentences using appropriate collocates for the given single words (Daskalovska, 2015). In the present study, receptive knowledge of V-N colloc. was assessed by a test of 20 multiple-choice questions and productive knowledge of colloc. was assessed by paragraph writing requiring the participants to employ topic-specific target V-N colloc.

Both the online V-N colloc. aid www.collocationassistant.com and paper-based exercises offering the same content as the online tool were found to improve receptive knowledge of target V-N colloc. in the posttest. In fact, the Wilcoxon signed rank test showed a significant change in the posttest results compared to the pretest results in

both groups. This can be ascribed to the instructional material designed in light of the principles of the lexical approach, explicit teaching and cognitive load theory.

However, there was no appreciable distinction between the online aid and paper-based exercises pertaining to enhancement of receptive verb-noun collocational knowledge.

This underscores the design of learning materials notwithstanding medium like an online aid and paper-based exercises in the current research. The foregoing finding is not compatible with some evidence in the literature. For instance, Tabrizi and Moghadam (2016) provided a group of students with definitions of 90 colloc.

accompanied by model sentences through SMS and another group of students with the same content on paper during a five-weeks-period. The researchers utilized a pre/posttest composed of multiple-choice questions to assess receptive collocational knowledge. At the end of the study period, they discovered an improvement of receptive collocational knowledge in favor of the SMS group (Tabrizi & Moghadam, 2016). Besides, Daskalovska (2015) conducted a comparative study on 46 first-year university students to determine the difference between corpus-based exercises and traditional exercises. She asked one group to search for the most frequent adverb collocates for ten verbs, determine positions of the adverbs, generate and examine concordance lines for the colloc. detected and sum up and disclose what they have learned and another group to match ten verbs with adverb collocates, underline the correct adverb, select the accurate adverb for ten verbs and pair sentence fragments, the first half including verb-adverb colloc. She used a pre/posttest to gauge the improvement in receptive and productive colloc. mastery. The questions used to determine receptive collocational knowledge included selecting suitable adverb collocates for the verbs given in multiple-choice questions. She revealed that corpus-based activities created an important improvement in collocational knowledge. This

finding can be suggestive of the positive effect of corpus-based activities on receptive collocational knowledge (Daskalovska, 2015). Moreover, Gheisari and Yousofi (2016) compared implicit and explicit instructions of colloc. and measured collocational knowledge through a pretest and posttest composed of multiple-choice questions. The implicit instruction group were immersed into grasping ten different types of colloc. in various texts repeatedly, but those in the explicit group were exposed to strategies increasing collocational awareness such as attracting their attention to colloc. and explaining colloc. in their native language. Their study sample also included a control group attending regular classes. After 16 two-hour sessions of instruction, all the students were administered the posttest comprised of multiple-choice questions. The researchers demonstrated that explicit instruction significantly improved collocational knowledge in the short term. Gheisari and Yousofi concluded that explicit teaching of colloc. was superior to the implicit method (Gheisari & Yousofi, 2016). Although the present study and Gheisari and Yousofi's study differed in terms of the sample size and aim, they had one thing in common: explicit colloc. teaching. Both studies confirmed that explicit teaching contributes to learning colloc.

In the current study, the online aid and paper-based exercises did not significantly differ with regard to productive knowledge of V-N colloc. in paragraph writing. In fact, Mann-Whitney U test evidenced no pronounced contrast in correctly produced target V-N colloc. between the groups. Besides, the students in both groups made no or very few verb choice, noun choice, numbers, structure, usage 1 and usage 2 errors. It can be suggested that adopting the lexical approach, explicit teaching, and reduction of cognitive load could improve productive collocational knowledge irrespective of the tool utilized. The evidence from the current research is only partly congruent with the one from an investigation by Murnani and Selahi (2016). These

researchers instructed their experimental group to use the digitized edition of Oxford Collocation Dictionary and the control group to adopt the traditional method (using background knowledge to identify colloc.) to learn the meanings of 64 colloc. They measured productive collocational knowledge by administering a pretest, an early posttest and a late posttest which were composed of the same gap-filling questions. While the early posttest showed a substantive dissimilarity in productive colloc. mastery, the late posttest revealed no difference. The researchers suggested that an digitized colloc. dictionary may not be effective in retrieval of colloc. in the long-run (Murnani & Selahi, 2016). However, several studies employing different tools have yielded findings incongruent with the present study in terms of improvement of productive collocational knowledge. In Daskalovska's study (2015), using concordancers was shown to bring about enhancement of productive collocational knowledge in university students. Unlike the present study, Daskalovska (2015) measured productive colloc. knowledge by asking students to provide adverb collocates for the verbs supplied in sentences and make five sentences using five verbs with their adverb collocates (Daskalovska, 2015). Incongruent findings can be naturally due to different characteristics of participants, measurement methods and instructional tools.

Adopting an explicit awareness-raising approach, Nizonkiza (2017) also aimed to promote academic literacy in 218 third-year English language and literature students. To this end, the researcher created a syllabus concentrating on enhancement of collocational knowledge. The students were told to determine 131 nouns in Coxhead 2000, find their collocates in the Oxford Collocations Dictionary for Students of English, produce a map illustrating definitions of the nouns and colloc. with model sentences and to present it. The students were administered a test composed of cued

gap-filling items and writing tasks about two topics before and after the intervention. The researcher found out that the explicit awareness raising approach was effective in improvement of productive collocational knowledge. Unlike the present study, Nizonkiza's study was performed with English language and literature students. Therefore, the students' successful performance in using the colloc. can be ascribed to their high level of English as well as their intervention (Nizonkiza, 2017).

The involvement of dictionary usage in productive collocational knowledge was investigated by other researchers as well. Yuzhen Chen (2016) studied whether using the digitized edition of *the Oxford Advanced Learner's English-Chinese Dictionary* assisted production and recall of colloc. in 57 freshmen studying English at a higher education institution in China. The students were instructed to complete 12 missing V-N colloc. based on their Chinese translations given at the end of the sentences and the dictionary. The students were provided with the gap-filling task and the dictionary by using a specifically developed software. The number of the correctly produced colloc. significantly increased in the posttest, though it was very low one week later. It was suggested that the dictionary did not promote the recall of colloc. The posttest scores did not have a significant relation with the frequency of dictionary use, either. Yuzhen Chen noted that the students could not successfully use the dictionary for colloc. and its "hyperlink function" and had difficulty in identifying the senses in which verbs are used and understanding long entries (Y. Chen, 2016, p. 240).

Regarding the corollary of dictionary usage while composing essays, Yuzhen Chen and Liu (2022) carried out a study with 34 sophomores studying the English language to determine the differences between essays written with the aid of a bilingual dictionary and those written without the dictionary in terms of writing scores and lexis and to reveal how the students used the dictionary. The students were

requested to write one 200-word essay by using the bilingual dictionary and another one without the dictionary. While they were writing their essays using the dictionary, their screens were recorded to show how they used the dictionary. The researchers found that 78% of the students received lower overall and language use scores for the essays they wrote with the help of the dictionary. They showed an appreciable distinction in overall scores, linguistic competence and content between the groups and concluded that bilingual dictionary use had an unfavorable impact on composition competence. Screen recordings demonstrated that the students mostly failed in selecting the right words or colloc., produce the right parts of speech and use grammar points correctly. They tended to look for English equivalents or translations for Chinese strings of words or even sentences, use ready-made sample sentences -mostly grammatically wrong- on the Internet containing the words they looked for, avoid using a monolingual dictionary for further knowledge and even look up commonly used words. More importantly, dictionary use did not enable the students to select proper colloc. (Y. Chen & Liu, 2022). Yuzhen Chen and Liu's findings suggest that dictionary use does not improve content, syntax and lexis including colloc. in students' written work and can be even demanding for students. This underlines a need to develop new tools to guide their writing.

One such tool devised and claimed to be useful by Reynolds (2015) was “a bilingual parallel corpus collocational concordancer” (p. 213). The researcher aimed to increase productive collocational knowledge of students and requested the students to check V-N colloc. in their descriptive and opinion essays. The concordance was found to be effective in improvement of the V-N colloc. in descriptive essays, but it was ineffective in opinion essays. Besides, the students were reported to experience difficulty in using the tool (Reynolds, 2015). Chan and Liou attributed the difficulty in

using concordancers to provision of numerous examples (Chan & Liou, 2005). Unlike concordancers, the online tool developed in the present study to provide learners with topic specific verb-noun collocations and opportunities to see them in model sentences and practice them through exercises designed by embracing the lexical approach, explicit teaching and cognitive load theory facilitated learning the colloc. presented and expressing ideas about certain topics.

To avoid difficulties caused by dictionaries and concordancers, some researchers sought for ways to design online aids that can improve productive colloc. knowledge. One such online aid was created by Huang and Tsao (2019) to help learners utilize colloc. like native speakers. Their aid displayed a list of right and wrong co-occurring words related to each other based on the BNC and Wordnet. The aid not only showed whether a colloc. searched by learners was right or wrong but also provided all relevant right and wrong colloc. Whether a colloc. is right was based on “the default raw frequency score of 10” and “the default mutual score of 4” and whether presented colloc. are semantically related was based on the semantic information in Wordnet. Huang and Tsao discovered that their online aid accurately identified 93.1% of 160 wrong V-N colloc. and 97.5% of 82 wrong adjective-noun colloc., which seem to be promising. They also found that their aid provided correct verbs for 55.6% of the wrong ones in V-N colloc. and correct adjectives for 45.1% of the wrong ones in adjective-noun colloc. They attributed these low rates to the lack of translation equivalents from learners’ native language. The researchers piloted their online aid on 13 EFL learners and found that the students corrected around 88% of their collocational mistakes thanks to the online aid. Different from dictionaries, the online tool created by Huang and Tsao can show whether a queried colloc. is wrong or not and several available colloc. accompanied by model sentences for them. Unlike

concordancers, the online aid can supply correct alternatives without users' predicting or searching semantically similar words (Huang & Tsao, 2019). Huang and Tsao's online aid and the online colloc. assistant developed in the present study are directed towards improving productive collocational knowledge. While the former can achieve it by supplying all related right and wrong verb-noun and adjective-noun colloc. with model sentences, the latter offers V-N colloc. related to certain topics, which may allow users to express their opinions comfortably.

Frankenberg-Garcia et al. (2019) developed a web-based program able to suggest colloc. during text production to avoid any decrease in attention due to the need for searching colloc. required by concordancers and most other web tools. They adopted "data-driven learning" and employed "the Academic Keyword List" created by Paquot, "the Academic Collocation List" created by Ackermann and Chen and "the Durrant subset of the Gardner and Davies' Academic Vocabulary list" (pp.144-150). They also added collocates of the words in the lists mentioned above by utilizing "Sketch Engine" prepared by Kilgariff et al. Besides, Frankenberg-Garcia et al. (2019) incorporated model sentences that represent and help to understand the colloc. They preferred "TinyMCE" as a text editor. The usability of the program was tested through "System Usability Scale" in 122 L2 writers joining several international conferences (pp. 144-150). It was reported to be good/excellent by the participants (Frankenberg-Garcia et al., 2019). Although the web-based program looks promising, its ability to suggest correct colloc. during a writing process needs to be investigated in terms of its contribution to learners' productive written work. When compared to Frankenberg-Garcia et al.'s program, the contribution of the colloc. assistant developed for the present study to improve productive verb-noun collocation knowledge was tested and confirmed by paragraph writing.

Another attempt to develop a usable online collocational aid was made by Shei and Pain (2010). It was an online correcting program containing a learner corpus to scrutinize established colloc. inaccuracies, a standardized database for accurate English colloc. -the BNC-, a lexical repository of synonyms obtained from Wordnet to identify mistakes in students' queries and a paraphrasing repository constructed using learners' output to identify combinations that are not considered as colloc. Z scores were used to calculate the strength of colloc. to be included in the reference corpus. The dictionary of synonyms was composed of synonyms for the headwords given in the reference library. The definition library included the definitions for colloc. that learners can access. Users can type their queries and check whether they match with legitimate colloc. When they are erroneous, they are compared with others in the error library and correct colloc. are presented. If a wrong colloc. the system is unfamiliar with is queried, users have to search for synonyms for the headword. When users type those synonyms, the system provides the right collocates (Shei & Pain, 2010). This tool is still being expanded and has not been tested in terms its contribution to receptive and productive collocational knowledge. To what extent it can improve colloc. knowledge remains unclear. In the current research, the web tool and paper-based exercises developed to improve colloc. knowledge were tested regarding receptive and productive knowledge. Although the size of the sample on which they were tested was small, the number of observations was sufficient and the results proved that relying on explicit colloc. teaching and guiding rules of the cognitive load theory while devising the instructional material can be effective notwithstanding the media through which the learning material was presented.

Hao-Jan Howard Chen (2011) also presented an online colloc. aid called *WebCollocate* to provide learners with appropriate colloc. The researcher compared

his web tool with *Hong Kong Polytechnic web concordancer* in two groups of EFL learners with an intermediate level of English. Using a translation task including 30 short sentences, Hao-Jan Howard Chen determined if the new tool could enhance productive colloc. knowledge. The researcher reported that the learners using *WebCollocate* received a significantly higher score for the translation task, but spent a long time finding the best collocates. Hao-Jan Howard Chen also investigated what preservice teachers thought about the new tool and several other concordancers. He showed that the teachers were content with the new tool since they could find the best collocate by using keywords and POS tags, obtain frequencies of the collocates and examples, spend a short time identifying collocates, attain a large corpus and utilize them in their writing (H. H. Chen, 2011). It can be suggested that even a specially designed web colloc. tool can cause difficulty in accessing the most suitable colloc. for students with intermediate-range language proficiency. The web tool of the current investigation was developed to teach all V-N colloc. ranging from free colloc. to restricted colloc. and idioms as delineated by Howard's continuum model and to enable learners with a low level of English in particular to convey the meaning in written work. The results showed that the participants could successfully use the V-N colloc. taught through the web tool although the difference between web tool and paper-based exercises did not significantly differ with respect to their contribution to V-N colloc. knowledge.

Erroneous colloc. may result from L1 interference in addition to other factors (Chang et al., 2008; Nesselhauf, 2003). Chang et al., who underlined L1 impact on colloc. errors, developed a colloc. aid comprising a library of erroneous colloc. derived from the literature and a library of correct colloc. based on the BNC. The system depends on "translation equivalents" from Chinese to English. When a text is entered,

the aid detects inappropriate colloc. and offers the appropriate ones for them.

However, the colloc. aid failed to present adequate accurate colloc. for some errors due to “insufficient bilingual translation data” or match correct colloc. with wrong ones even in the presence of “adequate bilingual translation data”. To eliminate this failure, the researchers recommended employing an electronic dictionary additionally (Chang et al., 2008, p. 297).

Shen et al. used three videos of a TV series with subtitles in addition to a list of target verb+noun, verb+preposition and verb+adverb colloc. selected from the videos, sentence-based gap-filling exercises and a concordance, all of which were incorporated into a system. They proposed that this new tool would enable Taiwanese learners, especially those with low-level of English, to enhance their collocational knowledge. The tool allows learners to utilize an inventory of target colloc. in each video and obtain knowledge about them from *the BBI Combinatory Dictionary of English* upon clicking. The inventory helps them concentrate on the target colloc. while watching videos. The concordance element of the tool provides learners with more sample sentences containing target V-N colloc. Gap-filling exercises serve as a facilitator of colloc. retrieval. Shen et al. measured collocational knowledge acquired through this tool by using a sentence-based cued gap-filling test. The Taiwanese learners, those with low level of English in particular in Shen et al.’s study received significantly higher scores on the posttest. Shen et al. also reported that the learners found the tool helpful and effective. Unlike the web tool in the present study, the tool developed by Shen et al. provided learners with a content through videos, i.e. multimedia support. This might have increased the learners’ interest in colloc. learning. However, the study had one cohort with a baseline and closing assessment. If they had had a control group exposed to a concordancer and a colloc. dictionary

combined with exercises including the same colloc., obtained results might have clearly shown the effect of videos with subtitles on improvement of collocational knowledge (Shen et al., 2021).

Selection of colloc. to be included into colloc. collections in web aids is mostly based on reliable criteria like z-scores in Shei and Pain's tool and raw frequency scores combined with mutual information scores in Huang and Tsao's tool. However, in seven commercially available tools examined by Nesselhauf and Tschichold, selection of colloc. was reported to be unsystematic (Nesselhauf and Tschichold, 2010). Besides, in Shen et al.'s study, colloc. appearing in three videos of a TV series were selected to integrate into a web tool (Shen et al., 2021). Nesselhauf and Tschichold suggested that web tools should be improved to incorporate colloc. according to proficiency levels (Nesselhauf & Tschichold, 2010). Different from such tools, the web tool developed for this study offers a library of V-N colloc. classified into topics and derived from a Reading course book used in a preparatory school of English. This classification allows learners to access V-N colloc. about certain topics and express their ideas in writing tasks.

To conclude, electronic dictionaries, colloc. dictionaries, concordancers and even specially developed web-based colloc. aids have several disadvantages. Dictionaries and electronic dictionaries do not supply miscollocations and long entries in the dictionaries can be difficult for learners, especially those with a low proficiency (Y. Chen, 2016; H. H. Chen et al., 2023). Regarding concordancers depicted in scholarly works (Flowerdew, 1996; Johns, 1991; Woolard, 2000), although learners can reach an immense quantity of original language content that they can use to overcome their language problems, become autonomous and aware of indiscernible linguistic rules, find out good models, test the linguistic rules they assumed and

differentiate between synonyms, they have to spend a long time on data analysis, experience difficulty in accessing the most suitable collocates and feel tired. Web-based colloc. aids, which were created to deal with the disadvantages of dictionaries and concordancers mentioned above, are not without problems, either. Some of the web tools lacked reliable criteria to select colloc. (Nesselhauf & Tschichold, 2010), had “insufficient bilingual data” for a learner library (Chang et al., 2008, pp. 283-299), caused difficulty in gathering the most appropriate collocates (H. H. Chen, 2011) and have not been tested for their contribution to productive colloc. knowledge (Shei & Pain, 2010; Frankenberg-Garcia et al, 2019). In light of this evidence, it is clear that the web tool created for the present study may contribute to productive topic-specific V-N colloc. knowledge of students, especially the ones with limited English proficiency, without causing difficulty for them since they do not have to deal with a large quantity of data or read long entries. Besides, the pertinent nature of the entries including definitions in English and Turkish, model sentences and exercises eliminates high extraneous load on the working memory and helps learners keep the V-N colloc. in mind easily and transfer them into their writing tasks.

5.2. Verb-Noun Collocation Errors

In the current research, V-N colloc. inaccuracies in the students’ paragraphs were categorized into eight, i.e. determiner, preposition, verb, noun, usage 1, usage 2, numbers and structure errors. The web group and paper group had no significant differences in target V-N colloc. errors. This suggests that the students using the online tool and those using paper-based tasks to learn V-N colloc. made similar mistakes. Also, neither of them made usage 2 errors. It may be that both methods helped the students avoid using non-existing V-N colloc. However, the web group and paper

group significantly differed in terms of determiner, noun and usage 2 errors in non-target V-N colloc. The web group made more determiner, noun and usage 2 errors. This shows that the web group might have had more difficulty in how to use determiners with V-N colloc. and insufficient knowledge of colloc. This might even suggest that the students in the web group might have had poorer background knowledge of colloc. in general and at baseline.

The web group displayed significant differences in their determiner, verb, noun and usage 2 errors between target and nontarget V-N colloc. They had more determiner, verb, noun and usage 2 errors in non-target colloc. It was not surprising to observe more inaccuracies in the V-N colloc. which were not taught through a learning material created in light of the main principles of the lexical approach, cognitive load theory and explicit teaching. However, it underlines the fact that they had difficulty in utilizing correct determiners, verbs and nouns and used non-existent V-N colloc. due to their overall insufficient knowledge of the colloc. Similarly, the students in the paper group exhibited significant differences in determiner, verb and usage 2 errors between the target and nontarget V-N colloc. They had more determiner, verb and usage 2 errors in nontarget V-N colloc. This unsurprising finding revealed that when they were not rendered assistance by means of well-devised instructional materials based on the explicit teaching, the lexical approach and cognitive load theory, it was unavoidable for the students to select incorrect verbs and nouns and to use non-existent colloc. Compatible with the finding of the present study, Chan and Liou used a Chinese-English bilingual concordancer to eliminate V-N colloc. errors and reported a significant improvement even in the delayed posttest including gap filling questions (Chan & Liou, 2005). Unlike their study, the students in both groups of the present study studied a concise list of topic-specific V-N colloc. to use them while producing

their paragraphs. The students were shown to utilize them properly when compared to the ones which were not taught explicitly through the web tool or paper-based tasks.

The error distribution demonstrated that the web group most frequently made determiner errors in both target and nontarget V-N colloc. This underscores the importance of focusing on determiners while teaching V-N colloc. The second most frequent error was related to prepositions in the target V-N colloc. It can be suggested that prepositions are almost as hard as determiners despite provision of the learning material based on the principles of the lexical approach, explicit teaching, and lowered cognitive load. When they attempted to use non-target V-N colloc., they tended to make more determiner and usage 2 errors. One must be cognizant of the fact that learners tend to adopt non-existent V-N colloc. in the absence of explicit instruction.

Regarding the error distribution, the paper group made the most frequent error in determiners despite their exposure to paper-based exercises. Their other types of target V-N colloc. errors were negligible. Likewise, they most frequently made determiner errors in nontarget V-N colloc., followed by verb choice, numbers and usage 2 errors. It can be assumed that determiners cause difficulties in V-N colloc. usage regardless of the instructional tool.

5.3. Students' Opinions about the Online Collocation Assistant

The evidence from the current investigation unveiled that the students were generally satisfied with the online colloc. assistant, as they found the tool helpful and easy to navigate. This evidence is compatible with prior studies on the usage of online collocational aids, where students expressed contentment with their experience (H. H. Chen, 2011; M. H. Chen et al., 2015). However, it is noteworthy that some learners

may find using concordancers challenging (Chan & Liou, 2005), which can impact their satisfaction with the online tool.

The favorable appraisal of the online aid in this study highlights the potential benefits of online colloc. assistants as a supplementary resource for language learners. By providing learners with an accessible and user-friendly platform to practice V-N colloc., educators can enhance students' language proficiency and promote self-directed learning. Additionally, acknowledging the challenges some learners may face when using concordancers can inform the development of more user-friendly interfaces for online collocational aids, further improving their usefulness and effectiveness in language instruction.

5.4. Limitations of the Study

While the study provided satisfactory answers to the research questions of this dissertation, it is important to acknowledge its limitations:

Convenience sampling is non-random sampling allowing researchers to choose the subjects within their own sphere. While it can be useful for studies with limited resources, it may limit the generalizability of the study's findings. In the current investigation, convenience sampling was embraced to enroll the subjects, which means that the sample may not be representative of all Turkish students learning English. Therefore, the results of the investigation cannot be generalized to all Turkish learners of English. One should be mindful of this limitation while making deductions about the findings and making conclusions about the effectiveness of the online tool and paper-based exercises. Future research should consider using a more diverse and representative sample to increase the transferability of the findings.

The scope of the current investigation was limited to one specific type of colloc., meaning that the overall understanding of colloc. among participants was not fully represented. To gain a more comprehensive understanding, future research should include a broader range of colloc. types, taking into account factors such as frequency of use, which may lead to different outcomes.

This study's analysis was based on a small selection of 32 V-N colloc. To make the findings more widely applicable, it is necessary to include more colloc. in future studies. By doing so, the results would have more statistical power and be more representative of the population, enabling researchers to make broader generalizations.

To conclude, the limitations of the current investigation can serve as a catalyst for further research to enhance the study's design and measurement tools. This may involve modifications to the current study or the development of new and improved data gathering instruments and analysis. Additionally, to advance the field of study, the following section outlines recommendations for future research. By addressing the limitations and implementing these suggestions, researchers can further develop the research area, contributing to a deeper and more nuanced understanding of the subject matter.

5.5. Research implications:

As previously mentioned, colloc. are essential to various aspects of language learning, comprehension, and production. Despite this significance, the study of colloc. is still relatively new, and there is much to be uncovered about their nature. For example, future research could explore how a learner's first language may interfere with the acquisition of colloc. in an L2, or how learners can develop effective collocational strategies to enhance their proficiency.

Additionally, there is a need to investigate the acquisition process of colloc., including the role of explicit and implicit instruction in learning them.

Finally, further research could be directed towards enhancement of colloc. awareness over time, such as how learners' knowledge of colloc. may evolve as they progress through different stages of linguistic growth.

The evidence from the current investigation indicates that both online and paper-based exercises can be equally effective in enhancing colloc. knowledge. Additionally, the study highlights the effectiveness of the lexical approach and explicit teaching methods in facilitating the process of collocational knowledge acquisition. These findings suggest that incorporating technology in language learning may not necessarily provide an advantage over traditional methods, and a combination of both could be beneficial. However, it is of importance to point out that only the short-range impact was measured and the impact of different instructional approaches and tools on collocational knowledge retention in the long run must be quantified. Additionally, more studies can be conducted to explore the potential benefits of using a combination of both online and paper-based exercises to improve collocational knowledge. Therefore, it is vital that both scholars and practitioners must continue investigating the best practices and techniques for teaching colloc. and to assess the impact of novel instructional methods and instruments in improving long-term collocational knowledge acquisition. Such research can help language teachers make informed decisions about their teaching methodologies and provide learners with the most rigorous methods to acquire collocational knowledge.

Evidence from the current research also demonstrates that both the online tool and paper-based tasks were effective in reducing errors in target V-N colloc. This indicates that both instructional methods can be useful for improving students'

collocational knowledge in specific areas. However, the study also suggests that the online tool may not have been effective in addressing issues with determiners and non-target V-N colloc. This accentuates the need to acknowledge the limitations and potential biases of different instructional tools. It is imperative to explore the factors linked to these issues and to determine the long-term effectiveness of these instructional methods in improving students' colloc. awareness. For example, prospective research ought to uncover whether the specific design and features of the online tool may have contributed to the observed differences in effectiveness. Additionally, researchers can examine whether students' prior knowledge or learning style may influence the usefulness of different teaching methodologies.

Overall, the current investigation underscores the need to take account of the effectiveness of different instructional methods and tools in improving collocational knowledge. By identifying the strengths and limitations of different approaches, educators can make informed decisions about how to design and deliver effective instruction. Additionally, further research can help to refine and improve instructional methods, ultimately leading to better outcomes for language learners. In summary, given the potential impact of colloc. on language acquisition and use, additional research is essential to illuminate the subject.

5.6. Pedagogical implications:

The use of an online V-N colloc. assistant has several pedagogical implications for teaching V-N colloc. to Turkish EFL learners for paragraph writing.

Firstly, the online tool can provide learners with instant feedback on their use of V-N colloc., allowing them to correct errors in real-time. This can be particularly

beneficial for learners who may not have access to a teacher or peer feedback outside of the classroom.

Secondly, the online tool can provide learners with a personalized learning experience. The tool can adapt to the learner's individual needs and provide targeted feedback and exercises to address specific areas of weakness regarding colloc. about various topics. This can help to ameliorate colloc. awareness in a more efficient and effective way.

Thirdly, utilizing an online tool can enhance learner autonomy and motivation. Learners can work at their own pace and track their progress over time. This can provide a sense of accomplishment and encourage learners to embrace a more hands-on approach to their own learning.

Fourthly, the use of an online tool can facilitate inclusion of technology into language teaching. By incorporating technology into the classroom, educators can foster an engaging and interactive class atmosphere that better reflects the way learners interact with language in the digital age.

However, it is important to note that the online tool should be used as a supplement to, rather than a replacement for, traditional teaching methods. Teachers should provide learners with additional instruction and support to ensure that they understand the context and nuances of V-N colloc.

As revealed by the current investigation, the language learning environment gives rise to a crucial influence on acquiring colloc. To enhance the teaching of colloc. in an EFL setting, utilizing genuine texts could prove advantageous. Compared to modified input commonly found in EFL textbooks, authentic texts provide a more extensive opportunity for encountering colloc. According to Burger and Gallina

(2008), authentic contexts enable students to grasp the function of words and understand their typical colloc.

This study has also demonstrated the essential nature of incorporating colloc. instruction in the ESL/EFL curriculum to enhance students' English proficiency. L2 teachers are advised to present colloc. to elevate students' cognizance of their significance and uniqueness, highlighting the differences among them. To exemplify, instead of simply providing definitions of word pairs like "wound" and "injury," teachers should utilize collocational fields to clarify their distinctions in usage. For instance, English speakers tend to use "stab wound" in place of "stab injury" and "internal injuries" in place of "internal wounds" (Morgan Lewis, 2000, p.12). Moreover, it is crucial to pursue a strategic course of action for acquisition of colloc., such as encouraging students to devote their attention to and utilize them while speaking and writing in daily life. Additionally, promoting the use of English colloc. dictionaries can aid students in improving their understanding of colloc.

Overall, the use of an online V-N colloc. assistant has the potential to be a valuable pedagogical tool for teaching V-N colloc. to Turkish EFL learners for paragraph writing. By leveraging the benefits of technology, educators can provide learners with a more personalized and engaging learning experience that promotes greater autonomy and motivation.

5.7. Summary of the chapter:

Previous research has indicated that L2 learners often experience difficulty in both producing and recognizing colloc. Building upon this existing literature, the current research explored the capacity of an online colloc. tool for enhancement of the

use of V-N colloc. in the paragraphs of Turkish students learning English, as compared to paper-based exercises.

The study incorporated an array of instructional approaches, including explicit instruction, the lexical approach, and cognitive load theory, to teach V-N colloc. The evidence from the study supported all of its hypotheses, demonstrating that the means of learning had a significant impact on the acquisition of colloc. Specifically, both the web tool and paper-based exercises were found to contribute to receptive and productive knowledge of target V-N colloc., without a noteworthy distinction. Additionally, they did not produce an appreciable difference in erroneous uses of target V-N colloc.

The web aid users expressed their satisfaction with the tool. However, the evidence about error types highlight the hurdles encountered by students in acquiring colloc. and underscore the demand for increased conscientiousness that must be upheld towards this dimension of language learning by L2 curriculum designers and teachers.

By incorporating effective colloc. instruction into language curricula, learners can better navigate the complexities of English colloc., ultimately enhancing their overall proficiency in the language.

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Appendix A: The Content of the Course B1 Reading and Writing in the Fall Term of
the Academic Year of 2019-2020

Week	Hours	Reading	Writing	
		Q: Skills for Success 3 Reading and Writing	Ready to Write 2	Tasks
1	14	Reading Practice 1: Rats, Snakes and Other Tasty Dishes	Writing worksheet 1: sentence Patterns Chapter 1: Getting Organized Chapter 2: Understanding Paragraphs Writing worksheet 2: The Parts of a Paragraph & The Topic Sentence	X
2	14	Unit 1 Reading 1: Small Talk: Big Deal Reading 2: Job Interviews 101	Chapter 7: Supporting the Main Idea Writing worksheet 3: Supporting Sentences Writing worksheet 4: The Concluding Sentence	X
3	14	Unit 2 Reading 1: Knowing Your Tastes Reading 2: Finding Balance in Food	Chapter 6: Understanding the Writing Process Writing Worksheet 5: Unit	X
4	14	Unit 3 Reading 1: Cars That Can Think Reading 2: Living Outside the Box	Chapter 4: Organizing Information by Order of Importance Writing worksheet 6: Order of Importance	X
5	14	Unit 4 Reading 1: Food Advertising Tricks	Worksheet 7: Sentence Types	X
6	14	Unit 4 Reading 2: Defense of Advertising Extra Text 1 titled The Fattening Room Tradition	Chapter 12: Analyzing Causes and Effects Writing worksheet 8: Cause and Effect	Task 1 (Order of Importance)
7	8	Unit 5 Reading 1: Fear Factor: Success and	Chapter 12: Analyzing Causes and Effects	X

		Risk in Extreme Sports Extra Text 2 titled The United Colors of Benetton		
8	6	Mock Exam Midterm Revision	X	X
Mid-Term Exam				
9	14	Reading Practice 2: The New Golden Years	Writing worksheet 9: Sentence Stretching	Task 2 (Cause or Effect)
10	14	Unit 6 Reading 1: Question of Numbers Reading 2: The Biology of Altruism	Chapter 11: Comparing and Contrasting Writing worksheet 10: Comparing and Contrasting	X
11	14	Unit 7 Reading 1: How A Ugandan Girl Got Education	Chapter 11: Comparing and Contrasting	Task 3 (Comparing or Contrasting)
12	14	Unit 8 Reading 1. Fast Cars, Big Money Reading 2: Practice Makes Pain?		X
13	14	Extra Text 3: Can Art Save the World?		Task 4 Mock Writing exam
14	8	Mock Exam 2 Final Revision		
Final Exam				

Appendix B: Writing Assessment Criteria for B1

Content 4 points	Very Good	- A wide range of ideas fully supported. All clear and relevant to the task.	4
	Good	- An adequate range of ideas not fully supported. Almost all are clear and relevant to the task.	3
	Needs Improvement	- A limited range of ideas only partially supported. Some are unclear and irrelevant to the task.	2
	Poor	- A very limited range of ideas not supported at all. Almost all are unclear and irrelevant to the task.	0-1
Cohesion 4 points	Very Good	- Organizes ideas in a meaningful way - Uses a wide range of linkers and pronouns effectively - Transition from one idea to the next is logical and smooth	4
	Good	- Organizes ideas mostly in a meaningful way - Uses an adequate range of linkers and pronouns mostly effectively - Transition from one idea to the next is mostly logical and smooth	3
	Needs Improvement	- Organization of ideas is mostly faulty - Uses a limited range of linkers and pronouns - Transition from one idea to the next mostly fails to be logical and smooth	2
	Poor	- Fails to organize ideas in a meaningful way - Uses a very limited range of or no linkers and pronouns - Organization of ideas is unclear and confusing	0-1
Grammar 6 points	Very Good	- Uses a wide range of sentence structures appropriate to the level / task Accurately	6
	Good	- Uses an adequate range of sentence structures appropriate to the level / task - Makes only minor mistakes	4-5

	Needs Improvement	- Uses a limited range of or only basic sentence structures - Makes frequent mistakes	2-3
	Poor	- Uses a very limited range of sentence structures inaccurately - Uses most sentence structures inaccurately	0-1
Vocabulary 6 points	Very Good	- Uses a wide range of vocabulary appropriate to the level / task accurately	6
	Good	- Uses an adequate range of vocabulary appropriate to the level / task - Makes only minor mistakes (e.g. use and spelling)	4-5
	Needs Improvement	- Uses a limited range of or only basic vocabulary - Makes frequent mistakes (e.g. use and spelling)	2-3
	Poor	- Uses a very limited range of vocabulary - The use of vocabulary is almost always inaccurate	0-1

Appendix C: Pre- and Post-Test

Read the questions and choose the best answer.

If you _____ eye contact, you can it can help you communicate effectively..

- a) communicate b) maintain c) ignore d) succeed

To leave a good _____ at a job interview, you should wear business clothes.

- a) selection b) message c) footprint d) impression

Students do _____ online before they perform their projects.

- a) homework b) favor c) research d) business

You should _____ interest in the goals which the employer wants to achieve in the future.

- a) pay b) show c) improve d) decrease

It is necessary for parents to _____ trust with their children to create a supportive environment at home.

- a) build b) deserve c) weaken d) ignore

If you want to _____ accidents, you should be a careful driver.

- a) occur b) avoid c) lead d) save

Some drivers do not _____ the speed limit and cause traffic accidents.

- a) obey b) exceed c) reach d) increase

Advertisements allow people to _____ information about what they want to buy.

- a) experience b) experiment c) access d) contain

Income from advertisements help the owners of TV channels to _____ the TV crew.

- a) earn b) compete c) rescue d) pay

Advertising _____ the entertainment industry including TV series, shows, concerts and movies.

- a) supports b) hires c) rents d) designs

People who watch advertisements can _____ the best price for the products which they would like to purchase.

- a) provide b) get c) drop d) afford

Interviewers ask job applicants to _____ their strengths and weaknesses to learn more about them.

- a) hide b) overcome c) correct d) discuss

Learning new skills can provide new opportunities for you and greatly _____ your life.

- a) shorten b) damage c) improve d) get better

When you apply for a job, you should _____ information about your work experience and qualifications on your resume.

- a) provide b) receive c) contain d) analyze

Driverless cars use _____ which they collect through sensors, cameras and other electronic devices.

- a) data b) technology c) practices d) laws

If you have a driverless car, you can _____ your emails and work on your project during your journeys.

- a) communicate b) contact c) depend on d) respond to

He used his smartphone's GPS to _____ us accurate directions to the museum.

- a) follow b) change c) give d) move

When you _____ a red light, you have to pay a high amount of money as a punishment.

- a) commit b) predict c) run d) follow

Small businesses often _____ jobs in local communities and boost the economy.

- a) apply for b) quit c) finish d) create

When speaking with your grandparents, it's polite to _____ slang words they may not understand.

- a) use b) avoid c) refer to d) originate



Appendix D. Topics of Writing Tasks

Topics of Writing Tasks

Week 5 How to impress an employer

Week 9 Advantages of having a driverless car

Week 11 Why we need advertisements



Appendix E: Quality Review Checklist

1. The activities on www.collocationassistant.com were helpful in learning how to use verb-noun collocations.

Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

2. The categorization of verb-noun collocations based on topics on www.collocationassistant.com assisted me in writing paragraphs.

Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

3. I found www.collocationassistant.com to be useful in automatically recalling verb-noun collocations to express my ideas.

Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

4. www.collocationassistant.com was easy to use.

Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

5. I had difficulty navigating www.collocationassistant.com to search for collocations by topic.

Strongly agree	Agree	Disagree	Strongly disagree
4	3	2	1

6. In the future, I am sure that I will use www.collocationassistant.com.

Strongly agree

Agree

Disagree

Strongly disagree

4

3

2

1

7. Based on your response to question 6, please write your reason(s) in one to three sentences.

Sure, Why?

Not Sure, Why not?

Nitelik Kontrol Listesi

1. www.collocationassistant.com'daki aktiviteler “fiil-isim eşdizimlilikleri”ni öğrenmemde faydalı oldu.

Faydalı

Faydalı değil

4

3

2

1

2. www.collocationassistant.com'da konulara göre sınıflanmış “fiil-isim eşdizimlilikleri” paragraph yazarken faydalı oldu.

Faydalı

Faydalı değil

4

3

2

1

3. www.collocationassistant.com, düşüncelerimi açıklamak için “fiil-isim eşdizimlilikleri”ni otomatik olarak hatırlamamda faydalıydı.

Faydalı

Faydalı Değil

4

3

2

1

4. www.collocationassistant.com'u kullanmak kolaydı.

Kolay

Zor

4

3

2

1

5. www.collocationassistant.com'da konulara göre “fiil-isim eşdizimlilikleri”ni ararken menüde gezinmek zordu.

Kolay

Zor

4

3

2

1

6. İleride, www.collocationassistant.com'u kullanacağımdan eminim.

Eminim

Emin Değilim

4

3

2

1

7. Altıncı soruya yanıtınıza dayalı olarak, bir-üç cümle ile nedenini belirtiniz.

Eminim. Çünkü...

Emin değilim. Çünkü...



Appendix F: Background Information Form

Please provide the following information by either selecting the appropriate answer or supplying the answer.

1- What is your gender?

Male ()

Female ()

2. How old are you? _____

3. Circle the type of high school you completed.

State high school ()

Private School ()

4. How many months/years have you studied English? _____ months _____ years

5. Do you have Internet access at home, in the dormitory or on your phone?

Yes ()

No ()

6. How comfortable are you in _____? Please circle your answer.

a. Using a computer

Very comfortable	comfortable	somewhat comfortable	not comfortable
4	3	2	1

b. Writing English assignments on the computer

Very comfortable	comfortable	somewhat comfortable	not comfortable
4	3	2	1

c. Using the Internet

Very comfortable	comfortable	somewhat comfortable	not comfortable
4	3	2	1

Kişisel Bilgi Anketi

Aşağıdaki soruları okuyunuz. Sizin için uygun yanıtı işaretleyiniz ya da yanıtınızı yazınız.

1. Cinsiyetiniz nedir?

a. Erkek

b. Kadın

2. Yaşınız: _____

3. Mezun olduğunuz okul hangisidir?

a. Devlet lisesi

b. Özel lise

4. Evinizde, yurttta ya da telefonunuzda internet erişiminiz var mı?

a) var

b) yok

5. Üniversite öncesi eğitiminizde toplam kaç ay ya da kaç yıl İngilizce eğitimi aldınız?

_____ ay

_____ yıl

6. Aşağıdaki işleri ne kadar kolaylıkla yapıyorsunuz? Uygun yanıtı işaretleyiniz?

	Çok kolay	kolay	biraz kolay	kolay değil
a. Bilgisayar kullanmak	4	3	2	1
b. Bilgisayarda İngilizce ödevi yapmak	4	3	2	1
c. İnterneti kullanmak	4	3	2	1

Appendix G: Topic-Specific Target Collocations Derived from the Book Q: Skills for Success 3 Reading and Writing

How to impress an employer	Advantages of using driverless cars	Reasons why we need advertisements
Do research	Avoid accidents	Provide information
Show interest	Give people directions	Get the best price
Make an impression	Obey the speed limit	Access newspapers
Leave an impression	Run red lights	Access news
Maintain eye contact	Respond to email	Support the entertainment industry
Build trust	Park your car	Watch our favorite TV shows
Build friendship	Improve safety	Pay salaries
Create a job	Sound an alarm	Pay the TV crew
Maintain conversation	Use data	Access information
Wear business clothes		
Discuss topics		
Avoid slang		
Discuss strengths and weaknesses		
Improve lives of people		

Appendix H. The Distribution of Non-Target Verb-Noun Collocations Extracted from the Students' Paragraphs by Three Topics

	How to impress an employer	Advantages of a driverless car	Why we need advertisements
1	upgrade your skills	use many technologies	buy products
2	establish partnership	provide control	give information about products
3	expand your company	look at a map	watch advertisements/adds
4	obey rules	use their cameras and sensors	get information about
5	tell a lie	harm the environment	pay entertainment industry
6	tell sb business secrets	use their cars	gain experience
7	give attention	lose control	provide financial support
8	make friends	obey traffic rules	earn money
9	give importance	make mistakes	share news
10	take a sample	get rid of stress	access information
11	follow these ways	exceed the speed limit	read newspapers
12	apply for a job	have sensors and cameras	watch the news
13	create a good impression	say the address	share information
14	create your company	read a newspaper	buy a new car
15	earn money	hit another car	offer campaigns
16	spend time	protect the environment	benefit from sales
17	find a job	use less fuel	do the shopping
18	use bad words	spend less money	find sales
19	use slang (words)	increase the quality of	sell your car

		life	
20	give trust	have driverless cars	spend money
21	provide an opportunity	upgrade prototypes	remember advertisements
22	show business skills	help people	compare market prices
23	go to the business' website	have a driver	watch TV
24	keep eye contact	need gasoline and electricity	pay expenses
25	pay attention to your job	use GPS	buy sports equipment
26	find topics to discuss	press a button	have advertisements
27	perform a task	protect the air	provide services
28	make friendship	have a system	have lots of benefits
29	make eye contact	give the address	make sales
30	accomplish a task	make a dangerous turn	buy a new appliance
31	gain trust	cause an accident	look for the best deals
32	give a job	sense the surroundings	give details about
33	create trust	pull off the road	go to stores
34	do your job	have a lot of benefits	provide a service for
35	show care for	do a few things	sit through commercials
36	reveal your secret	control drivers	pay for production
37	talk about	make bad judgments	pay money
38	have an interview	use a computer, GPS and other data	pay the coach
39	get a chance	choose "aggressive"	support our favorite TV show
40	look at your clothes	select "cautious"	helps TV performers

41	wear casual clothes	read news	save money
42	want the job	play games	look for the best price
43	decrease your prestige	have advantages	support teams
44	care about the job	consume too much gasoline	grow the company
45	care about your business	read a book	find the best deal
46	care about your employees	watch a film	help sportsperson/ sports club
47	lose the job	find a location	surround sports stadiums
48	have many job advertisements	decrease the risk of accidents	watch basketball/football
49	search for a job	get a ticket	depend on advertising
50	have your own company	warn people	pay for fields
51	ask about your strengths, weaknesses and interests	build sensors into a car	pay for equipment
52	get the job	steer cars around obstacles	sponsor sports
53	wait employees to create a job	become the cars of the future	need a plan
54	want your employer to trust you	choose driverless cars	find the best price for their budget
55	learn about the company	decrease the potential of traffic accidents	provide people with information about
56	wear clothing	save time	turn on the computer
57	get the position	reduce stress	turn on the TV

58	wear jeans and a t-shirt	select driverless cars	turn on the phone
59	use several methods	benefit the world	sell their products
60	communicate with your employer	use less petrol	prefer football
61	influence the employer	use less petrol	attract attention
62	wear a good dress	benefit people	require internet advertising
63	wear a suit	use the new technology	have quality
64	get a promotion	have a fault	make money
65	prepare for questions	release too much CO2	compare products
66	provide an impression	change the lane	learn new products
67	wear a skirt and shirt	make decisions about turns and red lights	provide many advantages
68	wear work clothes	arrive at your destination	watch a film
69	listen to the person speaking	have a crash	look at advertisements
70	have principles	do homework	make decisions
71	become an experienced employee	send an email	increase their sales
72	give a suggestion	see the road	
73	learn new things	see the red lights	
74	interest the employer	make a phone call	
75	have knowledge about many subjects	trust driverless cars	
76	love your job	drive regular cars	

77	ask about their first job interview	do little harm to the environment
78	has bad and rude behavior	cause damage to the environment
79	do things	ban regular cars
80	improve your self- confidence	have a bad and old exhaust
81	seem a confident person	buy driverless cars
82	seem an offensive person	facilitate our lives
83	talk to employers	spend time with family and friends
84	equip sb with job skills	have problems with
85	have a few strategies	give the car a 360-degree eye
86	wear trousers	sense its full environment
87	say good morning	prevents accidents
88	hold the door	burn less fuel
89	need your help	pollute the air
90	convince your employer	pollute the environment
91	take someone/something serious	help your children
92	look your interviewer in the eye	handle your business
93	finding a common ground	reduce stress
94	impress the employer	thanks for driverless cars

95	warn drivers about
	dangerous turns
96	believe in driverless cars
97	have many advantages
98	detect obstacles
99	run on less fuel
100	make noise
101	cause noise pollution
102	have a rest
103	use a navigation app
104	have dangerous turns
105	provide safe driving
106	see many obstacles
107	warn about dangerous
	turns
108	damage the environment
109	consume less fuel
110	produce cars
111	own driverless cars

1	obey the traffic rules	respond emails						Driverless cars computer use, GPS and other data.
2	You can respond to email.	avoid this accidents						
3	People can respond to email.	People can respond email.						
4	People can respond email.							

TASK 2 – PAPER GROUP

1	People can respond to email.							
2	The GPS systems gives some directions .							

TASK 3 – WEB GROUP

1		get the best price of a product	find getting the best price		You can provide information about the products.		Access newspaper	
---	--	---------------------------------	-----------------------------	--	---	--	------------------	--

TASK 3 – PAPER GROUP

1	Ads support to entertainment industry.	Ads support to entertainment industry.			We should provide information about products.		watch our favorite TV show	
2	Access almost whole news.				Advertisements may get the best price us.			

3					A person of doing advertisements should pay the TV crew.			
---	--	--	--	--	--	--	--	--



Appendix J. Types of Errors in Non-Target Verb-Noun Collocations Extracted from
the Students' Paragraphs

	Determiner	Preposition	Verb		Noun	Usage 1	Usage 2	Numbers	Structure
TASK 1-WEB GROUP									
1	Follow this ways	Look your clothes	Wants to your company		Wear casual	Apply for a job	Provide being close with your employer	Have many job application	Take serious your application
2	Wearing a casual clothes	Care the job			Provide you to get the job	Find a job	Try their chance	Have many option	Wait create a job by employer
3	Want this job	Upgrade yourself of your job skills			Show your confident	Provide impress on your employer	Make partnerships for your company	Tell lie	Want to trust your employer
4	Apply your job	Apply your job			Benefits your confident		Provide impress to your employer	Prepare for question	
5	Wear black skirt and white blouse	Have information of your job			Provide impress on your employer		Provides you a relationship		
6	Wear black pants and white shirt	Influence your boss with many ways			Provide ...to make a good impression		Study to CV		
7	Ask about your strengths, your weaknesses and your interests						Consist of several ways		
8	Provide you to get the job						Believe your trust		

9	Find a interesting idea						Show your business idea		
10	Why you want this job						Succeed in employer		
11	Get this job						Provide their quality		
12	Use the slang words						Do behavior		
13	Obey this rules						Scann your education		
14							Go to interview		
15							Attend the job		

TASK 1 – PAPER GROUP

1	Have a bad and rude behavior	Go a job interview	Create friendship with your employer			Interests your employer	Be friend with your employer	Equippe d with jobs skill	
2	Do all this things	Benefited to people many ways				Asking about their first job interview	Have a nice affect for your employers		
3	Go to interview w	Arrive to destination				Take a sample	Talking with slang words		
4	Follow this steps					Look at the room			
5	Trust employe es								
6	Seem offensiv e person								
7	Talk to employe r								

TASK 2 – WEB GROUP

1	Provide a control		Don't ...these		The can sense...	Driverless cars can get	Many projects	Have a driverles	
---	-------------------	--	----------------	--	------------------	-------------------------	---------------	------------------	--

			mistakes			rid of stress	are upgraded by engineers	s cars	
2	Read the newspaper		...over the speed limit				Protect punishment	Haven't got any driver	
3	Increase your quality of life		Caris use its cameras and sensors.				Repost email	These cars go to home safely people.	
4	Obey the traffic rules		Driverless cars are use less fuel...				Can't take traffic punishment tickets	Use driverless car	
5	Use driverless car		Don't cause to occur a traffic accident				Decisions about turns and red lights	Decrease the risk of accident	
6	Watch film		These cars can ... a few things				Can... a few things	Select driverless car	
7	Obey speed limit		Driverless cars may be many accidents					Hitting another cars	
8	Decrease traffic accident potential		Make less accidents						
9	Use the new technology		Obstacle environmental issues						
10	It is not clear who had fault		Chance the lane						
TASK 2-PAPER GROUP									
1	Cause many damage to the	Have problem to parking	Joining the view		Make much sound		Are make safety	They buy a driverless cars	

	environ ment								
2	Have problem to parking	Thanks for the driverless cars	... less damage		Cause sound pollution			Buy a driverless cars	
3	Have a lots of benefits	Go their destination	Harm the air		Using navigation			Have a lot of benefit	
4	Thanks for the driverless cars	Warn dangerous turns	... obstacles					Has got a sensors and cameras	
5	Believe in the driverless cars	Damage to environme nt	Are prevent accident					Are prevent accident	
6	build sensors into car		Is less damage to the environ ment					See many obstacle	
7	Have a several advanta ges		Make facilitate your life					If you own driverless cars	
8	Give some direction s		Car accidents are happene d by people						
9	Damage to environ ment		Are warn drivers about dangerou s turns						
10	Decreas e a car accident risk								
11	Protect environ ment								
12	If you own driverless cars								

TASK 3-WEB GROUP

1	Buy	We don't	Find		Improve	We can give	Follow the	Watch	
---	-----	----------	------	--	---------	-------------	------------	-------	--

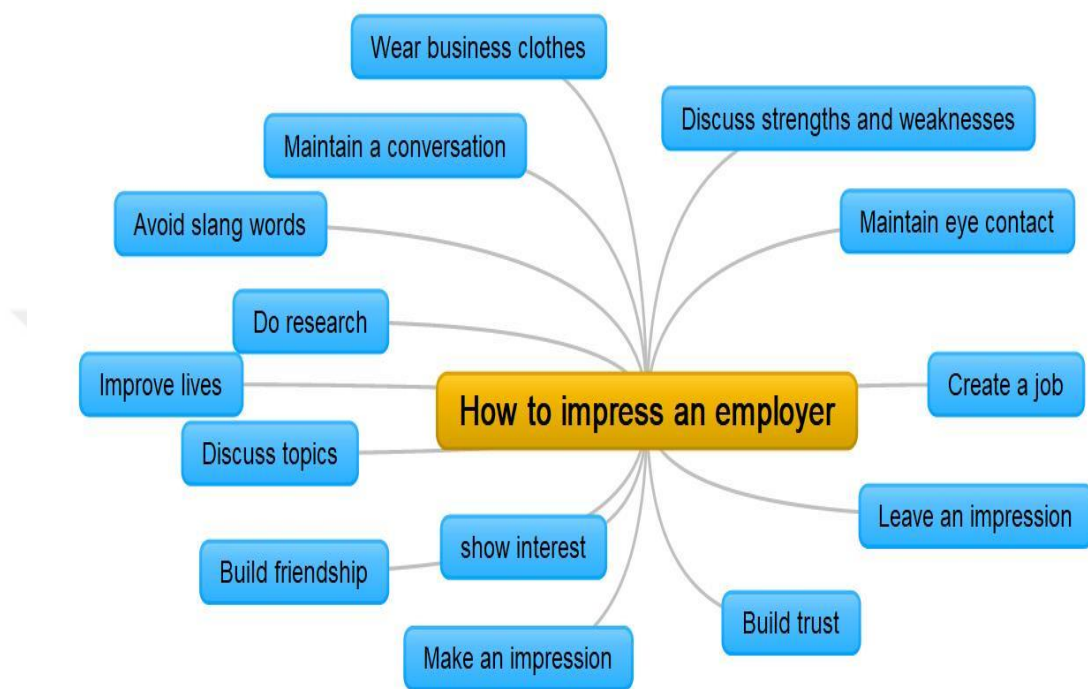
	product	pay anything the entertainment industry	getting the best price		his/her company	information about product	advertisements	the advertisement	
2	Give information about product		Are earn money		Help sports	We don't pay anything the entertainment industry	Rent a scene	Share many informations	
3	Watch the advertisement		Are spend money			Provide information about the products	Build sponsorship	Remember advertisements	
4	Supporting TV industry		Afford coach				Make a research about that	Have advertisement	
5	Share many news		Look advertisements				Provide advertisements	Get the best price of a products	
6	Watch news						Reach a lower price		
7	Share many informations						Search for prices		
8	Find the sale								
9	Sell a car								
10	Make a research about that								
11	Access the information about products								
12	Afford coach								
13	Buy new car								
14	Find best deal								

		TASK 3 -PAPER GROUP							
1	Opened a computer	Provide us information about the product	Opened a computer		Support the environment industry	Provide information about products	Reach our favorite TV show's times	Compare to two product	
2		Compare to two product	Are help online newspapers			Advertisements may get the best price us	Reach wealthy people	Doing advertisement	
3	Support to entertainment industry	Support to entertainment industry	Doing advertisement					Sell their product	
4	Watch film								

Appendix K. Instructional Material

How to Impress an employer

Study the word web



Read the definitions of the collocations and sample sentences.

1. maintain a conversation

ENG: to continue a conversation

TR: konuşmayı devam ettirmek

e.g. You should find things in common to maintain a conversation.

2. wear business clothes

TR: iş kıyafetleri giymek

e.g. You should wear business clothes to look elegant.

3. discuss strengths and weaknesses

ENG: to talk to somebody about what you can do and what you can't do

TR: güçlü ve zayıf yönleri tartışmak

e.g. You should be ready to discuss your strengths and weaknesses.

4. maintain eye contact

ENG: to continue eye contact

TR: göz temasını sürdürmek

e.g. It is important to maintain eye contact to show that you are reliable.

5. avoid slang words

ENG: to keep away from slang words; to try not to use slang

TR: argo kelimeler kullanmaktan kaçınmak

e.g. If you avoid slang words, you may appear to be more polite.

6. do research

ENG: to study a subject in a detailed way to discover new information about and to understand it.

TR: araştırma yapmak

e.g. An interviewee should do some research about the company to look serious about getting the job.

7. show interest

ENG: to make it clear that you are interested

TR: ilgili görünmek

e.g. Showing interest helps you to maintain a conversation.

8. build trust

ENG: to form or create trust

TR: güven oluşturmak

e.g. The interviewee should focus on the interview to build trust.

9. create a job

ENG: to form a possibility to have a job

TR: iş olanağı yaratmak

Small talks can create a job although they appear to be unimportant.

10. leave an impression

ENG: create an impression

TR: bir izlenim bırakmak

e.g. If you adopt several strategies, you can easily leave a good impression on people.

11. improve lives

ENG: make lives better

TR: yaşamları iyileştirmek

e.g. If people get well-paid jobs, they can improve their lives.

12. discuss topics

ENG: talk about topics

TR: konular hakkında konuşmak, tartışmak

e.g. Discussing interesting topics will help you to continue a conversation.

13. make an impression

ENG: to create an impression

TR: bir izlenim yaratmak

e.g. There are several ways to make a good impression.

14. build friendship

ENG: create friendship

TR: dostça bir ilişki kurmak

e.g. You can build friendship easily if you treat people politely.

Exercises:

A- Match the verbs with the nouns to form appropriate collocations. There can be more than one alternative.

- | | |
|----------|-----------------|
| maintain | a) topics |
| create | b) friendships |
| show | c) interest |
| build | d) impression |
| discuss | e) trust |
| do | f) conversation |
| leave | g) a job |
| | h) research |

B- Fill in the blanks with appropriate words from the box.

discuss // build // make // do // show // maintain // create

1. You should adopt a few strategies to _____ a good job for you.
2. You should _____ trust to get the job.
3. Another strategy is to _____ interest in the company.
4. If you _____ some research, you can get enough information about the company.
5. You should _____ topics which the interviewer can be interested in.
6. Finding common ground helps you _____ the conversation.
7. When you get prepared, it is easy to _____ a good impression on the interviewer.

C- Fill in the gaps by using an appropriate word from the box.

leave // find // discuss // build // do // show // maintain //

There are several ways to impress an interviewer. First, you should

- ¹ _____ eye contact. Looking in the eyes demonstrates that you are confident. In addition, it helps you ² _____ trust. The second way to impress the interviewer is to ³ _____ interest in the company which you want to work for. You should ⁴ _____ some research about the company and ask questions about it at the interview. Most importantly, you should ⁵ _____ topics which the interviewer can be interested in. To achieve this,

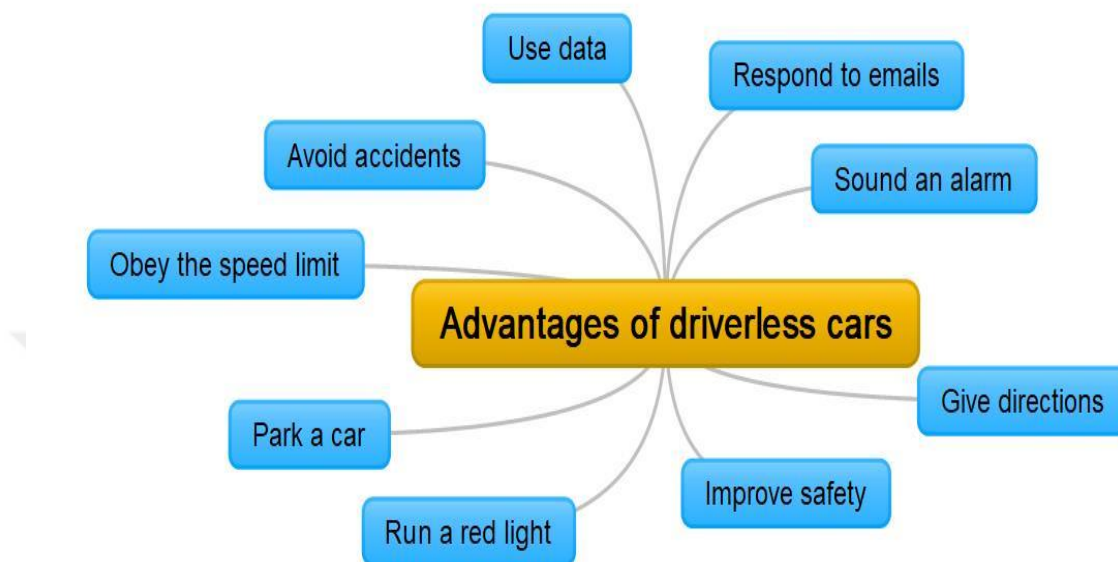
you should ⁶ _____ a common ground. You should look around and find something about the interviewer such as a photograph of the interviewer and his/her family. In conclusion, if you adopt the abovementioned strategies, it can be easy to ⁷ _____ a good impression on the reviewer.

D. Write a paragraph about how to impress an employer by using as many collocations below as you can.

A sheet of white paper with horizontal blue lines. A large, faint, light gray 'X' watermark is visible in the upper left quadrant. The 'X' is composed of two intersecting diagonal lines. The rest of the page is blank with no text or other markings.

Advantages of Using a Driverless Car

Study the word web



Read the definitions of the collocations and sample sentences.

1) use data

ENG: to use information or facts about something

TR: verileri kullanmak

e.g. Computers in driverless cars use GPS or other data to drive cars safely.

2) sound an alarm

ENG: to make a loud noise to warn somebody about danger

TR: alarm çalması

e.g. Sensors sound an alarm if drivers get too close to a person or another vehicle.

3) park a car

ENG: to leave a car in a particular place for a certain period of time

TR: arabayı parketmek

e.g. Driverless cars can park themselves.

4) respond to emails

ENG: to reply emails

TR: elektronik postalara cevap vermek

e.g. You can respond to your emails while driverless cars drive themselves.

5) obey the speed limit

ENG: to act in accordance with the rules about the speed limit

TR: hız limitine uymak

e.g. Driverless cars obey the speed limit.

6) improve safety

ENG: to increase safety

TR: güvenliği arttırmak

e.g. Driverless cars improve safety.

7) avoid accidents

ENG: to keep away from accidents

TR: kazalardan kaçınmak

e.g. Cameras which are built onto driverless cars help you to avoid accidents.

8) give directions

ENG: tell the way that someone or something is going or facing

TR: yol tarif etmek

e.g. GPS and navigation systems give directions to the car.

9) run a red light

ENG: to continue driving although a traffic light is red and you should stop.

TR: kırmızı ıřıkta gemek

e.g. Driverless cars never run a red light.

Exercises:

A- Match the verbs with the nouns to form appropriate collocations. There can be more than one alternative.

give	a) a car
sound	b) data
use	c) emails
obey	d) red lights
improve	e) the speed limit
run	f) directions
respond to	g) an alarm
avoid	h) safety
park	i) accidents

B- Fill in the blanks with appropriate words from the box.

give // sound // use // obey // improve // run // respond to // avoid // park

1. Driverless cars can _____ themselves.
2. Sensors _____ an alarm if drivers get too close to a person or another vehicle.
3. Computers in driverless cars _____ GPS or other data to drive the cars safely.
4. GPS and navigation systems _____ directions to the car.
5. Cameras which are built onto driverless cars help to _____ accidents.
6. Driverless cars _____ the speed limit.
7. You can _____ emails while driverless cars drive themselves.
8. Driverless cars _____ safety.
9. Driverless cars never _____ red lights.

C- Fill in the gaps by using an appropriate word from the box.

respond to // avoid // obey // park // run

Driverless cars differ from regular cars in several respects. First, driverless cars can

¹ _____ themselves by using their sensors, cameras and data which are

collected through their computerized systems. On the other hand, regular cars must be parked by their owners although they have cameras and sensors. Second, driverless cars can help to ² _____ traffic accidents. Indeed, they

³ _____ the speed limit and never ⁴ _____ red lights.

However, regular cars can cause accidents when their drivers are careless. Finally, driverless cars allow their drivers and passengers to get engaged in activities other than driving. For example, drivers can ⁵ _____ their emails instead of driving.

Unlike driverless vehicles, regular ones require their drivers to be always careful and attentive while driving. All in all, driverless cars and regular cars are different with respect to parking, safety and comfort.

D- Write a paragraph about the advantages of having a driverless car by using as many collocations below as you can.

Why We Need Advertisements

Study the word web



Read the definitions of the collocations and sample sentences.

1. support the entertainment industry

ENG: to give money to businesses connected with films, music and TV etc.

TR: eğlence endüstrisine maddi destek sağlamak

e.g. Advertisements support the entertainment industry including films, music and TV.

2. watch our favorite TV shows

ENG: to view or look at our favorite TV shows

TR: beğendiğimiz eğlence programlarını izlemek

e.g. Advertisements provide financial support for TV programs and thus we can watch our favorite TV shows.

3. pay the TV crew

ENG: to give salaries of employees working for TV channels

TR: televizyon çalışanlarına ücretlerini ödemek

e.g. Income from advertisements is used to pay the TV crew.

4. provide information

ENG: to give information

TR: bilgi sağlamak

e.g. Advertisements provide information about many products including food, clothing, shoes and appliances.

5. get the best price

ENG: to get the lowest price possible

TR: en düşük fiyatı bulmak

e.g. Advertisements help us get the best price for an item which we want to buy.

6. access newspapers

ENG: to be able to use newspapers

TR: gazetelere ulaşmak

e.g. Thanks to advertisements, newspapers continue their services and we can access them.

7. access news

ENG: to be able to read or hear about the news

TR: haberlere ulaşabilmek

e.g. Young people usually access news through online newspapers.

8. pay salaries of employees

ENG: to give monthly payments

TR: maaşları ödemek

e.g. Income from advertisements is used to pay salaries of employees in the entertainment industry.

9. access information

ENG: to be able to collect or obtain information

TR: Bilgiye ulaşabilmek

It is easy to access information after the invention of the Internet.

Exercises:

A- Fill in the blanks with appropriate words from the box.

watch // access // pay // support // get // provide

1. Advertisements _____ information about the products which we want to buy.
2. Thanks to advertisements, we _____ the best price of a product which we would like to purchase.
3. Advertisements _____ the entertainment industry.
4. Incomes from advertisements help to _____ the TV crew.
5. Advertisements allow us to _____ newspapers.
6. Advertisements are necessary for us to _____ our favorite TV shows.

B- Choose the best option to complete the blanks.

The first reason why we need advertisements is that they _____
information.

- a) surround b) provide c) donate d) appear

When we watch advertisements about products, we can _____ the best
prices for them.

- a) escape b) experience c) get d) look forward to

Another reason is that the entertainment industry is _____ by
advertisements.

- a) supported b) depended on c) stored d) broadcasted

TV channels make money from advertisements and _____ salaries of
their employees.

- a) decrease b) continue c) pay d) purchase

Thanks to advertisements, the entertainment industry _____ their crew.

- a) pay b) experience c) provide d) entertain

Incomes from advertisements on websites indirectly allow us to _____
newspapers.

- a) appeal b) access c) notice d) inform

TV programs are funded by advertising and thus we can _____ our TV shows.

- a) excel in b) employ c) watch d) respond to

C. Fill in the gaps by using an appropriate word from the box.

get	//	watch	//	support	//	crew	//	pay
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Two factors discourage people from watching advertisements. One factor is that they are not aware that advertisements ¹ _____ the entertainment industry. In fact, ads contribute to a huge industry which provides job opportunities for millions of people. Without ads, they may not ² _____ their favorite shows any more since film producers cannot ³ _____ salaries of their employees and TV channels cannot pay the TV ⁴ _____. The other factor that prevents people from paying attention to advertisements is that they cannot access reliable information about the prices of products instantly from ads. They can ⁵ _____ the best prices through online shopping websites. Unless these two factors are eliminated, people will continue to ignore advertisements.

D- Write a paragraph about why we need advertisements.
